CYPLUS
CAPE YORK PENINSULA
LAND USE STRATEGY

LAND USE PROGRAM

# AN ASSESSMENT OF THE CONSERVATION AND NATURAL HERITAGE SIGNIFICANCE OF CAPE YORK PENINSULA

H. Abrahams, M. Mulvaney, D. Glasco & A. Bugg
Australian Heritage Commission
and the
Environmental Resources Information Network
1995

AUSTRALIAN HERITAGE COMMISSION

ERIN

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments

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Recommended citation:
Abrahams H., Mulvaney M., Glasco D. and Bugg A. (1995). 'An assessment of the Conservation and Natural Heritage Significance of Cape York Peninsula. (Cape York Peninsula Land Use Strategy, Office of the Co-ordinator General of Queensland, Brisbane, Department of the Environment, Sport and Territories, Canberra, and Queensland Department of Environment and Heritage, Brisbane.)

Note:

Due to the timing of publication, reports on other CYPLUS projects may not be fully cited in the BIBLIOGRAPHY section. However, they should be able to be located by author, agency or subject.

ISBN 0 7242 6229 6

**CAPE YORK PENINSULA LAND USE STRATEGY**
**STAGE I**



## PREFACE TO PROJECT REPORTS

Cape York Peninsula Land Use Strategy (CYPLUS) is an initiative to provide a basis for public participation in planning for the ecologically sustainable development of Cape York Peninsula. It is jointly funded by the Queensland and Commonwealth Governments and is being carried out in three stages:

* Stage I - information gathering;
* Stage II - development of principles, policies and processes; and
* Stage III - implementation and review.

The project dealt with in this report is a part of Stage I of CYPLUS. The main components of Stage I of CYPLUS consist of two data collection programs, the development of a Geographic Information System (GIS) and the establishment of processes for public participation.

The data collection and collation work was conducted within two broad programs, the Natural Resources Analysis Program (NRAP) and the Land Use Program (LUP). The project reported on here forms part of one of these programs.

The objectives of NRAP were to collect and interpret base data on the natural resources of Cape York Peninsula to provide input to:

* evaluation of the potential of those resources for a range of activities related to the use and management of land in line with economic, environmental and social values; and
* formulation of the land use policies, principles and processes of CYPLUS.

Projects examining both physical and biological resources were included in NRAP together with Geographic Information System (GIS) projects. NRAP projects are listed in the following Table.

| Physical Resource/GIS Projects | Biological Resource Projects |
|---|---|
| Bedrock geological data - digitising and integration (NR05) | Vegetation mapping (NR01) |
| Airborne geophysical survey (NR15) | Marine plant (seagrass/mangrove) distribution (NR06) |
| Coastal environment geoscience survey (NR14) | Insect fauna survey (NR17) |
| Mineral resource inventory (NR04) | Fish fauna survey (NR10) |
| Water resource investigation (groundwater) (NR16) | Terrestrial vertebrate fauna survey (NR03) |
| Regolith terrain mapping (NR12) | Wetland fauna survey (NR09) |

| Physical Resource/GIS Projects | Biological Resource Projects |
|---|---|
| Land resource inventory (NR02) | Flora data and modelling (NR18) |
| Environmental region analysis (NR11) | Fauna distribution modelling (NR19) |
| CYPLUS data into NRIC database FINDAR (NR20) | Golden-shouldered parrot conservation management (NR21) |
| Queensland GIS development and maintenance (NR08)* | |
| GIS creation/maintenance (NR07)* | |

* These projects are accumulating and storing all Stage I data that is submitted in GIS compatible formats.

Research priorities for the LUP were set through the public participation process with the objectives of:

* collecting information on a wide range of social, cultural, economic and environmental issues relevant to Cape York Peninsula; and
* highlighting interactions between people, land (resource use) and nature sectors.

Projects were undertaken within these sector areas and are listed in the following Table.

| People Projects | Land Projects | Nature Projects |
|---|---|---|
| Population | Current land use | Surface water resources |
| Transport services and infrastructure | Land tenure | Fire |
| Values, needs and aspirations | Indigenous management of land and sea | Feral and pest animals |
| Services and infrastructure | Pastoral industry | Weeds |
| Economic assessment | Primary industries (non-pastoral, non-forestry) | Land degradation and soil erosion |
| Secondary and tertiary industries | Forest resources | Conservation and natural heritage assessment |
| Traditional activities | Commercial and non commercial fisheries | Conservation and National Park management |
| Current administrative structures | Mineral resource potential and mining industry | |
| | Tourism industry | |

As a part of the public participation process, community and other groups associated with CYPLUS were invited to review all draft reports. These reviews were designed to correct any errors of fact (which were then modified in the final report) and to provide an opportunity for people to express their views of the information presented. The comments submitted to the CYPLUS process by various community groups and other interested persons in regards to the Environmental and Community Issues for Reducing Impacts of Future Mining on Cape York Peninsula project are situated within a final attachment to this report.

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**ACKNOWLEDGMENTS**

This report has benefited from wide ranging input and comment. Mr Harry Abrahams and Dr Michael Mulvaney of the Australian Heritage Commission were the main authors of the text. Dr Peter Valentine wrote the butterfly section, while Ms Mia Thurgate wrote the section on crocodiles and prepared information on the Mitchell-Nassau area. Dr Peter Driscoll prepared information on the Aurukun Wetlands, provided a GIS coverage of significant wetlands, and commented on the wetland section of the report. Dr Errol Stock provided information on the eastern dunefields, as part of a National Estate Grants program documenting the earth science values of Queensland's coastal sand masses.

Mr Don Glasco, Mr Adrian Bugg and Mr Anthony Overs were largely responsible for the creation of the report's GIS coverages and figures. This work was supervised by Dr Mat Bolton and Ms Maria Cofinas of the Environmental Resource Information Network (ERIN). Mr Rob Lesslie and Mr Mike Maslin provided comment and direction on the wilderness assessment of this report, and provided coverages from the National Wilderness Inventory.

The assistance through workshops from other consultants to the CYPLUS programs, both the Natural Resources Analysis Program and the Land Use Program and access to their reports and data bases has been invaluable. The assistance provided by Mr G McColm (QLIS) in relation to the electronic datasets was especially appreciated.

Ms Helen Lawley (ERIN) was largely responsible for the creation of the lists of disjunct and endemic plant species. The Queensland Herbarium especially Mr J. Clarkson, Mr P.I. Forster, Mr A.R. Bean, Mr B.K. Simon, Mr. L. Pedley, and Mr C Dunlop (NT Herbarium), Dr G. Hope (Australian National University), Mr L. Craven (Australian National Herbarium), Dr B. Jackes (James Cook University) and Mr P. Stanton (QDEH) provided comment on initial drafts of these lists.

The floristic and vegetation databases and coverages provided by Mr John Neldner and Mr John Clarkson, of the Queensland Herbarium, were critical to this project. They also provided invaluable comment on the interpretation of this data. The methodology for identifying sites of terrestrial vertebrate significance was discussed with Mr Phil Lethbridge and Dr John Winter, with the faunal coverage produced by the Queensland Department of Environment and Heritage (QDEH) being the major source of information.

The identification of sites of significance for invertebrate species was discussed with Dr Ebbe Nielsen and Dr Tracey Harwood of the CSIRO. Ms Harwood also searched the database of the Australian National Insect Collection, to identify type localities, rare species, and endemic species from various insect orders.

Dr Keith Houston and Ms Deip Ha from the Australian Biological Resources Study provided access and assisted in the analysis of Type Localities from the Zoological Catalogue.

The Great Barrier Reef Marine Park Authority provided a GIS coverage of Barrier Reef islands which forms the basis on which the sea-bird and turtle coverages were created. These coverages also incorporated sea-bird and turtle survey information of the Queensland Department of Environment and Heritage (QDEH).

Queensland Department of Environment and Heritage particularly Dr Peter Young, Dr Phil Lethbridge, Ms Deslie Whiffon and Mr Ray Karnes collaborated on this project while undertaking the QDEH component of the LUP assessment.

Dr Colin Pain, Dr Robert Burne, Dr John Bain (Australian Geological Survey Organisation), John Rigby (Queensland University of Technology), and Dr Warick Wilmott (Queensland

Department of Minerals and Energy) provided comment on the geological aspects of the conservation assessment.

Mr Jared Wilkins, as a work experience volunteer, researched the diversity of orchids on Cape York Peninsula relative to other Australian biogeographic areas and collated animal and plant type locality information.

Mrs Kathy Winterton established the reference list, proof read the document and made many editing changes. Comments were provided on the report by Ms Meg Switzer, Mr Jonathan Miller, Dr Rosemary Purdie and the North Queensland Natural Environment Documentation Panel.

## EXECUTIVE SUMMARY

The Conservation and Natural Heritage Assessment Project has identified areas of natural heritage significance across the Cape York Peninsula Land Use Strategy (CYPLUS) study area. The assessment has either modelled conservation values across the Peninsula, focused on particular themes, or used species specific or point location information. The assessment has particularly focused on extensive conservation values. The first part of the report details the distribution of particular conservation values across the Peninsula, while part two outlines the values of thirty-six places identified as being of natural conservation significance.

The report is also a guide to the 40 Geographic Information System (GIS) layers created during the conservation assessment. The report details all the raw data of the assessment and explains what use was made of this data to assess conservation values. This allows the possibility of re-interpreting results and updating data sets when more information becomes available. It also means that CYPLUS members and the wider public can use the CYPLUS GIS to focus on particular areas of interest such as their pastoral property. The report provides a professional, widely accepted and transparent methodology of natural heritage assessment. It interprets the results in a regional context and in comparison to international and national natural heritage information.

Cape York Peninsula is one of Australia's key natural conservation areas. Its dunefields and deltaic fan deposits are amongst the best developed in the world, while the biogeographic and evolutionary relationships of the plants and animals to the biota of New Guinea provides important insights into the evolutionary history of Australasia. In a national context, Cape York Peninsula contains major areas of wilderness, heathlands, rainforest, riparian vegetation, and wetlands. The Peninsula also contains some of Australia's highest concentrations of rare and threatened species as well as restricted endemics. It is also an important area for species richness, and is particularly rich for invertebrates, freshwater fish, mangroves, seagrass and orchids. It is considered by the authors, that the combination and extent of these features of national significance result in much of the study area being of international conservation significance.

Features of conservation value are not restricted or concentrated in a few areas but are generally widespread and occur over most of the Peninsula. For example, the best examples (being the largest and least disturbed patches) of each of the 201 natural vegetation classes that occur on the Peninsula, are not found in particular areas but are distributed right across the region. Similarly, although rare vegetation classes tend to be clustered in certain areas, a different set of areas are important for different values such as endemic species or wetlands.

Over 80% of the Peninsula has been identified as having natural conservation significance for at least one natural heritage attribute. The vastness and importance of this area, together with the widespread nature of individual values, necessitates a regional consideration of natural heritage values in land use planning, rather than a focus on a few key areas. It is considered that conservation of heritage values should be a major component of any land use planning or development strategy for the Peninsula, and will include both conservation management within protected areas as well as land use outside protected areas.

### Wilderness Values

A major reason why the conservation values are so extensive is that, unlike much of Australia, Cape York Peninsula is little fragmented with the large majority of the Peninsula still retaining its natural vegetation structure. About 40% of Cape York Peninsula is of very high wilderness quality. (Wilderness quality consists of a continuum from highly disturbed urban areas to pristine natural areas). Australia has eighty biogeographic regions (Thackway and Cresswell 1995).The Peninsula is one of fifteen biogeographic regions where the majority of the region is of high or very high wilderness quality. No other large, predominantly natural area in Australia

contains the diversity, in such large areas, of major vegetation structural types that are found on Cape York Peninsula.

The Peninsula is unique, at least in Australia, in containing continuous areas of high and very high wilderness quality that encapsulates large areas of open woodland, woodland, tall open forest, closed forest, heaths (both dunefield and plateau), riparian vegetation, coastal wetlands and freshwater wetlands.

Cape York Peninsula is also unusual in containing whole river systems of high wilderness quality. The large wilderness areas are important representations of northern Australia's ecological processes and natural systems. The Peninsula contains the largest areas in Australia of heathland, riparian vegetation and tropical rainforest that are of high wilderness quality. In addition the Peninsula has the largest area of high quality wilderness in Eastern Australian States and the only large areas of high wilderness quality along the east Australian coastline.

**Wetlands**

The wetlands of Cape York Peninsula are amongst the largest, richest and most diverse in Australia. Many of the wetlands are also amongst the best examples of their type in Australia, while vast coastal and sub-coastal wetlands of the mid west coast are of national importance to waterbird populations. Fourteen wetlands on Cape York Peninsula are identified as of national significance and a further three wetland areas as of regional significance.

The mangrove and seagrass communities of the CYPLUS study area are floristically amongst the richest in the world, with over thirty mangrove species and twelve seagrass species recorded from individual communities. On the basis of species richness, rare and uncommon species or features, diversity of habitat, the relative lack of disturbance and importance for maintaining fish populations, sixteen mangrove and seagrass areas within the CYPLUS study area have been identified as having conservation significance.

**Sea and Shorebird Habitat**

Adjoining islands, within the northern Great Barrier Reef area support some of the largest breeding and/or roosting populations of seabirds in Australia. The northern Great Barrier Reef area, together with Horn Island, is also a habitat of international significance for seven shorebird species and of national significance for a further three.

**Rare and Uncommon Features**

Cape York Peninsula is amongst the most important areas in Australia for rare and threatened plant species, with 379 species recorded from the area. These include 15 endangered, 49 vulnerable, 213 rare and 102 poorly known species suspected of being at risk. The number of rare species and threatened species identified in the CYPLUS study area is greater than that of any phytogeographical area in Australia (outside the north-east Queensland area of which the CYPLUS area is a part). Only the adjoining Wet Tropical Forests and the large south-west Western Australia biogeographic areas contain comparable numbers of rare species and threatened species.

Vegetation communities that were either rare or uncommon on a regional basis have been identified by considering the relative total area of a community across the Peninsula and/or the number of occurrences of that community across the Peninsula. Nine uncommon and eight rare broad vegetation groups were identified which occupy about 13% of the Peninsula. Sixteen uncommon and ninety-six rare vegetation classes were identified. Areas with a large proportion of uncommon vegetation classes include the mid-Peninsula rainforests, the far north-east of the Peninsula, the Torres Strait Islands, the south-east of the study area, the Starke-Cape Melville- Lakefield area and coastal areas generally.

Eighty-five vertebrate species occurring on Cape York Peninsula are listed as rare or threatened on the schedules of Queensland's *Nature Conservation Act (1992)* and/or the *Commonwealth Endangered Species Protection Act (1992)*. The greatest concentrations of these species occur in the rainforests and the boulder and cliff habitats of the study area. However, there are many endangered, vulnerable or rare fauna species outside of these habitats. The CYPLUS study area supports major populations of two endangered taxa: the Little Tern *(Sterna albifrons sinensis)* and the Golden-shouldered Parrot *(Psephotus chrysopterygius)*.

**Rainforest and Heathlands**

Cape York Peninsula contains major proportions of Australia's rainforest and heathland communities, both of which can be considered as nationally uncommon. Rainforests are a very rich component of the Australian flora and are consequently of high conservation value. About one fifth of Australian rainforests occur on the Peninsula, while 5.6% of the Peninsula is covered with rainforest and 3.3% by heathland.

**Endemism**

There are at least 264 plant species and four plant genera that are only known to occur on Cape York Peninsula. This number of endemic plants places the Peninsula amongst the top biogeographical areas in Australia for richness in restricted endemic plant species. Vegetation classes on the Peninsula that support particularly high numbers of endemic species tend to be rainforest.

There are forty-one vertebrate species that are endemic to Cape York Peninsula. The most important habitats for endemic vertebrates are rainforest and boulder mountains and cliffs.

Many invertebrate species are endemic to Cape York Peninsula. Recorded locations for 258 of these species is provided in the GIS coverages accompanying this report. Areas which contain endemic species only known from two or fewer records include Mt Webb, McIlwraith Range, Iron Range, the Heathlands, the Bamaga-Somerset area and the permanent insect trap sites in the vicinity of Coen and Batavia Downs.

**Features of Biogeographic and Evolutionary Significance**

There are several plant and animal species which only occur on Cape York Peninsula and also in New Guinea. Plants, birds and mammals with this distribution are largely found in the northern half of the Peninsula and reach their greatest diversity in the mid-Peninsula rainforests. The fish and invertebrate community of the Jardine River and the invertebrate community of Lockerbie Scrub also contain a large New Guinean element.

The relationship of the Australian biota to that of New Guinea is best illustrated in Australia in the Jardine, Lockerbie and mid-Peninsula rainforest areas. This concentration in the mid-Peninsula forests is thought to be because the high mountains of this area have acted as a refuge during times of aridity when rainforests on the Peninsula have contracted.

The mid-Peninsula forests together with the wet tropical forests within the CYPLUS study area have also been important for retaining relic Gondwanic (an ancient southern super-continent) species and those rainforest species that invaded Australia from Indo-Malay following the collision of the Australian and Asian plates about 15 million years ago.

The populations of at least 134 plant species on Cape York Peninsula are separated or disjunct from other populations in the Northern Territory and Western Australia, or further south on the east coast. These disjunctions provide insights into past environmental conditions and plant distributions. A large number of the disjunct species occur in vine thickets and riparian forests.

## Species Richness

The number of vegetation classes in each ten minute and six minute grid cell on the Peninsula was determined. At the ten minute level a grid cell was considered to be of significance if it contained at least fifteen different vegetation classes. Areas of high vegetation diversity include the Lakefield - Cape Melville - Starke area, the south-east coast, Iron Range, Shelburne Bay, Lockerbie and Virilya.

An analysis of relative vertebrate richness on Cape York Peninsula was provided by McFarland (1993) as part of CYPLUS project NR03. Ten minute grid cells identified as having, or likely to have a high faunal diversity included cells at Somerset, Port Musgrave, Iron Range, Coen - McIlwraith Range, Aurukun, Edward River, the mouth of the Mitchell River, the base of Prince Charlotte Bay, Cooktown and the Wet Tropics area.

At a local scale, riparian vegetation supports a relatively high diversity of vertebrate species, while this vegetation type also provides important corridors across the Peninsula along which many species of fauna move, as well as being a refuge area during times of drought and flooding.

The Wenlock River contains the richest known freshwater fish fauna of any river in Australia, while the diversity of the Olive River is exceptionally high for an Australian river of this size.

Cape York Peninsula contains several areas that are amongst the most diverse in Australia for particular invertebrate groups. These areas include the Iron Range area, the McIlwraith area and the rainforests in the Mt Webb - Hopevale region.

The butterfly fauna of Australia is amongst the best known of the invertebrate groups. Butterflies found on Cape York Peninsula represent a significant component of the Australian butterfly fauna, with almost 60% of the total known Australian species occurring there. Twelve areas that are of particular significance to butterfly species on Cape York Peninsula are identified in this report.

## Research Sites

Cape York Peninsula has been an important centre for plant and animal collection since the time of first European exploration. The Somerset - Lockerbie and Endeavour River areas are particularly important collection areas, being the type localities for hundreds of species. Many of the collections were made by scientists whose activities have been significant within the history of Australia (such as Sir Joseph Banks, Alan Cunningham and Sir William Macleay). Thus the type areas, which have changed little since the original collections were made, provide important associations with significant figures in Australian history.

The chenier ridges near Fig Tree Creek contain a high-resolution record of environmental and landform processes over the last 6,000 years and provide important information about past environmental processes and events in northern Australia. The swamps of the Glen Garland area that contain fragments of Pleistocene fauna are the most northerly known of such deposits, and are of importance in comparing past environmental trends across Australia. The dunefields of eastern Cape York Peninsula have very high potential as research sites for studying geomorphological and biological processes.

## Dunefields and Geological Sites

The dunefields of eastern Cape York Peninsula also provide internationally significant examples of the evolution of sandy landscapes in the humid tropics. The dunefields are exceptional at the global level for the development of relict (dunes formed by past processes) and active variants of parabolic dune forms and associated water bodies. Some of the parabolic dunes are amongst the longest in the world. The gegenwalle (small dunes that run counter to the prevailing winds) ground-patterns developed in the deflation corridors of the Cape Bedford - Cape Flattery dunefield are the best developed in the world.

The Mitchell River delta contains one of the best developments of depositional fan features in the world, with lateral migrations of the river channel resulting in complex series of fan like deposits.

There are several other geological and landform features on Cape York Peninsula that are amongst the best examples of their type in Australia. These include:

- the tower karst development of the Mitchell-Palmer area which contains some of the best, richest and most diverse examples of surface solution features in Australia;
- the spectacular boulder mountain landscapes of Cape Melville and Black Mountain;
- the beach ridge system south of Cape Keerweer;
- the floodplains of the Archer and Holroyd rivers;
- the catchment and swamps of the Jardine River;
- the sinkhole development in the Mappon and Mitchell-Nassau areas; and
- the bauxite profiles at Pera Head and in the Weipa area.

# 1.0 INTRODUCTION

## 1.1 Aims of the Project

This Conservation and Natural Heritage Project report has been prepared for the Cape York Peninsula Land Use Strategy (CYPLUS) by the Australian Heritage Commission (AHC) and Environmental Resources Information Network (ERIN). The purpose of the assessment is to identify areas of natural conservation significance across the project area for inclusion in the broader land use strategy development planned for stage two of the CYPLUS project.

This report also relates to a component undertaken by Queensland Department of Environment and Heritage (QDEH) to determine the reservation status and adequacy of existing reserves with respect to the same project area. Both project teams have liaised closely on aspects of their respective analyses.

Broadly the AHC/ ERIN project has been directed toward assessing the information available against the criteria for listing places on the Register of the National Estate. These criteria (See Table 1.1 ) are incorporated within the Australian Heritage Commission Act (1975). The associated sub-criteria (also Table 1.1) have been developed by the AHC to assist in the assessment of areas against the values. These criteria were orally presented, by Dr Michael Mulvaney, to the CYPLUS Nature Working Group whose members had the opportunity to comment on their adequacy in assessing the natural conservation values of the Peninsula.

As part of the assessment process, information on a particular value (such as vegetation richness), or on groups of values associated with a type of place (such as wetlands, dunefields or crocodile habitat), was systematically collated from existing data sets for the whole of Cape York Peninsula. In this way like places or places sharing the same heritage value across the Peninsula could be compared. Thus thresholds of conservation significance could be set for each particular heritage value through considering a comprehensive set of all occurrences of that value on Cape York Peninsula. This contextual assessment process is similar to that undertaken by the AHC in their recent regional assessments of the Central Highland and East Gippsland forests of Victoria (AHC, CNR 1994).

The project has been undertaken rapidly using relevant CYPLUS Natural Resources Assessment Project (NRAP) and Land Use Program (LUP) data sets to fulfil CYPLUS deadlines. It is important to recognise that the project area is some 13.6 million hectares in size. In any area the size of this study area and having the complexity of natural environments as does Cape York Peninsula there will be areas of local, regional, national and international significance. The eight months time frame of the project means that identification of conservation significance has generally focused on widespread values that are significant at least at the regional and national level. It was not possible to identify all features or areas that are of local significance within Cape York Peninsula or have small restricted locations.However, where appropriate, the international and local significance of the areas has also been addressed briefly to provide further context to the assessment.

Ideally, a more detailed assessment would have been undertaken. Certainly the valuable resource of community knowledge has been insufficiently incorporated within the report. Comments on this report and any further relevant information can be sent to the Australian Heritage Commission to improve the information.

**Table 1.1 Criteria And Sub-Criteria For National Estate Significance**

Without limiting the generality of sub-section (1) of the Australian Heritage Commission Act, a place that is a component of the natural or cultural environment of Australia is to be taken to be a place included in the national estate if it has significance or other special value for future generations as well as for the present community because of:

**CRITERION A: ITS IMPORTANCE IN THE COURSE, OR PATTERN, OF AUSTRALIA'S NATURAL OR CULTURAL HISTORY**

A.1 Importance in the evolution of Australian flora, fauna, landscapes or climate.

A.2 Importance in maintaining existing processes or natural systems at the regional or national scale.

A.3 Importance in exhibiting unusual richness or diversity of flora, fauna, landscapes or cultural features.

A.4 Importance for association with events, developments or cultural phases which have had a significant role in the human occupation and evolution of the nation, State, region or community.

**CRITERION B: ITS POSSESSION OF UNCOMMON, RARE OR ENDANGERED ASPECTS OF AUSTRALIA'S NATURAL OR CULTURAL HISTORY**

B.1 Importance for rare, endangered or uncommon flora, fauna, communities, ecosystems, natural landscapes or phenomena, or as a wilderness.

B.2 Importance in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised, in danger of being lost, or of exceptional interest.

**CRITERION C: ITS POTENTIAL TO YIELD INFORMATION THAT WILL CONTRIBUTE TO AN UNDERSTANDING OF AUSTRALIA'S NATURAL OR CULTURAL HISTORY**

C.1 Importance for information contributing to a wider understanding of Australian natural history, by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.

C.2 Importance for information contributing to a wider understanding of the history of human occupation of Australia.

**CRITERION D: ITS IMPORTANCE IN DEMONSTRATING THE PRINCIPAL CHARACTERISTICS OF:**
**(I) A CLASS OF AUSTRALIA'S NATURAL OR CULTURAL PLACES; OR**
**(II) A CLASS OF AUSTRALIA'S NATURAL OR CULTURAL ENVIRONMENTS**

D.1 Importance in demonstrating the principal characteristics of the range of landscapes, environments or ecosystems, the attributes of which identify them as being characteristic of their class.

D.2 Importance in demonstrating the principal characteristics of the range of human activities in the Australian environment (including way of life, custom, process, land-use, function, design or technique).

**CRITERION E: ITS IMPORTANCE IN EXHIBITING PARTICULAR AESTHETIC CHARACTERISTICS VALUED BY A COMMUNITY OR CULTURAL GROUP**

E.1 Importance for a community for aesthetic characteristics held in high esteem or otherwise valued by the community.

**CRITERION F: ITS IMPORTANCE IN DEMONSTRATING A HIGH DEGREE OF CREATIVE OR TECHNICAL ACHIEVEMENT AT A PARTICULAR PERIOD**

F.1 Importance for its technical, creative, design or artistic excellence, innovation or achievement.

**CRITERION G: ITS STRONG OR SPECIAL ASSOCIATIONS WITH A PARTICULAR COMMUNITY OR CULTURAL GROUP FOR SOCIAL, CULTURAL OR SPIRITUAL REASONS**

G.1 Importance as a place highly valued by a community for reasons of religious, spiritual, symbolic, cultural, educational, or social associations.

**CRITERION H: ITS SPECIAL ASSOCIATION WITH THE LIFE OR WORKS OF A PERSON, OR GROUP OF PERSONS, OF IMPORTANCE IN AUSTRALIA'S NATURAL OR CULTURAL HISTORY**

H.1 Importance for close associations with individuals whose activities have been significant within the history of the nation, State or region.

## 1.2 Consideration of Cultural Heritage Conservation

The assessment was directed to identifying areas of nature conservation significance. As a result cultural features (including historic places and places significant to Aboriginals and Torres Strait Islanders) have not been assessed. These values are undeniably important components of the overall environment both of Cape York Peninsula, and in the wider national context. Similarly it has not been possible to include consideration of the interactions between natural and cultural values that are an integral component of the Peninsula environment. The Aurukun wetlands, for example, are identified as a significant wetland area within this report. However the wetlands also have considerable significance for traditional Aboriginal use, the relationship of clan to land and site, and for religious, social and spiritual significance. In essence, it is only in the interplay of the cultural with a natural values of the landscape that the full conservation value of these wetlands can be recognised. This interrelationship is considered to be a key feature of the international conservation significance of Cape York Peninsula (Harris 1986).

The Australian Heritage Commission, as part of its legal responsibility to identify places of national estate significance, has already recognised twenty-seven cultural places of conservation significance within Cape York Peninsula. This is only a minor percentage of important cultural sites on the Peninsula. Undoubtedly much of the CYPLUS study area will have conservation significance due to Aboriginal or Torres Strait Islander values. Archeological and anthropological work on the Peninsula, has already documented thousands of specific sites across the Peninsula. Some of these will be very complex and extensive, such as the Bathurst Heads and Quinkan Country sites, that are already listed in the Register of the National Estate. It is important to note that Aboriginal and Islander people consider that their heritage is not public, that is, it is owned; heritage is not just a matter of sites, but a relationship between culture and landscape.

The historic cultural places in the Register are mainly historic structures of Cooktown, or mining sites of the Normanby, Palmer River and Laura areas.

In order to provide CYPLUS with an impression of the range of cultural sites present in the study area, Appendix 1 contains the name and a statement of significance for all those cultural sites currently listed in the Register of the National Estate. The location of these areas is shown on a map within Appendix 1.

Appendix 1 also contains discussion about the types of surveys required to identify historic sites, and the need for Aboriginal/Islander ownership of the documentation of places significant to these cultures.

## 1.3 Relationship of Project to Commonwealth Conservation Requirements

The areas identified as a result of this CYPLUS report can be considered as places that could potentially be included on the Register of the National Estate, for their natural values. An integral component of any National Estate listing is to liaise with landholders and communities associated with properties eligible for inclusion on the Register. The CYPLUS project includes a community participation program which addresses the community input to the land use strategy. It is envisaged that this process would provide an opportunity for community involvement in any National Estate listings that result from this assessment.

This project has been undertaken by the AHC in association with ERIN. The Commonwealth environment portfolio has many other conservation obligations including Biodiversity conservation, Endangered Species protection and World Heritage Properties identification and protection. To an extent the information and analysis in this report provides a basis for addressing these responsibilities.

## 1.4 Previous Relevant Information.

The considerable conservation significance of the flora and fauna of Cape York Peninsula has been described by Stanton (1976) as "biologically the richest and least disturbed of the few large wildernesses left on the face of the Australian continent". The flora and fauna of the area has also been described as of international significance because of its biogeographic and evolutionary relationship to New Guinea (IUCN 1982), and of national importance for the conservation of endemic and rare and threatened species (WPSQ 1990).

The east coast rainforests have received the largest amount of discussion and research effort in the past. However the northern rainforests, heathland communities, dune fields, western wetlands and wilderness values have all been highlighted previously in the literature.

Many of the environmental values of the region have been identified and discussed on a broad scale, for example:

- the migration and 'intrusion' of New Guinean flora and fauna species south along the Peninsula,
- the 'Peninsula effect' of decreasing species numbers with proximity to the tip as a result of reduced area,
- the isolation and associated endemism of dune field lake systems, and
- the large scale geomorphological features of the Aurukun Wetlands, and prograding coastlines (particularly the Kirke River beach ridges).

Addressing these large scale features with respect to identifying particular places of significance can prove both difficult and contentious. It is important however to consider that management of conservation values can be undertaken across a number of land tenures, arrangements and land use practices to ensure the values for which an area has been identified are appropriately managed.

The management of values has not been not been addressed in this project. These remain important considerations to be addressed in CYPLUS Stage Two.

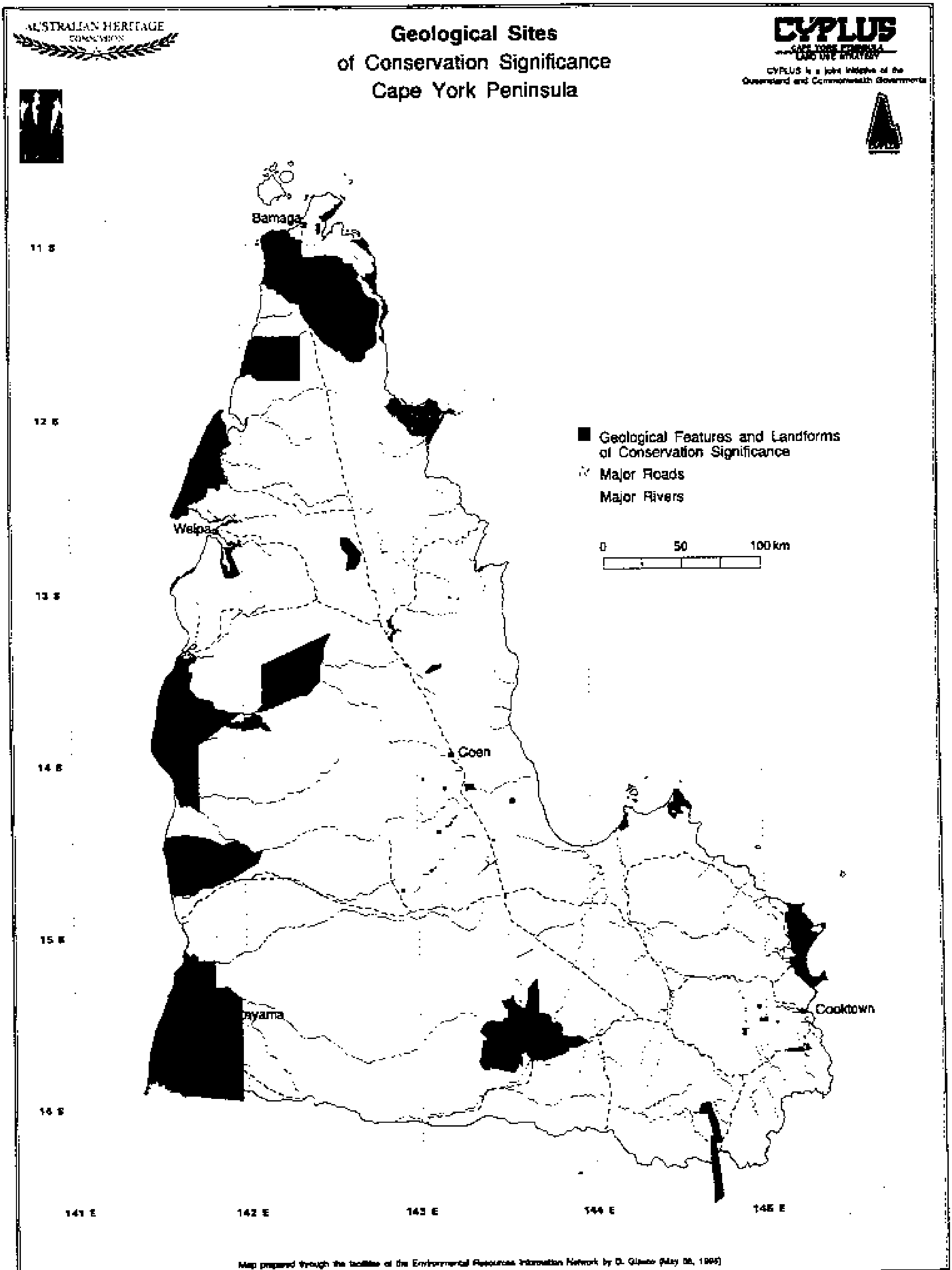
A separate document reporting sites of geological and landform conservation significance, prepared as part of this project, was completed in September 1994 (AHC 1994). The location of sites of geological and landform conservation significance are shown in Figure 1.1.

## 1.5 General Methodology.

A place on Cape York Peninsula is considered to be of conservation significance if it meets one or more of the national estate criteria. Through use of a Geographic Information System (GIS), and analysis of databases from ERIN, the CYPLUS Natural Resource Analysis Program (NRAP) and the CYPLUS Land Use Program (LUP), it was possible to assess many values against the criteria in a very systematic fashion. An example was the determination of plants endemic to the region followed by the delineation of significant vegetation communities for the maintenance of those species.

Following the finalisation of the individual values coverages it was possible to combine all the areas above threshold to determine the total area of conservation significance. Places of conservation significance were essentially determined from that aggregate layer.

In some instances particularly the wilderness layer and the wetlands information, the data sets used in the final analyses were amalgamations of several raw data sets. The layer resulting from each analysis was that incorporated in the delineation of areas of significance.




**Sources....**
AHC. 1994. Sites of Geological and Landform Conservation Significance on CYP.
AHC. 1985. Areas of Conservation Significance on Cape York Peninsula.
de Jersey, N., Stevens, N., & Wilmott, W. 1976. Geol Elements of the Nat'l Estate in Qld. GeolSocAust.
Blewett, R. & Gnielinski, F. 1991. Geol of Coen & Ebagoola Shear Zones. BMR Rec 1991/14.
See AHC 1994 for additional sources and complete citations.

**Caveats....**
See AHC 1994 for descriptions and boundaries and localities of features and landforms above.
Selection of features by AHC with consultation with subject matter experts and literature searchs.
The sizes of the smaller features are exaggerated for viewing purposes.
Data extraction and construction of GIS coverages, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 1.1

In some other instances information was obtained directly from reports or sub-consultancies, which themselves generated a layer for inclusion in the GIS and the amalgamated layer. An example was the consultancy undertaken to identify the coastal sandmasses of importance.

### 1.6 Data Sets

An integral component of this project was to incorporate as much as possible of the information acquired by the CYPLUS NRAP projects. Of particular note the Neldner and Clarkson (1994) 1:250,000 Vegetation Mapping was incorporated in a number of the analyses and used by other consultants in the derivation of their data sets also. For example this was especially the case with the Queensland Department of Primary Industries Grazing Industry (Cotter 1994) datasets that were derived from the Neldner and Clarkson (1994) vegetation mapping. The soils mapping (Biggs & Philip 1994) and associated data sets have also been of considerable assistance especially with the reworking of the wilderness biophysical naturalness layer.

Many of the data sets incorporated in these analyses were those developed during the CYPLUS NRAP. Without the datasets made available as a result of that program, many of the systematic analyses undertaken would not have been possible.

References to the literature, personal communications and the work of consultants reporting to the AHC are made throughout the report in the customary fashion where appropriate. The major data sets used in the project listed in order of first occurrence in the report follow,

- The National Wilderness Inventory (NWI) data for Cape York Peninsula. Much of the data from the original assessment of Wilderness Quality on Cape York Peninsula (Lesslie *et al* 1992) has been used in the upgrading of that assessment in this report.

- The Neldner and Clarkson NR01 Vegetation Mapping. This data set, completed as part of the CYPLUS NRAP program, has been invaluable. Mapped at a 1:250 000 scale from finer resolution airphoto interpretation and considerable field sampling and verification. As the airphotography was mostly run in the 1960's, more recent disturbance, especially clearing for mining purposes, is under-represented in the mapping. This more recent disturbance information should be considered with this data set and those derived from it, and can be gauged from the layers associated with the Wilderness Inventory. This vegetation mapping has been the basis of many other NRAP programs and has been used extensively in this project. This data set incorporates the NR01 Rainforests Survey of Stanton and Fell.

- The Queensland Department of Primary Industries NR02 soils mapping and land suitability data sets mapped by Biggs and Philip (1994) has also been undertaken at a 1:250 000 scale and has been used in a number of the analyses.

- The Queensland Department of Primary Industries NR16 Ground Water Resource-Investigation (1994) data sets were used in developing the Biophysical naturalness layer for the NWI. This extensive data set included information on all logged bores on the Peninsula, including water usage where appropriate.

- The Queensland Department of Primary Industries CYPLUS Land Use Program - A study of the Pastoral Industry country class mapping (Cotter 1994). This data set is effectively a re-interpretation of the Neldner and Clarkson vegetation mapping to determine grazing potential of the mapped communities. This mapping was also undertaken at a 1:250 000 scale.

- The Queensland Department of Land Information land tenure data set was also used. This data set maps every land parcel on the Peninsula to survey accuracy.

- The Queensland Department of Environment and Heritage Terrestrial Vertebrate data set compiled under the NRAP NR03 project by McFarland (1994) . This data set was undertaken to incorporate the historic fauna records in museums and other data sets for Cape York Peninsula into an electronic form. Species records are mapped at a 10 minute resolution.

- The NR09 Wetland Definition and Fauna Assessment of Cape York Peninsula prepared by Driscoll (1994). The mapping and places descriptions incorporated from this report are derived from a number of fauna and flora data sets including the McFarland (1994), Neldner and Clarkson (1994), and QDEH fauna data sets particularly bird data including Taplin (1993). The Driscoll discussion of these databases outlines their reliability and use in his program.

- The Queensland Department of Primary Industries NR06 Marine Vegetation data sets (Danaher 1994). This incorporates satellite interpretation of sea grass and mangrove communities along the coast. Pixel resolution was 30m x 30m. Much of the Seagrass data was incorporated from mapping undertaken by Coles *et al* (1985).

- The Queensland Department of Primary Industries (Coles *et al* 1985) mapping of the seagrasses of the east coast of Queensland including Cape York Peninsula has been incorporated in the Danaher NR06 program and also used in the assessment of areas of seagrass significance in this project. Limitations of the data sets relate to the single season of mapping, lack of mapping of seagrass beds deeper than 20m and the difficulties of accurate mapping of marine environments from the surface.

- Queensland Department of Environment and Heritage vertebrate fauna data sets. These data were interrogated for a number of the analyses. Seabirds, shore birds, and turtle nesting and breeding information was obtained. These were the results of field observation records, an estimate of animals or breeding pairs observed, and spatially related to a specific island or cay.

- The Great Barrier Reef Marine Park Authority coastal and island data set was incorporated to facilitate the identification of islands to which other data sets referred.

- The Environmental Resources Information System (ERIS) data base of ERIN includes spatially related records from Museums, and herbaria from all Australian States. The flora and fauna records from the CYPLUS NRAP projects were added to these data sets. These continental data sets were interrogated for analyses such as determining disjunct and endemic species.

- The Queensland Department of Primary Industries NR10 Fish Survey of Cape York Peninsula (Herbert 1994). The site specific data set was not incorporated rather an interpretation of the conclusions was incorporated in a GIS coverage.

- The Australian National Insect Collection data base was interrogated. This data-base included the records of the 22 505 identified insect specimens, collected on Cape York Peninsula as part of the CYPLUS project NR17. Site record information, to an accuracy of at least 10 km was collated for the following orders, dragon and dameselflies (Odonata), stoneflies (Plecoptera), termites (Isoptera), grasshoppers and katydids (Orthoptera), beetles (Coleoptera), moths and butterflies (Lepidoptera) and wasps (Hymenoptera).

- The Queensland Department of Environment and Heritage NR03 Terrestrial Vertebrate Survey (Winter & Lethbridge 1994) were also included. This was incorporated in the ERIN data sets described above.

- The dugong data sets Marsh and Morrisette (1994) were incorporated also. This data set results from transect based aerial survey for marine mammals. The data set records dugong numbers and densities for 2.5 minute grid cells. The survey work has been corrected for observation bias and a subset of the areas has been repeated to confirm the accuracy of the data collection methods. (Marsh & Saalfeld (1989).

- The Australian Biological Resources Study Zoological Catalogue was interrogated to determine botanical and zoological type localities. This data base contains the known locational data for type specimens. As outlined in Section 18 of this report, the data accuracy is variable. The changing taxonomy of many species also adds a degree of unreliability to the data set.

More detailed information relevant to the analyses undertaken and the suitability of the data sets for those purposes is considered in the text where appropriate.

There have also been other data considered by the authors but which have not been included in any of the analyses. In some instances this has been because of the incomplete nature of the data sets at the timelines necessary for this project to meet its deadlines. These data could be incorporated as part of Stage Two in some circumstances where appropriate. Most notably the Population data sets and the Weeds and Feral Animals data sets were insufficiently complete for inclusion in the wilderness analysis.

Access to the majority of the data sets used was obtained through the cooperative arrangements available to all CYPLUS project consultants. Where access was obtained from elsewhere, it is acknowledged and appropriate caveats on use are outlined in the text.

## 2.0 IDENTIFICATION OF VALUES - INTRODUCTION

The report outlines how the assessment of each value was undertaken and the results of those analyses. It is broadly broken into four sections addressing:

**PART A** **CONSERVATION VALUES USING BROAD SCALE PENINSULA-WIDE MODELLING TO IDENTIFY AREAS OF SIGNIFICANCE**

**PART B** **CONSERVATION VALUES USING A THEMATIC APPROACH TO IDENTIFY AREAS OF SIGNIFICANCE.**

**PART C** **CONSERVATION VALUES THAT ARE SPECIES SPECIFIC OR POINT LOCATION BASED**

**PART D** **CONSERVATION VALUES COLLATED INTO AREAS OF CONSERVATION SIGNIFICANCE**

The division of the report into these three types of value does not imply any relative ranking between the analyses undertaken. As outlined in the introduction any place identified as having only one value is of conservation significance for that identified value.

The Register of the National Estate (RNE) criteria applicable to each of the analyses are outlined for each value discussed. Particularly for the thematic analysis, the criteria are often combined to determine those areas of significance.

The majority of the work undertaken has been by the staff of the AHC and ERIN. There are however some components that have been undertaken by QDEH or consultants as outlined in the text.

## PART A CONSERVATION VALUES USING BROAD SCALE PENINSULA-WIDE MODELLING TO IDENTIFY AREAS OF SIGNIFICANCE

Part A of this report addresses extensive conservation values, ie. those values that occupy a large area and are widespread across the Peninsula. These values have been assessed using GIS based data sets and incorporate a degree of modelling of the natural environment before applying a threshold of significance. The values considered are wilderness quality using the methods of the National Wilderness Inventory, rare and uncommon vegetation communities, areas of vegetation community richness, areas representative of mapped vegetation classes, areas of terrestrial fauna richness and significant wetlands.

The methodologies of GIS interrogation are provided as appendices to ensure the body of the report remains readable.

### 3.0 ASSESSMENT OF WILDERNESS QUALITY

The AHC initiated the National Wilderness Inventory Project in 1986. The Inventory is designed to assess wilderness quality across Australia (wilderness quality consists of a continuum from highly disturbed urban areas to pristine natural areas). It is a decision-making tool which supports purposes such as monitoring wilderness loss, delineating wilderness areas and predicting the effects of development on wilderness values. Wilderness values relate to features that are significant because they occur near the pristine (remote and natural) side of the wilderness quality continuum. A major impetus behind establishing the Inventory was community concern over the rapid decline in the area and quality of relatively remote and natural land in Australia. Sub-criterion B1 for national estate significance specifically includes areas of significance as wilderness.

The Inventory considers wilderness to be part of a spectrum of remote and natural conditions varying in intensity from 'pristine' to urban. There are four indicators, which are used to estimate the quality of wilderness across the natural landscape. These four indicators are:

- Remoteness from settlement: how remote a site is from permanent human occupation;
- Remoteness from access: how remote a site is from established access routes;
- Apparent naturalness: the degree to which a site is free from permanent structures associated with modern technological society; and
- Biophysical naturalness: how free the natural environment is from changes caused by the influence of modern technological society, including changes associated with clearing, grazing and occurrence of feral animals and weeds.

The assessment of wilderness quality does not in itself delineate 'wilderness areas' but rather enables comparison of the wilderness quality of any area on the Peninsula with other parts of Australia.

Throughout Australia, the landscape bears evidence of at least 40 000 years of occupation of this continent by Aboriginal people. There would be very few areas in Australia which do not contain some evidence of Aboriginal habitation.

The term wilderness does not mean land without human history. Rather wilderness quality in the National Wilderness Inventory (NWI) is related to the absence of impacts of colonial and modern technological society. Aboriginal custodianship and customary practices have been, and in many places continue to be, significant factors in maintaining what non-Aboriginal people describe as wilderness.

As part of this project the previous wilderness quality data for Cape York Peninsula (Lesslie *et al* 1992) have been refined. Changes to the data sets incorporated in the current analysis have been restricted to the biophysical naturalness layer. The development of that layer and associated assumptions made are detailed in Appendix 2 and Figure 3.1 shows the layer as incorporated. The approach to coding each of the four indices, on a scale of 1 - 5, and the method for combining the four indices in the assessment of wilderness quality remains as broadly outlined in Lesslie *et al* (1992).

## 3.1 Areas of High Wilderness Quality

Adding the four unweighted indices as outlined in Lesslie *et al* (1992) produces a graded assessment of wilderness quality on a standard scale of 0 - 20. It is possible, however, with the remoteness indicators being calculated on a continuum (with a score from 0 to 11), for the maximum wilderness quality to exceed 20; this is the case for some areas on Cape York Peninsula. The plot attached (Figure 3.2 - Wilderness Quality Across Cape York Peninsula) illustrates that result in a regional context, and Figure 3.3 shows wilderness quality for Australia.

An additional two plots are included (Figures 3.4 & 3.5) that address the identification of high quality areas. Figure 3.4 shows all areas which have a wilderness quality of greater than 12 and fulfil the requirements below with respect to each of the four indicators. This figure provides an indication of areas of high wilderness quality and can be considered potential wilderness areas. If in addition these areas contain nodes of wilderness value of 14.1 or greater of a substantial size (similarly conditions outlined below must be satisfied) these areas can be considered areas of high wilderness value. Figure 3.5 shows the areas of 14.1 or above where those nodes are in excess of 2000 hectares. The use of wilderness quality scores of 12 and 14.1 is consistent with previous wilderness quality regional assessments in Victoria and the Wet Tropical Forests.

The requirements for potential and node high quality wilderness areas are as follows.

| | |
|---|---|
| **Potential Areas** | |
| Wilderness Quality | >= 12.0 |
| with each attribute being *: | |
| Remoteness from access | >= 1.75 |
| Remoteness from Settlement | >= 1.75 |
| Apparent Naturalness | >= 1.75 |
| Biophysical Naturalness | = 5.0 |
| **Node Areas** | |
| Wilderness Quality | >= 14.1 |
| with each attribute being: | |
| Remoteness from access | >= 2.8 |
| Remoteness from Settlement | >= 3.1 |
| Apparent Naturalness | >= 3.2 |
| Biophysical Naturalness | = 5.0 |

## 3.2 Discussion

In a national context Cape York Peninsula is a key wilderness area particularly for coastal, eastern Australian, heathland, rainforest, wetland and riparian ecosystems. Thackway and Cresswell (1994) identify 80 biogeographic regions for Australia. The Peninsula is one of 15 of these regions where the majority of the area is of high or very high wilderness quality.

# Biophysical Naturalness

## Cape York Peninsula

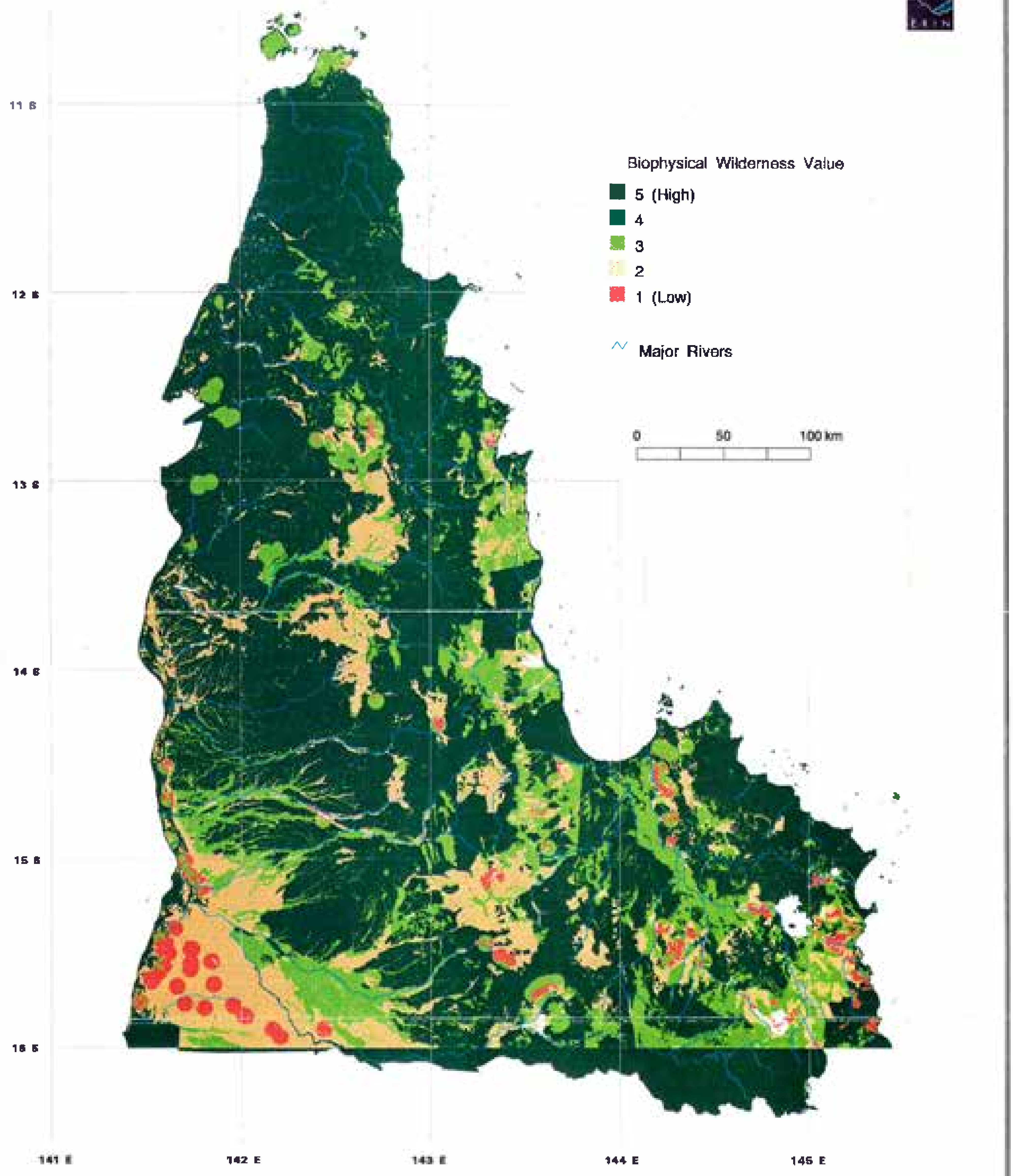
AUSTRALIAN HERITAGE COMMISSION

National Wilderness Inventory

CYPLUS

CAPE YORK PENINSULA LAND USE STRATEGY

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 05, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
AHC - NWI. 1995. National Wilderness Inventory.

**Caveats....**

See sources or AHC Conservation and Natural Heritage Assessment for precise boundaries and descriptions of NWI methodology.
Biophysical Naturalness is an index from 1 to 5, 5 being the most natural and undisturbed.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 3.1

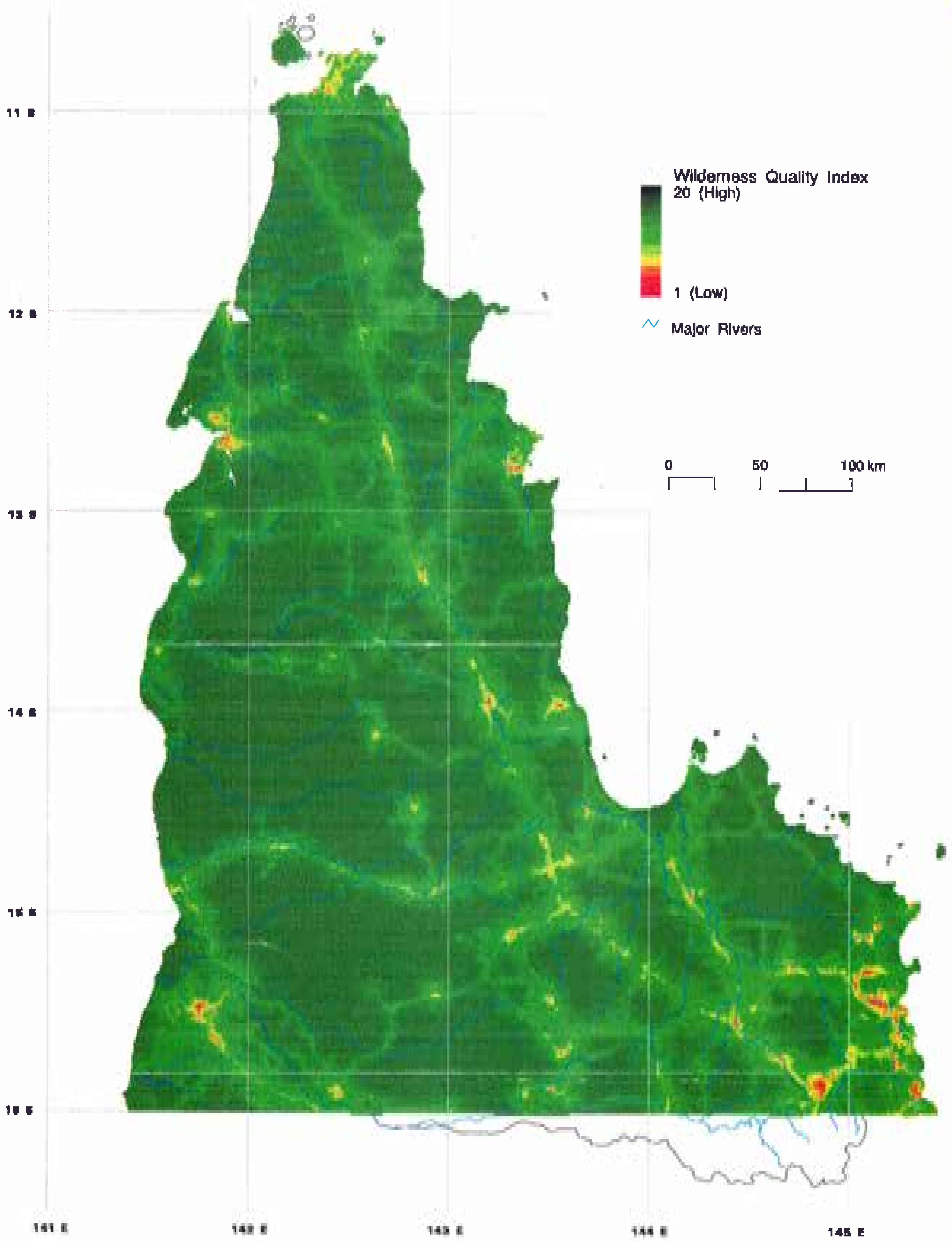
AUSTRALIAN HERITAGE COMMISSION

National Wilderness Inventory

# National Wilderness Inventory
## Wilderness Quality Values
## Cape York Peninsula

CYPLUS CAPE YORK PENINSULA LAND USE STRATEGY

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 05, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
AHC - NWI. 1995. National Wilderness Inventory.

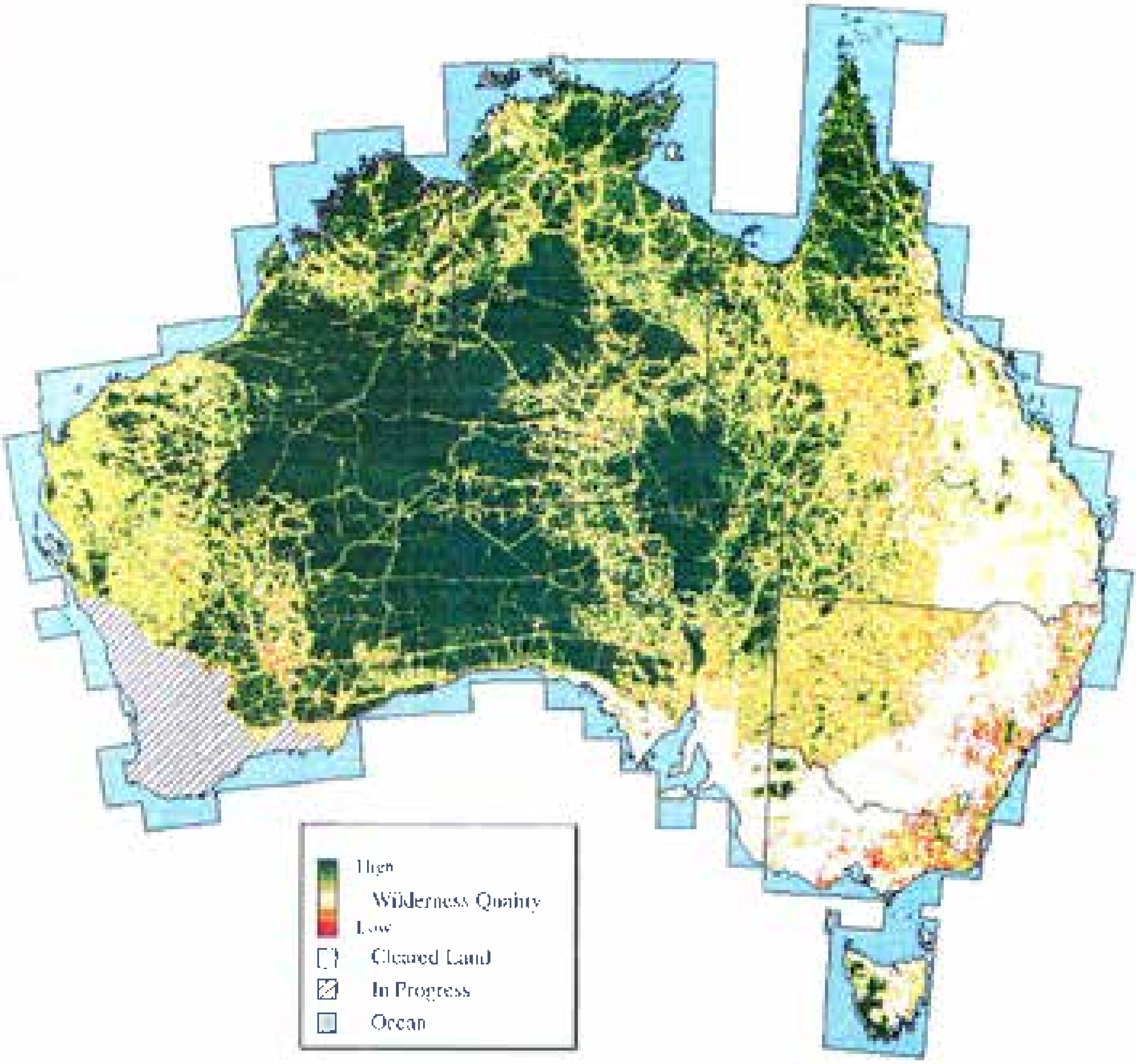
**Caveats....**

See sources for precise boundaries and descriptions of NWI methodology.
Wilderness Quality Index is a value between 0 - 26, however values > 20 are not differentiated.
High Wilderness Quality is defined as a value >= 14.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 3.2

Figure 3.3 Wilderness Quality Across Australia



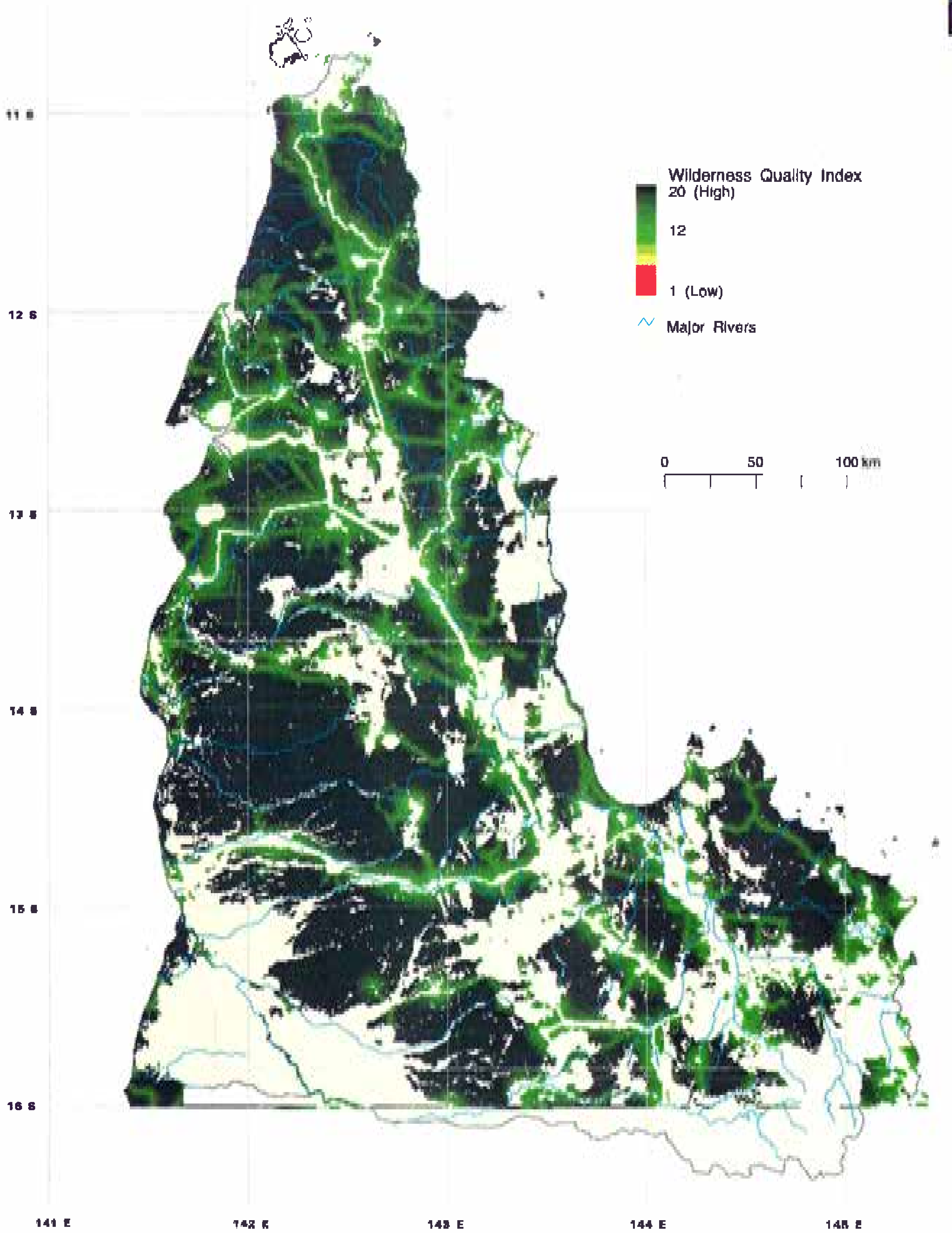
AUSTRALIAN HERITAGE COMMISSION

National Wilderness Inventory

# National Wilderness Inventory
## Wilderness Quality 12 and Higher
## Cape York Peninsula

CYPLUS

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 01, 1996)

**Sources....**

AHC, 1995, Areas of Conservation Significance - Cape York Peninsula.
AHC - NWI, 1995, National Wilderness Inventory.

**Caveats....**

See sources for precise boundaries and descriptions of NWI methodology.
Wildnerness Quality Index is a value between 0 - 26, however values > 20 are not differentiated.
Only areas with a Wilderness Quality Index of 12 or higher is depicted above.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 3.4

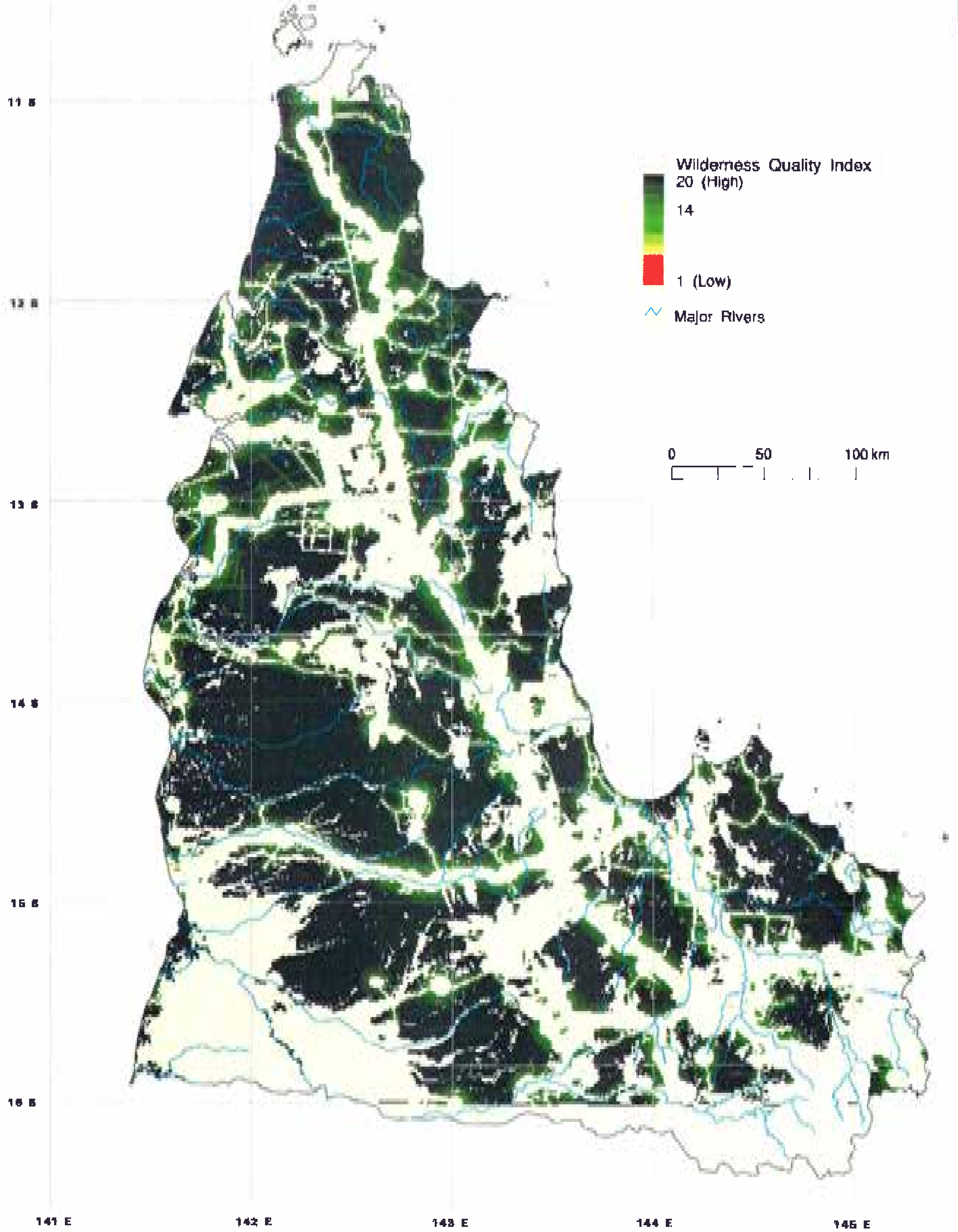
AUSTRALIAN HERITAGE COMMISSION

National Wilderness Inventory

# National Wilderness Inventory
## Wilderness Quality 14 and Higher
## Cape York Peninsula

CYPLUS CAPE YORK PENINSULA LAND USE STRATEGY

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 01, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
AHC - NWI. 1995. National Wilderness Inventory.

**Caveats....**
See sources for precise boundaries and descriptions of NWI methodology.
Wilderness Quality Index is a value between 0 - 26, however values > 20 are not differentiated.
High Wilderness Quality is defined as a value equal or greater than 14.
Only areas with a Wilderness Quality Index of 14 or higher are depicted above.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 3.5

A number of global assessments of wilderness or disturbance values have been undertaken. McCloskey and Spalding (1989) and Hannah *et al* (1994) both consider global wilderness or disturbance indices in the context of biogeographic realms. Direct comparisons are therefore not possible, though there are large wilderness areas of tropical rainforest and savanna outside of Australia. Nevertheless, as noted by Udvardy (1975), any wilderness area that is significant within a biogeographic realm (such as Cape York Peninsula which is within the Australian realm) is of international significance as a wilderness area (i.e. the distinctiveness of each biogeographic realm is an important component of international significance).

Figure 3.3 shows the results to date of the NWI. It is clear that Cape York Peninsula is one of the key regions for wilderness areas in Australia. It contains the largest area of high quality wilderness in Eastern Australia (Queensland, NSW, Victoria, Tasmania) and the only large areas of high wilderness quality on the east Australian coastline.

Large areas of high wilderness quality are more common across northern and arid Australia, but none of these areas contain the diversity, in such large areas, of major vegetation structural types that are found on Cape York Peninsula. The Peninsula is unique, at least in Australia, in containing continuous areas of high and very high wilderness quality that encapsulates large areas of rainforest, open woodland, woodland, tall open forest, closed forest, heaths, (both dune field and plateau), riparian vegetation, coastal wetlands and freshwater wetlands (NWI 1994 and AUSLIG 1990).

The large areas of high quality wilderness quality found on the Peninsula, are also of importance in a national context for the maintenance of ecosystem processes. The large wetland systems on the mid-west coast for example allow for seasonal and local movement of large water bird populations when resources in a particular area become scarce or as drying out of seasonal wetlands progresses generally from the south to the north up the Peninsula (Taplin 1993 & Taplin pers comm).

Coastal landscapes of high wilderness quality are of particular value and interest. Within the Australian context comparatively few coastal areas are of high wilderness quality This is especially the case in the context of the eastern states where substantial areas of high wilderness quality are restricted to those on Cape York Peninsula.

River catchments in near natural condition are now rare in Australia, but these are relatively common on Cape York Peninsula where there are several river systems that are or are virtually entirely within areas of high or very high wilderness quality. These systems include the Jardine, Jackson, Olive and Holroyd systems.

No plant extinctions are documented to have occurred on Cape York Peninsula (Neldner & Clarkson 1994). Thirty-seven of the eighty phytogeographical regions of Briggs and Leigh (1988) are thought not to have experienced plant extinctions. In the instances where no plant extinctions have occurred in other phytogeographical region, most of the regions have experienced extinctions of vertebrate species. The distribution of some vertebrate species on Cape York Peninsula has retracted, but no extinctions are known to have occurred. This is unlikely to be related just to available information, as many earlier European settlers and explorers collected extensively in the region. It is considered that the absence of extinctions on the Peninsula is related to the large extent of high quality wilderness that occurs there.

Another feature of the high wilderness quality of much of Cape York Peninsula is that the region provides a stronghold of several bird species that were originally widely but sparsely dispersed across Australia. These species have also had recent retractions in their ranges due to human disturbance of their habitat. The species include the Pied Oyster Catcher (*Haematopus longirostris*), Sooty Oyster Catcher (*Haematopus fuliginosus*), Black Necked Stork (*Xenorhynchus asiaticus*), and possibly the Red Goshawk (*Erythrotriorchis radiatus*) (Watkins 1993, Driscoll 1994, D Baker-Gabb [RAOU] pers comm).

## 4.0 RARE, UNCOMMON OR RESTRICTED VEGETATION COMMUNITIES

Under Criterion B1 (Places possessing uncommon, rare or endangered aspects of Australia's natural or cultural history) an analysis of rare, uncommon or restricted vegetation communities has been undertaken.

The scale of interpretation of such an analysis is clearly a major contributing factor to the result. This analysis has taken national and regional scale perspectives.

### 4.1 National Perspective

In a national context there are a number of broad scale community types that are naturally restricted or diminished and so can be considered nationally rare or uncommon. In some instances Cape York Peninsula has a good representation of these communities. Perhaps the clearest example is that of the closed forest or rainforest communities throughout Australia. These have been identified as very limited, totalling only about 20 000 square kilometres over the continent, yet forming a very rich component of the Australian flora and consequently of high conservation value. About one fifth of Australian rainforest is found on the Peninsula.

Some of the Peninsula's rainforest communities, particularly the mid-Peninsula rainforests, are regionally common, but this does not diminish their status as nationally rare vegetation communities. The value of undisturbed rainforest communities is even more significant when considered in a national context. The majority of rainforests on the Peninsula are essentially undisturbed.

Similarly heath communities are very restricted throughout Australia. An examination of the national scale mapping (AUSLIG 1990) indicates that these communities on Cape York Peninsula are among the largest in Australia. Substantial areas of heath are restricted and uncommon in the Australian context and again the Peninsula heaths are largely undisturbed.

Figure 4.1 shows the nationally significant rainforest and heath communities.

### 4.2 Regional Perspective

Regionally rare or uncommon vegetation communities on Cape York Peninsula were identified through comparing the total cover and number of occurrences of each vegetation community found on the Peninsula. The analysis was undertaken using the Neldner and Clarkson (1994) 1:250,000 vegetation mapping for the Peninsula. This mapping recognised 201 native vegetation units, or different vegetation classes. These classes were also amalgamated into 30 Broad Vegetation Groups (BVG). The Classification into classes and groups was on the basis of vegetation structure (e.g woodland, heath, open forest) and then the floristics (or species composition).

Separate analyses were conducted at the vegetation class and BVG levels. The scale of mapping is important in any map unit based analysis; by doing the analysis at two scales it is possible to effectively test the sensitivity of the analysis to scale issues. The detailed rule set for determining Rare and Uncommon for each scale of analysis is as follows (and is spelt out in more detail in Appendix 3).

For BVGs:

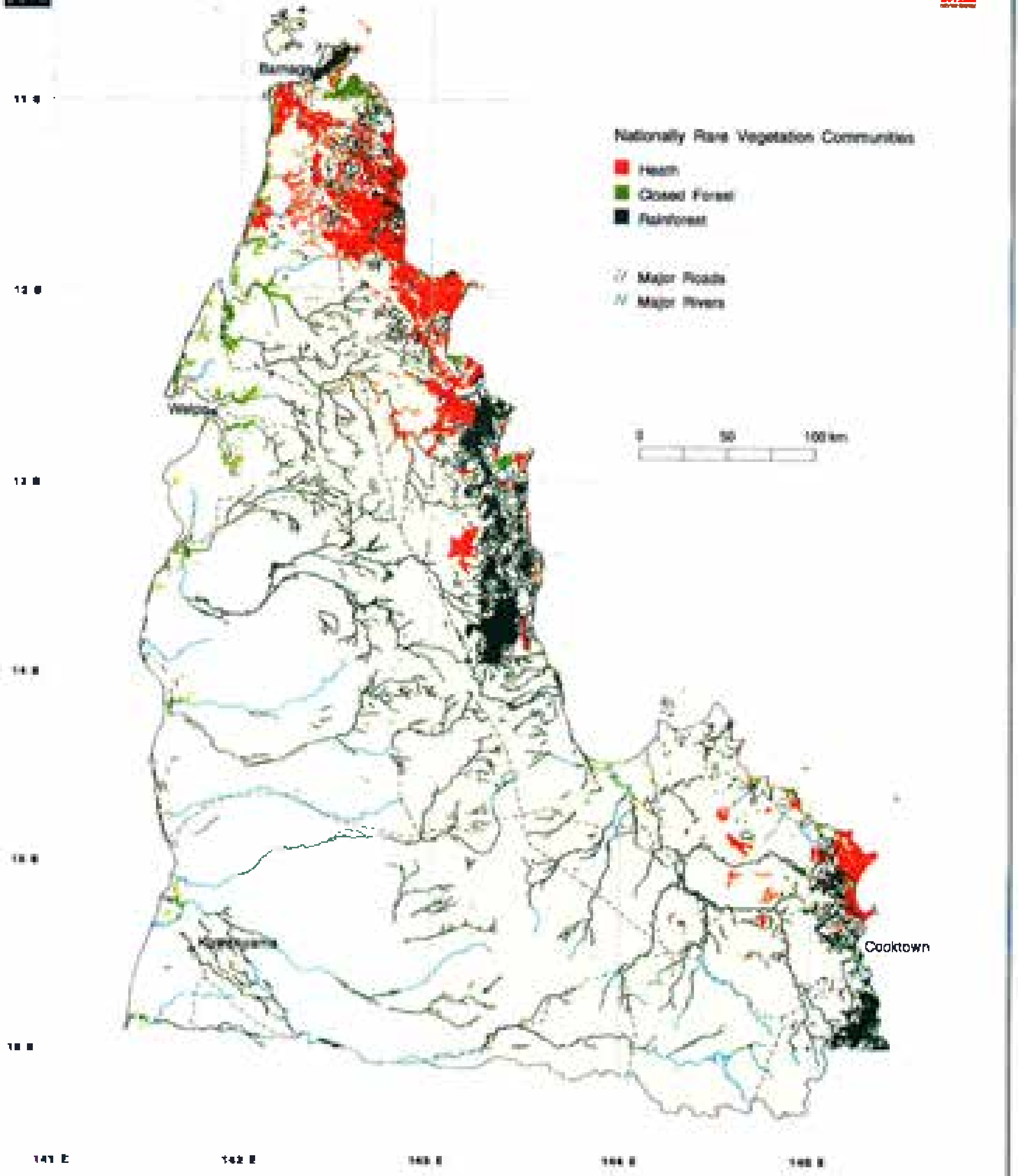
- **rare** is defined as having a total area less to or equal that of 0.75% of the total CYPLUS study area (approx 100,000 ha); and
- **uncommon** is defined as having a total area less to or equal that of 1.5% of the total CYPLUS study area (approx 200,000 ha).

AUSTRALIAN HERITAGE

# Rainforest and Heath Vegetation
## Cape York Peninsula

CYPLUS

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




**Sources...**

AHC, 1995. Areas of Conservation Significance - Cape York Peninsula.

**Caveats...**

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 4.1

For the 201 classes:

**rare** is defined as having a total area less to or equal that of 0.05% of the total CYPLUS study area (approx 6000 ha); and

**uncommon** is defined as having a total area less to or equal that of 0.08% of the total CYPLUS study area (approx 10,000 ha).

The Neldner and Clarkson vegetation mapping has the complication that individual mapped units (or polygons determined from air photo interpretation) may not necessarily be composed entirely of one vegetation class. However, for each polygon, the relative proportion (in 10% classes) for each vegetation class present within the polygon is given. Thus total areas of vegetation communities have been calculated using the proportion of polygon area occupied by a particular vegetation community. In total Neldner and Clarkson mapped 17,444 polygons. Where rare or uncommon vegetation classes or groups are mapped (Figures 4.2 and 4.3) an indication is provided as to the proportion of a polygon covered by rare or uncommon vegetation.

In addition to the area criteria described above, consideration was given to identifying those vegetation classes that only occur in a few separate places. Restricted vegetation classes, within the CYPLUS study area, were identified as those that occurred in thirty or less polygons, while limited communities occurred in sixty or less polygons.

### 4.2.1 Discussion

The tables in Appendix 3 indicate the vegetation classes on the Peninsula that are significant because they are regionally rare, uncommon, restricted or limited. In figures 4.2 and 4.3 areas shaded as having more than 30% of a polygon comprising a rare, uncommon or restricted community are those of greater significance.

The difference in the analysis between the BVG and 201 Veg class analysis indicates the importance of detailed interpretation of particular areas. An example is the Kimba Plateaux, which is common in the BVG analysis and rare in the 201 class analysis. For the purposes of this discussion the 201 class analysis is considered more closely.

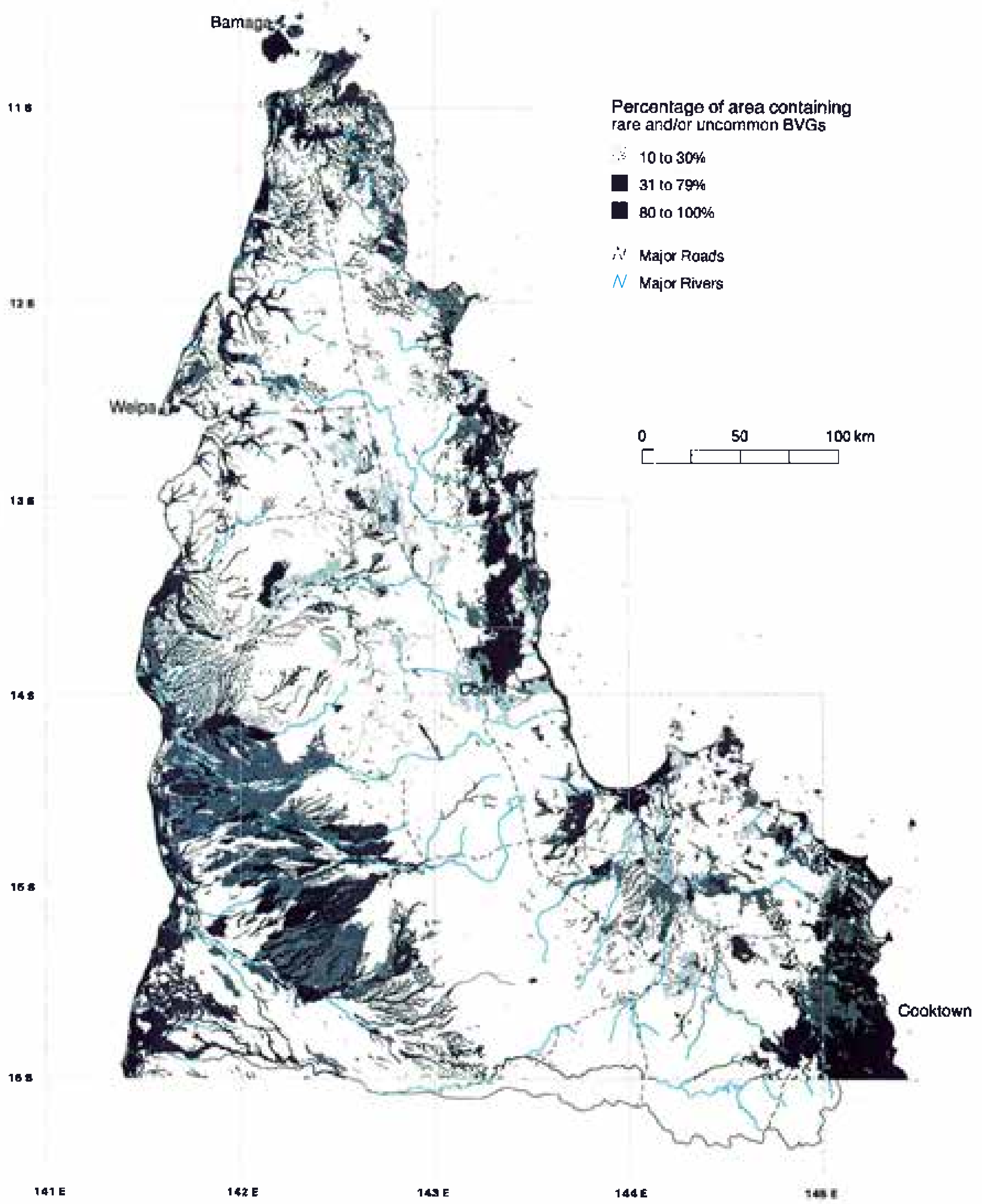
In interpreting the map there are clearly some areas of particularly high significance. The mid-Peninsula rainforests, Wet Tropics, Lockerbie and Torres Strait islands are clearly of importance. The coastal communities along the west coast and the Princess Charlotte Bay areas and the Virilya area to the north west are also consistently of interest. The Wet Tropics is a particular case as the majority of the biogeographic region is to the south of the project area and it is more meaningful to consider the vegetation classes in this area in that context. However, as mentioned above, tropical rainforests are a rare and highly significant community on a national and international level.

As would be expected, the more uniform communities that extend across the central southern Peninsula are not identified as uncommon. What is not expected however is that areas to the south west are identified in the BVG level analysis as being uncommon. It should be borne in mind, that the boundaries of the study area in the south will to some extent be biasing this result as the Gulf Biogeographic region will likely include areas of these vegetation communities.

Interpretation of the results needs to be undertaken using both the presented plots and the tables provided. For the purposes of this analysis rare, uncommon and restricted communities covering greater than 30% of the identified polygons at either the BVG or 201 class level are considered areas of conservation significance.

# Rare and Uncommon BVG's
## (Basic Vegetation Groups)
## Cape York Peninsula






Map prepared through the facilities of the Environmental Resources Information Network by G. Dunn (August 22, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Queensland Government. 1995. Nature Conservation Act.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
See AHC for complete bibliography and sources.

**Caveats....**
The designation of rare or threatened plants within Queensland is by the Queensland Government.
These species tend to be concentrated in the vegetation classes (after Neldner and Clarkson)
depicted above (vegetation classes 8,20,21,24,26). See AHC or Neldner and Clarkson for details.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

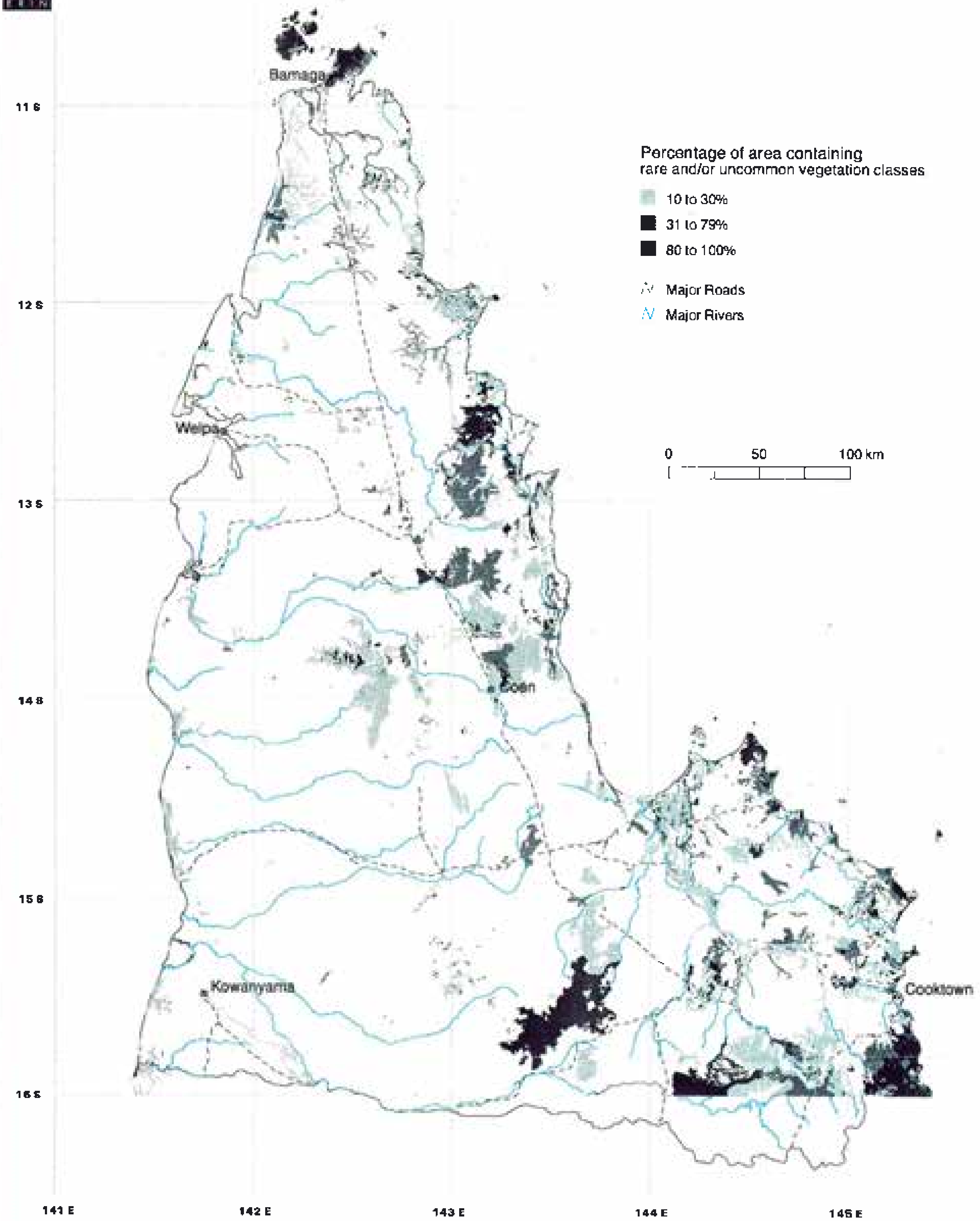
Figure 4.2

# Rare, Uncommon or Restricted Vegetation Classes

## Cape York Peninsula

CYPLUS — CAPE YORK PENINSULA LAND USE STRATEGY

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by G. Dunn (August 22, 1996)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Queensland Government. 1995. Nature Conservation Act.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
See AHC for complete bibliography and sources.

**Caveats....**

The designation of rare or threatened plants within Queensland is by the Queensland Government.
These species tend to be concentrated in the vegetation classes (after Neldner and Clarkson)
depicted above (vegetation classes 6,20,21,24,26). See AHC or Neldner and Clarkson for details.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 4.3

However, in determining the impact of a proposed land use or the suitability of any area for a specified land use the data sets would need to be interrogated more closely in those areas where <30% of the identified polygons are identified communities. In any of these polygons there may be the location of a rare or restricted community which is only mapped as a small proportion of the polygon.

A consideration of threatening processes and associated threatened communities has not been undertaken as part of this analysis but should be incorporated in any future planning process.

## 5.0 AREAS OF VEGETATION COMMUNITY RICHNESS

Under sub-criterion A3 (Importance for exhibiting unusual richness or diversity of flora, fauna, landscapes or cultural features), an assessment was made to determine those areas of the Peninsula exhibiting a richness of vegetation communities.

The Neldner and Clarkson (1994) 1:250,000 vegetation coverage was the base data set for this analysis. The method employed was to overlay first a 6 minute then a 10 minute grid cell over the vegetation community mapping and determine the number of discrete vegetation communities within each grid cell. The analysis considered only the dominant vegetation community as mapped (refer to discussion on proportions in the mapping in the Rare or Uncommon Vegetation Communities section of this report).

The analysis was undertaken at both the 6 and 10 minute grid cell levels to test the sensitivity of the analysis. The scale of mapping itself is a key determinant of the result. Figures 5.1 & 5.2 together illustrate that essentially the same areas are identified independent of scale of analysis. Either of these analyses provides a broad landscape scale interpretation of the vegetation community richness.

The thresholds for a number of classes used in each plot were determined according to data-driven breaks in the frequency distributions. In effect categories of high, medium and low appropriate to each grid cell size have been determined and plotted.

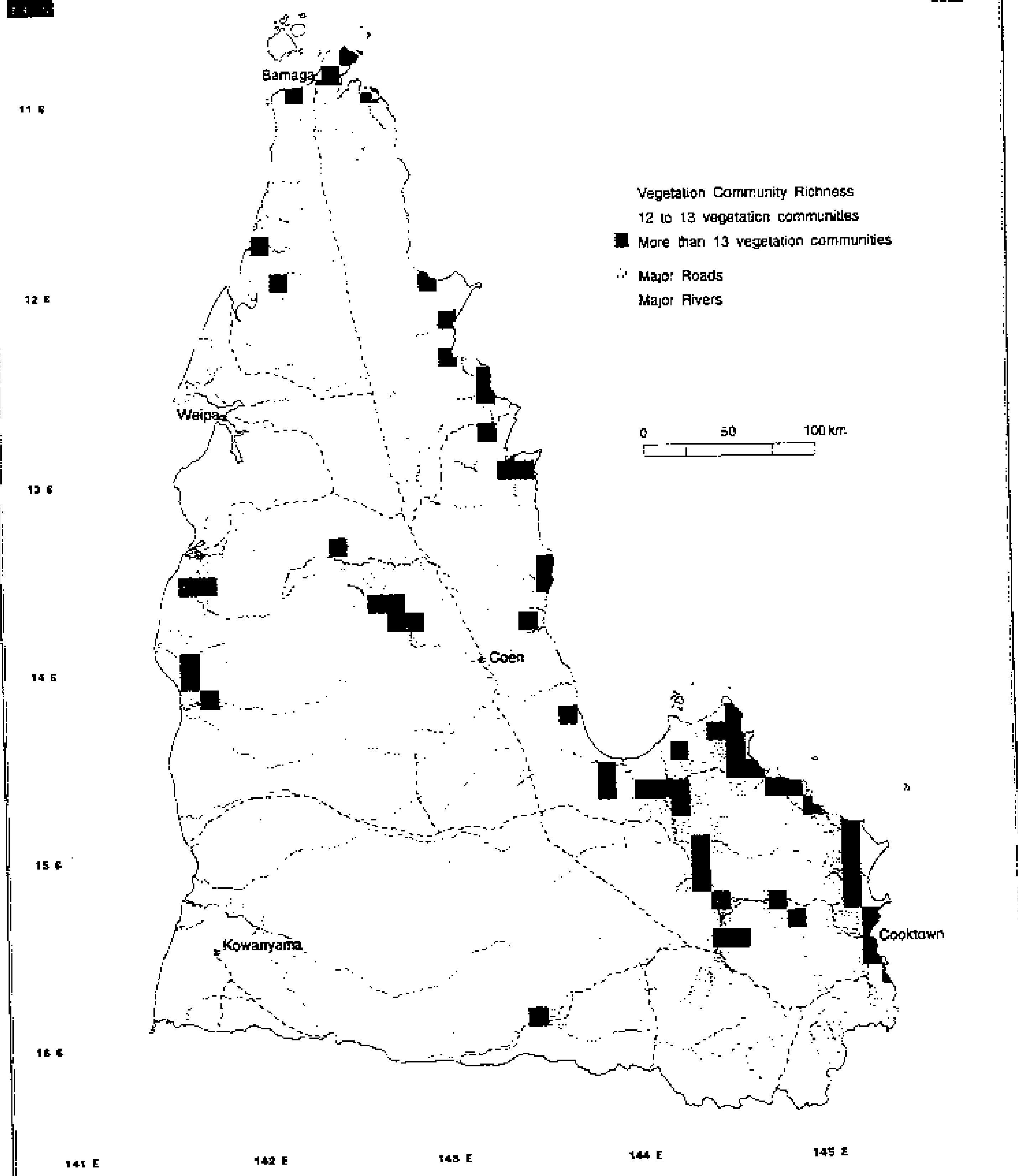
### 5.1 Discussion

The areas of particular note in this analysis are generally along the east coast and the central strip along the west coast. These are consistently high at both scales. This reflects the vegetation community richness associated with proximity to the coast (east or west) and the altitudinal and rainfall characteristics of the east coast. The Iron Range, McIlwraith Range, the Pascoe, Shelburne, Lockerbie and the Virilya areas identified illustrate this.

Of special interest are the areas to the south east along the Melville-Starke coast and to the east of Lakefield National Park. The sandstone communities, rainforest communities and boulder areas would appear important in this regard. The Rokeby area in the central Peninsula, is also highly significant at both scales resulting from the presence of depositional surfaces of differing ages in close proximity to each other, and in addition to a complex riverine system. The Kimba Plateaux area to the central south is also clearly identified at both scales.

# Vegetation Communities Richness
## 6 minute grids
## Cape York Peninsula

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. 1991. Central Western Queensland. Vegetation Survey of Queensland. QDPI Botany Bulletin No.9
Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

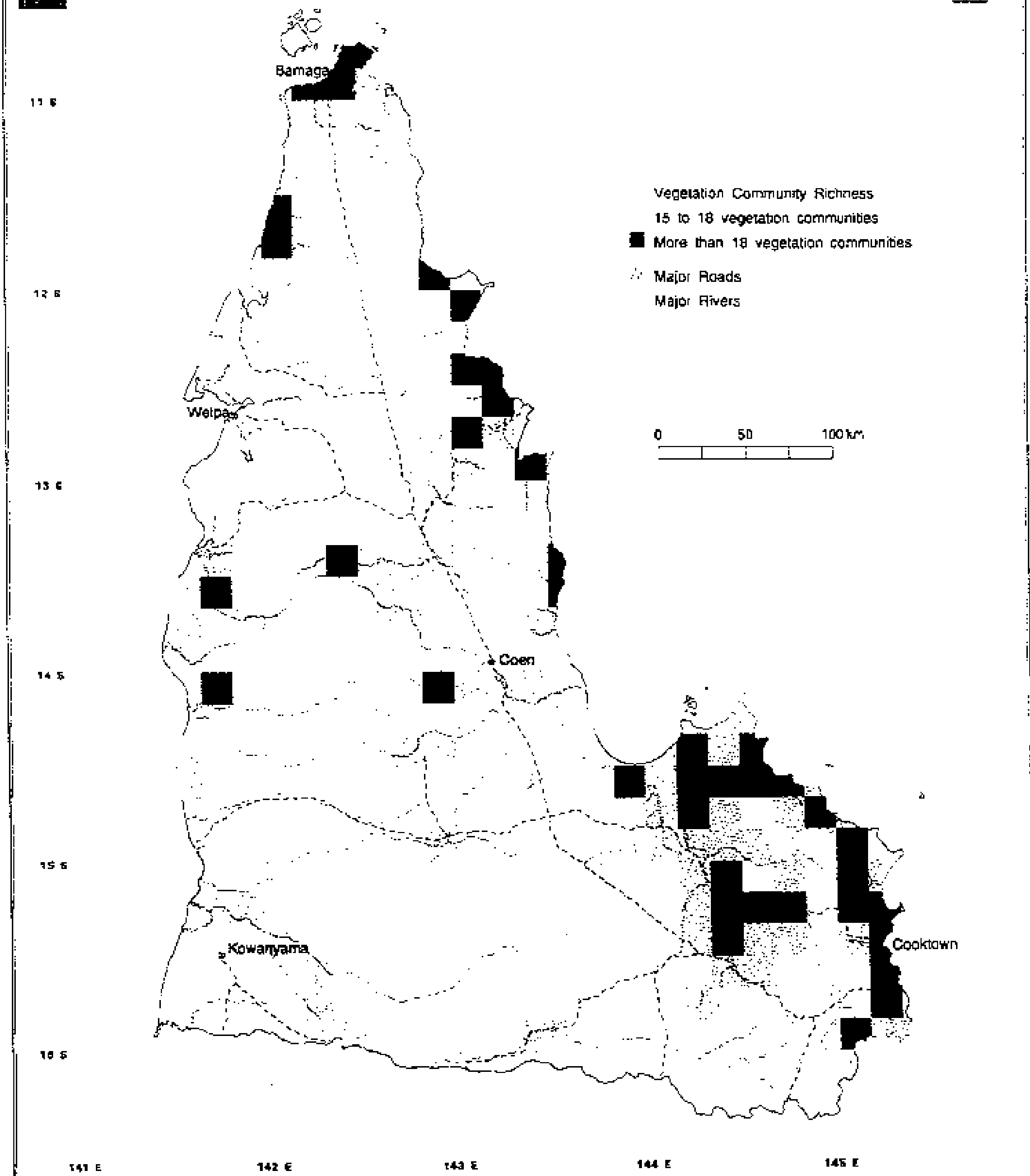
**Caveats....**
Vegetation communities richness is defined as the number of distinct vegetation types per grid.
There are 209 vegetation types (after Clarkson and Neldner 1994). Counts per grid range from 1 to 26.
Spatial analysis and overlays by ERIN.
Class breaks determined by AHC. See AHC above for discussion.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1 2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 5.1

# Vegetation Communities Richness
10 minute grids
Cape York Peninsula

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. 1991. Central Western Queensland. Vegetation Survey of Queensland. QDPI Botany Bulletin No.9
Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

**Caveats....**
Vegetation communities richness is defined as the number of distinct vegetation types per 10 minute grid.
There are 209 vegetation types (after Neldner and Clarkson 1994). Counts per grid range from 1 to 23.
Spatial analysis and overlays by ERIN
Class breaks determined by AHC. See AHC above for discussion.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 5.2

# 6.0 THE VEGETATION COMMUNITIES EXHIBITING THE PRINCIPAL CHARACTERISTICS OF THEIR CLASS

## 6.1 The Method Adopted

The best examples of a particular vegetation class were identified under sub-criterion D1 (Significant for exhibiting the principal characteristics of a class) using the Neldner and Clarkson (1994) 1:250 000 Vegetation mapping. The wilderness quality information (Section 3 of this report) was used also to provide an indication of condition and integrity.

The assumptions on which this analysis was based are:

- Larger areas of a vegetation community provide the best examples;
- Areas that have suffered least from non-natural disturbance are the best examples, and
- The distribution pattern of the vegetation community in the environment is an integral part of the vegetation class characteristics.

The Neldner and Clarkson vegetation data is complex in that each discrete mapping unit or polygon is further divided into 10% proportions of present vegetation communities. This is discussed in detail above (Section 4).

This representative areas analysis has been undertaken by considering only the proportionately dominant vegetation community for each polygon. There are eleven communities that are mapped only as sub-dominants in this coverage, all of which are rare communities (Section 4).

To determine those examples of each vegetation class that exhibit the best condition and integrity of the class, three indicators were used from the vegetation mapping itself and the National Wilderness Inventory (NWI) wilderness analysis undertaken as part of this project. The details of this analysis are outlined in Appendix 4.

The method considered wilderness quality, biophysical naturalness and the area of each mapped vegetation unit. The results of this analysis indicating all the areas identified as representing the principal characteristics of class are illustrated in Figure 6.1. It is not possible to plot this map so as to illustrate the areas important for each of the 201 vegetation classes, however that information is readily available from the GIS coverage.

## 6.2 Discussion

This method of selecting areas representative of vegetation communities is directed toward selecting those that best exhibit the principal characteristics of the vegetation class. Using the Natural Wilderness Inventory information, it has been possible to model those areas with relatively high condition and integrity and which are also among the larger mapped areas.

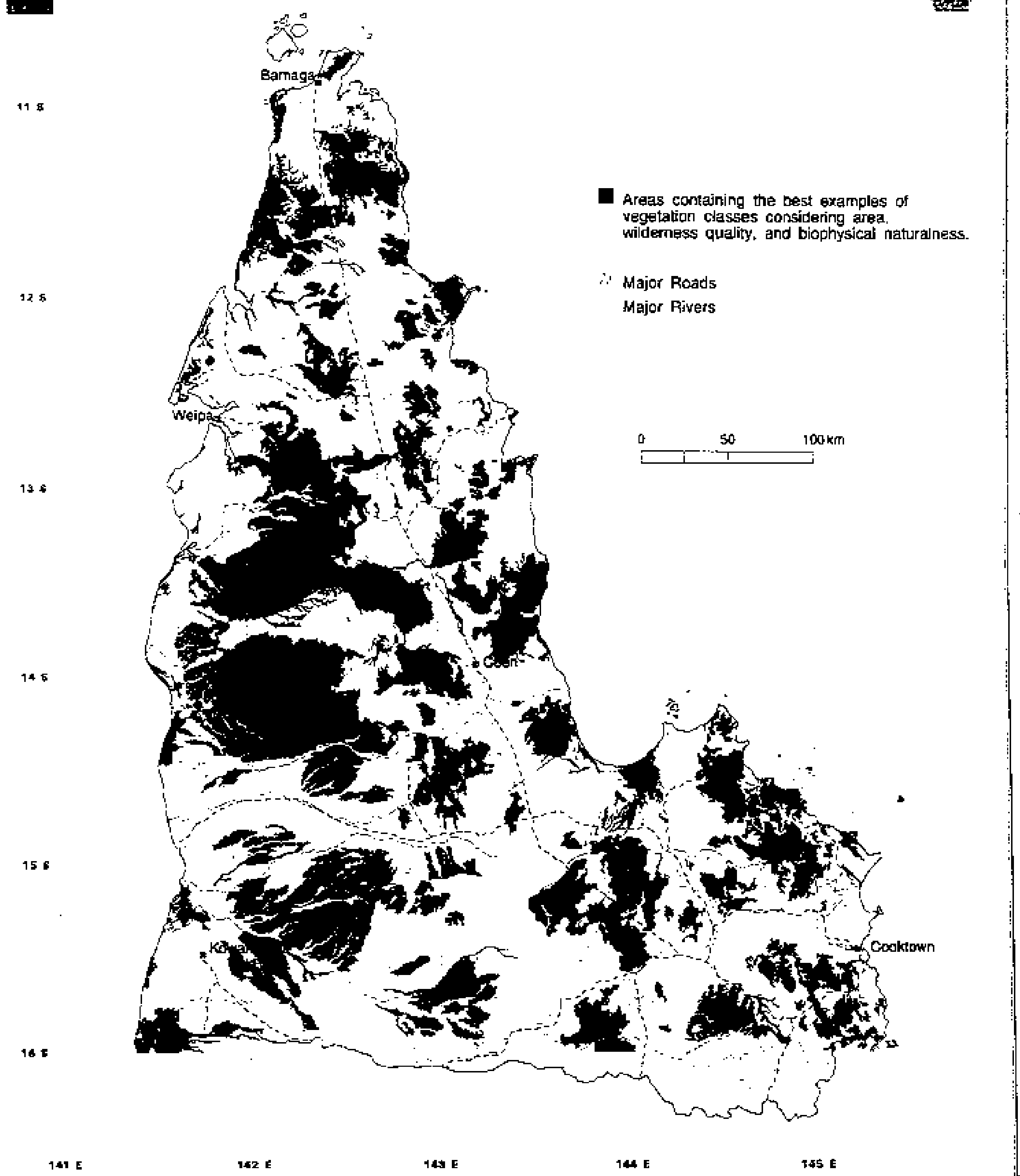
In only very few instances has the analysis resulted in a substantial proportion of the vegetation class being identified (Appendix 4). Difficulties in selecting representative samples from a rare or restricted vegetation communities are only to be expected. The results of the analysis themselves indicate the applicability and suitability of the analysis.

An important consideration has been to endeavour to incorporate the natural frequency and size distribution of the vegetation community in the analysis. Incorporating a comparison of polygon information with others in the same vegetation class ensures a better consideration of these distributional factors than identifying a fixed proportion across all of the vegetation classes.

# Representative Vegetation
## Areas Containing Best Examples
## Cape York Peninsula

CYPLUS

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1996)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
AHC - NWI. 1995. National Wilderness Inventory.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

**Caveats....**

The Neldner and Clarkson Vegetation coverage has been overlaid with the National Wilderness Inventory.
Areas depicted above are, generally, large areas that are representative of different vegetation types that also have high wilderness value indices and high biophysical naturalness.
See AHC above for discussion of methodology and thresholds.

Projection: Geographical representation
Spheroid: Australian National Spheroid

Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 6.1

The areas identified indicate those areas which better represent each vegetation community, or when considered collectively, the suite of vegetation communities, on the Peninsula. This is not a representative areas reserve selection analysis, however in any reserve system analysis it would be appropriate to favour selection from these identified areas rather than from other examples of the same vegetation communities.

## 7.0 AREAS OF TERRESTRIAL FAUNA RICHNESS

McFarland (1993) as part of CYPLUS NRAP project NR03, provided an analysis of faunal diversity across Cape York Peninsula. The number of faunal records for each of the 514 ten minute grid cells were compared within the CYPLUS study area. Grid cells containing greater than 320 vertebrate species included cells in the Iron Range, the Coen - McIlwraith Range area and Cooktown south to the CYPLUS boundary. As noted by McFarland, the major problem in interpreting the results is the variable search effort across the region. To try to account for this McFarland applied a modifier to create an index that combined total number of species recorded in a grid cell by the search effort for that cell.

The indices derived by McFarland provide a coarse guide to faunal species richness at various localities. McFarland identified 18 grid cells that had a high species diversity index (greater than six on his scale). These include cells at Somerset, Port Musgrave, Iron Range, Coen - McIlwraith Range, Aurukun, Edward River, the mouth of the Mitchell River, the base of Prince Charlotte Bay, Cooktown and the Wet Tropics area (see Figure 7.1).

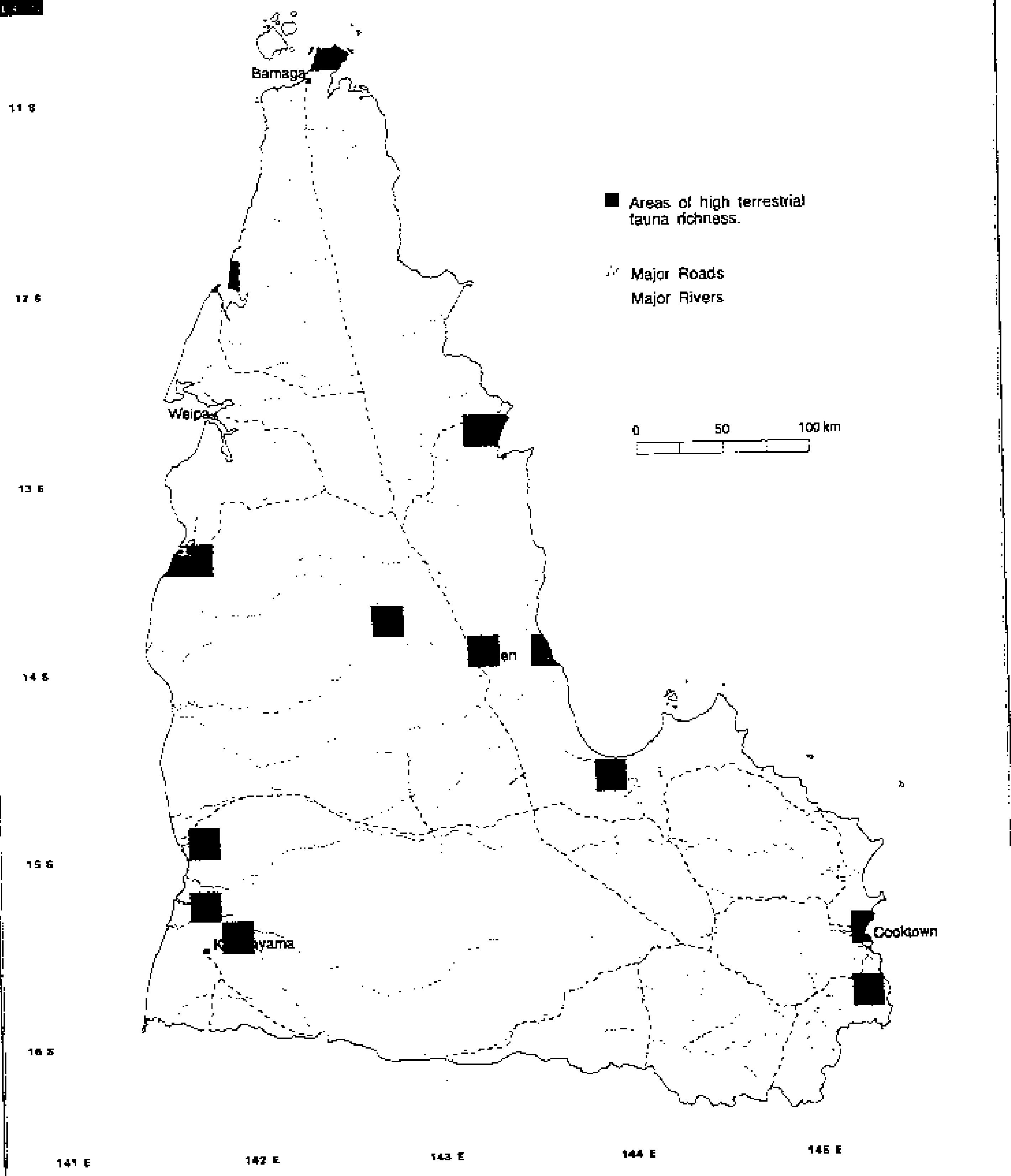
It is worth noting that all but three of these cells occur in areas of high vegetation diversity as identified in Figures 5.1 and 5.2 and as discussed in Section 5 of this volume. These three high fauna rich grid cells are in the south-west of the Peninsula, and interestingly two are in areas of wetland diversity as identified by Driscoll in NRO9 (Driscoll 1994b).

McFarland (1993) also provides individual plots of frog, reptile, bird and mammal richness indices. Winter and Lethbridge (1994) identify the McIlwraith Range area as a core area of mammal and bird diversity on Cape York Peninsula.

At a local scale, the strips of forest along rivers provide a more lush environment than the surrounding dry woodlands, and usually contain both rainforest and sclerophyll trees of the open forests and woodlands. As a result, the faunal assemblages of the riparian strips are more diverse than the woodlands that they cross (Winter & Lethbridge 1994).

# Areas of High Fauna Richness
## Cape York Peninsula

CYPLUS
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1995)

**Sources....**
AHC. 1995. *Areas of Conservation Significance - Cape York Peninsula.*
McFarland, D. 1993. Fauna of the Cape York Peninsula Biogeographic Region. QDEH.
See AHC for complete bibliography and sources.

**Caveats....**
Based on McFarland (1993) species diversity index on 10 minute grid.
Index is a function of number of species in a cell and search effort.
Cells depicted above have a species diversity index of six or higher.
See AHC above for discussion of methodology and thresholds.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 7.1

## PART B CONSERVATION VALUES USING A THEMATIC APPROACH TO IDENTIFY AREAS OF SIGNIFICANCE.

This section of the report considers those aspects of the environment that are best considered in a thematic context. It is effectively looking at a number of attributes, or conservation values, at scales most appropriate to the available information, or in particular environmental or disciplinary contexts. In this part, marine vegetation communities, areas significant for sea and shore bird populations, sandmass areas of the east coast, areas identified as especially rich for particular components, areas of particular significance for butterfly populations, and significant riparian corridors have all been considered. This is not a complete list of possible themes for assessment but rather those considered most appropriate in the context of the Peninsula, and those for which data are available.

## 8.0 WETLAND AREAS OF SIGNIFICANCE

The wetlands of Cape York Peninsula are amongst the largest, richest and most diverse in Australia. Many of the wetlands are also amongst the best examples of their type in Australia, while vast coastal and sub-coastal wetlands of the mid west coast are of national importance to waterbird populations (Driscoll 1994 a,b, Usback & James 1993, Taplin 1993).

Driscoll as part of the NR09 project (1994 a,b) has described the types and locations of wetlands that occur on Cape York Peninsula and has identified wetland complexes of conservation value. Driscoll has broadly delineated areas of significant wetlands on the Peninsula by applying the following criteria:

- it was an area which contained a relatively high diversity of wetland types;
- it was particularly rich in a particular wetland type(s);
- it was a particularly good example of its type; and/or
- it was an important waterbird habitat.

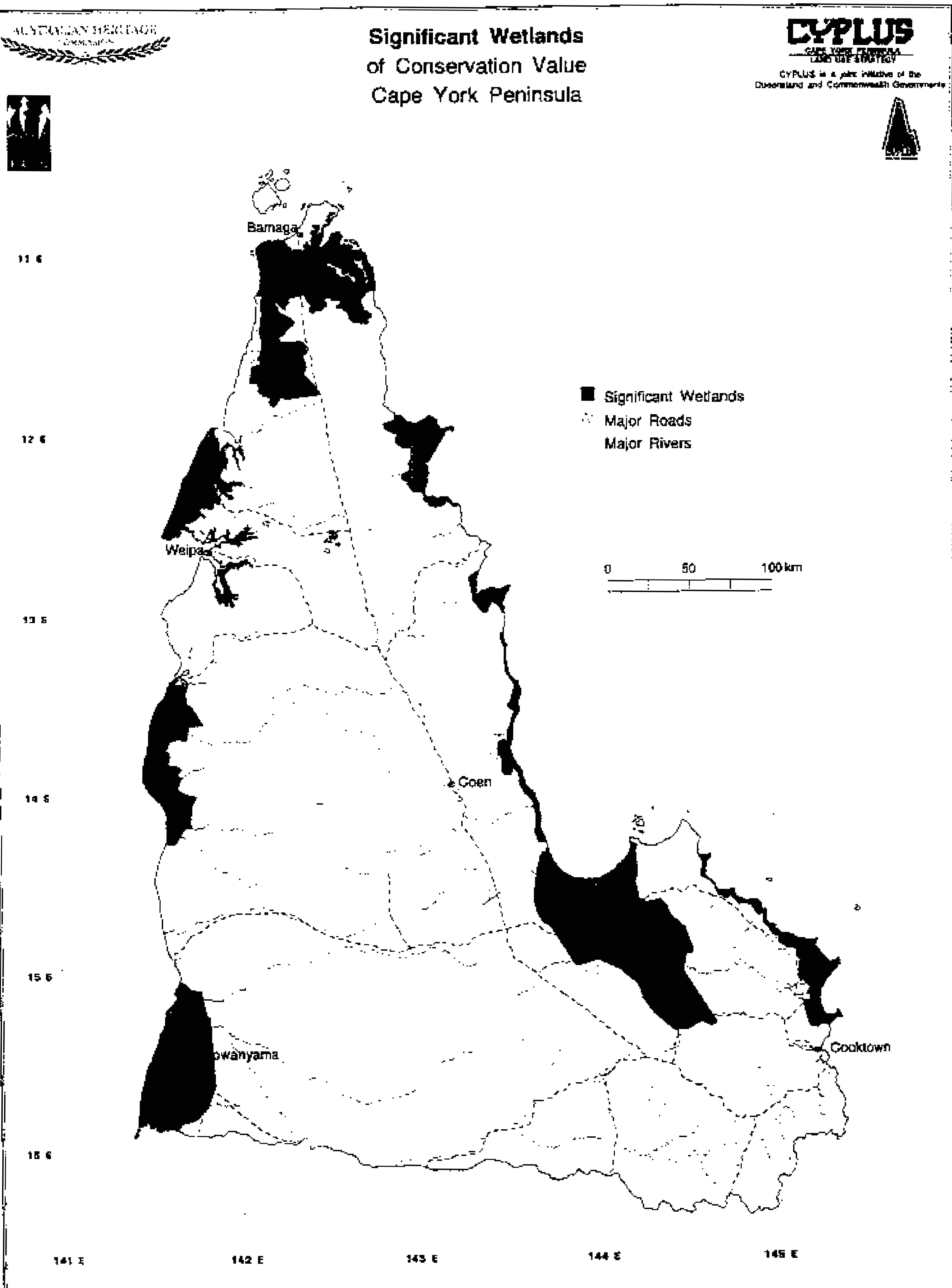
These criteria relate directly to a number of the AHC's criteria particularly, sub-criteria A3 - places of unusual richness or diversity, B1 - places with rare or uncommon attributes, and D1 - places exhibiting the principles of a class. The areas identified by Driscoll have been considered in the light of regional and nationally significant areas and therefore are recognised as being above threshold in this report.

In his assessment Driscoll relied on a number of CYPLUS NRAP datasets including McFarland Fauna data (NR03) and the Vegetation Mapping of Neldner and Clarkson (NR01). Two limitations of the vegetation mapping, the age of the airphoto interpretation, and the proportionate mapping of minor communities within larger polygons, may in this instance have tended to over-estimate some wetlands areas. This is particularly likely in the Port Musgrave-Albatross Bay area delineated.

Driscoll (1994b) identified the following areas as being of national significance. The accompanying documentation of conservation values of particular wetlands is obtained from (Driscoll 1994a, b) unless indicated otherwise. Figure 8.1 broadly indicates the significant wetlands identified.

*Newcastle Bay* - exceptional in a national context for the extent, diversity and structural development of mangroves in association with open saline areas and sedgelands. The area includes the most extensive stands of medium and tall mangrove forests in Queensland and are an important regional fish and prawn habitat (Bucher & Saenger 1989).

## Significant Wetlands of Conservation Value Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Driscoll, P. V. 1994. Cape York Peninsula Wetland Conservation Assessment. Report to ODEH, Dec 1994.
Driscoll, P.V. personal communications.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey, Queensland Herbarium.
Danaher, K. 1994. Marine Vegetation Project, NRAP NR05. QDPI. See AHC for complete sources and citations.

**Caveats....**

Wetlands depicted, with exception of Mission River Road sinks and Weipa area, were delineated by Driscoll (1994).
Mission River Road sinks (Veg class 129) extracted from Neldner and Clarkson (1994) polygon coverage.
Weipa area wetlands based on Danaher mangroves, Neldner riverine vegetation, and Pennefather geology
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 8.1

*Jardine Complex* - important for its large and diverse wilderness wetland area, with nationally important representative sedgeland and swamp communities. The biota of the area has strong links with New Guinea (Herbert *et al* 1994).

*Northern Lakes* - important for the richness and diversity of its perennial waterbodies.

*Northern Sand Ridges* - important for the richness and diversity of its perennial waterbodies. Sach Waterhole, a sand dune lake, is the only area known on Cape York Peninsula that supports floating mats of vegetation, which are nationally rare and probably endangered ( Hill & Webb 1982, Herbert *et al* 1994).

*Port Musgrave - Albatross Bay Area* - important crocodile and dugong habitat, with a large-number of diverse and well developed freshwater swamps and tidal flats. It is an important regional fish and prawn habitat (Bucher & Saenger 1989).

*Central North Sinkholes*-- representative paperbark sinkholes which have a rich frog fauna.

*Archer River - Holroyd River Coastal - Subcoastal Area* - contains extensive and diverse wetlands that are little disturbed and are amongst the best examples of their type including freshwater lakes, broad shallow estuaries, swampy depressions, saline mudflats, overflow swamps and seasonally inundated Melaleuca woodlands. The area supports an extensive waterbird fauna and is considered to be the most important dry season refuge on the Peninsula. It is the most important breeding area for several waterbird species on the Peninsula and is also an important habitat for migratory waders.

*Archer Bend Area* - an extensive floodplain that contains a diversity of riverine habitats, swamp forests, deep permanent lagoons (both in the channel and on the floodplain) and seasonal swamps (Stanton 1976, Usback & James 1993).

*Mitchell - Nassau Area* - contains a diverse array of wetland types with a variety of geomorphological origins, fluctuating salinities and water permanence. The wetlands contain major breeding sites of several waterbirds and waders, and are a dry season waterbird refuge (Thurgate 1994).

*Shelburne Bay - Cape Grenville - Olive River Area* - Important for the high diversity of its wetland types and coastal wetland features and is particularly rich in dune lakes and dune swamps.

*Cape Flattery - Cape Bedford Dune Systems* - rich in dune lakes and dune swamps.

*Lloyd Bay* - extensive and diverse estuarine system.

*Princess Charlotte Bay* - extensive and representative saline flats, and an important shorebird area.

*Lakefield Region* - contains a high diversity and richness of wetland types, including representative perennial water bodies and ephemeral (or non-permanent) lakes.

The following wetlands have significance within the regional or CYPLUS study area context.

*North West Hinterland* - moderate diversity of wetland types and good representations of ephemeral waterbodies and sedgelands.

*Silver Plains and North* - moderate diversity of wetland types and reasonably extensive tidal flats.

*Starcke Coast* - moderate diversity of wetland types, particularly near the mouth of the Starcke River.

# 9.0 AREAS SIGNIFICANT FOR MARINE VEGETATION

## 9.1 Mangroves

The mangrove communities of eastern Queensland including Cape York Peninsula have been widely studied; for example Dowling and McDonald (1979), Bunt (1982), and Duke (1992) and as part of the CYPLUS NRAP program Danaher (1994). Mangrove areas are important for their ecological role, as these marine plants directly support local and off-shore fisheries through the provision of food, shelter and breeding areas (Danaher 1994).

Duke (1992) provides the global context for the Australian mangrove communities. Mangrove communities are richest in tropical regions with sea temperatures being an important determinant of distribution. The eastern coastline of continents with warmer ocean currents have larger areas, wider distributions and richer mangrove communities than the western coasts with colder off-shore currents.

Similarly species richness generally reduces with distance from the tropics, and this is certainly the case along the east coast of Australia, Cape York Peninsula having over 30 species recorded compared with nine in South East Queensland, and one in Victoria (Duke 1992). As a result many species reach their limit of range progressively further south along the coast.

The mangrove flora of Australasia is one of the richest in the world having around five times greater species diversity than all other regions with the exception of southern New Guinea (Duke 1992). The Cape York Peninsula mangrove communities are therefore among the richest in the world and exhibit a strong zonal pattern (Danaher 1994). Duke (1992) discusses the known disjunctions of mangrove communities in the region which provides an indication of the biogeographic history of mangrove communities. However, the current limited knowledge of New Guinea mangrove distributions restricts a thorough understanding of the evolutionary biogeography.

The mapping by Danaher as part of the NR06 program (1994) used satellite interpretation to identify fifteen mangrove communities. Table 9.1 shows these communities and the seagrass mapping units.

**Table 9.1 Marine Vegetation Classes** (Danaher 1994)

| | | |
|---|---|---|
| 1 | Rhizophora | closed * |
| 2 | Rhizophora | open |
| 3 | Ceriops | closed |
| 4 | Ceriops | open |
| 5 | Avicennia | closed |
| 6 | Avicennia | open |
| 7 | Rhizophora/Ceriops | closed |
| 8 | Rhizophora/Ceriops | open |
| 9 | Avicennia/Ceriops | closed |
| 10 | Avicennia/Ceriops | open |
| 11 | Landward Rim | closed |
| 12 | Landward Rim | open |
| 13 | Mixed | closed |
| 14 | Mixed | open |
| 15 | Saltpan | open |
| 16 | Seagrass | Density < 10% of area |
| 17 | Seagrass | Density 10-50% of area |
| 18 | Seagrass | Density 50-100% of area |

* Closed communities are those in which the foliage or canopy cover of the mangroves is greater than 70% of the total ground area.

## 9.2 Seagrasses

Seagrass communities are also important for their ecological and commercial significance. They are particularly important as nursery areas for prawn and lobster fisheries and grazing areas for dugongs (*Dugong dugon)* and green turtles (*Chelonia midas*) (Poiner *et al* 1989). Sea grasses require shelter from high energy waves, light for photosynthesis and minimal exposure to air (Danaher 1994).

The Queensland Department of Primary Industries has mapped and sampled seagrasses along the Queensland coast (Coles *et al* 1992 and 1985 and Lee Long *et al* 1993). Danaher (1994) has incorporated their mapping into the CYPLUS NR06 report and GIS coverage. The mapping has a number of limitations, due to the seasonality (extent of seagrass varies with season), depth of survey (only shallow [<20 metre depth] seagrasses have been surveyed) and difficulties of accurate mapping and precise positioning in marine environments (Coles *et al* 1992).

There are 12 genera and 55 species of seagrass recognised around the world (Larkum & Den Hartog 1980). Mukai (1993) considers the global distribution of seagrasses and concludes the coastal waters of Malesia are the centre of origin for sea grasses and marine currents have been largely responsible for their distribution throughout the Indo-Pacific.

Australia has the highest number of seagrass species of any continent in the world with particular communities being amongst the most diverse in the world (Larkum & den Hartog 1989). With 14 species identified from the Torres Straits and east coast of Cape York (Lee Long *et al* 1993) this area is clearly a special case in terms of seagrass distribution. Lee Long *et al* (1993) have grouped the species information into mapping units for the east coast of Australia. Having twelve species, the areas of Barrow Point to Murdoch Point on Cape York Peninsula and Dunk Island to the south of Cairns are the most species rich along the east coast (Table 9.2). Flinders Island and Princess Charlotte Bay (9 species), Weymouth

## Table 9.2 Seagrass Diversity and Density in Eastern Queensland

| Sea Grass Area | No Species | ha <10% | ha 10-50% | ha >50% | ha Total |
|---|---|---|---|---|---|
| Mt Adolphous | 4 | | | 0.98 | 0.98 |
| Escape River | 7 | | 4.18 | | 4.18 |
| Orford ness | 5 | 2.12 | 4.95 | | 7.07 |
| Shelburne Bay | 6 | | 1.5 | 11.1 | 12.6 |
| Margaret Bay | 7 | 4.02 | 5.51 | 6.08 | 15.61 |
| Temple Bay | 6 | 24.64 | | | 24.64 |
| Weymouth Bay | 8 | | | 4.14 | 4.14 |
| Lloyd Bay | 6 | 3.92 | 8.08 | | 12 |
| Cape Direction | 8 | 48.07 | 71.32 | | 119.39 |
| Roberts Pt | 5 | | | 159 | 159 |
| Flinders Is | 9 | 5.65 | | 10.15 | 15.8 |
| Princess Charlotte Bay | 9 | | 51.04 | 16.08 | 67.12 |
| Bathurst Bay | 7 | 66.75 | | 118.28 | 185.03 |
| Cape Melville | 4 | | 13.41 | | 13.41 |
| Ninian River | 7 | | | 28.24 | 28.24 |
| Barrow Pt - Murdoch Pt | 12 | 107.07 | 211.51 | 43.17 | 361.75 |
| Murdoch Pt - Lookout Pt | 8 | 534.29 | 502.22 | 167.52 | 1204.03 |
| Cape Flattery | 7 | 2.16 | 8.51 | | 10.67 |
| Bedford Bay - C Tribulation | 8 | 2.16 | 1.07 | | 3.23 |
| **Places outside of study area** | | | | | |
| Cairns Harbour | 10 | 1.37 | 7.79 | 11.86 | 21.01 |
| Mourlyan Harbour | 3 | 0.19 | 1.12 | | 1.31 |
| Barnard Island | 5 | 3.74 | 4.6 | | 8.34 |
| Dunk Island & Coast | 12 | 1.39 | 3.93 | | 5.32 |
| Nth Hinchinbrook Island | 6 | 19.19 | 9.06 | | 28.24 |
| Hinchinbrook I. & Ch. | 8 | 19.7 | 6.63 | 5.15 | 30.38 |
| Palm Island | 7 | 1.43 | 2.06 | | 3.48 |
| Halifax Bay | 6 | 16.95 | 3.44 | | 20.39 |
| Cape Pallarenda | 7 | 6.92 | 9.12 | | 16.04 |
| Magnetic Island | 11 | 6.64 | 4.78 | 1.56 | 12.88 |
| Cleveland Bay | 8 | 3.22 | 56.96 | | 60.17 |
| Bowling Green Bay | 3 | 7.15 | | | 7.15 |
| Upstart Bay | 10 | 6.2 | 20.64 | 32.35 | 59.17 |
| Abbot Bay | 7 | 14.44 | 15.91 | 3 | 33.36 |
| Edgecumbe Bay | 6 | 7.16 | 3.66 | 13.35 | 24.17 |
| Whitsunday Coast | 8 | 12.41 | 4.11 | | 16.52 |
| Whitsunday Islands | 9 | 9.74 | 7.17 | 13.06 | 29.97 |
| Shaw I. | 7 | 1.22 | 2.65 | | 3.75 |
| Repulse Bay | 7 | 4.47 | 2.26 | | 6.75 |
| Port Newry | 7 | 4.88 | 2.65 | | 6.74 |
| Mackay | 3 | 6.47 | 1.64 | | 7.11 |
| Nice Bay | 2 | 6.75 | 5.49 | | 11.24 |
| Clairview | 4 | 12.93 | 7.39 | | 20.32 |
| Shoalwater Bay | 10 | 16.93 | 21.26 | 37.18 | |
| Townshend Island | 4 | 9.96 | 4.15 | | 14.11 |
| Island Head Creek | 4 | 0.6 | 4.14 | 0.45 | 5.19 |
| Port Clinton | 3 | 85.97 | 65.65 | 23.19 | 172.51 |
| Great Keppel Island | 4 | 4.44 | 1.25 | 0.45 | 6.14 |
| Gladstone Harbour | 7 | 2.85 | 10.27 | 4.04 | 17.16 |
| Rodds Harbour | 5 | 4.29 | 2.59 | 0.27 | 7.45 |
| Bustard Head | 4 | | 3.07 | | 3.07 |
| Burnett River | 2 | | 2.07 | | 2.07 |
| Hervey Bay | 8 | 21.16 | 226.6 | 779.68 | 1026.34 |
| | | | | | |
| From Lee Long et al 1993 | | | | | |

Bay, Cape Direction, Murdoch Point - Lookout Point and Bedford Bay - Cape Tribulation (8 species) and Escape River Margaret Bay, Bathurst Bay, Ninian River and Cape Flattery (7 species) are all areas notable as species rich areas.

Consideration of areas of particular note for Dugong has been undertaken in Section 17.4 of this report.

### 9.3 Mangrove and Sea Grass Areas of Conservation Significance

Danaher (1994) mapped fifteen mangrove communities as part of the CYPLUS NRAP Marine Vegetation Survey (NR06). Neldner and Clarkson - NR01 (1994) also mapped mangrove areas. A direct comparison of data sets was not feasible because different classes were mapped. The Danaher (1994) mapping included both seagrass and mangrove communities and for this reason was most appropriate to use for the analysis and plotting of the results.

The ecological significance of mangrove and seagrass communities makes all areas mapped important. It is however possible to determine those areas on the Peninsula that are of particular note. Danaher has broadly delineated areas of significance for fisheries reserves following a number of criteria (Danaher 1994). These criteria relate to some aspects of the RNE criteria outlined in Table 9.3. The application of the RNE criteria may include other attributes to those of the Fisheries Reserves Criteria or a combination thereof. For example, in determining representative areas (Criterion D), the AHC considers condition and integrity important components: Size (1) and Disturbance History (5) above can be combined to provide a good indication of representative areas.

**Table 9.3 Fish Habitat Reserve Criteria - RNE Criteria**

| Fish Habitat Criterion | Description | RNE Criterion | Description |
|---|---|---|---|
| 1 | Size | D1 | Principal Characteristics of Class/ Representativeness |
| 2 | Diversity of specific Habitat Features | A3 | Richness or diversity |
| 3 | Diversity of specific marine fauna and flora | A3 | Richness or diversity |
| 4 | Existing or potential fishing grounds | A2 | Areas for maintaining existing processes. Breeding and feeding grounds. |
| 5 | Level of existing and future disturbances | D1 | Principal Characteristics of Class/ Representativeness |
| 6 | Unique features | B1 | Rare or Uncommon features |
| 7 | Protected species | B1 | Rare or Uncommon features |

The areas identified as important fish habitat areas (Danaher 1994), are considered to be of natural heritage significance.

The existing Fish Habitat Reserves include:

Princess Charlotte Bay,
Silver Plains,
Temple Bay, and,
Escape River.

Danaher recognises additional areas of importance as fish habitat in the areas of:

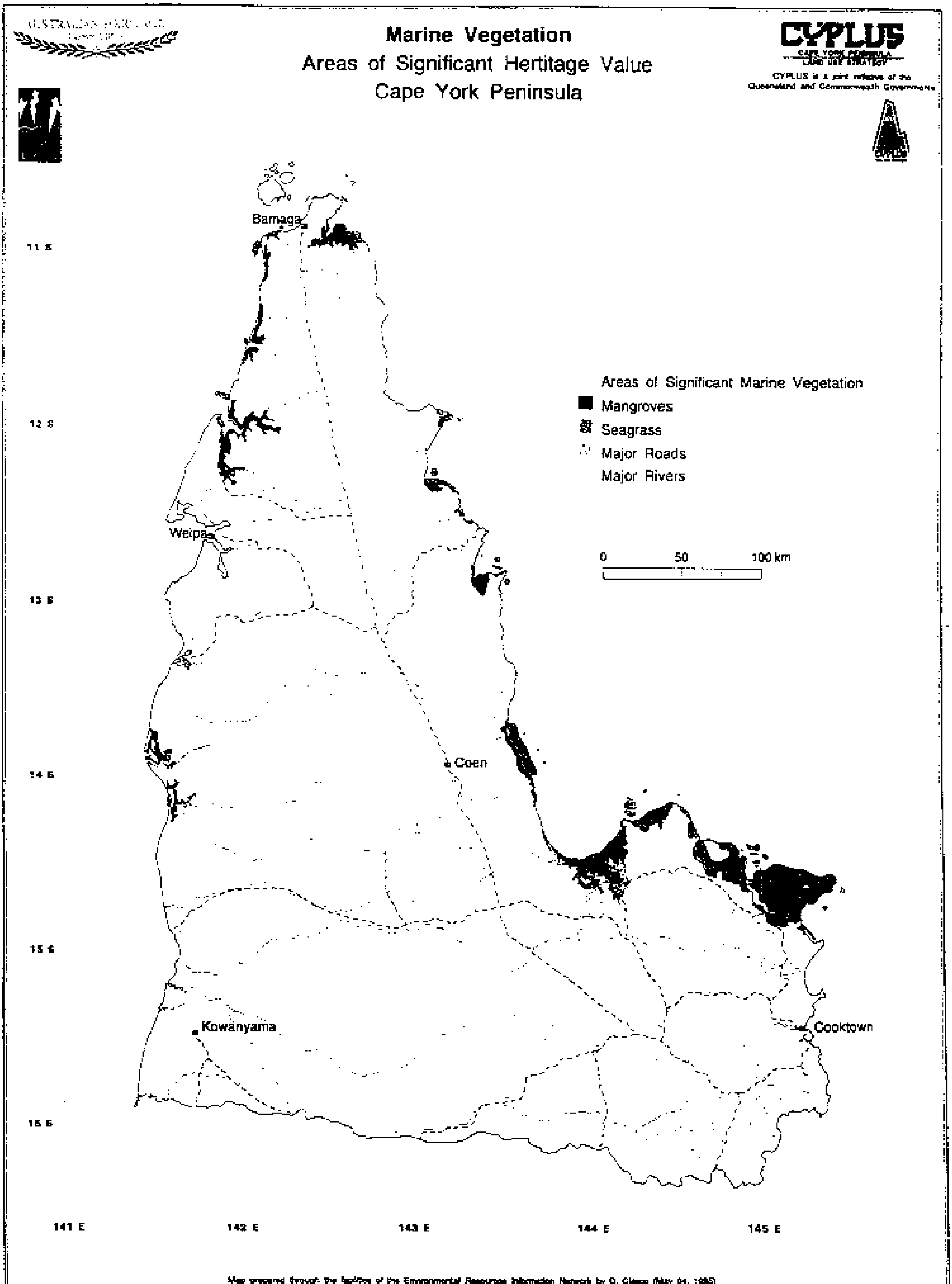
Starcke Region,
Lockhart River Delta,
Margaret Bay,
Jardine River,
Doughboy River/ MacDonald River/ Jackson River,
Wenlock River,
Kirke River,
Holroyd/Kendall Rivers,
Edward River,
Crab Island, and
Milaman Plains.

Additional areas identified on the basis of seagrass species richness (Section 9.2 above) are:

Weymouth Bay,
Margaret Bay, and,
Flinders Island/ Bathurst Bay.

The locations of these areas have been included on the Marine Vegetation coverage (Figure 9.1) and more detailed descriptions for each location can be obtained from Danaher (1994).

In addition to the sites identified by Danaher, parts of Albatross Bay can be considered to have conservation significance in terms of the extent of seagrass beds present and the diversity of mangrove species (17 species are known to occur in the Nature reserve east of Weipa (Paul Warren, COMALCO, 1995, pers. comm.).




**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Danaher, K (1994). CYPLUS NR06 Marine Vegetation Project. Fisheries Division, QDPI.

**Caveats....**
See sources or AHC Conservation and Natural Heritage Assessment for precise boundaries and descriptions
Selection of regions depicted made by AHC using information in Danaher (1994).
Mangroves include adjacent saltflats and landims.
Data extraction, map design and production by Environmental Resouces Information Network.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 9.1

## 10.0 RAINFOREST AREAS OF SIGNIFICANCE

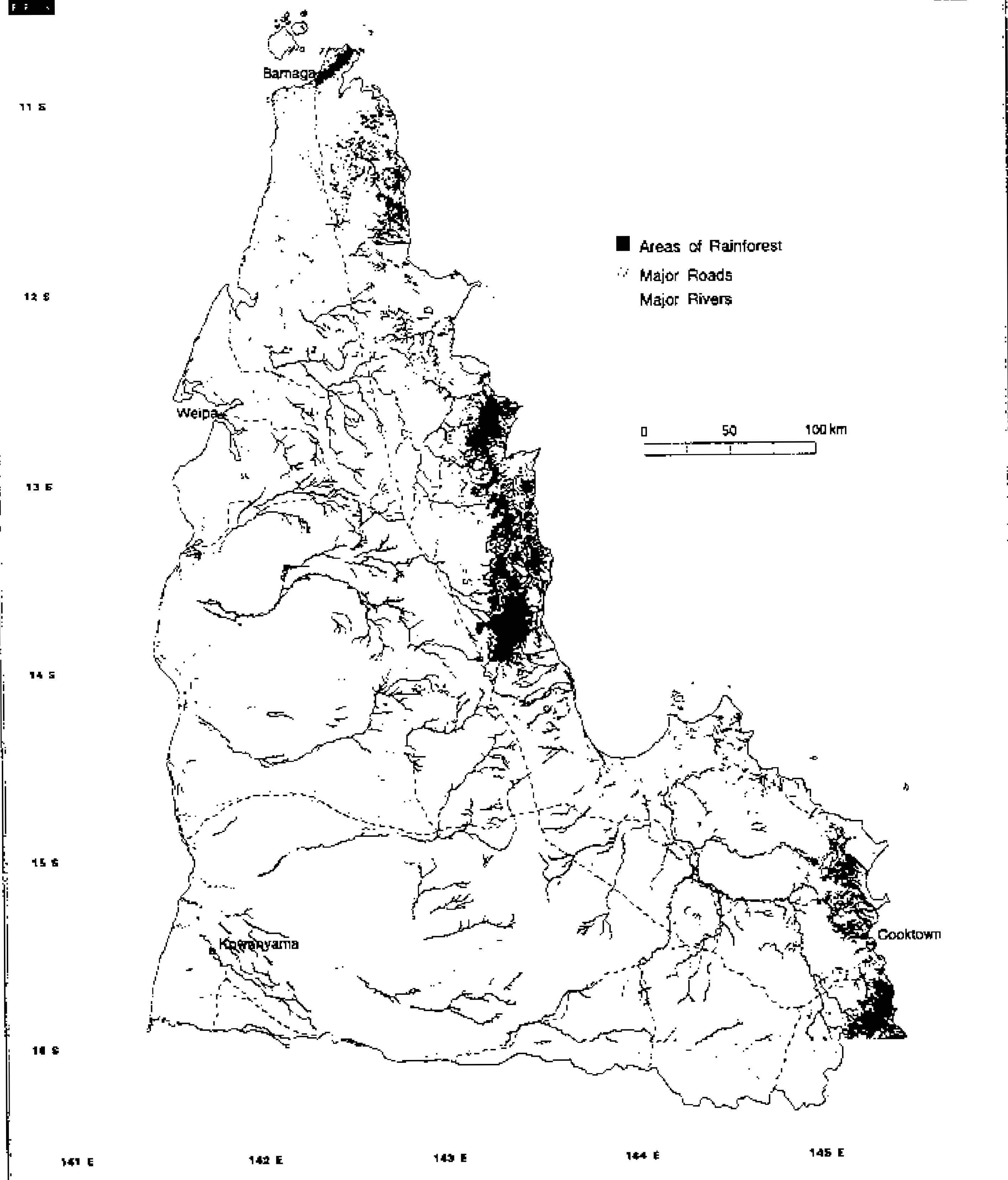
Rainforests in Australia are restricted and are recognised around the country as areas of significance (Section 4.1 in this report). The species richness (sub-criterion A3), presence of rare, endangered or restricted species (sub-criterion B1) and Gondwanic associations of rainforest communities (sub-criterion A1) are of particular note. The rainforest areas of Cape York Peninsula display these features often.

The importance of these communities has resulted in a detailed thematic study of the rainforests of Cape York Peninsula being undertaken as part of the CYPLUS NRAP project by Stanton and Fell, the results of which have been incorporated in the Neldner, Clarkson 1994 database. That detailed work considered all mapped rainforest areas of the Peninsula.

Some 20% of the national extent of rainforest occurs on the Peninsula. The majority of this is little disturbed, if at all. These factors contribute to all rainforest areas identified on the Peninsula being of national conservation significance. Areas identified on Figure 10.1 are those mapped as Rainforest by Neldner and Clarkson (1994). These authors mapped 748,100 hectares of rainforest on the Peninsula, this is about 5.6% of the total area.

# Rainforests
## Areas of Conservation Significance
## Cape York Peninsula

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Cusco (May 04, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. 1991. Central Western Queensland. Vegetation Survey of Queensland. QDPI Botany Bulletin No.9
Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

**Caveats....**
Areas depicted above are where the Basic Vegetation Group's (BVG), as defined by Neldner and Clarkson (1994), are rainforest. These include: closed forests of Wet Tropics region, McIlwraith-Iron Range region, northern cape closed forests of coastal dunes, Jardine River
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 10.1

# 11.0 AREAS SIGNIFICANT FOR MAINTAINING SEABIRD AND SHOREBIRD POPULATIONS

Areas of significance for seabirds and shorebirds are considered under sub-criterion A2, significant as breeding and feeding areas, sub-criterion A3, areas of particular species or population richness and in some instances under sub-criterion B1 for rare, endangered or threatened species.

## 11.1 Seabirds

The importance of the islands of the Great Barrier Reef area, adjoining the CYPLUS study area, was determined by King (1993) on the absolute size of seabird colonies, the relative importance of an island within its local area, and the relative abundance of the species they contain. Additionally the Department of Environment and Heritage Database of Seabird records (DEH 1994) within the Northern Great Barrier Reef Region was interrogated to provide information on additional sites of significance.

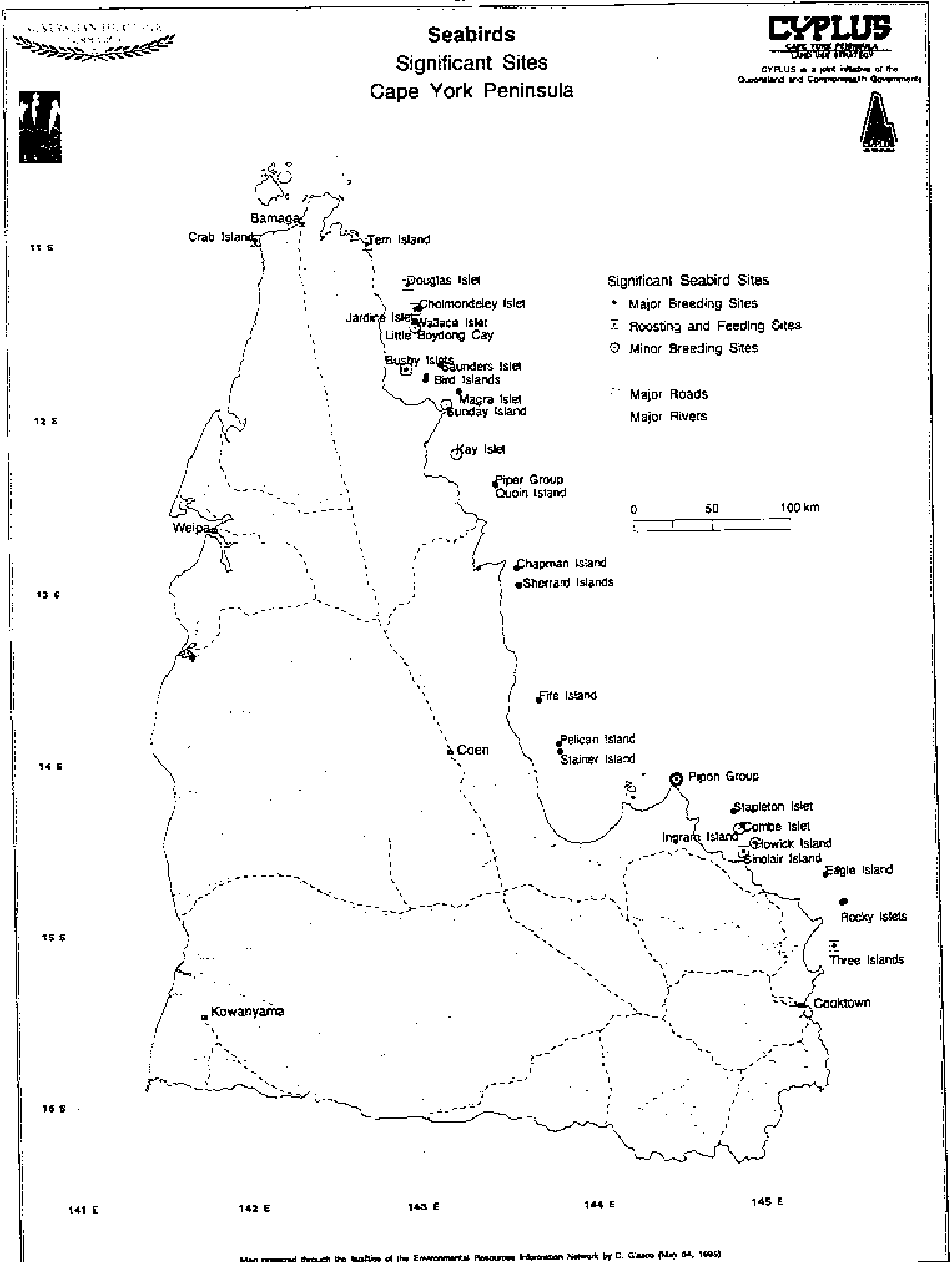
The northern Great Barrier Reef area contains many islands that support breeding and roosting seabird populations. Some of these populations are amongst the largest in Queensland and a few are amongst the largest nationally. The northern Great Barrier Reef area, together with Horn Island, is of international significance for seven shorebird species and of national significance for a further three (Watkins 1993). It is also probable that other Torres Strait islands are of importance for wader species, but more survey work is required to substantiate this.

Major seabird breeding areas within Queensland have been identified by King (1993) and from the DEH fauna database (DEH 1994). Major seabird breeding islands that occur within or in close vicinity to the CYPLUS study area are detailed below in Table 11.1. Major seabird roosting and feeding sites are given in Table 11.2. Islands of significance to seabirds are shown in Figure 11.1.

**Table 11.1 Major Seabird Breeding Sites**

| ISLAND | SIGNIFICANCE |
|---|---|
| Cholmondeley Island | The Island supports some of the largest breeding populations in Queensland of the Roseate Tern *(Sterna dougallii)*, Black-naped Tern (*Sterna sumatrana)* and Lesser Crested Tern (*Sterna bengalensis)*. |
| Wallace Islet | The Islet supports the largest known breeding populations in Australia of the Roseate Tern and one of the largest breeding populations in Queensland of the Crested Tern (*Sterna bergii)*. |
| Saunders Island | The Island supports a regionally large breeding population of the Crested Tern. |
| Magra Island | The Island supports a regionally large breeding population of the Roseate Tern. |
| North Bird Island | The Island supports one of the largest breeding and roosting populations of the Black Noddy *(Anous minutus)* in Queensland. |
| Piper Group | The Group supports one of the largest breeding and roosting populations of the Black Noddy in Queensland. |

| ISLAND | SIGNIFICANCE |
|---|---|
| Chapman Island | The Island supports one of the largest breeding and roosting populations of the Black Noddy in Queensland, and one of the largest breeding colonies of the Crested Tern. |
| Sherrard Island | The Island supports regionally significant breeding populations of the Bridled Tern (*Sterna anaethetus)*, Lesser Crested Tern and Black Noddy. |
| Fife Island | The Island supports regionally significant breeding populations of the Bridled Tern and Crested Tern and large roosting populations of the Common Noddy (*Anous stolidus)* and Black Noddy. |
| Pelican Island | The Island supports the largest known breeding colony in Australia of the Lesser Crested Tern, and one of the largest breeding populations of the Bridled Tern in Queensland. The Island is also one of the few regional breeding sites of the Australian Pelican *(Pelecanus conspicillatus).* In November 1993, 180 non-breeding adults of the Eastern Curlew*(Numenius madagascariensis)* were recorded on the Island. The Eastern Curlew is considered to be a rare species in Queensland. |
| Stainer Island | The Island supports some of the largest breeding populations of the Lesser Crested Tern in Queensland and is one of the few regional breeding sites of the Australian Pelican. |
| Stapleton Islet | The Islet supports one of the largest breeding populations of the Brown Booby*(Sula leucogaster)* and the Common Noddy in Queensland and is one of the few regional breeding sites of the Australian Pelican. The Islet also supports large roosting populations of the Sooty Tern *(Sterna fuscata)*, Bridled Tern, Crested Tern, and Black Noddy. |
| Combe Islet | The Islet supports regionally significant breeding populations of the Wedge-tailed Shearwater *(Puffinus pacificus)*, and Sooty Tern. It also supports large roosting populations of the Black Noddy and Common Noddy. |
| Eagle Islet | The Islet supports some of the largest breeding populations of the Crested Tern and Lesser Crested Tern in Queensland. |
| Rocky Islets | The Islets supports one of the largest breeding populations of the Bridled Tern in Queensland. It also supports large roosting populations of the Common Noddy, Black Noddy and Sooty Tern. |




**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
King, B.R. 1993. The Status of Queensland Seabirds. Corella. 17 (3) 65-92.
QDEH. 27 Sep 1994. Database print-out of Seabird records within Northern Great Barrier Reef Region.

**Caveats....**
See sources or AHC for precise locations and descriptions.
Distinction of major and other significance by King and AHC.
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 11.1

**Table 11.2 Further Significant Seabird Roosting and Feeding Sites**

| | |
|---|---|
| Tern Island | Tern Island supports a regionally large roosting population of the Bridled Tern. |
| Douglas Island | The Island supports a regionally large roosting population of the Black Noddy. The Island is a minor seabird breeding site. |
| Jardine Islet | The Islet supports a regionally large roosting population of the Lesser Crested Tern. The Islet is a minor seabird breeding locality. |
| Bushy Islet | Bushy Islet supports a regionally large roosting population of the Roseate Tern. |
| Three Islands (Island A) | The Islands support a regionally large roosting population of the Bridled Tern. |
| Sinclair Island | In November 1993, 100 non-breeding adults of the nationally vulnerable Little Tern *(Sterna albifrons)* were recorded at Sinclair Island. |
| Crab Island | There is a large seasonal feeding aggregation of the Rufous Night Heron *(Nycticorax caledonicus)*, which feeds on the hatchlings of the Flatback Turtle. There is a peak of hatching mid-year. |

## 11.2 Minor Sea Bird Breeding Areas

In addition to those islands mentioned above, the following are of minor or local significance as seabird breeding areas: Little Boydong Cay; Sunday Island; Kay Island; Pippon Island; Ingram/Beenley Island; and the Howick Group.

In addition to the locations given above, significant mainland roosting and breeding locations of the nationally Endangered Little Tern are given in Figure 17.5. There is insufficient information to identify any other significant mainland sea-bird roosting or breeding sites.

## 11.3 Shore Birds

The coastline of Cape York Peninsula is important for a number of shorebird species as resting or feeding points on their migration, or for nesting sites. Many of these species or their habitat are included in the China Australia Migratory Bird Agreement (CAMBA) or the Japan Australia Migratory Bird Agreement (JAMBA). In this section significant habitat areas for shore birds are identified.

Watkins (1993) has identified areas of significance for shorebirds using established criteria. Areas of international significance either support 20,000 or more shore birds or support 1% or more of the East Asian - Australian Flyway population. Areas of national significance are those where 10,000 or more birds have been recorded or where 1% or more of the individuals of the Australian population of a species or sub-species have been recorded.

Significant species and places of importance for their maintenance are outlined below and the locations are included on the rare and threatened species map Figure 17.3 following.

11.3.1 Beach Stone-curlew *(Burhinus giganteus)*.

The near shore islands of the Northern Great Barrier Reef, the northern and eastern shores of Cape York Peninsula, together with the shores of the Torres Strait Islands are an area of international significance for the Beach Stone-curlew (*Burhinus giganteus*), as these areas support over 5% of estimated East Asian-Australian population. It is the only area in Australia that is recognised as being significant for this species. The species occurs singly or in small groups along the coastline and is likely to be more common on off-shore islands, and those parts of the mainland little disturbed by humans, pigs or cats (Watkins 1993, Driscoll 1994b).

11.3.2 Mongolian Plover *(Charadrius mongolus)*.

The intertidal flats of the islands of the Northern Great Barrier Reef, particularly those of Boydong, MacArthur, Fife, Hannah, Pelican, and Stainer Islands, are an internationally significant habitat of the Mongolian Plover *(Charadrius mongolus)* supporting nearly 10% of the East Asian - Australian flyway population. The area is the second most important habitat of this species in Australia after the Gulf of Carpentaria. The flats around Horn Island are also of international significance supporting an additional 2.5% of the East Asian - Australian flyway population of this species (Watkins 1993, DEH 1994). The Mongolian Plover is a migratory species that visits Australia and breeds in eastern Siberia. In Australia it lives on muddy and sandy shores usually in isolated flocks of up to 100 birds.

11.3.3 Pacific Golden Plover *(Pluvialis fulva)*.

Horn Island is also of national significance as a habitat of the Pacific Golden Plover *(Pluvialis fulva)*, with greater than 1% of the Australian population being recorded there at the one time (Watkins 1993). They occur in their largest numbers in north-eastern Australia. Following breeding in Alaska, they arrive in Australia from August to October and begin to depart again in February.

11.3.4 Ruddy Turnstone *(Arenaria interpres)*.

The intertidal flats of the islands of the Northern Great Barrier Reef area, particularly those of Boydong, Hannibal (East), Macarthur, Morris, Pelican, and Stainer Islands and Pethebridge Islet (East) are an internationally significant habitat for the Ruddy Turnstone *(Arenaria interpres)* supporting nearly 3% of the East Asian - Australian flyway population. The area is the third most important habitat of this species in Australia after Roebuck Bay (Western Australia) and King Island (Bass Strait) (Watkins 1993, DEH 1994). The Turnstone is a summer visitor to Australia although a proportion stays in Australia during winter (Blakers *et al* 1984). The Turnstone inhabits shores where stones or stony pavements are exposed and sandier shores where seaweed has accumulated (Blakers *et al* 1984).

11.3.5 Grey-tailed Tattler *(Tringa brevips)*.

The intertidal flats of the islands of the Northern Great Barrier Reef area, particularly those of Halfway Islet, Sinclair Islet, Boydong Island, Bushey Islets, MacArthur Islands, Morris Island, and Pelican Island are an internationally significant habitat of the Grey-tailed Tattler *(Tringa brevips)* supporting nearly 4% of the East Asian - Australian Flyway population. (Watkins 1993, DEH 1994). The Tattler, often associated with mangrove shores, occupies coastal mudflats and reefs and only rarely sandy shores (Blakers *et al* 1984).

11.3.6 Pied Oystercatcher*(Haematopus longiropstris)* and Sooty Oystercatcher *(H. fuliginosus)*.

The rocky and sandy shores of the northern Great Barrier Reef area and the adjoining coastline of Cape York Peninsula support over 1% of the total estimated global populations of both the Pied *(Haematopus longiropstris)* and Sooty *(H. fuliginosus)* Oystercatchers. A northern sub-species of the Sooty Oystercatcher *Haematopus fuliginosus opthalmicus* is estimated to have a total population of only 1000 individuals, with the areas mentioned above being a particularly important habitat of this sub-species. The Pied favours the sandy beaches and the Sooty favours rocky coasts. The Pied particularly has had it distribution affected by disturbance from people on popular beaches (Blakers *et al* 1984).

### 11.3.7 Whimbrel *(Numenius phaeopus)*.

The northern Great Barrier Reef area, particularly Macarthur Islands, Morris Island and Pelican Island, is a nationally significant habitat of the Whimbrel *(Numenius phaeopus)* (Watkins 1993, DEH 1994). The Whimbrel is scarce in southern Australia, and in Queensland is seen in flocks of up to 50. The Whimbrel forages on tidal mudflats and roosts on rocky islets and coral cays (Blakers *et al* 1984).

### 11.3.8 Torresian Imperial Pigeon *(Ducula spilorrhoa)*.

The Torresian Imperial Pigeon has been recorded as nesting on 95 islands, but only six colonies exceed 10,000 pairs. Major nesting colonies within the CYPLUS study area occur at:

Hannibal East Island + Hannibal West Island,
Night Island (the largest colony with over 60,000 birds),
Hay Island, and
Hannah Island.

The Torresian Imperial Pigeon *(Ducula spilorrhoa)*, also known as the Torres Strait or Nutmeg Pigeon, is largely a migratory bird found in New Guinea, Indonesia and northern Australia. It reaches its greatest abundance in Australia in the central and northern Great Barrier Reef region, where tens of thousands of birds arrive from New Guinea in July or August and return in about February or March. The Torresian Imperial Pigeon breeds in Australia and its arrival coincides with the ripening of rainforest fruits on which it feeds. In Queensland, birds nest in large colonies on off-shore islands and fly each day to rainforest on the mainland to feed. Although a common species, the nesting behaviour of the pigeon makes it vulnerable to human disturbance. Visitors, clearance activity and shooters on nesting islands appear to have caused a marked decline in the southern colonies (some of which are beginning to recover) (Blakers *et al* 1984, Winter 1994). Nevertheless the most important nesting sites of the Torresian Imperial Pigeon are on the relatively remote islands off the east coast of the CYPLUS study area.

## 12.0 SAND DUNE OR SAND MASS AREAS OF SIGNIFICANCE ON EASTERN CAPE YORK PENINSULA

This information is based on the report to the AHC by Dr Errol Stock Griffith University (Stock 1995 in prep).

Stock's work considers the coastal dune masses of the Peninsula systematically along the east coast of the Peninsula. Although primarily considering the geomorphic aspects of the dune areas, some biological aspects have been considered. The sub-criteria addressed in this assessment include A1 (areas important in the course of Australia's natural history), A2 (areas important for on-going biological and geomorphic processes), A3 (areas of particular richness, especially of landscape features), B1 (areas significant as being rare or uncommon) and sub-criterion D1 (areas exhibiting the principle characteristics of a class).

Stock has described all the dunefields on the east coast and identified the features important to each. There are three main areas that are clearly of exceptional significance. These are the dunefields of Newcastle Bay and the Jardine Catchment, Olive River - Shelburne Bay and Cape Bedford- Cape Flattery (Figure 12.1).

The detailed significance of each of these areas is included in Part Two of this report and in the Stock report to the AHC (1995, in prep.). As an introduction, the primary significance of these dune systems generally relates to their ability to provide indications of the geomorphological development of tropical dune systems, the importance of the lakes with respect to endemic, restricted and rare fauna and flora, and the associated richness of landforms and biological features of the areas. The ability to contribute to the understanding of the Quaternary development of the tropical regions is of particular note. In addition many of the features, particularly the large sand dunes and the lake systems provide excellent characteristic examples of their type of geomorphic development.

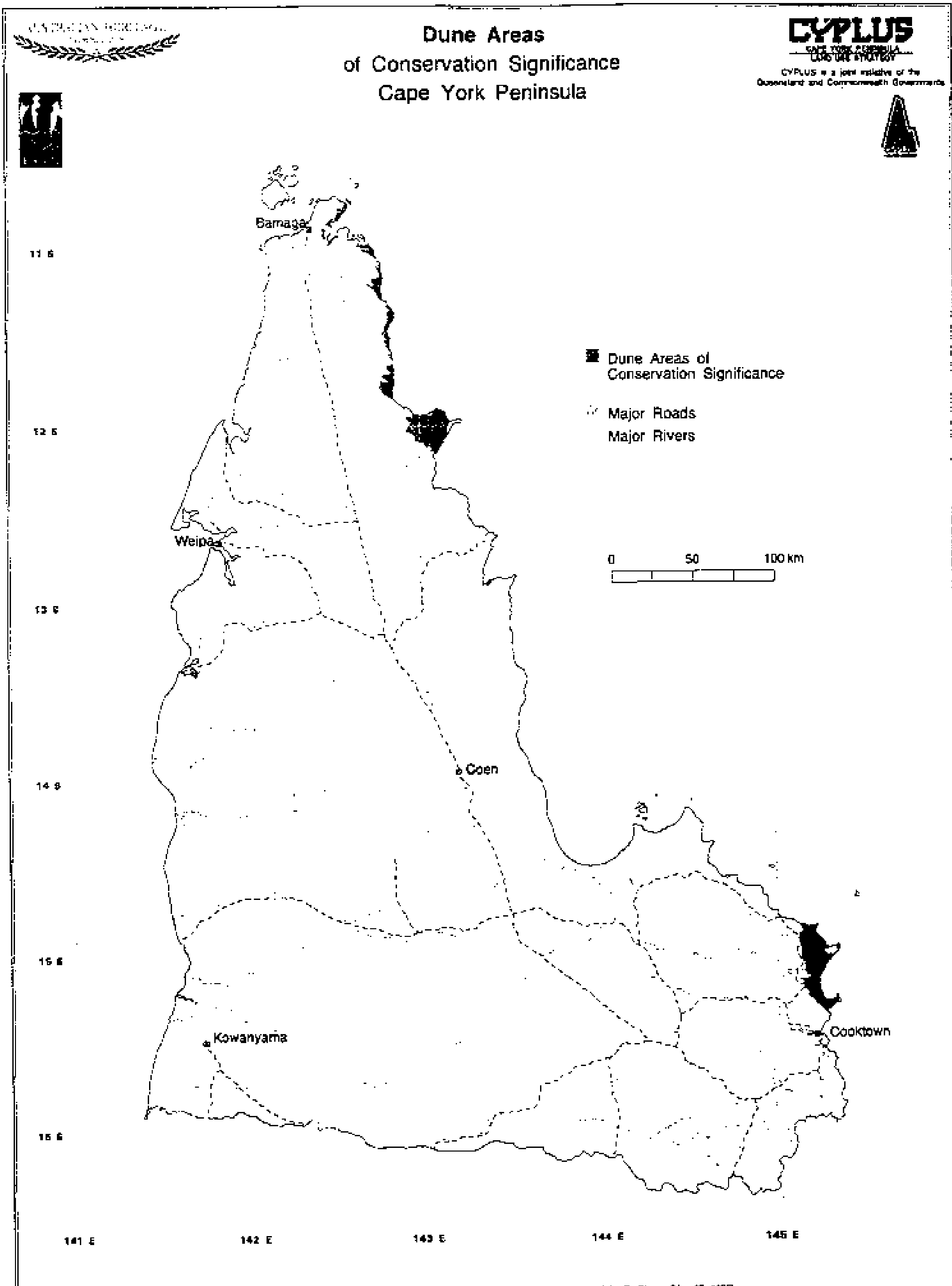
The Newcastle Bay dunefield comprises three small dune areas. The vegetation is very dense over much of the dunefield. Well-established drainage systems are located close to the rocky headlands. Of particular note is the north of the dunefield, where large parabolic dunes have probably been stopped from spreading further by the infilling of Newcastle Bay by river sediments, thereby creating a less energetic environment and allowing the formation of a sequence of beach ridges in front of the parabolic dunes.

The Olive River - Shelburne Bay dunefield occurs predominantly on a sand plain of Quaternary age east of the Mesozoic sandstones that form the McHenry Uplands. The sand plain consists of low undulating terrain dissected by well-developed east-flowing streams.

There are five morphological dune types in the dunefield, differentiated by the degree of post-depositional modification including stream erosion, and dune shape. The five dune types include:

- Small active parabolic dunes adjacent to the modern coast;
- Small active crescent-shaped parabolic dunes, occurring inland;
- V- shaped vegetated (elongate) parabolic dunes;
- Large variably modified parabolic dunes; and
- Low rounded ridges.

The Olive River - Shelburne Bay area is of particular note for its wilderness quality and the extensive nature of the dune areas and the diversity of lakes and dune types in the region.




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 07, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Biggs, A.J.W. & Philip, S.R. 1994. Soil Survey and Agricultural Land Suitability of CYP. CYPLUS QDPI.
Pain, C.F. et al. 1994. CYPLUS NRAP Project NR12 Regolith Mapping of CYP. AGSO.
Stock, E.C. (1991). Assessment of the Cape Bedford - Cape Flattery Dunefields.

**Caveats....**

Significance determined by AHC.
Cape Bedford dunefield polygons extracted from NR12 Regolith GIS coverage.
All other dunefield polygons extracted from NR02 CYPSOILS GIS coverage.
Data extraction and map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 12.1

The Cape Bedford - Cape Flattery dunefields contain a range of constructional and erosional landforms based on the interaction of sand-wind-water-rain-vegetation. Morphological units include: relict and active parabolic dunes and large, elongate parabolic dunes; broad low ridges; intra-dune corridors and gegenwalle; inter-dune sandplains; lakes, swamps and streams. Strand plains, coastal wetlands, estuaries, headlands and bedrock exposures also add to the diversity of this area. The extent of the active parabolic dunes in the Cape Bedford-Cape Flattery area is of world significance.

## 13.0 AREAS SIGNIFICANT FOR RICHNESS

Sub-criterion A3 considers areas of unusual richness for flora, fauna, landscape or cultural features. Richness can be considered at a number of scales and from a number of perspectives. These include the total number of species in a particular location, the abundance of a few species at a location, or the richness in both species and abundance. In this section orchids, for which Cape York Peninsula is especially species rich in the Australian context, and areas of fish and invertebrate taxon richness on a regional scale have been considered. Clearly, a consideration of other taxonomic groups will be likely to identify additional areas of richness.

### 13.1 Areas of Orchid Diversity

The orchid diversity of the McIlwraith and Iron Range areas has been considered a feature of conservation significance (Keto & Scott 1989, Lavarack 1981). The information on orchids that has been collected as part of the CYPLUS program confirms this significance, with the orchid diversity most outstanding at the genus level.

Sixty-two genera of orchids have been recorded from Cape York Peninsula (Cofinas *et al.* 1994). The diversity of orchid genera outside Cape York Peninsula was determined by examining the records for the 80 phytogeographical areas held in the *Census of Australian Vascular Plants* (Hnatiuk 1990). With the exception of Cook District (consisting of Cape York Peninsula and most of the Wet Tropics) none of the regions support as high a diversity of orchid genera as found on the Peninsula. By comparison to the Peninsula, 20 orchid genera are known from the Darwin - Arnhem - Gulf area of the Northern Territory, while no more than 13 occur north of $20^0$ S in Western Australia. On the east coast, 45 genera occur in NSW and 23 in Victoria. Eighty-four orchid genera have been recorded for the whole of Queensland. Australia as a whole has an orchid diversity that is high in a global context, only being exceeded by that of southern Africa (DEST 1994).

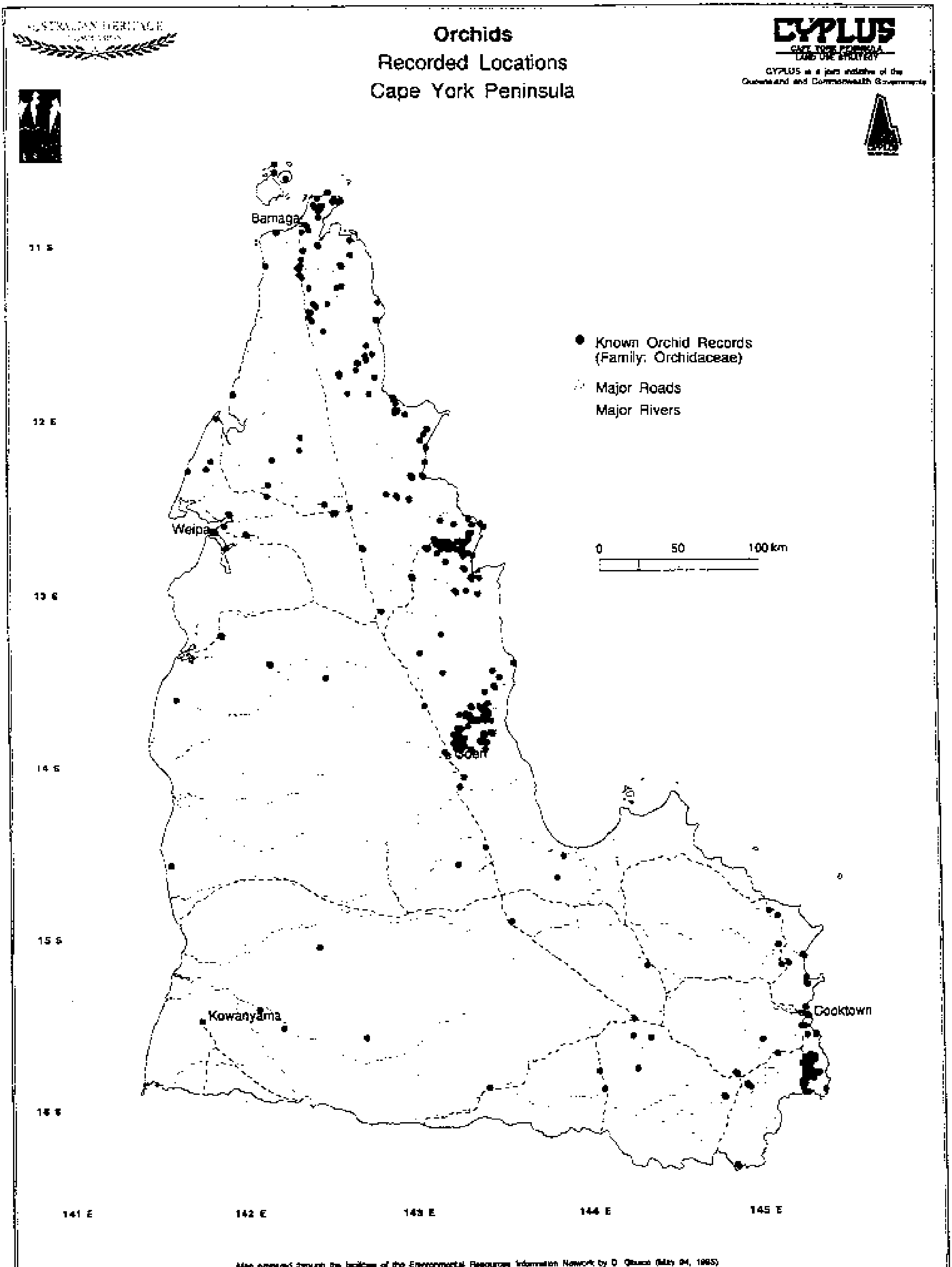
The recorded locations of orchids on Cape York Peninsula is given in Figure 13.1. The areas of greatest diversity correspond to areas containing large patches of rainforest. Areas of significant orchid generic diversity are the McIlwraith Range, Iron Range, Lockerbie Scrub and the Wet Tropical Forests of the south-east (Figure 13.2). The McIlwraith Range area supports over 16% of the entire Australian orchid flora (Keto & Scott 1989).

### 13.2 Areas of Fish Richness

This work has been adopted from the NRAP NR10 Fish Fauna Survey (Herbert *et al* 1994).

The Wenlock River contains the richest known freshwater fish fauna of any river in Australia. Forty-eight species of fish are known from this system, of which two are essentially marine. There is a correlation between river basin size and fish diversity, the larger a basin gets, the more species of fish present. Thus fish diversity in a river system is usually measured as a function of basin area. The number of species known from the northern rivers of the Peninsula compares favourably with those known from the intensively studied Alligator River region, and tropical Asian and African rivers.

The fish diversity of Olive River is exceptionally high for an Australian river of this size. Figure 17.7, Areas of significance for fish on Cape York Peninsula, shows these sites of species richness.




**Sources....**

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Hnatiuk, R.J. 1990. Census of Australian Vascular Plants. AGPS Press. Canberra.
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Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

**Caveats....**

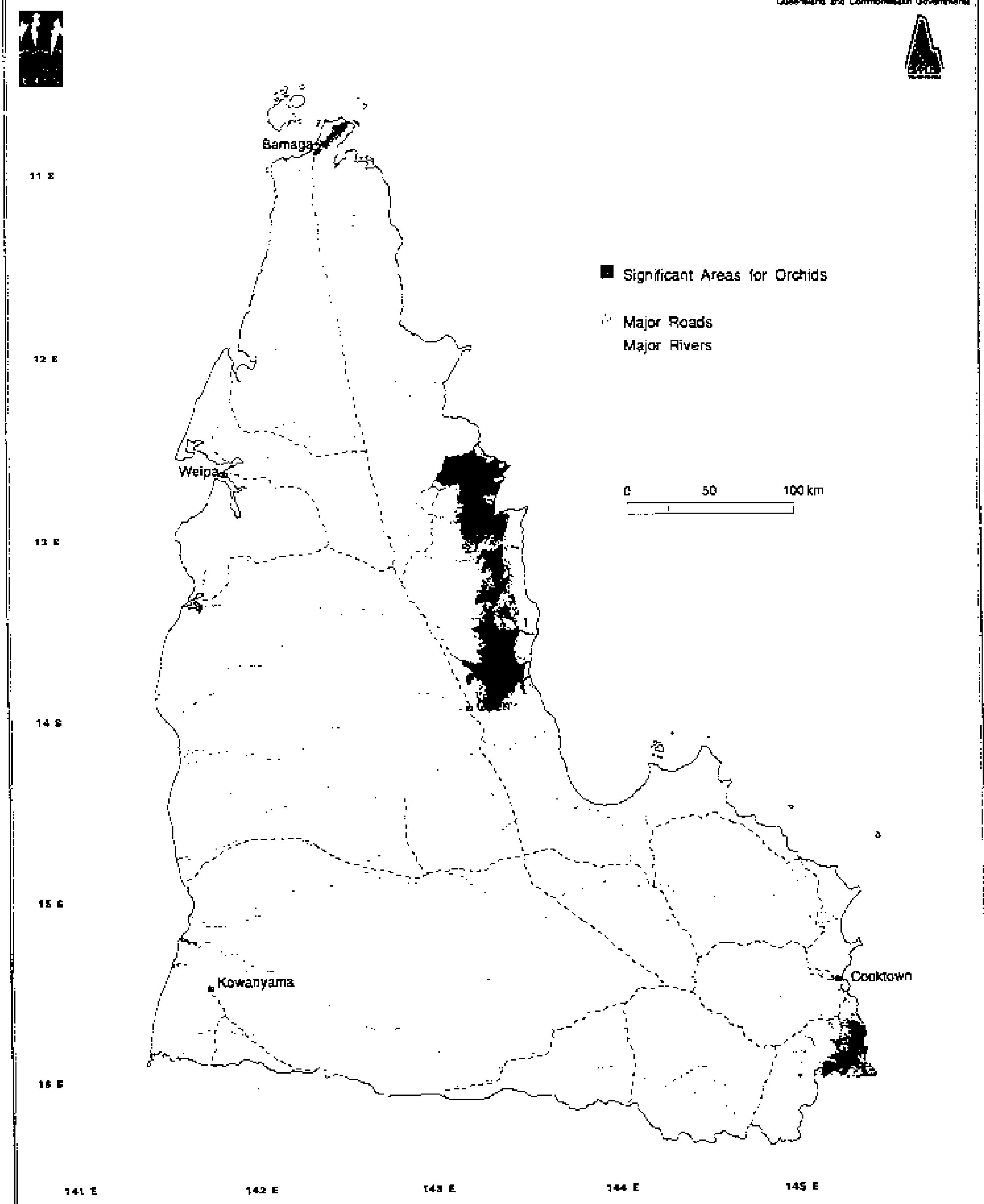
See sources or AHC for precise locations and descriptions.
Locations depicted are of orchid specimens from Queensland Herbarium and published records compiled by Clarkson.

Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 13.1

## Areas Significant for Orchids
Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Hnatiuk, R.J. 1990. Census of Australian Vascular Plants. AGPS Press. Canberra.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. 1993. Vegetation survey and mapping in Queensland. Queensland Herbarium Botany Bulletin No.12.
See AHC or Neldner and Clarkson above for complete bibliography and sources.

**Caveats....**

See sources or AHC for precise locations and descriptions.
Selection of areas depicted made by AHC using information in Hnatiuk (1990) and Neldner and Clarkson (1994).
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 13.2

### 13.3 Areas of Invertebrate Richness

While there has been no systematic survey of invertebrate diversity across Cape York Peninsula, several areas have been identified as being particularly diverse for certain groups of invertebrates by experts in that group.

Kim (1994 pers. comm.) considers that the semi-deciduous notophyll/microphyll vine forest in the Mt Webb - Hopevale area (Neldner & Clarkson Vegetation class 13) is rich in Australian lauxaniid flies (Diptera: Lauxaniidae), with thirty species from four genera collected there. The Iron Range area (thirty-one species in four genera) is another area of Cape York Peninsula, that Kim (1994 pers. comm.) considers to have a significant high diversity in an Australian context of lauxaniid flies.

McEvey (1993) records that 86 species of drosophilid flies (Drosophilidae - Diptera) are known from the Iron Range. About 279 species of drosophilid are known in Australia. Iron Range is one of four major centres of diversity for this largely rainforest fly group. The group as a whole is taxonomically well known.

Valentine and Johnson (Section 14 this report) identify the Iron Range area as a critical location for butterfly diversity in Cape York Peninsula, with several species of butterfly only known from this location.

Taylor (1972) collected an estimated 106 species of ants from 51 genera within the Iron Range area. At this time this was the richest ant fauna ever sampled in Australia. Taylor considered that about 80 per cent of the ant species were of New Guinean origin, which probably accounts for the high ant diversity of rainforests in this area, when compared against relatively species poor ant faunas of the Wet Tropical Forests and the subtropical forests of Queensland and New South Wales.

For the purposes of entomological research, the Iron Range area is defined as including the Claudie River and Gordon Creek rainforests incorporating Mt Lamond and Phillip Hills, an area about 10-15 km in diameter.

The McIlwraith Range is also considered to be a core area for invertebrate diversity in Australia. For example, 2,000 species of Lepidoptera (moths and butterflies) were collected during one dry season along just a seven kilometre length of track (ANIC News 1994).

## 14.0 AREAS OF SIGNIFICANCE FOR BUTTERFLIES

The identification and documentation of areas of significance for butterflies has been prepared by Peter Valentine (James Cook University) and Steven Johnson (Queensland Dept. of Primary Industry), in response to a request from the AHC. Their report forms the basis of this section. There are many unpublished records included in this section of the CYPLUS report and intellectual property rights are hereby asserted, by Valentine and Johnson.

This section of the report is based on a combination of published sources and personal experience of the butterfly fauna on Cape York Peninsula. The latter derives from very many field visits to a wide range of sites commencing in 1976 and continuing to the present. Notes within the document refer primarily to sites personally visited under varying conditions but where possible these have been supplemented by reference to the observations of others. A complete bibliography of butterfly fauna records from Cape York Peninsula has not yet been prepared but relatively recent records of published observations are given. The notes do not refer to Torres Strait Islands for which there are additional records of significance including several species not known from elsewhere in Australia. Common and Waterhouse (1981) has been used as the primary source for taxonomy but where generally accepted revisions have been undertaken the more recent names have been employed. Published references are listed in the bibliography, and at Appendix 5.

Research into the butterfly fauna of Cape York Peninsula has been mainly concerned with the tasks of inventory and habitat association. Some workers have also contributed significantly to knowledge about particular species, especially descriptions of life history details and some behavioural observations. In many instances work on the butterflies of Cape York Peninsula has uncovered details not known about particular species even when those species also occur elsewhere. Few butterflies are entirely confined to Cape York Peninsula but some have been first described from locations on the Peninsula or, more frequently, their presence within Australia first discovered on Cape York Peninsula.

At the present time there appear to be approximately 223 species of butterflies on Cape York Peninsula. These are divided amongst the families as shown in Table 14.1.

**Table 14.1: Family distribution of butterfly species known from Cape York Peninsula**

| FAMILY | CYP # SPP | AUST # SPP |
|---|---|---|
| LYCAENIDAE | 80 | 140 |
| LIBYTHEIDAE | 1 | 1 |
| NYMPHALIDAE | 49 | 85 |
| PIERIDAE | 24 | 34 |
| PAPILIONIDAE | 14 | 18 |
| HESPERIIDAE | 55 | 115 |
| TOTALS | 223 | 393 |

It is clear from this that about 57% of all Australian species are present on Cape York Peninsula. A very few of these are known from extremely limited sightings (for example *Hasora celaenus* (Hesperiidae) and *Appias albina* (Pieridae). Others which do have limited museum records are readily found in the wild but at relatively inaccessible times or places.

The first part of this survey was conducted very quickly. It identifies some key locations which are clearly of very high value for butterfly conservation. The second part identifies specific fauna which may be of conservation importance. Limited time has been available for this survey and the results are therefore more indicative and selective rather than definitive. A more comprehensive analysis would require more time and additional fieldwork. For extensive areas of Cape York Peninsula information is sparse for butterfly fauna and field studies will be needed to clarify this situation. Some locations requiring field studies include most of the western parts of the Peninsula (other than Weipa); the Olive River area; Strake Range; McIlwraith Range and central sandstone areas such as Battle Camp Range and the Laura Quinkan country.

This section of the report sets out an interim set of places considered by the authors to be of high conservation value for the butterfly fauna of Cape York Peninsula. These places have been identified for the distinctive characteristics of their environment; their history of entomological studies; their accessibility or simply their familiarity to the authors. It is recognised that there will be many areas on the Peninsula which may have considerable conservation value for butterflies but which are not identified in this report, because they have not been subject to entomological studies. It is recommend that conservation agencies encourage surveys to further advance knowledge of the conservation values of butterflies. This report does identify the key locations known for all the endemic and less well known species of Cape York Peninsula, which are shown on Figure 14.1.

## 14.1 Important Places

### 14.1.1 Lockerbie Scrub.

This area has not been sufficiently studied by entomologists, but even so has some key records including the only mainland Australian records for the Papua New Guinea Morphinae subfamily (Nymphalidae). Two recent records confirm a 1916 record of *Taenaris artemis*, and both of these are from Lockerbie, the most recent June 1990. Other relatively uncommon species include *Libythea geoffroy* (Libytheidae), [from Somerset]; *Acrodipsas melania* (Lycaenidae) [unspecified "Cape York"]; *Chaetocneme critomedia* (Hesperiidae); *Hypochrysops theon* (Lycaenidae); *Hypochrysops apollo* (Lycaenidae); *Hypochrysops elgneri* (Lycaenidae); *Philiris diana* (Lycaenidae); *Deudorix epirus* (Lycaenidae); *Petrelaea tombugensis* (cf *P. dana* ), Lycaenidae; *Ionolyce helicon* (Lycaenidae); *Erisychton palmyra* (Lycaenidae); *Danis danis* (Lycaenidae); *Catochrysops amasea* (early records), Lycaenidae; *Pithecops dionisius* (Lycaenidae); *Neopithecops lucifer* [only mainland record], Lycaenidae; *Praetaxila segecia* (Lycaenidae).

There are many other interesting records from this area and the forests provide habitat for a large number of species across all families of butterflies. Generally the habitat is in reasonable condition.

### 14.1.2 Heathlands Area.

This patch of heathland plus rainforest is the location for the only Australian records of *Lexias aeropa* (Nymphalidae). These records were in the mid 1970's (see Monteith & Kerr, 1977) and have not been repeated, mainly due to limited collecting at this location. More recently the little known species *Praetaxila segecia* was recorded here (5.11.91), the only member of the subfamily Riodinae (family Lycaenidae) known in Australia (see Valentine & Johnson, 1992). The habitat also provides intermediate locations for many other species found in CYP rainforest patches.

Other associated areas include the Shelburne Bay dunefields and lakes (poorly known) and the Olive River (no surveys of butterfly fauna undertaken). Both these sites, but especially the latter, should be subject to inventory in the future.

### 14.1.3 Iron Range Area

This is undoubtedly a critical location for butterfly diversity in Cape York Peninsula. Several species of butterflies are only known from this location and other relatively rare species also occur here. Despite the attention of numerous entomologists over the years many species known from Iron Range remain insufficiently understood with regard to either habitat

**Butterflies**
Significant Areas
Cape York Peninsula

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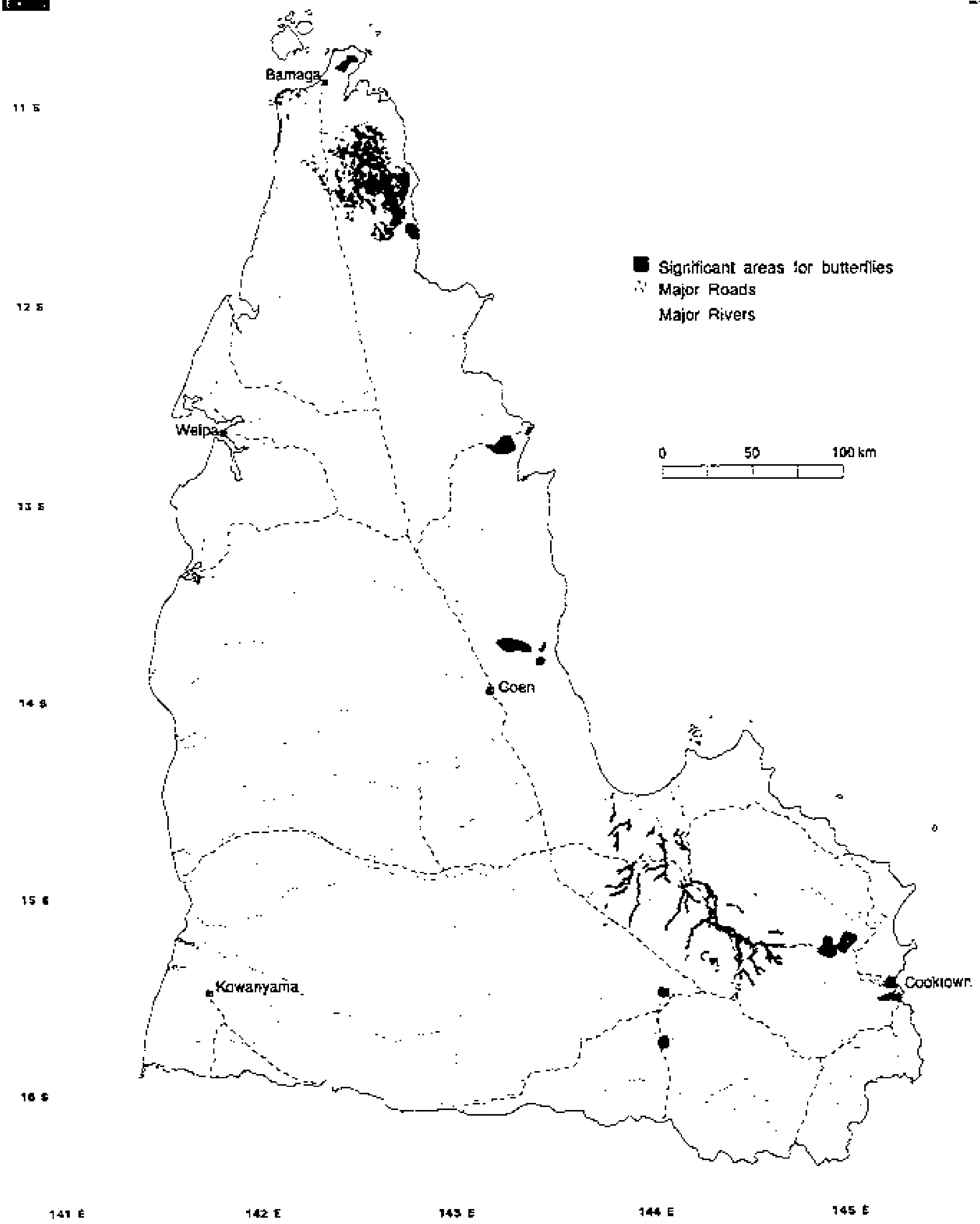


Map prepared through the facilities of the Environmental Resources Information Network by D. Clauss (May 05, 1995)

**Sources....**
AHC. Areas of Conservation Significance - Cape York Peninsula. In preparation.
Valentine, P. and Johnson, S. 1995. Critical Locations for Butterflies on CYP. Report to the AHC.
Clarkson, J.R. and Neldner, V.J. (1994). CYPLUS NR01 Vegetation Survey. Queensland Herbarium.

**Caveats....**
Most areas delineated by P. Valentine on 1:100,000 and 1:250,000 maps. Boundaries very approximate. Areas depicted in Lakefield NP contain deciduous and alluvial rainforests (BVG 5 and 6) as classified by Clarkson and Neldner (1994). Areas depicted in Jardine Basin contain northern CYP and alluvial rainforests (BVG 3,6) in accordance with Clarkson and Neldner (1994).

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 14.1

requirements or `llife history details. The life histories of eight of the ten species confined to Iron Range remain unknown.

It is suspected that at least some of these are canopy insects which will require specialised effort to uncover details of their behaviour and reproductive strategies. Because other areas which may be comparable have not been studied as comprehensively (eg Lockerbie and the McIlwraith Range), it is likely that species now only known from Iron Range will later be found elsewhere.

Butterflies restricted to this location in mainland Australia are as follows:

**Lycaenidae family:**
*Hypochrysops hippuris*
*Hypochrysops cleon*
*Philiris ziska titeus*
*Philiris azula*
*Jamides cytus claudia*

**Nymphalidae family:**
*Charaxes latona*
*Apaturina erminea*

**Pieridae family:**
*Elodina claudia*

**Hesperiidae family:**
*Mimene atropatene*
*Rachelia extrusa*
*Allora major major*

Due to the lack of field research at other sites it remains likely that at least some of these species will be subsequently located elsewhere. From the records of Valentine and Johnson (1985) there are at least 200 species of butterflies known from the Iron Range area and these represent a high proportion of each of the families. Many species of butterflies which are mainly confined to the Peninsula or appear relatively uncommon or are little known are also recorded from Iron Range and these are listed in table 14.2.

14.1.4 Mt White, Coen.

This location has provided data on distribution and life history for many relatively rare species of butterflies. The topography of the hill appears to fit it very well as a prime hill-topping site for butterflies. In addition, the rocky areas seem to protect patches of vine thicket vegetation, the source of larval food plants for many species of CYP butterflies. The hill has attracted the attention of entomologists for many years and a good appreciation of the associated fauna has been developed. Amongst the relatively uncommon species known from this hilltop are the following.

**Lycaenidae family:**
*Acrodipsas melania*
*Acrodipsas hirtipes* [also at other sites and in the NT]
*Hypochrysops polycletus*

**Libytheidae family:**
*Libythea geoffroy nicevillei* (location where its life-history was first discovered; see Valentine & Johnson, 1989)

**Papilionidae family:**
*Graphium aristeus parmatum* (location where its life-history was first discovered; see Valentine & Johnson, 1989). [This species can be abundant]

**Hesperidae family:**
*Allora doleschallii* [Now well known, common]

**Table 14.2 Uncommon (in Australia) Butterfly Species found in the Iron Range**

| **Hesperiidae family**: | Notes |
|---|---|
| *Allora doleschallii doleschallii* | [Widespread, common] |
| *Chaetocneme denitza* | [Widespread] |
| *Chaetocneme critomedia sphinterifera* | [Widespread] |
| *Toxidia inornata* | [Also at Rocky River] |
| *Telicota brachydesma* | [Widespread, little known] |
| *Borbo cinnara* | |
| | |
| **Pieridae family**: | |
| *Eurema candida virgo* | [Common, McIlwraith also] |
| *Delias mysis waterhousei* | [Common] |
| *Delias ennia tindalii* | |
| *Delias aruna inferna* | [Common at times] |
| *Delias nysa nivira* | |
| *Appias ada caria* | [Common at times] |
| | |
| **Nymphalidae family:** | |
| *Hypocysta angustata angustata* | [Common] |
| *Pantoporia venilia moorei* | [Common] |
| *Hypolimnas anomola albula* | |
| | |
| **Libytheidae family:** | |
| *Libythea geoffroy nicevillei* | [Can be common in wet season] |
| | |
| **Lycaenidae family:** | |
| *Hypochrysops theon medocus* | [CY-McIlwraith, Common] |
| *Hypochrysops apollo phoebus* | [CY-McIlwraith, Common] |
| *Hypochrysops elgneri barnardi* | [also at Rocky River] |
| *Philiris diana papuana* | [also at Rocky River] |
| *Deudorix epirus agimar* | |
| *Candalides consimilis toza* | |
| *Petrelaea tombugensis* | |
| *Ionolyce helicon hyllus* | [can be common at Lockerbie] |
| *Danis danis syrius* | [can be common at Lockerbie] |
| *Catochrysops amasea amasea* | |
| *Pithecops dionisius dionisius* | [also at Rocky River] |
| *Praetaxila segecia punctaria* | [widespread but little known] |

<u>14.1.5 Vine Thicket Communities (riparian and other isolated pockets throughout Cape York Peninsula).</u>

Most of these communities support an important element of the Cape York Peninsula butterfly fauna including species which appear restricted to these communities. Vine thickets may be especially important for the survival of some species in the western and central part of the Peninsula. Restricted species include:

| | |
|---|---|
| **Hesperiidae:** | *Allora doleschallii* |
| **Papilionidae:** | *Graphium aristeus parmatum* |
| **Libytheidae:** | *Libythea geoffroy nicevillei* |
| **Lycaenidae:** | *Hypochrysops polycletus* |

Many other widespread species require this habitat for reproduction or at least take advantage of its presence for localised breeding. Survival of the many patches of vine thickets may be critical in maintaining connections between disjunct breeding populations. Very few are formally protected although most may not be under threat. Further study is needed.

14.1.6 Rocky River area, Silver Plains, McIlwraith Range.

This is a very important location and supports some interesting and little known species:

**Hesperiidae:** *Chaetocneme critomedia* (southern limit)

**Lycaenidae:** *Hypochrysops theon cretatus* (local endemic subspecies and type locality)
*Hypochrysops elgneri* (southern limit, unknown life history)
*Philiris diana papuana* (southern limit, few records elsewhere)
*Pithecops dionisius dionisius* (southern limit, recent discovery)

**Lycaenidae: Riodininae subfamily:** *Praetaxila segecia* (southern limit, unknown life history, few records)

Given the nature of the habitat types represented and the limited study at these sites, it is expected that further evidence of the importance of this area will emerge in time. It should also be noted that even the western part of the McIlwraith Range is poorly studied and the main range itself has been rarely visited by any entomologists. This entire block of forest should be included in future field inventory programs.

14.1.7 Lakefield National Park.

Riparian thickets along lagoon and stream edges including dense stands of *Strychnos lucida* (Loganiaceae). The fruits on these trees support a large population of the Lycaenidae butterfly *Virachola democles*. The population in this Park is at times extremely abundant. The butterfly occurs widely throughout the Peninsula south to Undara Crater.

14.1.8 Sandstone outcrops in the Laura area.

The outcrops include areas 20 km west of Fairview, other outcrops 10 km south of Laura, Henderson Range and Battle Camp Range. The Fairview site butterflies include:

**Lycaenidae:** *Zetona delospila*
**Hesperiidae:** *Trapezites macqueeni*

The Laura south site has populations of *Proeidosa polysema* (Hesperiidae). There is an unconfirmed sighting of a Nesolycaena species in this area, almost certainly an undescribed species. Further field study is needed.

14.1.9 Isabella Falls area, NW of Cooktown.

This area has some fascinating butterflies of surprising diversity and distinctiveness. These include:

**Lycaenidae:** *Philiris sp* (new species for Australia; description in prep.)
*Hypochrysops apollo* (considerably inland record of rare butterfly)
*Hypochrysops miskini* (northernmost record, significant disjunction)
*Pseudodipsas cephenes* (ditto)

**Hesperiidae:** *Telicota brachydesma* (rare species)
*Telicota eurotas* (inland location, relatively uncommon)

Other species of rainforest and open forest affiliations (the latter includes *Trapezites macqueeni* and *Proeidosa polysema* [both Hesperiidae]). It is almost certain that further interesting butterfly records will emerge after field surveys to the north of this area. Starke Range has not been surveyed and clearly deserves exploration. The McIvor River riparian rainforests are known to include the undescribed *Philiris* species and it is likely this species occurs further north in the Starke Range. Further studies are needed of these areas.

<u>14.1.10 Mangrove communities along Endeavour River.</u>

These mangroves support major a population of ant-plants and associated with them are a significant colony of the vulnerable species *Hypochrysops apollo*. This population appears to be closest to the southern vulnerable subspecies. In the same location are large colonies of *H. narcissus* and *H. apelles*.

<u>14.1.11 Mangrove and fringing Melaleuca communities on the south side of the Annan River.</u>

This area has a population of *Hypochrysops apollo* on ant-plants. It also has populations of *Ogyris aenone* (Lycaenidae) together with two other jewel butterflies (*H. narcissus* and *H. apelles* ).

<u>14.1.12 Jardine River Rainforests.</u>

This is one of the few locations entomologists have deliberately investigated and for which a published list of species has been produced. The environments were mainly riparian rainforests and associated vegetation and access to these upper reaches of the river was by canoe. Results were published by Moulds and d'Apice (1982) and illustrate some of the interesting fauna in these locations.

## 14.2 Concluding Comments

The western parts of Cape York Peninsula have been little studied by butterfly researchers and the fauna and habitat relationships are therefore not well known. In general, distinctive faunal elements are likely to be found in riparian forests; coastal environments including sand dunes and mangroves; patches of vine thickets, especially those associated with higher ground; sandstone outcrop areas with fire-protected flora; healthy natural grasslands and swamps; broad eucalypt and other woodlands with associated grasses.

Overall the butterfly fauna of Cape York Peninsula is reasonably well known at the crude inventory level but considerable gaps in knowledge relate to three main aspects:
a) basic knowledge for many species of general habitat preferences, life-history strategies and associated interactions with plants and other insects;
b) the distribution patterns across the majority of the Peninsula areas, which have been poorly studied by entomologists; and
c) the effects of changed management practices on the survival of species including those which may be relatively widespread.

It would be appropriate for conservation agencies to consider more specialised target surveys and other research to fill in the gaps listed above.

## 14.3 Notes on the Locations Identified

'Iron Range' refers to the area immediately surrounding the Claudie River and Gordon Creek rainforests including Lamond and Phillip Hills. Most of the area is included in National Park. Various records and labels for butterflies incorporate a number of "locations" here treated as one. Thus the label "Claudie River" is not significantly different from "Iron Range". In this sense the location "Iron Range" really covers an area with a diameter of about 10 - 15 km. Most of the more interesting records are centred on the locations Philip Hill, Lamond Hill and Gordon Creek, an area with a diameter of perhaps 4 - 5 km and at the eastern margin of the greater "Iron Range" location. Locations identified as "West Claudie" or "Mt Tozer" are on the far western edge of the Iron Range area (*sensu latu*).

'Lockerbie' refers to mainly rainforest habitats to the north east of Bamaga near Cape York and Somerset. This also covers an extensive area, perhaps 10 km or more in diameter. The main connecting road from Bamaga to Cape York goes through these forests and there is a junction with a side road to Somerset. The environment is mainly rainforest although it includes patches of other communities.

'Heathlands' is an area of rainforest and heath vegetation now under Qld Government tenure. It is sometimes known by discrete locations such as the "Y junction" and Captain Billy Landing. The main areas known to be of interest for butterflies are the rainforests.

'Rocky River' refers to the southern and eastern boundary of the McIlwraith Range, accessible through Silver Plains station and including country to the north of the Massey River as far as Nesbit River. This supports riparian rainforest with extensive melaleuca woodlands adjacent to them. In places, poorly drained areas support vine thickets and rainforest patches and these are also important. Further up the river courses, especially the Rocky River, there is extensive rainforest and this supports a range of butterflies. There is presumed to be continuity between these rainforests and those on the western flanks of the McIlwraith Range which is another area of high conservation value for butterflies. This latter includes the Peach River area and higher elevation sites through to the Leo Creek area on the east of the range. Only a tiny part of this range has been studied.

A fairly comprehensive modern bibliography of Cape York Peninsula butterflies has been prepared. Appendix 5 to this report includes the bibliography and a list of all species found only or primarily on Cape York Peninsula.

# 15.0 SIGNIFICANT VEGETATION CORRIDORS

## 15.1 Riparian Corridors

The major river systems on the Peninsula tend to run from east to west. The rivers are usually fringed by a strip of forest, that is much lusher than the dry woodlands found away from the water courses. The forests act as corridors for dispersal for many species, including the Spotted Cuscus *(Spilocuscus maculatus)*, White-tailed Rat (*Uromys caudimaculatus)*, frugivorous birds, and Palm Cockatoo (*Probosciger aterrimus)*. The riparian corridors allow movement between the extensive rainforests on the east coast and the smaller sand ridge rainforests on the west coast (Winter and Lethbridge 1994, DEH 1995). These corridors are considered important under sub-criterion A2 (maintenance of existing processes) as they provide suitable migratory habitat for many species.

Winter and Lethbridge (1994) concluded that the riparian forests of greatest conservation significance are those along the major rivers, namely the Archer-Coen and the Wenlock River systems.

In the south-east of the study area, the Normanby River corridor also provides a substantial corridor that links the Wet Tropical Rainforests to the south of the study area with the coast to the south of the Central Peninsula Rainforest areas. For many species that migrate north-south along the Peninsula and to the forests to the south, this area provides an important linking corridor.

The riparian corridors are also important dry season refuge areas for woodland species whose populations may be decimated through a combination of heat and drought. The riparian vegetation may also be the highest feature on a floodplain and of importance as a refuge habitat during times of flooding (Winter & Lethbridge 1994).

Significant riparian corridors are shown on Figure 15.1.

# Riparian Environments of Significant Conservation Value Cape York Peninsula

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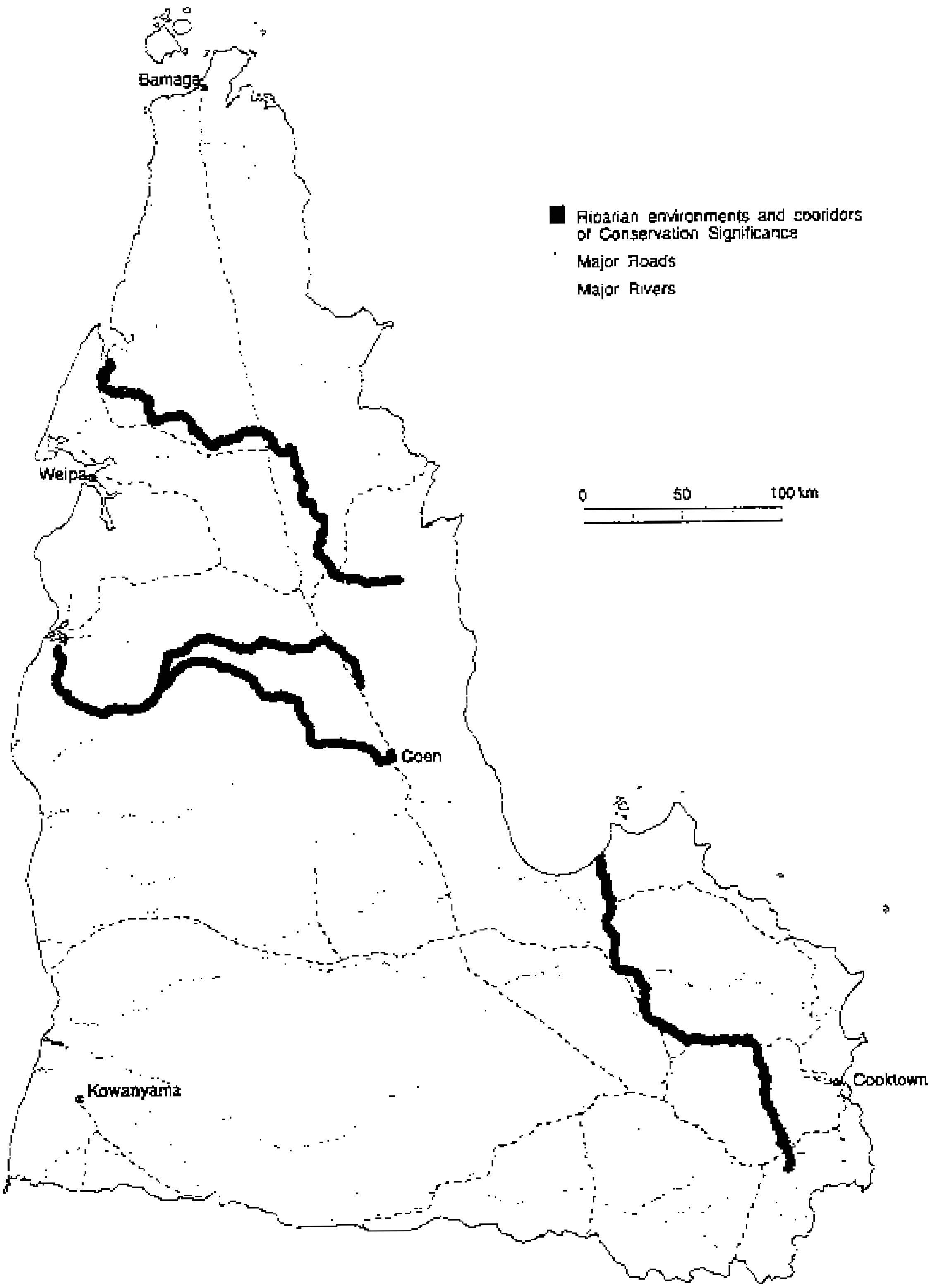


Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 04, 1996)

**Sources....**

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Herbert, B., et al 1994. Fish Fauna Survey Report. Walkamin Research Station, QDPI.

**Caveats....**

See sources or AHC Conservation and Natural Heritage Assessment for precise boundaries and descriptions.
Selection of significant riparian environments/corridors made by AHC based on sources above
Data extraction and map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 15.1

# PART C CONSERVATION VALUES THAT ARE SPECIES SPECIFIC OR POINT LOCATION BASED

## 16.0 AREAS OF BIOGEOGRAPHIC AND EVOLUTIONARY SIGNIFICANCE

Sub-criterion A1 (significance for demonstrating importance in the evolution of Australian flora, fauna landscapes or climate) has been assessed by considering a number of biogeographic attributes of the Peninsula that illustrate important components of the evolutionary history of the region. Gondwanic affinity, endemism and links with the environments of New Guinea have been considered. The assessment has identified plants and animal species that are of biogeographic or evolutionary significance and then determined areas on the Peninsula where these species are concentrated.

### 16.1 The Gondwanic Element

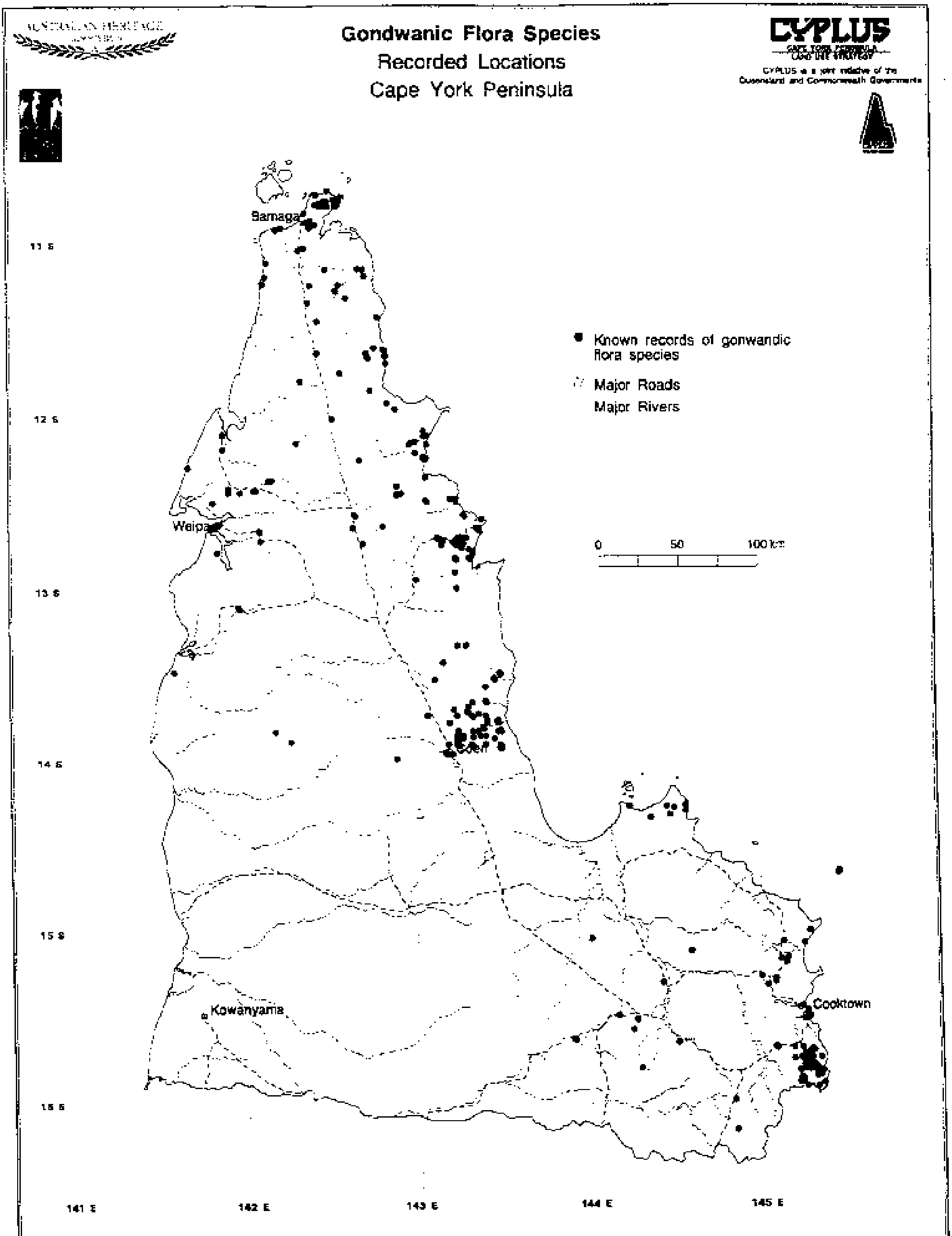
Permian plant fossils in the Cooktown and Little River areas indicate that about 250 million years ago there was a *Glossopteris* forest on at least part of Cape York Peninsula (Bultitude *et al* 1991, White 1961). Similar fossils occur across Australia and the southern continents, which at that time were joined together to form the super continent Gondwana. By about 50 million years ago all connections with the other southern continents were severed as Australia drifted north towards the Asian continental plate. During this time Australia became more arid and an autochthonous (or indigenous) element of the Australian biota (derived from the Gondwanic stock) evolved with the changing conditions.

Although *Glossopteris* is now extinct, a relic gondwanic element has persisted in the Australian biota. This element is typified by taxa that are generally confined to moist, cool closed forests, have not greatly diversified into genera or species, and which have close relatives in other southern lands, such as New Zealand, South America or New Caledonia.

Within the CYPLUS study area there are at least 104 plant species (Appendix 6) that belong to the relict Gondwanic element, and which also have a location recorded within the CYPLUS flora data set of Cofinas *et al* (1994). Gondwanic species were identified by reference to Barlow (1981), Rainforest Conservation Society (1984), Keto and Scott (1989), Clifford and Simon (1981), Page and Clifford (1981) and Hoogland (1972). Species belonging to this element include 95 species which are members of primitive angiosperm families (Annonaceae 11, Eupomatiaceae 2, Hernandiaceae 3, Lauraceae 57 - not including *Litsea* or *Cinnamomum*, Monimiaceae 15, Myristicaceae 3, Winteraceae 2, Austrobaileyaceae 1, Himantandraceae 1). Other relic plants include orchids belonging to the *Arthrochilus, Corybas* and *Calochilus* genera, members of the Araucariaceae and Podocarpaceae families, and members of the Proteaceae genera *Carnarvonia* and *Placospermum*.

Species considered to belong to the ancient Gondwanic element are distributed across Cape York Peninsula (Figure 16.1) but are concentrated in areas of rainforest, particularly the Wet Tropical Forests in the south-east and in the McIlwraith Range area (Appendix 8). The Wet Tropical Forests within the CYPLUS area are the northern most part of a forest type that is of international significance as the habitat of numerous relic species that provide understanding on the origin, evolution and dispersal of flowering plants (Rainforest Conservation Society 1984). There are nineteen families of primitive angiosperms remaining worldwide; of these, thirteen occur within the Wet Tropics area, and ten within the CYPLUS area. Thirteen of the relic plant species within the CYPLUS area only occur within the Wet Tropical Forests, including all of the Austrobaileyaceae, Himantandraceae and primitive Proteaceae. There are also several relic and primitive vertebrate species which are only found within the south-east of the CYPLUS

## Gondwanic Flora Species
## Recorded Locations
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 25, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Barlow, B.A. 1981. Australian Flora: its Origin and Evolution. In Flora of Australia, vol. 1. AGPS.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Rainforest Conservation Society. 1984. Conservation Significance of Wet Tropics on NE Qld. Report to AHC.
See AHC for complete bibliography and sources.

**Caveats....**
Gonwandic species compiled by AHC. See AHC 1995 for particular species and genus.
Locations depicted are of flora specimens from Queensland Herbarium and published records compiled by Clarkson.
See ERIN or Queensland Herbarium for precise locations and descriptions.
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.1

study area, including the frogs *Taudactylus acutirostris, Litoria nannotis,* and *Litoria rheocola,* and Bennett's Tree Kangaroo (*Dendrolagus bennettianus).*

The McIlwraith Range area contains an important northern extension of the Gondwanic element, with several relic species having disjunct populations in the area. Relic species that occur both in the McIlwraith and Wet Tropical Forests include the plants *Bubbia semecarpoides, Podocarpus elatus,* and *Corynocarpus cribbianus.* The area also contains several endemic and primitive plant species or subspecies, including *Rhodamnia sp. aff blairiana, Beilschmiedia sp.* "McIlwraith Range", three microhylid frogs and a primitive gecko (Keto & Scott 1989).

Vegetation classes on Cape York Peninsula that are important habitat for Gondwanic plant species can be identified through interrogation of the CORVEG database of Neldner and Clarkson (1994). This data-base contains species lists for 1844 sites on the Peninsula. Forty-five species that belong to the Gondwanic element were recorded at the CORVEG sites. Vegetation classes with a richness of Gondwanic species include:

- the complex mesophyll vine forest of the Wet Tropics region (Class 3);
- notophyll vine forest of the mid-Peninsula rainforests (Class 21); and
- the semi-deciduous mesophyll vine forest of the Claudie and Normanby Rivers (Class 8).

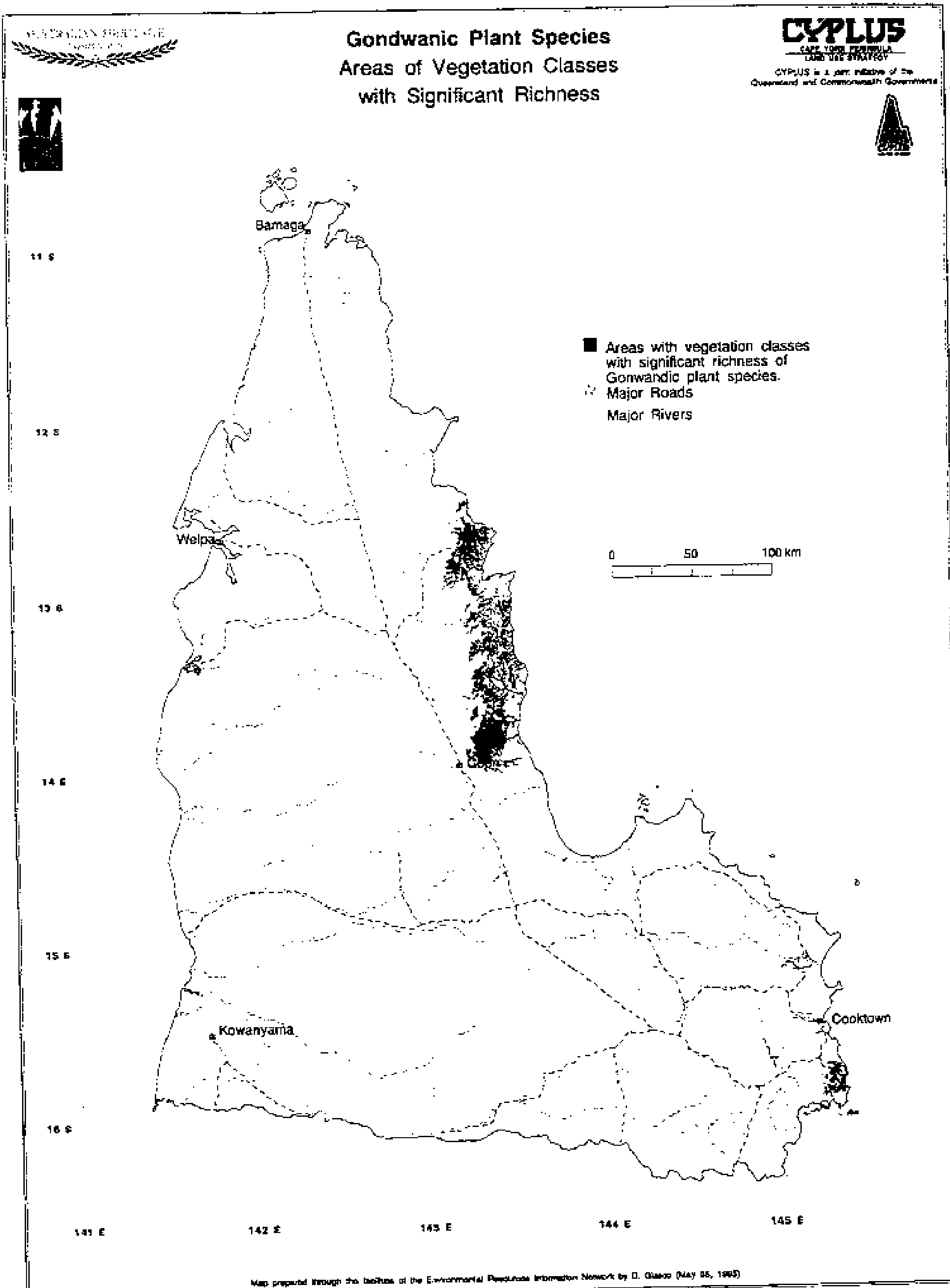
The distribution of these classes on the Peninsula is shown on (Figure 16.2), while the number of Gondwanic species recorded for each vegetation class is given in Appendix 9.

Outside the McIlwraith and Wet Tropics area, Lydia and Andoom Creeks have evolutionary significance as the habitat of *Austrobates rivularis,* considered to be a relic line of water strider and a "missing link" between water striders living in freshwater and seawater. The insect allows some understanding of the evolution of sea skaters, the only truly oceanic insects.

## 16.2 The Intrusive Element

About 15 million years ago Australia collided with the Sundaland plate, allowing an intrusive (largely Indo-Malay) element into the Australian flora. As the vegetation of the Indo-Malay area has largely been rainforest since the time of the collision, much of the intrusive element is comprised of a rainforest element, and is concentrated in Australian rainforests. There are at least 103 plant taxa occurring on Cape York Peninsula which are considered to belong to the intrusive element and which also have a location recorded within the CYPLUS flora data set of Cofinas *et al* (1994) Appendix 6 lists the 103 plant species. Intrusive species were identified through reference to Barlow (1981), Rainforest Conservation Society (1984), Clifford and Simon (1981), Page and Clifford (1981) and Hoogland (1972). The distribution of these species on Cape York Peninsula is shown in Figure 16.3.

Although Lockerbie Scrub on the tip of Peninsula is the closest large Australian rainforest area to the Indo-Malay province, it does not support the largest number of species belonging to the intrusive element (Appendix 8). The mid-Peninsula rainforests are the area of highest concentration while the Wet Tropical Forests, within the CYPLUS study area, also support a relatively large number (53) of intrusive plant species. Climatic conditions have varied dramatically during the last 15 million years. It is considered that during extremely wet periods, rainforest would have extended over much of the east coast of Cape York Peninsula forming a belt almost continuous with that of New Guinea. However, during arid times the rainforest is thought to have contracted back to high mountain areas, with the McIlwraith range and the Wet Tropical Forests area being particularly important refugium (Kikkawa *et al* 1981).




**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Barlow, B.A. 1981. Australian Flora: its Origin and Evolution. in Flora of Australia, vol. 1. AGPS.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Rainforest Conservation Society. 1984. Conservation Significance of Wet Tropics on NE Qld. Report to AHC.
See AHC for complete bibliography and sources.

**Caveats....**

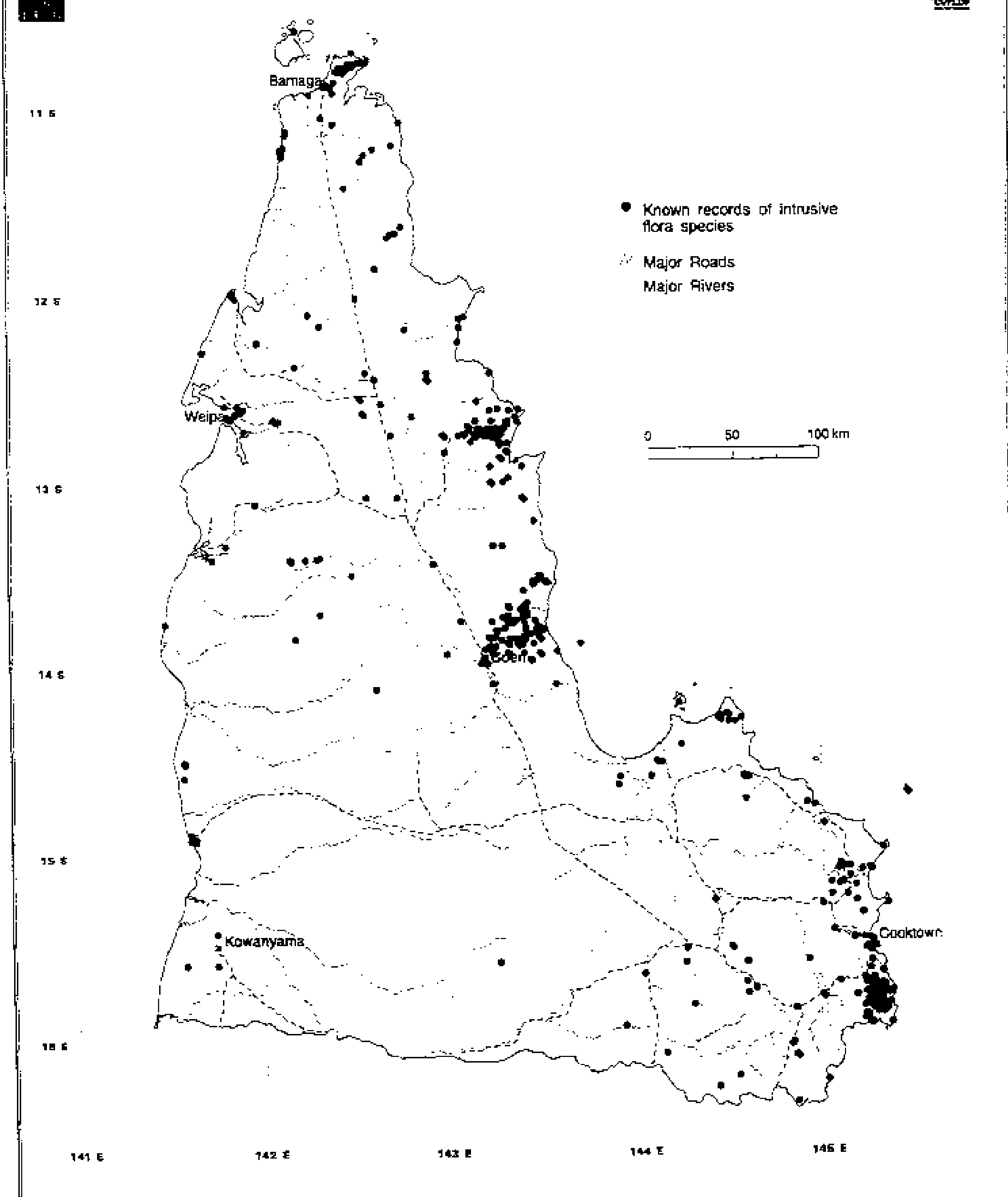
Gonwandic species compiled by AHC. Known locations of these species were overlain with Neldner and Clarkson's vegetation classes to determine which classes contained the most Gonwandic species.
The areas depicted above are vine forests (vegetation classes 3, 8, and 21).
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.2

# "Intrusive" Plant Species
## Recorded Locations
## Cape York Peninsula

CYPLUS
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 05, 1995)

**Sources....**

AHC, 1995. Areas of Conservation Significance - Cape York Peninsula.
Barlow, B.A. 1981. Australian Flora: its Origin and Evolution. in Flora of Australia, vol. 1. AGPS.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Rainforest Conservation Society. 1984. Conservation Significance of Wet Tropics on NE Qld. Report to AHC
See AHC for complete bibliography and sources.

**Caveats....**

Intrusive plant species have origins largely in Indo-Malay 15 million years ago. These are not ferals
Intrusive species compiled by AHC. See AHC 1995 for specific taxa.
Locations depicted are of flora specimens from Queensland Herbarium and published records compiled by Clarkson.
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.3

Analysis of the distribution of the sixty-two intrusive species within the CORVEG database indicates that, in addition to the mid-Peninsula rainforests and Lockerbie Scrub, the beach rainforests of the east coast also contain a richness in intrusive species. Semi-deciduous notophyll or mesophyll vine forest are particularly important habitat of intrusive species. In total five vegetation classes stand out as being particularly rich in intrusive species, when compared to all other vegetation classes on Cape York Peninsula. These classes, in order of richness are:

- notophyll vine forest of the mid-Peninsula rainforests (Class 21);
- the semi-deciduous mesophyll vine forest of the Claudie and Normanby Rivers (Class 8);
- evergreen to semi-deciduous notophyll vine forest of the east coast dominated by *Syzygium* spp., *Terminalia* spp. and *Xanthostemon* spp (Class 20);
- semi-deciduous mesophyll/notophyll vine forest on alluvia in the Cooktown area (Class 10); and
- semi-deciduous notophyll vine forest of Lockerbie Scrub (Class 11).

The distribution of these classes on the Peninsula is shown on Figure 16.4, while the number of intrusive species recorded for each vegetation class is given in Appendix 9.

Continental movement and changing climatic conditions also resulted in changing geography. The southern part of New Guinea has always been a part of the Australian continental plate. The collision of the plates resulted in the formation of high relatively young mountains in New Guinea (Galloway & Loffler 1972). These mountains have been a refuge and source of invasion and re-invasion into Australia of rainforest species of either a Gondwanic or Indo - Malayan origins (Barlow & Hyland 1988).

### 16.3 Extra-Continental Endemic Species

The link between the biota of Cape York Peninsula and New Guinea is well demonstrated by the plants and animals that have an Australian distribution limited to Cape York Peninsula, but which also occur in New Guinea (see Appendix 6 for a list of the plant species). These species are likely to be relatively recent arrivals to Australia. There are at least 21 plant species that fall into this category (*Flora Malesenasia,* P. Forster, A. Bean, and B. Simon (Queensland Herbarium, pers. comm. 1994)). Nearly all of the plants have widespread distributions across the northern half of the Peninsula, with the greatest concentration of these species occurring in the mid-Peninsula rainforests (Appendix 8 - BVG 2).

There are 16 bird species which within Australia are restricted to Cape York Peninsula, but which also occur in New Guinea. These species have a similar distribution to that of the above plants. Thirteen of the species are only known from the northern half of the Peninsula, with their highest diversity occurring in the mid-Peninsula rainforests (Kikkawa 1993, Blakers *et al* 1984, Winter & Lethbridge 1994). The seven extra-continental mammal species also have a similar distribution. It is considered that the large dry and hot plains south of the McIlwraith Range have been a major obstacle to the spread of rainforest biota. Thus many species, particularly those of a New Guinea origin, reach their southern distribution limit in this area (Keto & Scott 1989, Kikkawa *et al* 1984, Barlow 1984), and the mid-Peninsula rainforests are of particular significance in demonstrating the relationship between intrusive New Guinean elements and the autochthonous Australian biota.

The fish species of the mid-Peninsula rainforests also have a strong affinity with New Guinea, though the strongest relationship is with the Jardine River where 63% of the fish species are common between the two countries (Herbert *et al* 1994). There is also a relatively large New Guinean element amongst the caddisfly (Trichoptera), mayfly (Ephemeroptera) and dragonfly (Odonata) faunas of the Jardine River system (Wells & Cartwright 1993).

# Areas of Vegetation Classes with Significant Richness of "Intrusive" Plant Species

CYPLUS

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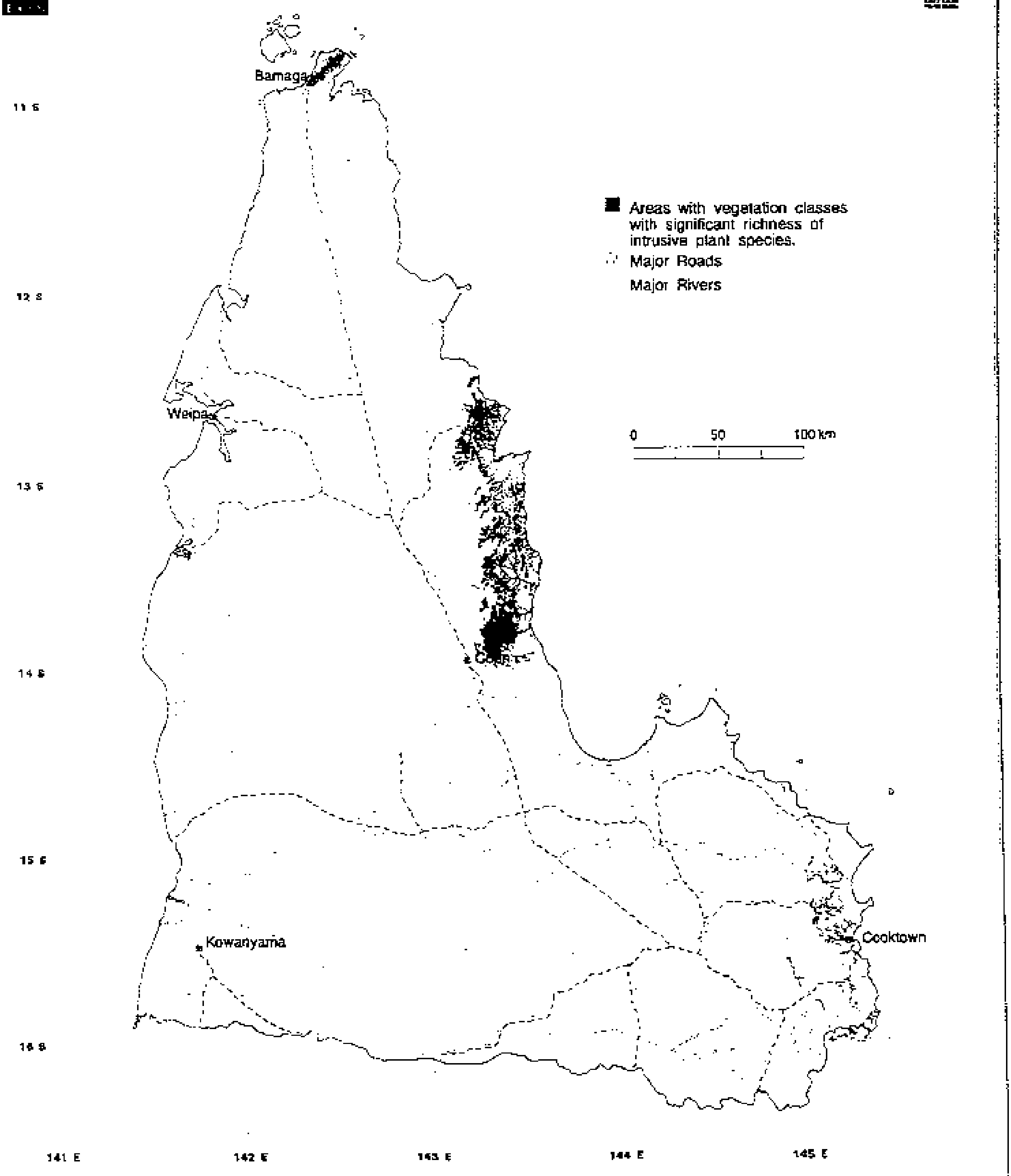



Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 09, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Barlow, B.A. 1981. Australian Flora: its Origin and Evolution. in Flora of Australia, vol. 1. AGPS.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey, Queensland Herbarium.
Rainforest Conservation Society. 1984. Conservation Significance of Wet Tropics on NE Qld. Report to AHC.
See AHC for complete bibliography and sources.

**Caveats....**

Intrusive species compiled by AHC. Known locations of these species were overlain with Neldner and Clarkson's vegetation classes to determine which classes contained the most intrusive species.
The areas depicted above are various types of vine forests (vegetation classes 8,10,11,20 and 21).
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.4

These similarities in river fauna are thought to relate back to one or more periods of lower sea levels, when the rivers of southern New Guinea and the Gulf of Carpentaria all drained into a freshwater inland sea in what is now the Gulf of Carpentaria (Herbert *et al* 1994).

The rainforests of the northern Peninsula, particularly those at Lockerbie comprise a significant number of invertebrates that are shared with New Guinea. For example 84% of the butterfly species known from the Lockerbie Scrub also occur in New Guinea (Monteith 1974), including the only mainland Australian record of the Papua New Guinea Morphinae subfamily (Nymphalidae) (Valentine & Johnson 1995).

The twenty-two extra-continental amphibians and reptiles are not rainforest species and have a different distribution to that of the plants, birds and mammals. Instead, these species are widespread across the Peninsula, or are confined to the northern tip or nearby islands. Twelve of the fifteen species of frogs known from the heathlands area are also found in New Guinea (Cohen & Williams 1993), while thirty-two of the fifty-one reptiles are shared (Couper *et al* 1993). The heathlands is an area of high concentration for amphibians and reptiles that also occur in the New Guinea lowlands.

Although New Guinea and Australia have been broadly connected by land for much of the last 1 million years, the intrusion of species into Australia has been restricted by the general unsuitability of the dry climate of northern Cape York Peninsula for the biota of New Guinea, which has largely consisted of species adapted to rainforest and other wet habitats (Walker 1972).

Nevertheless, the biota of the northern half of Cape York Peninsula, particularly the Jardine River, Lockerbie and Iron Range - McIlwraith Range areas, are of significance because of their biogeographic and evolutionary relationships to New Guinea. Within Australia, this relationship is at its strongest on the Peninsula (Kikkawa *et al* 1981).

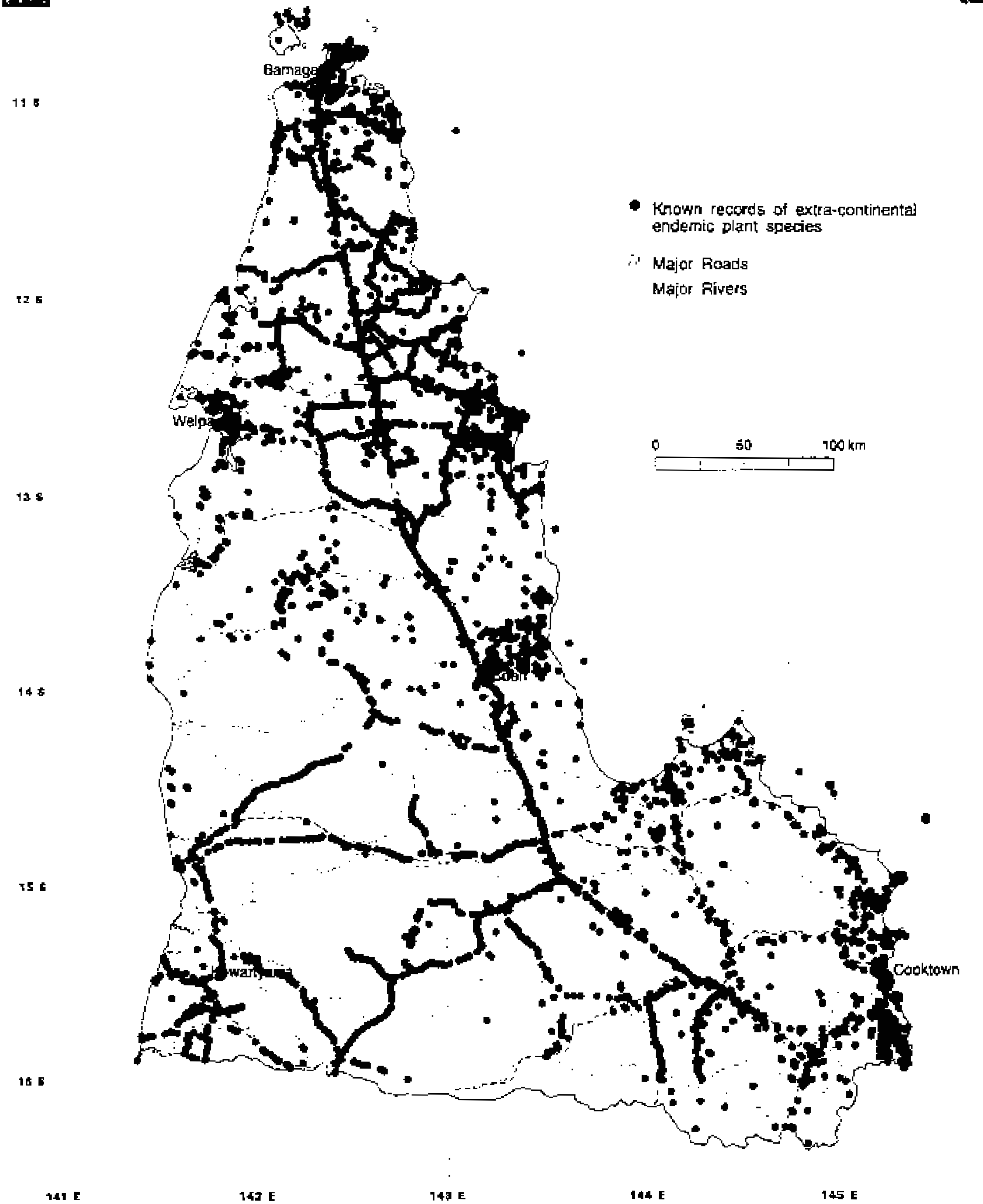
## 16.4 Extra-Continental Plant Species

The importance of rainforest, particularly that in the northern half of the Peninsula, in demonstrating biogeographic connections outside of Australia, is further highlighted by the distribution of all plant species on the Peninsula that also have a distribution outside of Australia. A list of extra-continental species on Cape York Peninsula was established by Neldner and Clarkson (1994) (see Appendix 6). As indicated in Figure 16.5, these species are widespread across the Peninsula. The CORVEG data-base contains distribution records of 223 native species that occur on Cape York Peninsula and also outside of Australia. The greatest species richness of these species is in the following habitats:

- semi-deciduous mesophyll vine forest of the Claudie and Normanby Rivers (Class 8);
- notophyll vine forest of the mid-Peninsula rainforests (Class 21);
- simple evergreen notophyll vine forest of north-east Cape York Peninsula (Class 24);
- evergreen notophyll vine forest of the major streams (Class 18);
- evergreen to semi-deciduous notophyll vine forest of the east coast dominated by *Syzygium* spp., *Terminalia* spp. and *Xanthostemon* spp (Class 20);
- evergreen mesophyll vine forest with *Archontophoenix alexandrae* (Class 16);
- simple evergreen notophyll vine forest of the Iron Range and Wet Tropics areas (Class 26);
- semi-deciduous notophyll vine forest of Lockerbie Scrub (Class 11);

# Extra-Continental
## Plant Species
## Cape York Peninsula

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Giusco (May 08, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Forster, P., Bean, A., Simon, B. Queensland Herbarium. pers. comm. 1994.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
See AHC for complete bibliography and sources.

**Caveats....**

Extra-continental endemics occur only in CYP within Australia but are also outside Australia.
Determination of extra-continental endemic species depicted made by AHC in consultation with subject matter experts and literature search. See AHC 1995 for specific taxa.
Contact Queensland Herbarium or ERIN for details of records depicted above

Projection: Geographical representation
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Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.5

- evergreen notophyll vine forest dominated by *Melaleuca leucadendra, Xanthostemon crenulatus* and *Lophostemon suaveolens* (Class 19);

- coastal woodlands dominated by *Eucalyptus tessellaris, E. clarksoniana* +/- *Lophostemon suaveolens* +/- *Acacia crassicarpa* (Class 44); and

- deciduous vine thicket on granite slopes dominated by *Cochlospermum gillivraei* +/- *Canarium australianum* +/- *Acacia aulacocarpa* (Class 126).

The distribution of these classes on the Peninsula is shown on Figure 16.6, while the number of extra-continental species recorded for each vegetation class is given in Appendix 9.

## 16.5 Endemic Species

Because each new species evolves in one particular, restricted area, its distribution may be limited by the barriers that surround its area of origin. Each such area will, therefore, contain organisms that are found there and nowhere else; these organisms are said to be endemic to that area.

The number of endemic species that an area contains will be influenced by the degree of physical and ecological boundaries (its isolation) and by its stability over time, as with time more and more organisms will evolve within an area (Cox & Moore, 1980). Thus isolated islands and mountain tops are frequently relatively rich in endemic species. In areas that have been isolated for a long time, species tend to become more and more different from their relatives in other areas, so that stable and well isolated areas tend to contain not only endemic species, but genera and in some cases whole families that only occur within that area.

Endemic species are of conservation significance because of their restricted distributions, and the understanding that they can provide to evolutionary and biogeographical processes. Areas with a high level of endemism, either in terms of numbers of taxa or the evolutionary distinctiveness of the taxa, are important components of a region's biodiversity.

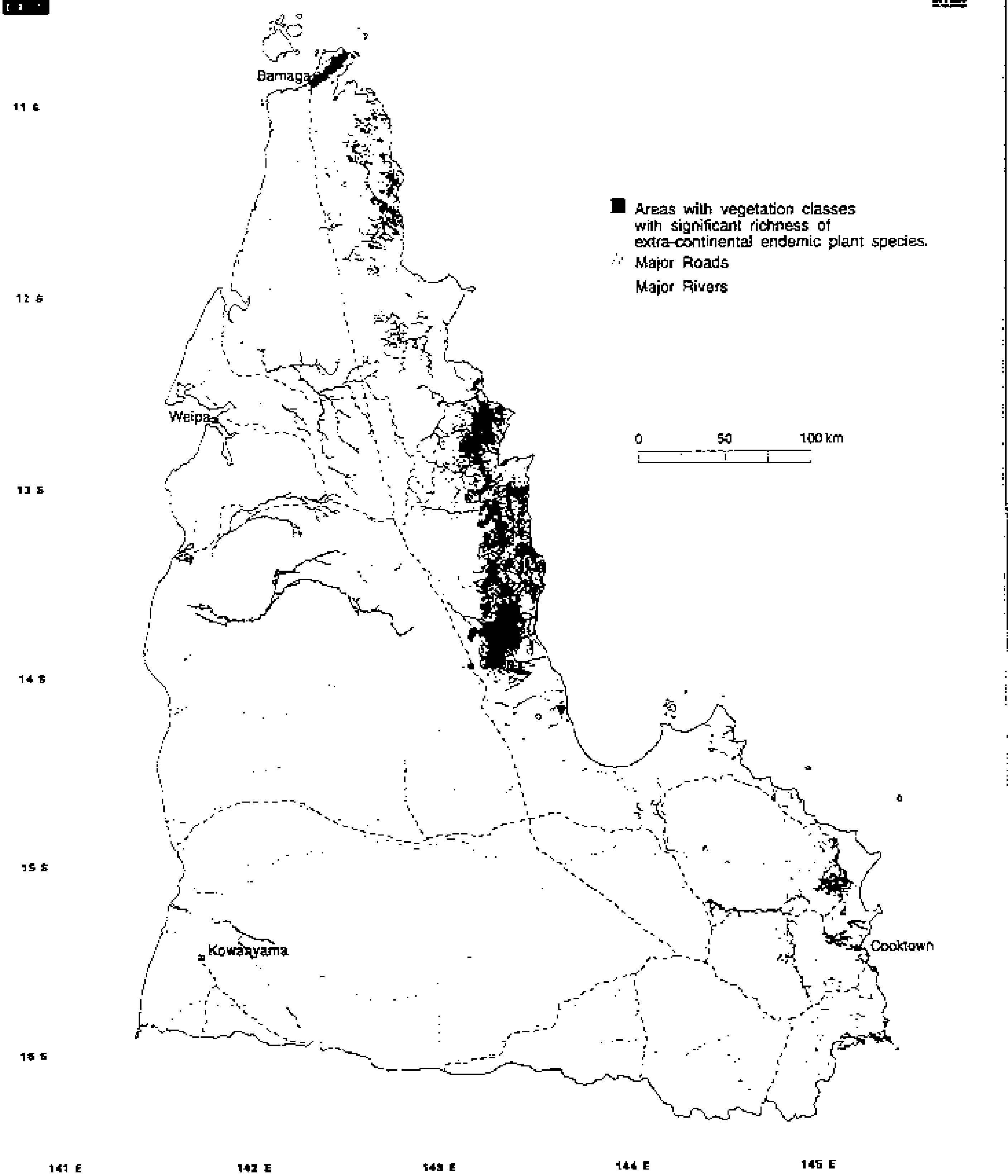
### 16.5.1 Endemic plant species

Plant species endemic to Cape York Peninsula were determined through searching the following data-bases: the Census of Australian Vascular Plants, Queensland Vascular Plants, Flora of Australia, Mangrove Atlas, Northern Territory Herbarium Data, Australian-wide Rare and Threatened Plants, Australia-wide "landcover" data (Eucalyptus, Callitris, Acacia, Casuarina, Hakea, Melaleuca, Poaceae) and all Queensland Herbarium data from Census of Australian Vascular Plants regions 45 (Cook), 53 (North Kennedy) and 43 (Burke). This provided a list of plant species which within Australia have only been recorded in the CYPLUS study area (between longitudes $146^0$ E and $141^0$E and latitudes $16.5^0$S and $9.5^0$ S). Species with an extra-continental distribution were then removed from this list.

There are only three endemic genera and no endemic plant families on Cape York Peninsula. The endemic genera include *Jedda* (Thymelaeaceae), *Normanbya* (Arecaceae) and *Wodyetia* (Arecaceae). *Jedda multicaulis* is known only from the eastern edge of the Kimba Plateaux. *Normanbya normanbyi* is restricted to the wet tropics area, while *Wodyetia bifurcata* is restricted to the Melville Range - Bathurst Bay area. The restricted distribution and genetic isolation of these species means that all their habitat is of national conservation importance.

In total 264 plant species were identified as being endemic to Cape York Peninsula (See Appendix 6). In addition, there are probably something like 40 - 100 currently undescribed taxa which are probably endemic to the Peninsula, and several endemic species whose precise locations are unknown (partly after Cofinas *et al* 1994). Even allowing for undescribed and poorly recorded species, the number of endemics is not outstandingly high in a national comparison of similar sized areas. For example, there are at least 527 angiosperm species

## Areas of Vegetation Classes with Significant Richness of Extra-Continental Plant Species




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 05, 1995)

**Sources....**

AHC, 1995. Areas of Conservation Significance - Cape York Peninsula.
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Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
See AHC for complete bibliography and sources.

**Caveats....**

Extra-continental endemics occur only in CYP within Australia, but are also outside Australia.
Point records were overlain with Neldner and Clarkson's vegetation classes to determine which classes contained the most extra-continental species. The areas depicted are various types of vine forests and coastal woodlands (veg. classes 8,11,16,18,19,20,21,24,44 and 125)

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.6

endemic to South-west Western Australia (Rye 1982). Nevertheless, Briggs and Leigh (1990) include Cape York Peninsula as one of five areas in Australia noted for their richness in endemic species. The other areas were the south-western province of W.A, northern Northern Territory, coastal regions of south Queensland and NSW, and highlands in south-east NSW and north-east Victoria. Certainly there are areas on Cape York Peninsula, such as the McIlwraith-Iron Range area, where the level of endemism at the species level is high in a national context.

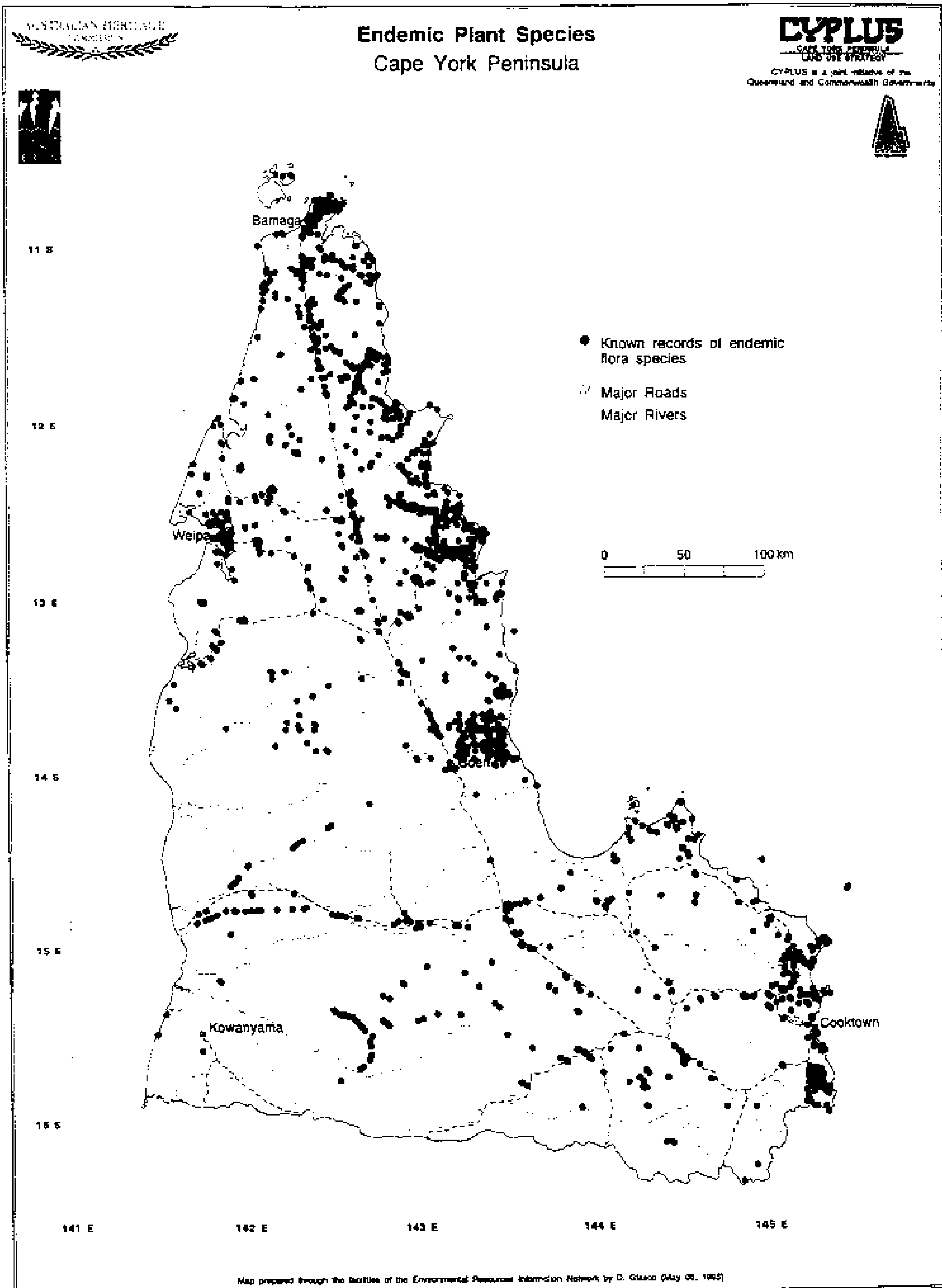
It is also relevant that the level of endemism within Australia is considered to be high on a global scale (DEST 1994).

The distribution of endemic species within the broad vegetation groups found on the Peninsula is given in Appendix 10, while the broad distribution is shown on Figure 16.7. Appendix 10 was created through selecting the 169 851 plant record points from the ERIS specimen database held by ERIN, and then creating a point coverage of only those records of endemic species. This point coverage was then intersected with the polygon coverage for vegetation groups. It should be noted that the table was constructed using only the dominant vegetation group within a polygon, so that vegetation classes that occur in small patches (such as vine thickets) may have been grouped into an inappropriate BVG. Additionally BVG's with broad dominant distributions may have more endemic species allocated to them than actually is the case. Another problem with the data is that not all of the records within the ERIS database are as precise as the variation in vegetation group distribution that occurs on the Peninsula. For example, a record described at the accuracy of minutes of latitude and longitude may not reliably indicate a distribution within ridge-top or valley vegetation groups. Even so, the ERIS database does allow general conclusions to be made particularly for those groups that have a restricted distribution. Bearing the deficiencies of the data in mind, the vegetation groups supporting the largest number of endemic species are the closed-forests of the McIlwraith-Iron Range region (BVG2), Gallery closed-forests (BVG6) and woodlands and tall woodlands dominated by *Eucalyptus tetrodonta* on deeply weathered plateaus and remnants (BVG16). In terms of numbers of species per total area the Closed-forests of the Wet Tropics region (BVG1) and the eucalypt open-forests of the Wet Tropics region (BVG14) are the outstanding groups.

Information on the number of endemics recorded only from a particular BVG or for which only 5 or less records exist (rare endemics) is also provided in Appendix 10.

Although the area of Wet Tropics Forest in the CYPLUS study area is best viewed as the northern part of a much larger vegetation complex, there are at least 61 plant species within the Wet Tropic Forest that have not been recorded south of the $16^0$ 30 ' S latitude. In addition there are at least 10 species of plants that are endemic just to that part of the Wet Tropics Forest north of $16^0$ 30 'S. These are *Endiandra monthryra, Endiandra bessaphila, Beilschmiedia collina, Cryptocarpa leucophyllus, Cryptocarpa bellendenk, Cryptocarpa corrugata, Endiandra wolfei, Endiandra leptodendra, Cryptocarpa angulata*, and *Cryptocarpa lividula*. The frog *Cophixalus exiguus* is also a Wet Tropical Forests endemic species that is only known from within the CYPLUS study area (Nix & Switzer 1991).

The CORVEG data-base, where actual site records are tied to a particular vegetation class, does not have the deficiencies of the ERIS database, and although not as comprehensive as the ERIS data-base it provides the means by which habitats of particular importance to endemic species can be confirmed and identified. The CORVEG data-base provides distribution information on 100 of the plant species endemic to Cape York Peninsula. Vegetation communities particularly rich in these endemic species are all rain/vine forest communities. Thus it appears that it is the vine thicket patches within the northern *Eucalyptus tetrodonta* woodlands that are of importance to endemic species rather than the woodlands themselves.




**Sources....**
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Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
ERIN database containing specimen records from most Australian herbarium and museums.
See AHC for complete bibliography and sources.

**Caveats....**
Endemics are those species occuring only in CYP (between 9.5 and 16.5 degrees latitude.
Determination of endemic species depicted made by AHC in consultation with subject matter experts and ERIN data searchs. See AHC 1996 for specific taxa.
Contact Queensland Herbarium or ERIN for details of records depicted above.

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Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.7

Those vegetation classes that support particularly high levels of endemic species are, in order of species richness;

- notophyll vine forest of the mid-Peninsula rainforests (Class 21);
- simple evergreen notophyll vine forest of north-east Cape York Peninsula (Class 24);
- semi-deciduous mesophyll vine forest of the Claudie and Normanby Rivers (Class 8);
- evergreen to semi-deciduous notophyll vine forest of the east coast dominated by *Syzygium* spp., *Terminalia* spp. and *Xanthostemon* spp (Class 20);
- evergreen notophyll vine forest of the major streams (Class 18);
- simple evergreen notophyll vine forest of the Iron Range and Wet Tropics areas (Class 26);
- evergreen mesophyll vine forest with *Archontophoenix alexandrae* (Class 16);
- Araucarian microphyll vine forest on coastal dunes dominated by *Austromyrtus angustifolia +/- Acacia crassicarpa +/- Syzygium spp. +/- Araucaria cunninghamii* emergents (Class 121); and
- semi-deciduous notophyll vine forest of Lockerbie Scrub (Class 11);

The distribution of these classes on the Peninsula is shown on Figure 16.8, while the number of endemic species recorded for each vegetation class is given in Appendix 9.

16.5.2 Endemic vertebrate species.

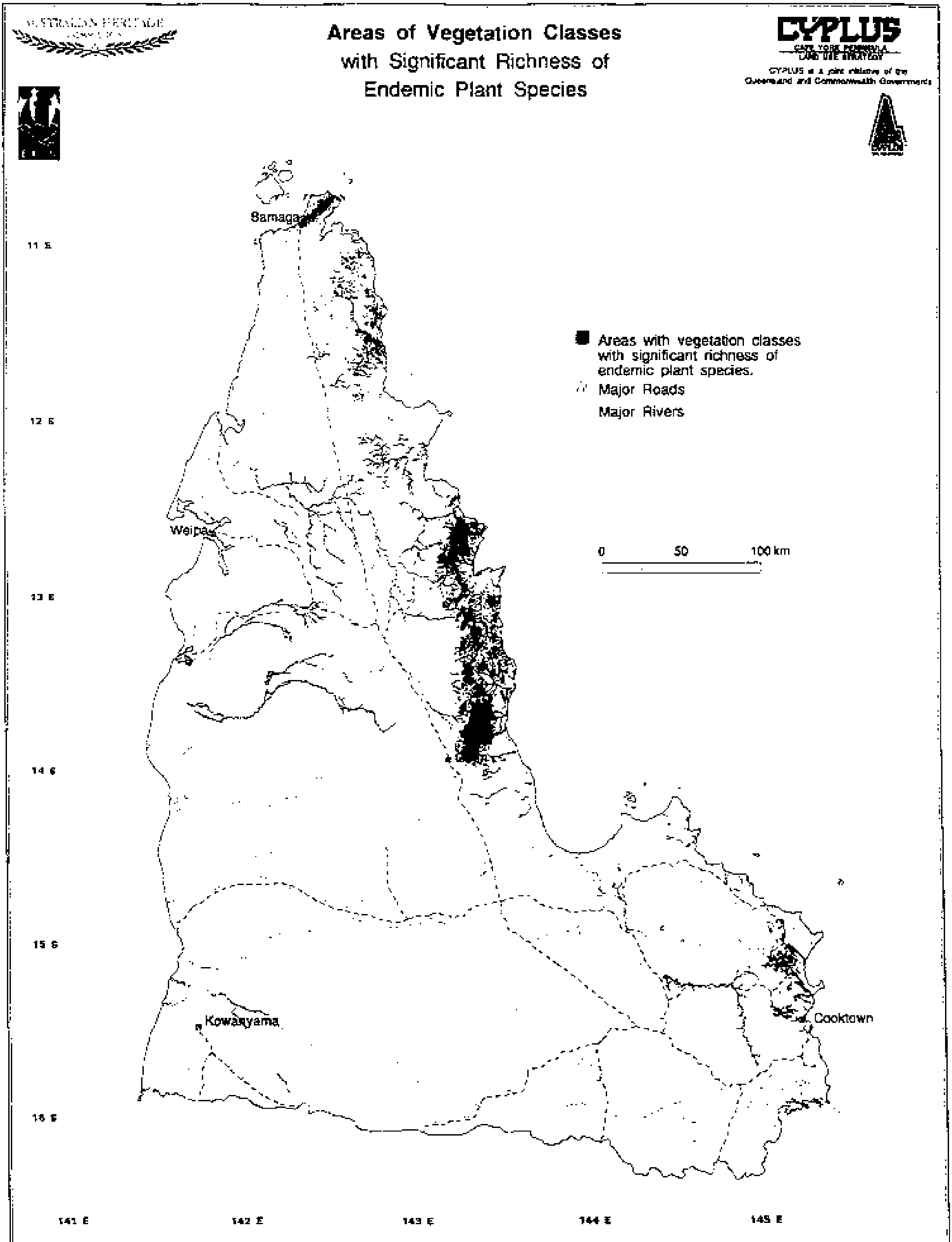
Winter and Lethbridge (1994) identify forty terrestrial vertebrate species that are endemic to Cape York Peninsula (Appendix 7). In addition to these species, Godman's Rock Wallaby *(Petrogale godmani)* is largely restricted to the CYPLUS area, but also occurs just outside the boundary in the Mt Carbine area, while an undescribed frog only known from Cape Melville is likely to be classified as an endemic species. The most important habitats for endemic vertebrate species are rainforest and boulder mountains and cliffs.

Eight endemic species are restricted to the boulder/cliff habitat. These species and their important habitat are:

- Black Mountain - the frogs *Cophixalus saxatilis* and *Nactus galgajuga* and a skink *Carlia scirtetis;*
- Cape Melville Boulder Range - a skink *Cryptoblepharus fuhni* and an undescribed frog;
- Laura (Quinkan) Sandstone Plateau - a skink *Ctenotus quinkan;*
- Glennie Tableland - a skink *Carlia parrhasuus;* and
- Rocky outcrops in the vicinity of Coen - the Cape York Rock Wallaby (*Petrogale coenensis).*

In addition, Godman's Rock Wallaby is largely confined to the rock piles and cliffs of the south-eastern uplands. In contrast to animals, plant endemism is not high in the rocky outcrop habitat.

# Areas of Vegetation Classes with Significant Richness of Endemic Plant Species




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 09, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
ERIN database containing specimen records from most Australian herbarium and museums.
See AHC for complete bibliography and sources.

**Caveats....**

Endemics are those species occuring only in CYP (between 9.5 and 16.5 degrees latitude. Point records were overlain with Neldner and Clarkson's vegetation classes to determine which classes contained the most extra-continental species. The areas depicted are various types of vine forests and coastal woodlands (veg. classes 8,11,16,18,20,21,24,26 and 12?)

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3.125,000 at A4 size

Figure 16.8

Ten species are confined to rainforest. The Cape York Leaf-tailed Gecko *(Saltuaries occultus)*, Scrub Rocket Frog (*Litoria longirostris)*, Cape York Nursery Frog *(Cophixalus peninsularis)* and the Northern Nursery Frog *(Cophixalus crepitans)* are known only above 500m on the McIlwraith Range. The Cinnamon Antechinus (*Antechinus leo*), a monitor (*Varanus teriae*), and three skinks (*Cryptodactylus louisiandensis*, *Carlia coensis* and *Carlia rimula* ) are confined to the McIlwraith - Iron Range area. The Cape York Melomys *(Melomys capensis)* is widespread in rainforests and vine thickets in the north of the Peninsula.

The skink *Emoia longicauda* is found mainly in rainforest edges, clearings, secondary regrowth and dense streamside vegetation in the north of the Peninsula and the islands of Torres Strait (Cogger 1992).

The burrowing skink, *Anomalopus pluto* is found in the extreme north-east of the Peninsula in open forests, monsoon forests and heaths and on the Glennie Tableland (Covacevich 1992).

The Cape Bedford - Cape Flattery dunefields are the only known habitat of the endemic skinks, *Lerista ingrami* and *Ctenotus rawlinsoni*. The dunefield is also a habitat of the skink, *Carlia dogare* which is also known from Lizard Island.

Other endemic species with restricted distributions include: the skinks *Lygisaurus tanneri* and *Ctenotus nullum* which have distributions in the south east of the study area and the frog *Cyclorana australis* from grasslands in the Coen - Silver Plains area.

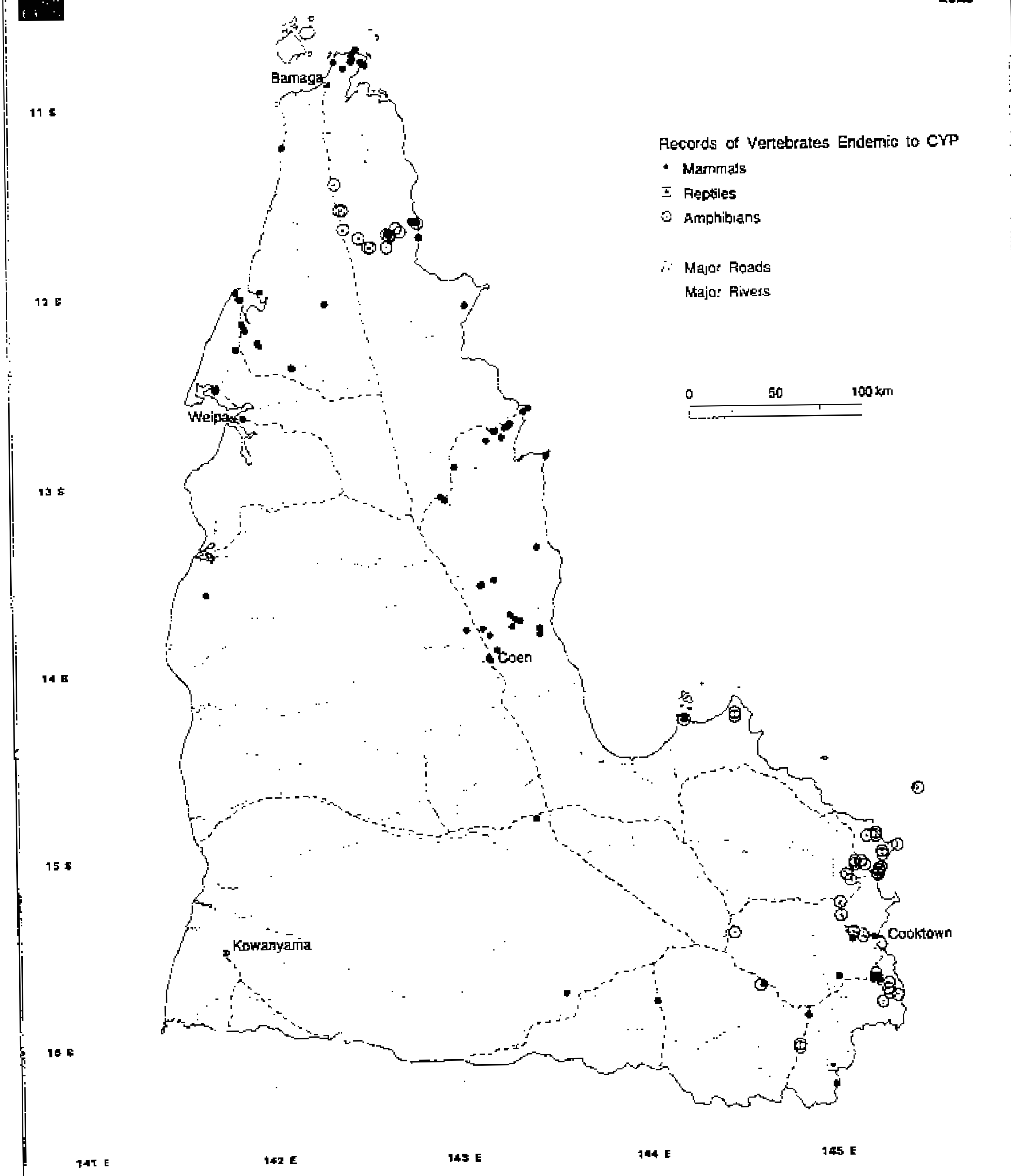
Figure 16.10 shows habitat of probable significance for endemic vertebrates. Actual locations of recorded occurrences are provided as a separate GIS coverage (Figure 16.9). Important habitat was identified through use of the CYPLUS geological coverage (Black Mountain, Cape Melville and Cape Bedford - Cape Flattery dunefield), and the vegetation class coverage of Neldner and Clarkson (1994). All closed-forest, low closed forest and closed scrub of the McIlwraith Range has been included within the coverage, which also includes all the vegetation class polygons in which *Ctenotus quinkan, Carlia parrhasuus, Petrogale coenensis, Petrogale godmani, Emoia longicauda, Anomalopus pluto, Lygisaurus tanneri, Ctenotus nullum,* or *Cyclorana australis* have been recorded. Thus Figure 16.10 generally plots the vegetation patches in which an endemic species has been recorded. A problem with this approach is that the accuracy of the recorded location (provided by the observer) may not be of high enough precision to be sure that the given location and hence vegetation polygon that it has been recorded at was in fact the place at which it was observed. This needs to be borne in mind when the endemic vertebrate coverage is being interpreted or interrogated.

16.5.3 Endemic invertebrate species.

The location of endemic invertebrates was determined through searching the records from the Australian National Insect Collection (ANIC) Database. This data-base included the records of the 22 505 identified insect specimens, collected on Cape York Peninsula as part of the CYPLUS project NR17. A selection was made of those species that are only recorded from north of $16^0 30$'S on Cape York Peninsula. It was not possible to distinguish between those invertebrate species that are Australian endemics and those that also occur outside of Australia. Due to time constraints the search was limited to certain insect groups that were reasonably well represented in the data-base.

Endemic species identified (see Appendix 11) include five species of dragon and damselflies (Odonata), two stoneflies (Plecoptera), nine termites (Isoptera), forty-two grasshoppers and katydids (Orthoptera), twenty-three beetles (Coleoptera), fifty-nine moths and butterflies (Lepidoptera) and fifty-five wasps (Hymenoptera). The list was checked by relevant experts of the Australian National Insect Collection. Dr S.P. Kim provided locational information on an additional list of 14 endemic flies (Diptera: Lauxaniidae), while Dr. T. Edwards provided locational information on an additional 49 Lepidoptera species.

**Endemic Vertebrate Fauna**
Recorded Locations
Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Gibson (May 06, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
ERIN Information System (ERIS) database containing records from institutions, e.g. Australian Museum, Qld Museum,
CSIRO Nat'l Wildlife Collection, Harvard. Personal observations of G. Richards and D. Storch.
See AHC for complete citations and sources.

**Caveats....**
Endemic species are those occurring only in CYP, i.e. between 9.5 and 16.5 degrees latitude.
Endemism determined by AHC and ERIN with consultation with subject matter experts and data searchs.
See AHC for taxa of endemic species.
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.9

AUSTRALIAN HERITAGE

# Indicative Areas of Conservation Significance for Endemic Vertebrate Fauna

CYPLUS
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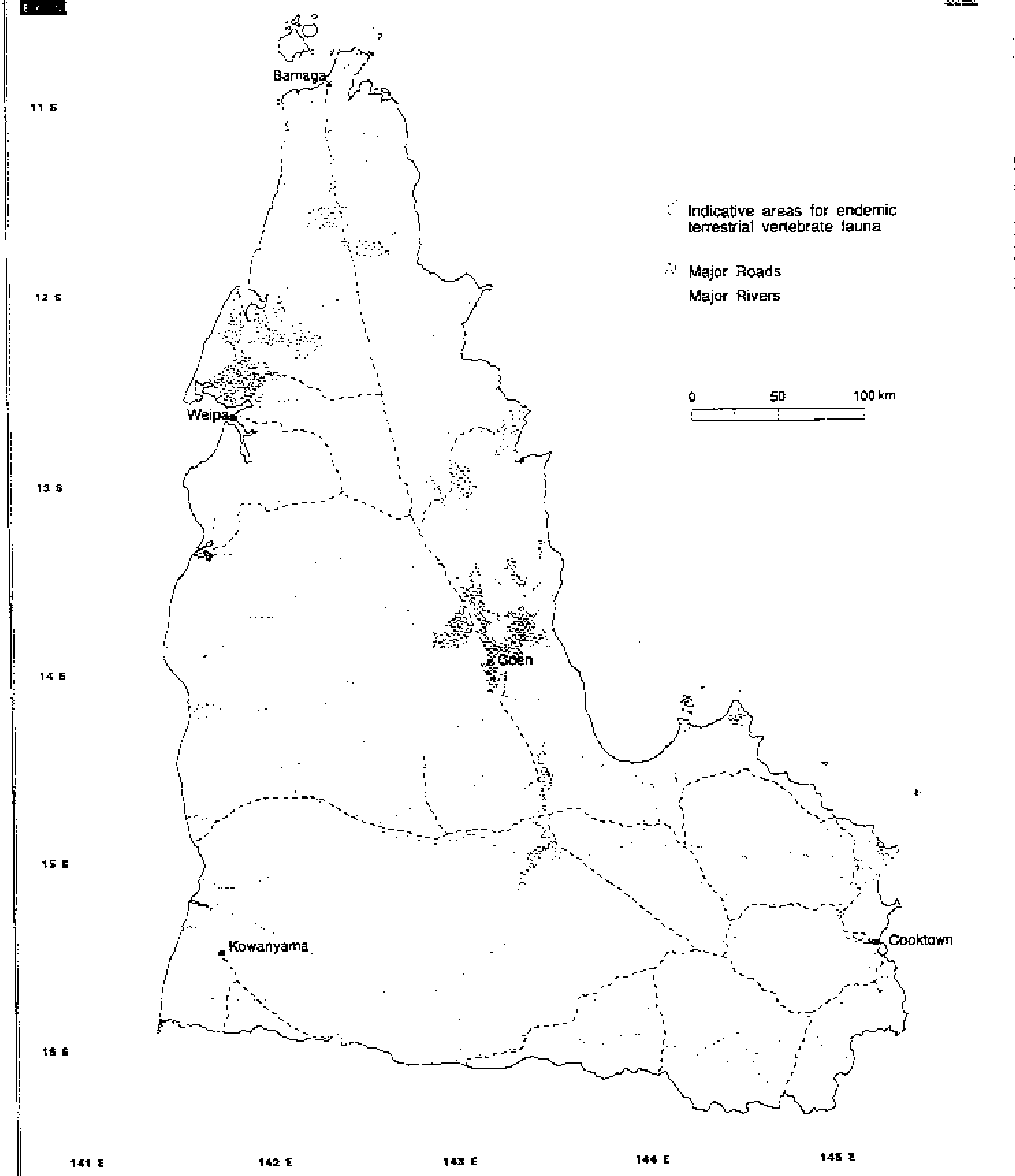
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Ottaco (May 06, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Records from institutions, e.g. AM, QM, CSIRO, MCZ, NMV. Pers obs of G. Richards and D. Storch.
See AHC for complete citations and sources.

**Caveats....**

Endemic species are those occuring only in CYP, i.e. between 9.5 and 16.5 degrees latitude.
Areas depicted are the vegetation types (after Neldner and Clarkson) in which endemic species have been recorded
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.10

Figure 16.11 plots the distribution of invertebrate endemic species. Areas in which endemic species are concentrated include the Mt Webb - Hopevale area, the vicinity of Coen, McIlwraith Range, Iron Range, Weipa, Batavia Downs, the Heathlands and Lockerbie - Somerset area. To a large extent this distribution mirrors collecting effort (see Zborowski *et al* 1994), though there are some well-collected areas such as sites at Split Rock (13 km south of Laura), Hann River and Rokeby Homestead which do not contain large concentrations of endemic insects. These last three areas are all woodlands in the southern half of the Peninsula.

Figure 16.12 plots those invertebrate endemic species that are only known from one or two records, while Figure 16.13 plots those endemic species that are only known from one location. Though further survey work will undoubtedly find other locations of some of these species, all of the recorded sites for these rare and endemic species should be considered as of conservation significance, until proven otherwise. Areas from where several rare and endemic insect species are known include Mt Webb, McIlwraith Range, Iron Range, the Heathlands, the Bamaga - Somerset area and the permanent insect trap sites of NR17 that are in the vicinity of Coen and Batavia Downs.

### 16.6 Disjunct Species

Disjunct species have widely separated populations. These disjunctions can be caused by events of long distance dispersal, but commonly represent remnant isolated populations of a once continuous population during different climatic and geographical situations.

Plant species with disjunct distributions on Cape York Peninsula were determined through searching the ERIS specimen database version 2.2 and two publications: - Hnatiuk R.J. (1990) Census of Australian Vascular Plants, AGPS Press; and Brock, J. (1988) Top End Native Plants.

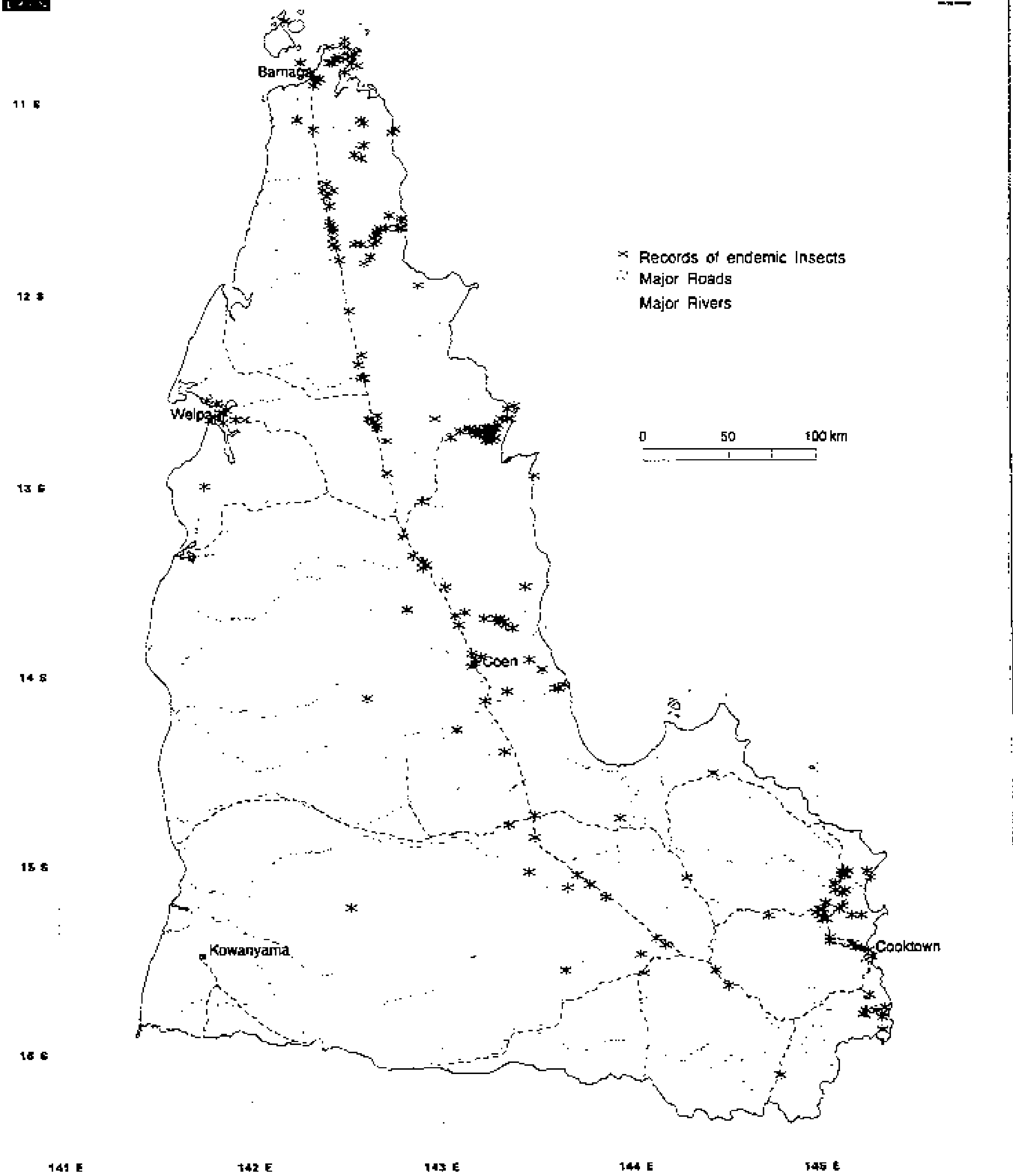
At the time of assessment (Jan 1994), the ERIS database contained:

- all Queensland Herbarium data from Census of Australian Vascular Plants (CAVP) regions 45 (Cook), 53 (North Kennedy) and 43 (Burke);
- Australia-wide "landcover" data (*Eucalyptus, Callitris, Acacia, Casuarina, Hakea, Melaleuca, Poaceae*) from all major Australian herbaria;
- Australia-wide Rare and Threatened Australian Plants (ROTAPS);
- Australia-wide Mangrove Atlas;
- Northern Territory Herbarium data; and

Species recorded within the Cook Region of CAVP, and not occurring within the adjoining areas of North Kennedy and Burke, but occurring in any other region of CAVP, were determined to have a disjunct distribution. This list was then checked against the CYPLUS flora data set of Cofinas *et al.* (1994). Expert comment was then sought on the accuracy of the list. The following people provided comment; Mr J. Clarkson, Mr P. Forster, Mr A. Bean, and Mr B. Simon (Queensland Herbarium), Mr C. Dunlop (NT Herbarium), Dr G. Hope (Australian National University), Mr L. Craven (Australian National Herbarium), Dr B. Jackes (James Cook University), and Mr P. Stanton (Qld National Parks and Wildlife Service).

One hundred and thirty four species with disjunct distributions were identified (Appendix 6). The majority of disjunctions (about 80%) occur across northern Australia. Most of the disjunct species have distributions within many of the broad vegetation groups, but as illustrated in Figure 16.14 do not tend to occur in the south-west and central Peninsula areas. The number of disjunct species in each broad vegetation group is given in Appendix 8. Those species with eastern Australian disjunctions are not concentrated in a particular broad vegetation group but do

# Insect Species
## Endemic to
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Giasco (May 06, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Databased specimen records from CSIRO Australian National Insect Collection (ANIC), unpublished.
Zborowski, P., Naumann, R.D., & Harwood, T.A. Project NR17 Report on Insect Survey - CYPLUS. CSIRO Div. of Ent.

**Caveats....**
Endemiosm defined as occuring within Australia only in QLD north of 16.5 degrees S. Determined by ANIC
See text or sources for specific species.
Only 10 of Australia's 32 insect orders have been databased as of 31 Dec 1994. These are Coleoptera, Hem.ptera, Hymenoptera, Isoptera, Lepidoptera, Megaloptera, Neuroptera, Odonata, Orthoptera and Orthoptera.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.11

# Rare Insect Species Endemic to Cape York Peninsula

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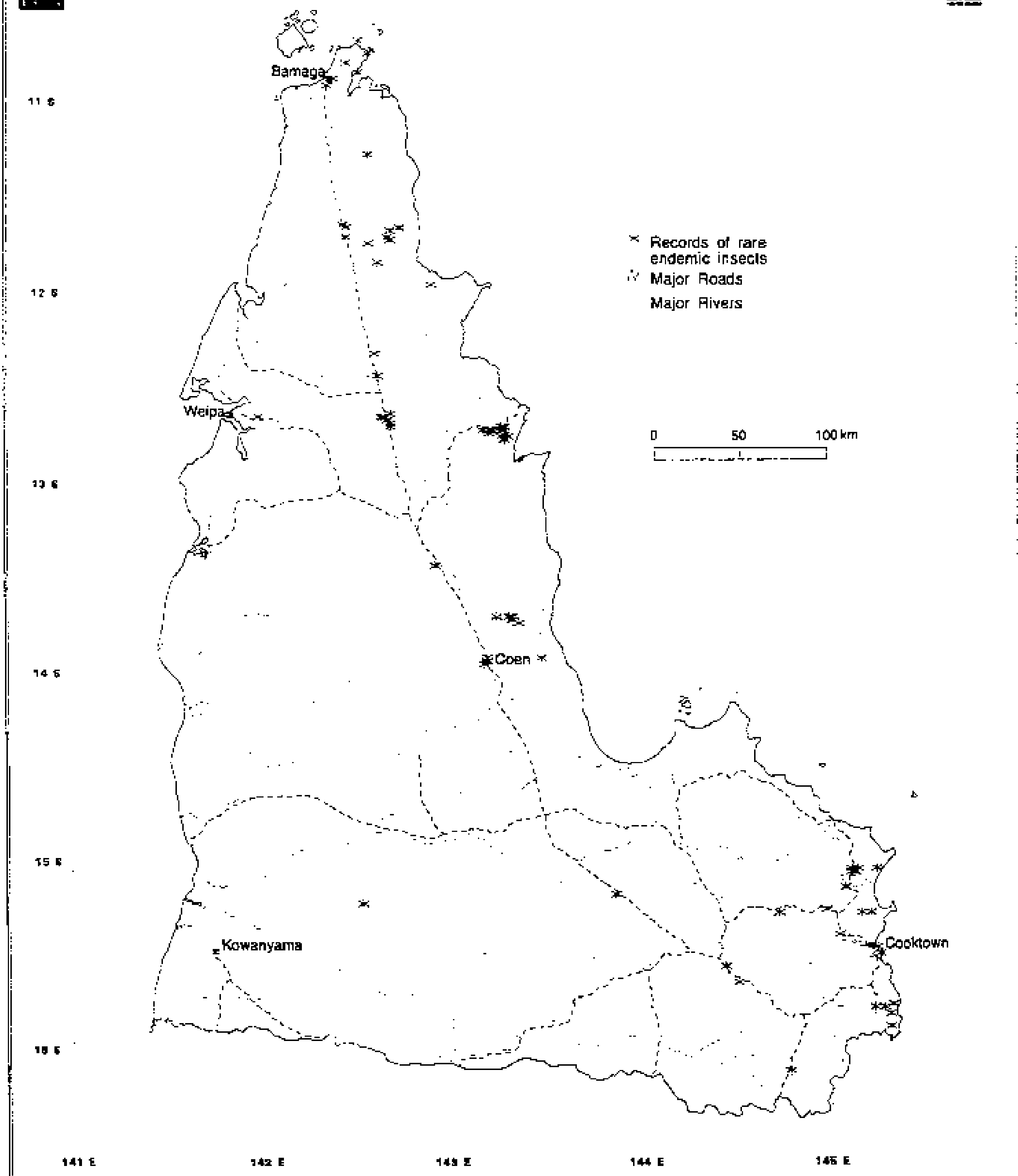


Map prepared through the facilities of the Environmental Resources Information Network by D. Ciasco (May 09, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Databased specimen records from CSIRO Australian National Insect Collection (ANIC). unpublished.
Zborowski, P., Naumann, R.D., & Harwood, T.A. Project NR17 Report on Insect Survey - CYPLUS. CSIRO Div. of Ent.

**Caveats....**

Endemicism defined as occuring within Australia only in QLD north of 16.5 degrees S. Determined by ANIC.
Rare Status determined by AHC. Defined as collected less than 3 times. See text of sources for specific species.
Only 10 of Australia's 32 insect orders have been databased as of 31 Dec 1994. These are Coleoptera, Hemiptera, Hymenoptera, Isoptera, Lepidoptera, Megaloptera, Neuroptera, Odonata, Orthoptera and Orthoptera.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.12

AUSTRALIAN HERITAGE COMMISSION

# Insect Species
## with a Single Known Locality
## Cape York Peninsula

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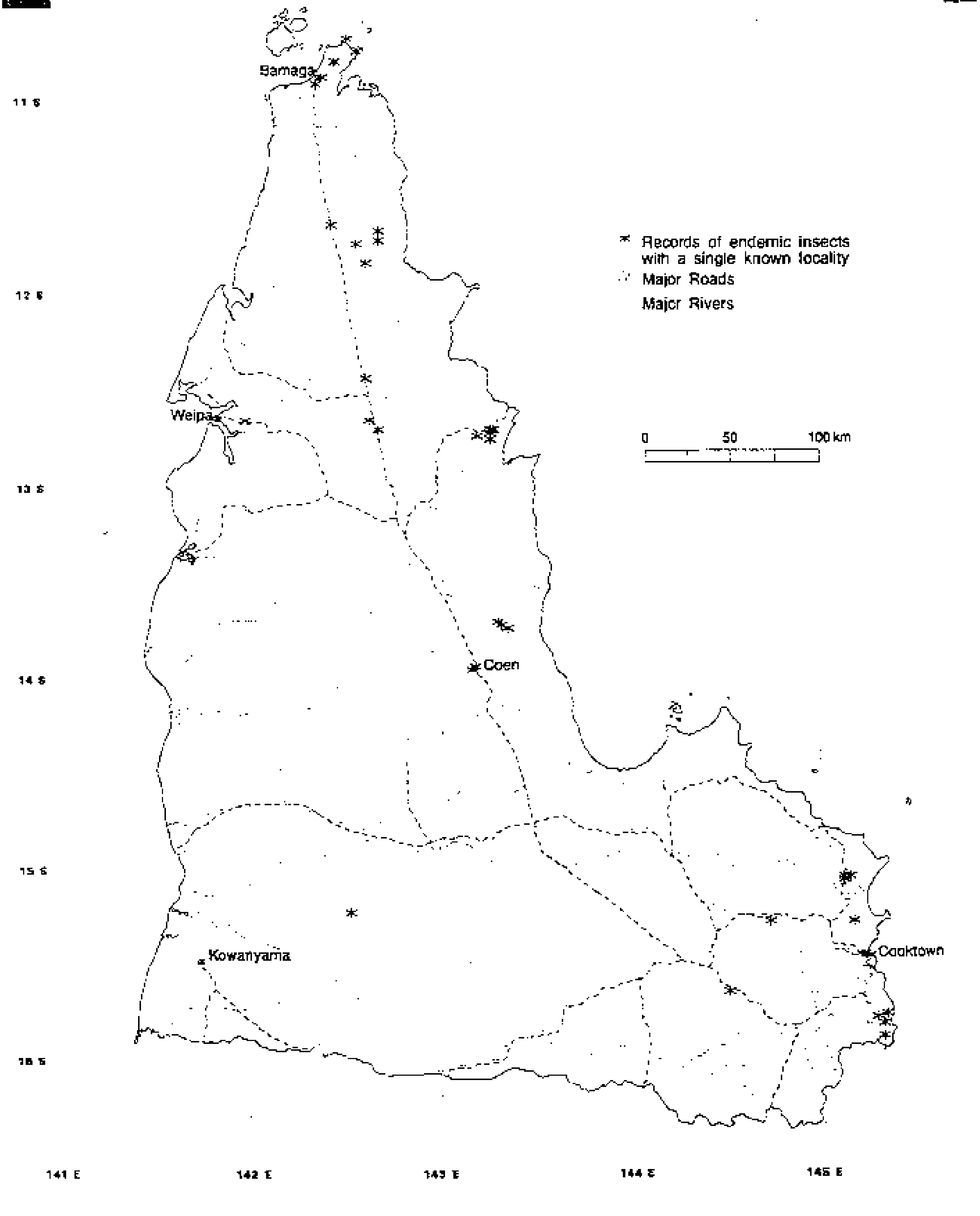
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network

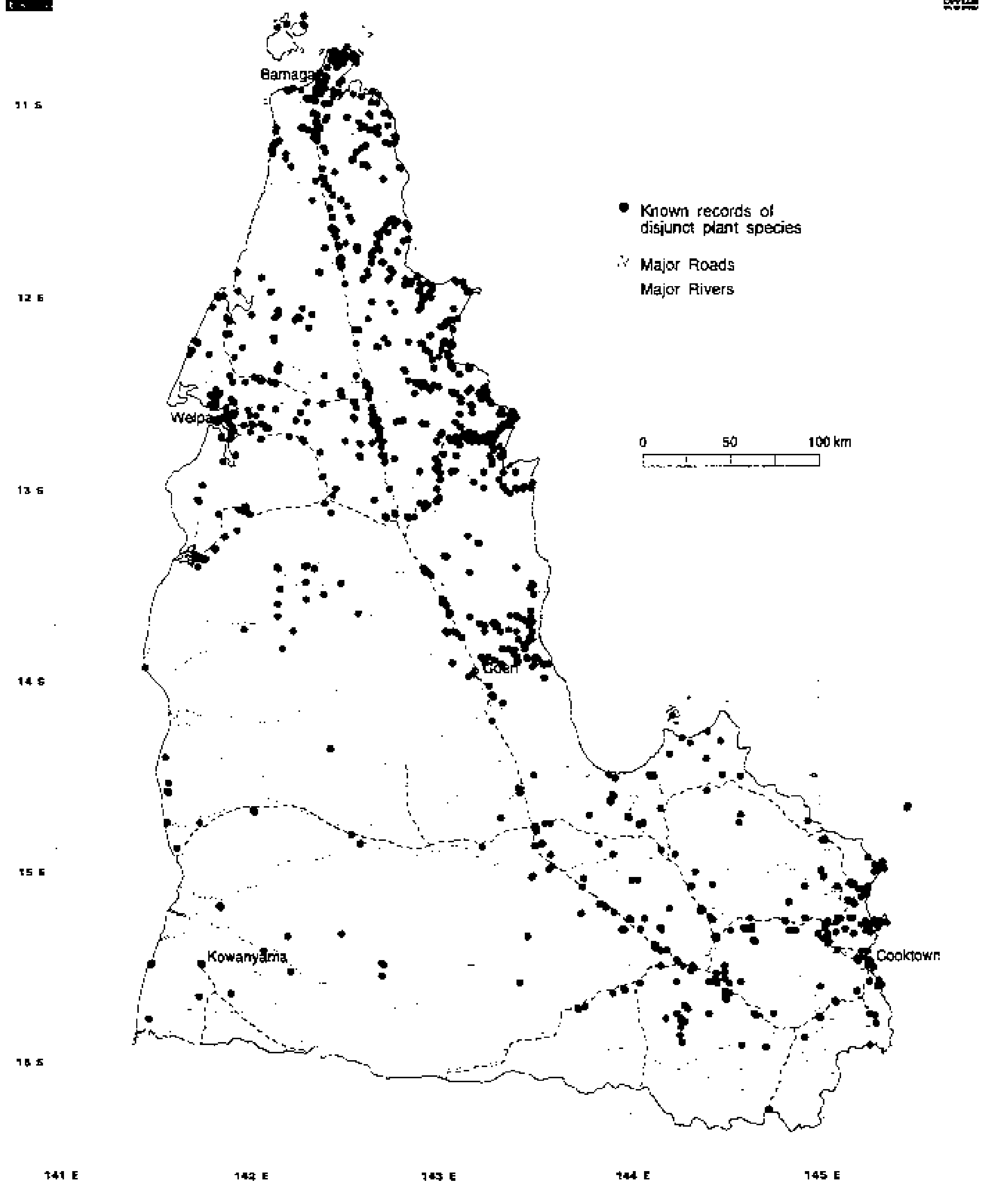
**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Databased specimen records from CSIRO Australian National Insect Collection (ANIC), unpublished.
Zborowski, P., Naumann, R.D., & Harwood, T.A. Project NR17 Report on Insect Survey - CYPLUS. CSIRO Div. of Ent.

**Caveats....**
Endemicism defined as occuring within Austraila only in QLD north of 16.5 degrees S. Determined by ANIC.
ANCI may have multiple specimens from different times, but all within a 1 minute grid.
Only 10 of Australia's 32 insect orders have been databased as of 31 Dec 1994. These are Coleoptera, Hemiptera, Hymenoptera, Isoptera, Lepidoptera, Megaloptera, Neuroptera, Odonata, Orthoptera and Orthoptera.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.13

# Disjunct Plant Species
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 08, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Hnatiuk, R.J. 1990. Census of Australian Vascular Plants. AGPS Press.
Brock, J. 1988. Top End Native Plants.
See AHC for complete bibliography and sources.

**Caveats....**

Disjuncts are those species occuring in the Cook Region of the CAVP and elsewhere in Australia, but not in the regions adjacent to Cook.
Disjunct status determined by AHC and ERIN with consultation with subject matter experts and data searches. See AHC for specific taxa.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.14

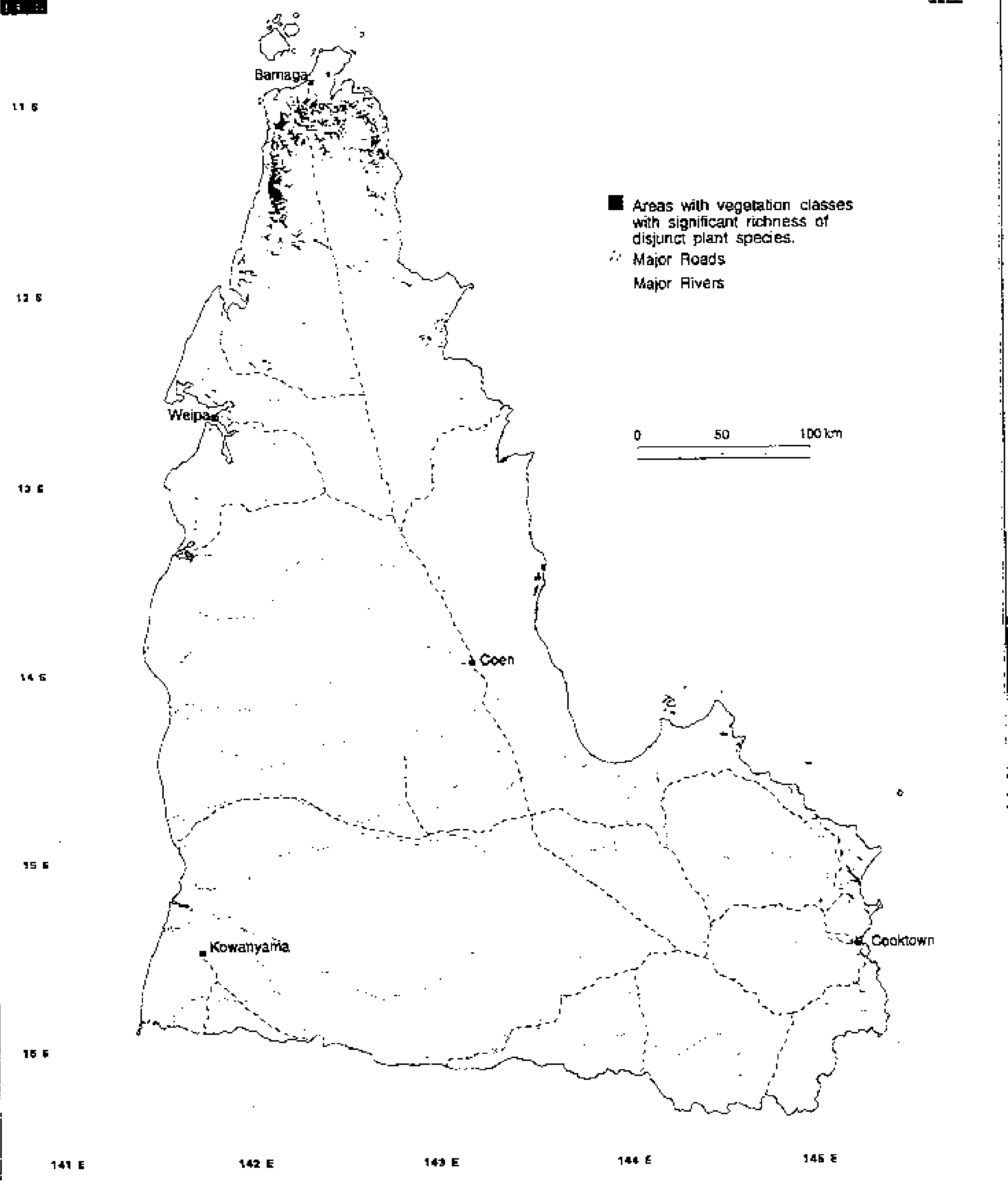
tend to occur on the eastern side of the Peninsula, outside of *Eucalyptus tetrodonta* and *Eucalyptus hylandii* woodlands.

The CORVEG database of Neldner and Clarkson (1994) contains distribution records of 81 species that have a disjunct distributions on Cape York Peninsula. About one third of all of the disjunct species have been recorded in the monsoon thickets of the Northern Territory (Liddle *et al* 1994) and it is the vine thickets on the Peninsula which have a richness in disjunct species. The greatest richness within a vegetation class is that of the evergreen to semi-deciduous notophyll vine forest of the east coast dominated by *Syzygium* spp., *Terminalia* spp. and *Xanthostemon* spp (Class 20 - 17 disjunct species). Drainage swamps dominated by *Restio tetraphyllus* subsp. *meiostachyus* +/- *Leptocarpus spathaceus* +/- *Nepenthes mirabilis* +/- *Gahnia sieberiana* are another class of significance for disjunct plant species, as five species are recorded only in this habitat, within the CORVEG database. The five species are *Eleocharis ochrostachys, Fimbristylis lanceolata, Lycopodiella serpentina, Rhynchospora gracillima* and *Rhynchospora submarginata*. A list of the number of disjunct species in each of the 201 vegetation classes is given in Appendix 9, while Figure 16.15 shows those vegetation classes with a significant richness of disjunct species.

There are only seven terrestrial vertebrate species with disjunct distributions on the Peninsula. The disjunct species are *Mesembriomys gouldii, Sminthopsis virginiae, Isoodon obesulus Podargus ocellatus, Conopophila albogularis, Varanus indicus* and *Lophognathus temporalis*. These species are not confined to one particular habitat type, but are found in woodlands, closed forests, heaths and grasslands. The greatest richness of disjunct faunal species occurs in the north-east of the Peninsula. The site records of the disjunct species is provided at Figure 16.16.

# Areas of Vegetation Classes with Significant Richness of Disjunct Plant Species

CYPLUS




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 06, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Hnatiuk, R.J. 1990. Census of Australian Vascular Plants. AGPS Press.
Brock, J. 1988. Top End Native Plants.
See AHC for complete bibliography and sources.

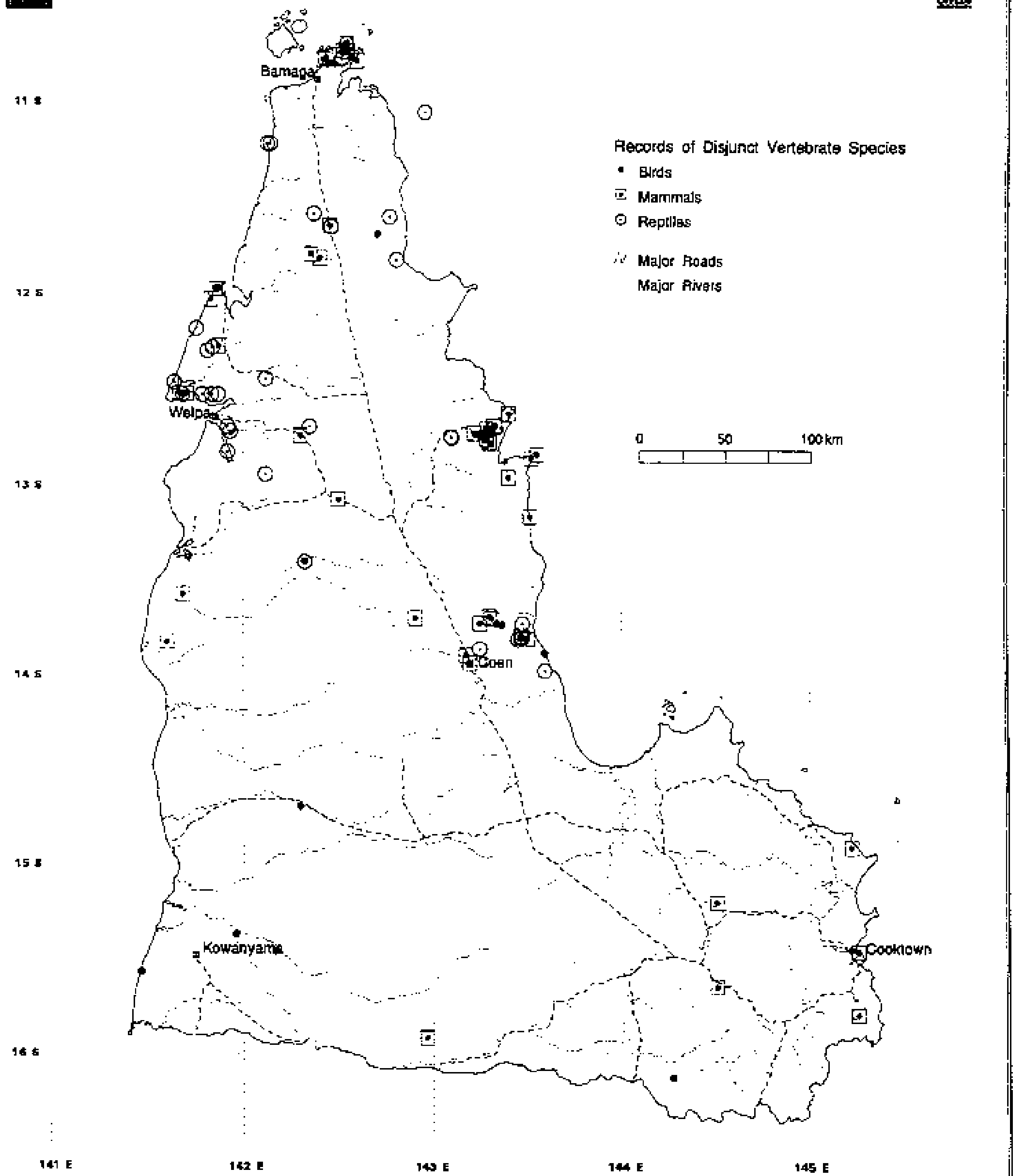
**Caveats....**

Disjuncts are those species occuring in the Cook Region of the CAVP and elsewhere in Australia, but not in the regions adjacent to Cook. These species occur most frequently in the vegetation classes (after Neldner and Clarkson) depicted, i.e. evergreen vine forests and drainage swamps (veg. classes 20 and 191). See AHC and Neldner and Clarkson for details.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.15

# Terrestrial Vertebrate Species with Disjunct Distributions in Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network

**Sources....**

AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
ERIN Information System (ERIS) database containing records from institutions, e.g. Australian Museum, Qld Museum, CSIRO Nat'l Wildlife Collection, Harvard. Personal observations of G. Richards and D. Storch.
See AHC for complete bibliography and sources.

**Caveats....**

Disjunct defined as no current populations elsewhere in Northern Queensland.
Disjunct status determined by AHC with consultation with subject matter experts and data searches.
See AHC for specific taxa.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 16.16

# 17.0 AREAS OF SIGNIFICANCE FOR RARE AND THREATENED PLANT AND ANIMAL SPECIES

In a similar fashion to the analysis in Section 16 this section considers species and associated areas important for them. However, Criterion B (Areas important because they possess uncommon, rare or endangered aspects of Australia's natural history) is the criterion on which the species considered in the section are related.

## 17.1 Rare and Threatened Plant Species

There are 379 taxa considered to be rare and threatened that are known to occur on Cape York Peninsula, north of 16 ° S (Neldner & Clarkson 1994) (See Appendix 6). These include 15 endangered, 49 vulnerable, 213 rare and 102 poorly known but suspected of being at risk species. The rare and threatened categories used in the analysis accord with the International Union for the Conservation of Nature (IUCN) Red Data Book Categories, as described in Briggs and Leigh (1988). The relevant categories referred to in this report are:

> **E = Endangered** - species in serious risk of disappearing from the wild state within one or two decades if causal factors continue to operate;
>
> **V = Vulnerable** - species not presently endangered but at risk of disappearing from the wild over a longer period (20-50 years) through continued depletion, or which largely occur on sites likely to experience changes in land use that would threaten the survival of the species in the wild;
>
> **R = Rare** - species which are rare in Australia but which overall are not currently considered endangered or vulnerable; and
>
> **K = Poorly Known** - species that are suspected, but not definitely known, to belong to any of the above categories.

The list of rare and threatened plants from Cape York Peninsula is yet to be reviewed in light of the added plant distribution information collected as part of the CYPLUS studies. It is likely that there will be many changes in the lists. However, these changes are likely to be mainly in the category of threat, while the relatively few deletions from the list are likely to roughly equate to additions of newly described species (John Clarkson, Qld Herbarium, pers. comm. 1994).

Briggs and Leigh (1988) provide a map of the number of rare and threatened species found in each of 80 Australian phytogeographical areas (see Figure 17.1). The number of rare and threatened species identified in the CYPLUS study area is greater than that of any of these regions (outside the North-East Queensland area of which the CYPLUS area is a part). Only the adjoining Wet Tropical Forests and the large south-west Western Australia biogeographic areas contain comparable numbers of rare and threatened species. Thus Cape York Peninsula is amongst the most important areas in Australia for rare and threatened plant species.

The location of all plant species currently listed as rare or threatened on Cape York Peninsula are shown in Figure 17.2. Plots of known locations of individual endangered species and of all vulnerable species are given in Cofinas *et al.* (1994). As evident in the plots, rare and threatened taxa are most common on the east and north of the Peninsula. The known locations of rare and threatened plants are particularly concentrated in the following areas:

- the wet tropical forests area of the south-east;
- the Hopevale area;
- the Cape Bedford - Cape Flattery Dunefield;

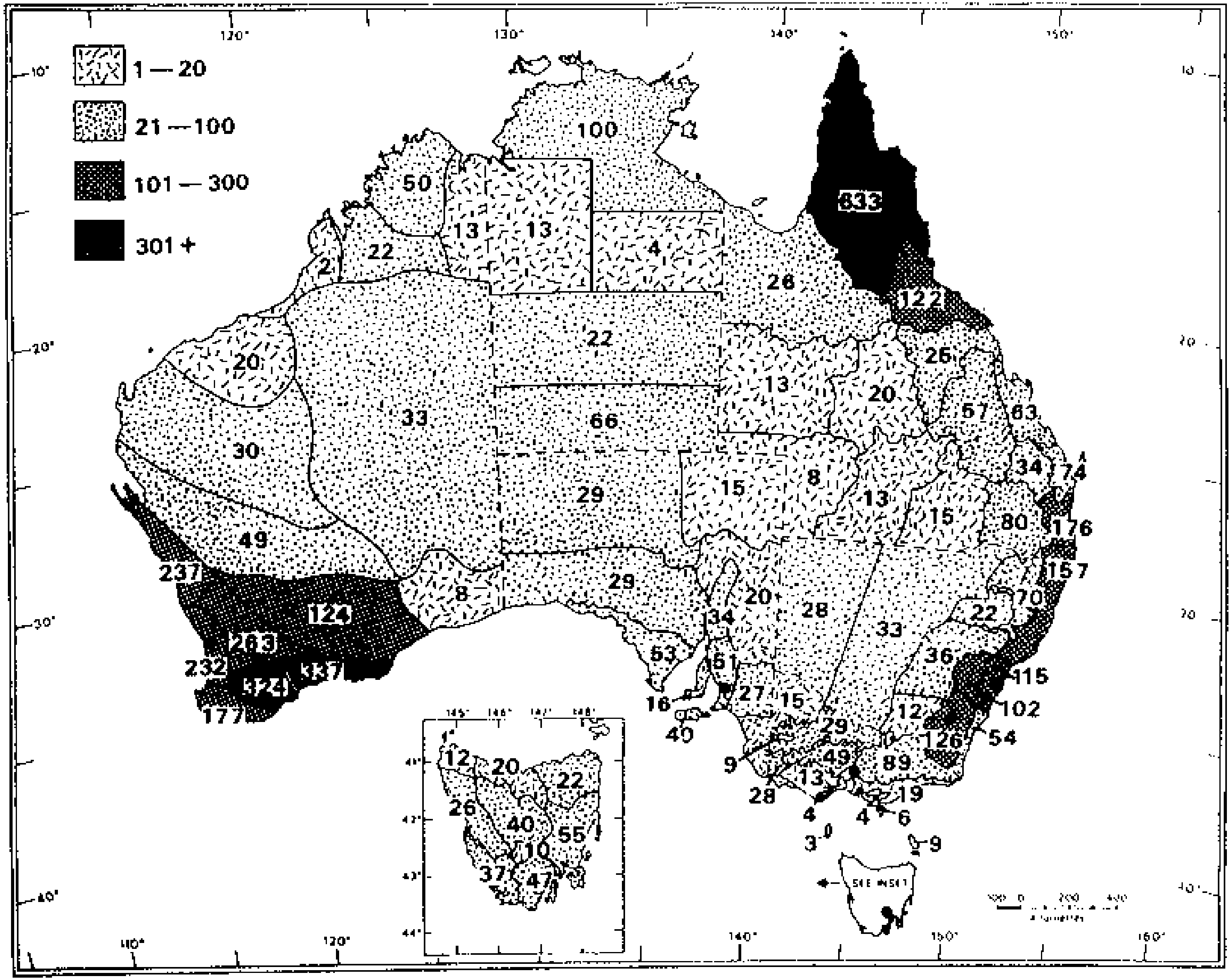



Figure 17.1 **Total number of Rare or Threatened plant species for each region of Australia**

(from Briggs & Leigh 1988 p.233)

# Rare or Threatened
# Plant Species
# Cape York Peninsula

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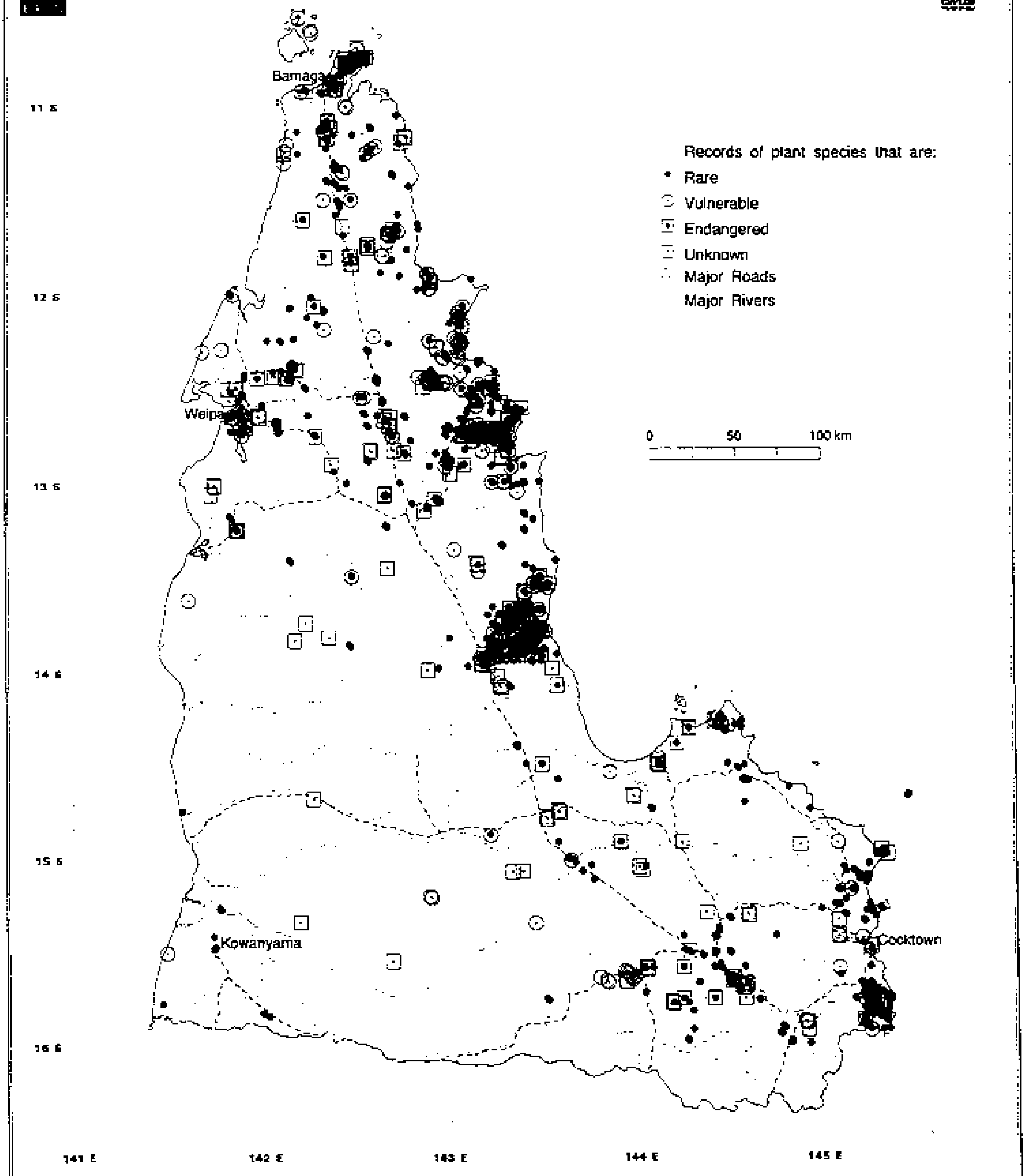
CAPE YORK PENINSULA LAND USE STRATEGY
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by O. Gleeson (May 05, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Queensland Government. 1995. Nature Conservation Act.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
See AHC for complete bibliography and sources.

**Caveats....**
The designation of rare or threatened plants within Queensland is by the Queensland Government.
See AHC for specific taxa.
Contact Queensland Herbarium or ERIN for details of records depicted above.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.2

- the McIlwraith Range area;
- the Iron Range area;
- the Heathlands area;
- Lockerbie Scrub;
- east of Weipa; and
- in the vicinity of Laura.

The concentrations of some of these areas may be more a result of collection effort, rather than ecological consideration.

A GIS point coverage of all records of rare and threatened plant species has been provided. The location of any rare or threatened plant species is taken to be of conservation significance. The coverage also provides the category of threat.

The numbers of rare and threatened plant taxa recorded in each of the broad vegetation groups on the Peninsula are given in Appendix 8. As is evident in the table, the following broad vegetation groups support the largest number of rare and threatened species:

- closed-forests of the McIlwraith - Iron Range region;
- gallery closed-forests and Melaleuca spp. dominated open-forest on alluvia;
- *Eucalyptus tetrodonta* dominated woodlands and tall woodlands on deeply weathered plateaus and remnants; and
- open heaths on dunefields, sandplains and headlands.

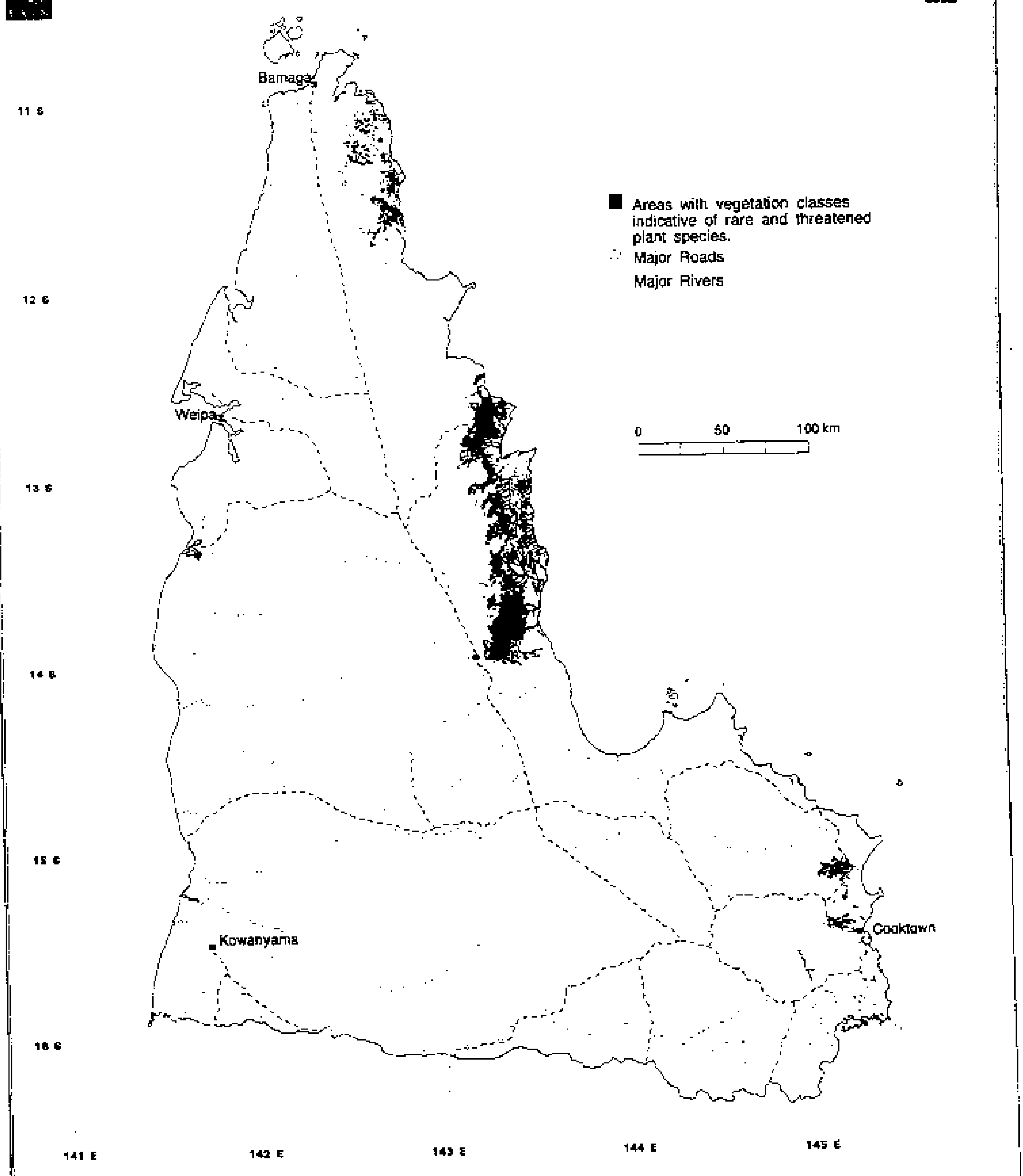
Eighteen broad vegetation groups support 25 or more rare and threatened species. Thirty-three of the 80 phytogeographical regions of Australia (Briggs & Leigh 1988) support less than 25 rare or threatened plant species, which provides some context to considering Appendix 8.

The CORVEG database contains site records of 137 rare and threatened species. The vegetation classes that support a particularly large number of rare and threatened species are all closed forests and include:

- notophyll vine forest of the mid-Peninsula rainforests (Class 21);
- semi-deciduous mesophyll vine forest of the Claudie and Normanby Rivers (Class 8);
- simple evergreen notophyll vine forest of the Iron Range and Wet Tropics areas (Class 26);
- simple evergreen notophyll vine forest of north-east Cape York Peninsula (Class 24); and
- evergreen to semi-deciduous notophyll vine forest of the east coast dominated by *Syzygium* spp, *Terminalia* spp and *Xanthostemon* spp (Class 20).

The distribution of these classes on the Peninsula is shown on Figure 17.3, while the number of rare and threatened species recorded for each vegetation class, within the CORVEG database, is given in Appendix 9.

# Areas of Vegetation Classes with Significant Richness of Rare and Threatened Plant Species




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 06, 1995)

**Sources....**
AHC. 1996. Areas of Conservation Significance - Cape York Peninsula.
Queensland Government. 1995. Nature Conservation Act.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.
See AHC for complete bibliography and sources.

**Caveats....**
The designation of rare or threatened plants within Queensland is by the Queensland Government.
These species tend to be concentrated in the vegetation classes (after Neldner and Clarkson) depicted above (vegetation classes 8,20,21,24,26). See AHC or Neldner and Clarkson for details.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.3

The large number of rare and threatened plant species found on the Peninsula is thought to be due to the diversity of habitats found there, particularly the diversity and extent of rainforest and heathland areas. The major threatening process leading to the rating of species as either Endangered or Vulnerable is the illegal collection of epiphytic orchids, epiphytic ferns and palms (John Briggs, CSIRO, 1995, pers. comm.)

## 17.2 Rare or Threatened Terrestrial Vertebrate Fauna

A data set of the recorded locations on Cape York Peninsula of the rare or threatened vertebrate species, as listed in the schedule to the *Nature Conservation Act 1992* of the Queensland Government, was established by the Queensland Department of Environment and Heritage and described in Young (1995) (see Appendix 7).

The recorded locations of rare or threatened vertebrate fauna are illustrated in Figure 17.4. The data sets searched to create these records are detailed within Glasco, Bolton and Bryett (1995), which is the report on the CYPLUS Natural Resources Analysis Program project No. NR19.

The areas of greatest concentration are the Wet Tropical Forests, the McIlwraith Range, Iron Range, Lockerbie Scrub and Weipa. The first four areas all contain species of restricted distribution, while the records from the Weipa area tend to be of widespread species, and the concentration recorded here is likely to be a result of collection effort.

### 17.2.1 Nationally endangered terrestrial vertebrate species.

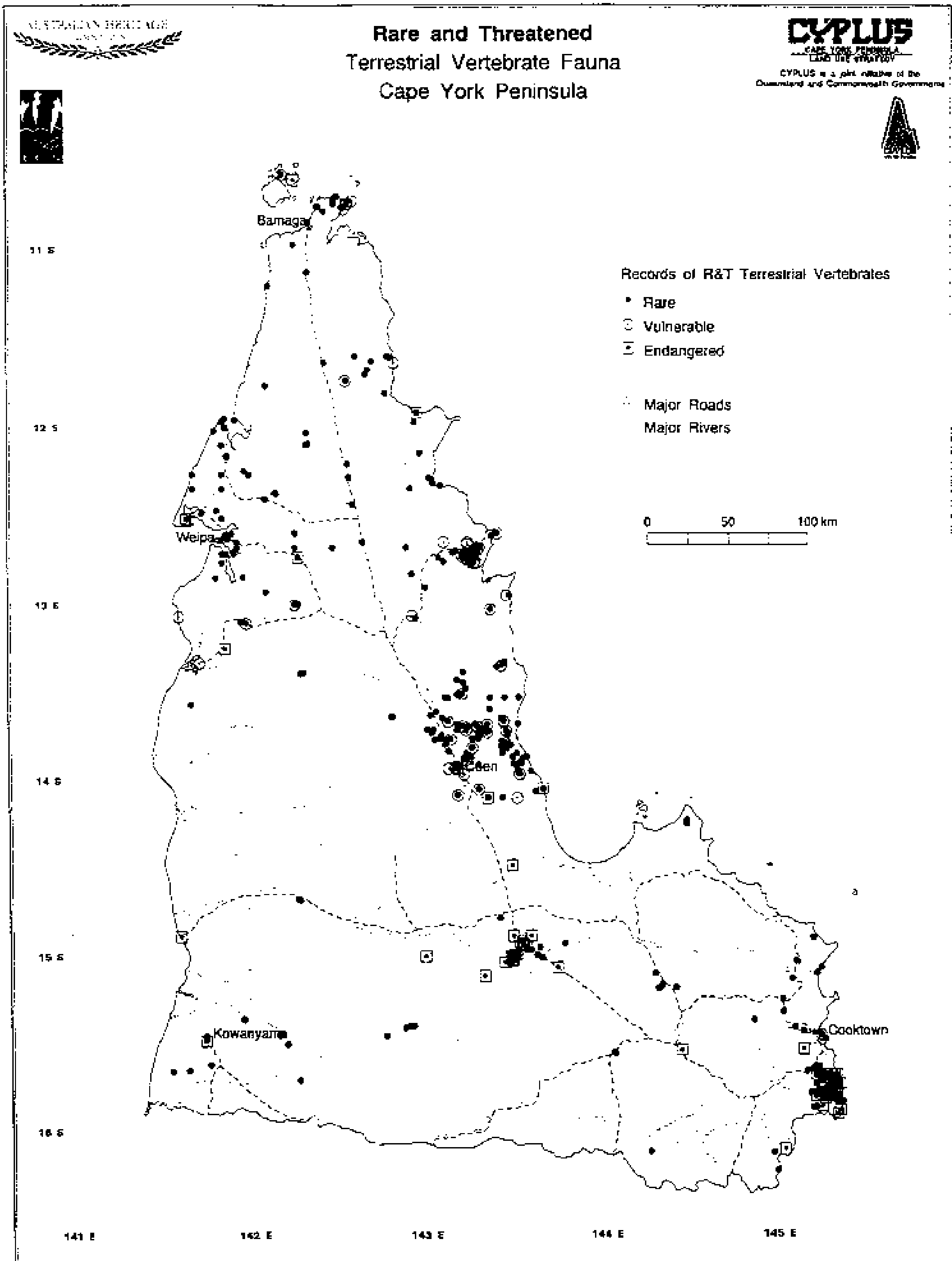
Eleven species have been recorded within the CYPLUS study area, that are listed as endangered under the schedule to the *Nature Conservation Act 1992*, or the *Commonwealth Endangered Species Protection Act 1992*. These species are listed in Appendix 7.

Four of the eleven endangered species are frogs which occur in the extreme south-east corner of the study area and are endemic to the Wet Tropical Forests biogeographic area. The Sharp-snouted Torrent Frog *(Taudactylus acutirostris)*, Torrent Tree Frog *(Litoria nannotis)*, *Litoria rheocola* and *Nyctimystes dayi*, are all found in or by streams in lowland and/or upland rainforests. Within the study area, the Wet Tropical Forests near Mt Amos and Mt Finnigan are significant habitat for these species.

A broad unvegetated sandbank on the northern side of the mouth of the south arm of the Mitchell River supports the largest known breeding colony of the Little Tern *(Sterna albifrons sinensis)* on Cape York Peninsula. Fifty birds in breeding plumage have been recorded here, making the site one of the top ten nesting locations of the sub-species in Australia (Taplin 1990, Starks 1992). In 1989 thirty-six birds, including twelve in breeding plumage, were recorded on a sandspit at the mouth of Janie Creek. The twelve birds represented a little over 1% of the total Australian population in breeding plumage recorded for 1989 (Taplin 1990). During 1989 most of northern and eastern Australia was surveyed for populations of the Little Tern. Other areas on Cape York Peninsula from where nationally large roosting populations were recorded include the mouth of the McDonald River (51 birds), Campbell Point (22 birds) the mouth of Chester River (21 birds), the mouth of McIvor River (40 birds) and an un-named point at $15^0$ 10'S $145^0$ 14'E (Starks 1992). A roost of about 100 individuals has also been recorded from Lowrie Island in the northern Great Barrier Reef area (DEH 1994).

The Golden-shouldered Parrot (*Psephotus chrysopterygius*) once occurred over much of the central Peninsula, but is now only known from a few small populations in the Musgrave area and west of the Lynd River (south of the CYPLUS study area). The total population is estimated at about 250 pairs. It is thought that the disappearance of the Parrot over much of its former range may be caused by a decline in wet season burns and a lack of naturally rocky or open areas. Current grazing levels are considered not to threaten the Parrot populations but higher stocking rates may reduce food availability. A recovery plan is currently being prepared for the species (Garnett & Crowley 1994).

# Rare and Threatened Terrestrial Vertebrate Fauna Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 07, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
Queensland Government. 1992. Nature Conservation Act.
ERIS database of records from institutions, e.g. AM, QM, CSIRO, MCZ, NMV, pers obs of G. Richards and D. Storch.
See AHC for complete citations and sources.

**Caveats....**

Designation of R&T status by Queensland Dept of Environment and Heritage. See AHC for specific taxa.
Points depicted are of post 1900 recorded observations or specimens with a geocode accuracy of 10 km or better.
See CYPLUS-GIS or ERIN for details of records and locations.
Data extraction and preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.4

The genus *Erythrotriorchis* is endemic to Australia and monospecific. The CYPLUS data-base contains two records of the Red Goshawk *(Erythrotriorchis radiatus)*. It is a woodland bird with extremely sparse populations that nests in trees greater than 20m in height, and within 1km of a watercourse or wetland. It is estimated that there are about 350 pairs of Red Goshawk remaining in Australia, compared to an historical population of about 440 pairs.

The decline in numbers has occurred south of $15^0$ and is thought to be related to large scale deforestation. There is also concern that a combination of fire and grazing may in the long term result in a lower density of prey and an unsustainable loss of nest trees (Garnett 1993). Aumann and Baker-Gabb (1991) surveyed nesting sites in the Northern Territory and Western Australia. An analysis of the climate of recorded nesting areas in these areas predicted that in Queensland, core nesting habitat would generally be south of Cape York Peninsula. Nevertheless there is a long standing and repeated record of a nesting location near the lower reaches of the Wenlock River. The Red Goshawk mostly nest in tall riparian trees, and generally forage within coastal and subcoastal tall open forests and woodlands, and on savannas traversed by wooded or forested rivers.

The woodlands, tall open forest and riverine forests on Cape York Peninsula are amongst the least disturbed in Australia and those catchments on the west of the Peninsula that are between the Mitchell and Wenlock Rivers, together with the Lakefield area are considered to be important for the conservation of this endangered species, either as foraging or nesting habitat (David Baker-Gabb RAOU pers. comm. 1994).

There are also two records of the northern sub-species of the Star Finch (*Neochmia ruficauda clarescens)* in the CYPLUS fauna data-base (Glasco *et al* 1995). The central eastern (Lakefield) and western coasts of Cape York Peninsula are some of the few areas in Queensland where the Finch has been recently sighted (Blakkers *et al* 1984). The Finch's preferred habitat is dense grass and rushes growing beside freshwater. It is considered that the most likely reason for the decline in the Queensland population is degradation of habitat by stock and feral animals, particularly during the dry season. Wilderness or little disturbed wetland areas in the Lakefield area and on the central west coast of the Peninsula are likely to be important to the continued survival of this sub-species in Queensland. The Star Finch is rare throughout Australia but may be locally common in the Northern Territory or Western Australia (Garnett 1993).

Cape York Peninsula is not a major habitat of the remaining endangered species found there, namely the Loggerhead Turtle (*Caretta caretta),* Gouldian Finch (*Erythrura gouldiae)*, and Northern Bettong *(Bettongia tropica)*. The recorded locations for these species are however available within the CYPLUS GIS and should be considered in any detailed land use planning.

Figure 17.5 provides a plot of the habitat on Cape York Peninsula that is of significance for endangered fauna. It consists of the major Little Tern breeding and non-breeding records of Starks (1992), the land tenure properties identified by Garnett and Crowley (1994) as being important for the Golden-shouldered Parrot, and the forest types of the Wet Tropical region in which endangered frog species have been recorded.

17.2.2 Vulnerable terrestrial vertebrate species.

Sixteen vulnerable species have been recorded within the CYPLUS study area.

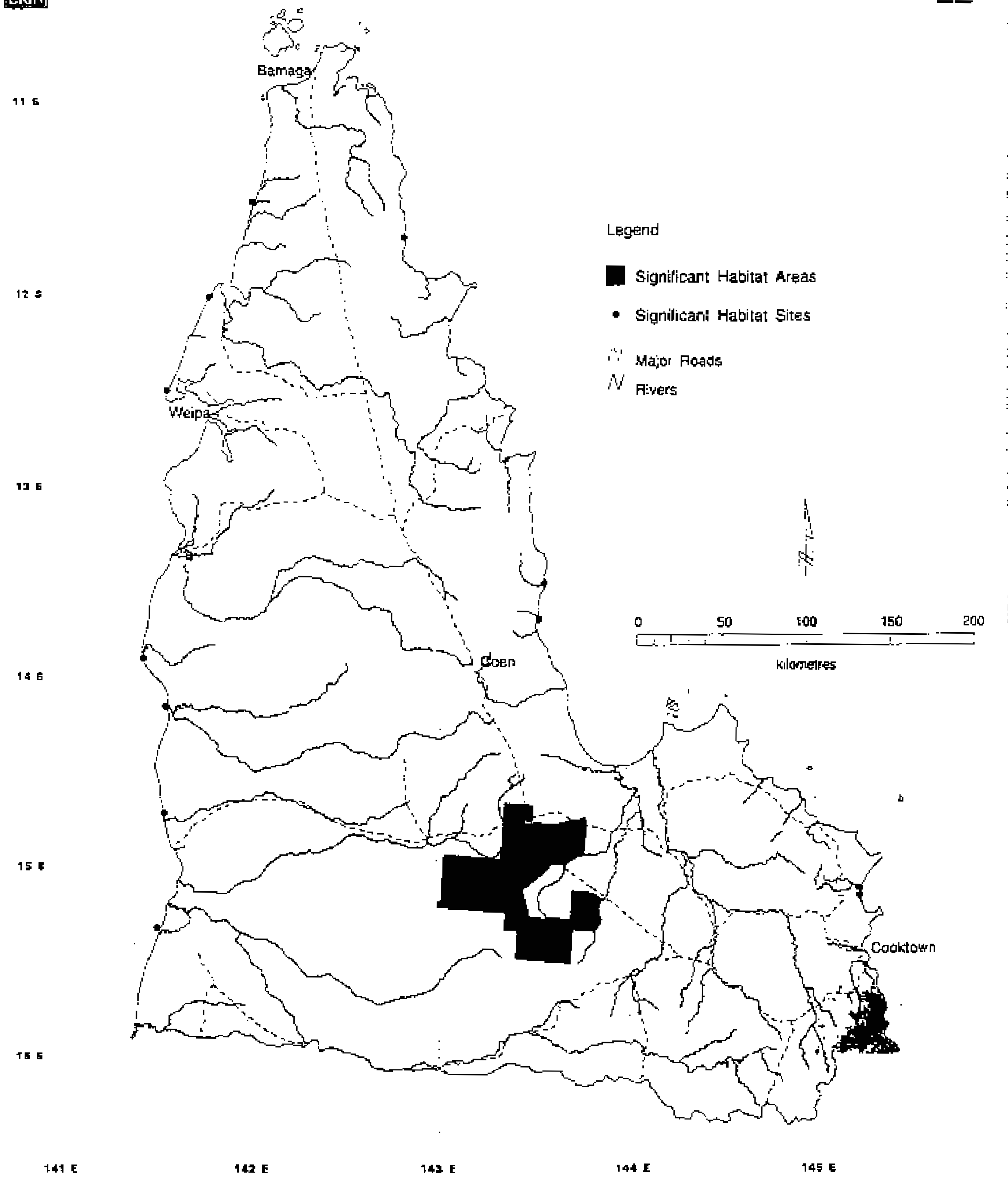
Three of these vulnerable species are turtles. The significance of Cape York Peninsula to turtle species in general is detailed at Section 17.3 of this report, and shown in Figure 17.9. In summary, Crab Island is the most important nesting site of the Flatback Turtle (*Natator depressus*): islands just off the north-east coast of Cape York Peninsula contain medium-sized (in an international context) nesting beaches of the Hawksbill Turtle (*Eretmochelys imbricata)*; while the seagrass beds identified in the seagrass GIS coverage are likely to be important feeding habitat of the Green Turtle *(Chelonia mydas)*.

AUSTRALIAN HERITAGE COMMISSION

# Significant Habitat Areas
## Endangered Terrestrial Vertebrate Species
## Cape York Peninsula

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY
CYPLUS is a joint initiative of the Queensland and Commonwealth Governments

ERIN




Map prepared through the facilities of the Environmental Resources Information Network ERIN (February 23, 1995)

**Sources....**

AHC. Areas of Conservation Significance - Cape York Peninsula. In preparation.
Winter, J. and Lethbridge, P. (1994) CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
ERIN database containing records from various institutions (QM,NMV, SAMA, ANWC, ANCA, MCZ, PCGR, PCDS, KU)
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Neldner, V.J. and Clarkson, J.R. Unpublished CYP CORVEG site and observation datasets.

**Caveats....**

Polygons depicted are from Clarkson & Neldner (1994) GIS coverage.
See AHC text for vertebrate species of special interest and methods for selection of associated habitat areas.
Data preparation and extraction, map design and production by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.5

The importance of the CYPLUS study area to the Saltwater Crocodile (*Crocodylus porosus)* is described in Section 17.5, and illustrated in Figure 17.11. The lower sections of the Wenlock and Dulcie rivers and the Jacky Jacky Creek area are particularly important breeding locations.

The northern Great Barrier Reef area, the northern and eastern shores of Cape York Peninsula, together with the shores of the Torres Strait Islands form an area of international significance for the Beach Stone-curlew (*Burhinus giganteus)*, as it supports over 5% of estimated East Asian-Australasian population. It is the only area in Australia that is recognised as being significant for this species (Watkins 1993). The species occurs singly or in small groups along the coastline and is likely to be more common on offshore islands, and those parts of the mainland little disturbed by humans, pigs or cats (Driscoll 1994b).

The Southern Cassowary (*Casuarius casuarius johnsonii)* is largely confined to rainforest from the tip of Cape York to the southern extent of the McIlwraith Range and then from Cooktown south to Townsville. The population south of Cooktown is estimated at about 3000 individuals (Crome & Moore 1990). There is not enough information to estimate the size of the northern population.

The Eclectus Parrot (*Eclectus roratus macgillivrayi)* occurs only in the Iron and McIlwraith ranges between the Pascoe and Rocky Rivers.

The northern or white-bellied subspecies of the Crimson Finch *(Neochmia phaeton evagelinae)* has only been recently recorded on the western coast of Cape York Peninsula, with a core area being in a narrow coastal strip between the Archer River south to Magnificent Creek near Kowanyama. It has been recently recorded as locally abundant in the Edward River area, in long perennial grass beside watercourses. Much of this habitat has been removed by feral pigs and stock grazing, while the riparian vegetation along the Mitchell River is being smothered by Rubber Vine *Cryptostegia grandis*.

The Fawn Horseshoe Bat (*Hipposideros cervinus)* is a rainforest generalist occurring on north-east Cape York Peninsula. It roosts in caves and mine shafts and feeds in rainforest and riverine areas.

The four other vulnerable bat species, Greater Wart-nosed Horseshoe Bat *(Hipposideros semoni)*, Spectacled Flying-fox *(Pteropus conspicillatus)*, Northern Sheathtail-bat *(Taphozous australis)* and Ghost Bat (*Macroderma gigas)* have more widespread distributions.

The Mitchell-Palmer Karst System in the south of the CYPLUS area is a significant habitat of the Ghost Bat with 64 individuals counted there in 1994 (Peter Berrill, Central Queensland Spelaeological Society, pers. comm. 1994). The Northern Sheathtail-bat is also known to roost in this cave system (Central Queensland Spelaeological Society & QNPWS 1990), while a small colony has also been recorded in a sea cave near Captain Billy Landing (Coles & Lumsden 1993). Significant numbers of Ghost Bats are also known to roost on Birthday Mountain and Black Mountain (DEH 1995).

The recorded locations for the Black-breasted Button-quail (*Turnix melanogaster)*, Northern Hopping Mouse (*Notomys aquilo)*, and Yakka Skink *(Egernia rugosa)*, are given within the GIS rare and threatened coverage provided to CYPLUS. Precise habitat information is not available, but the vegetation class polygons (not the whole class) in which a species was recorded is indicative of important habitat..

Figure 17.6 shows the location of habitat likely to be significant for vulnerable species. This coverage includes: the coastline of the Torres Strait Islands and Duifken Point to Cape Weymouth which is an extensive habitat of the Beach Stone-curlew; the Wet Tropical closed forests of the study area; the mid-Peninsula and north-eastern rainforests; the sub-coastal rivers and creeks between and including the Edward and Holroyd Rivers; the sea-caves at Captain Billy's Landing; the Mitchell - Palmer Karst System; and the vegetation polygons in which the

# Indicative Habitat Areas of Vulnerable Terrestrial Vertebrate Species

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY
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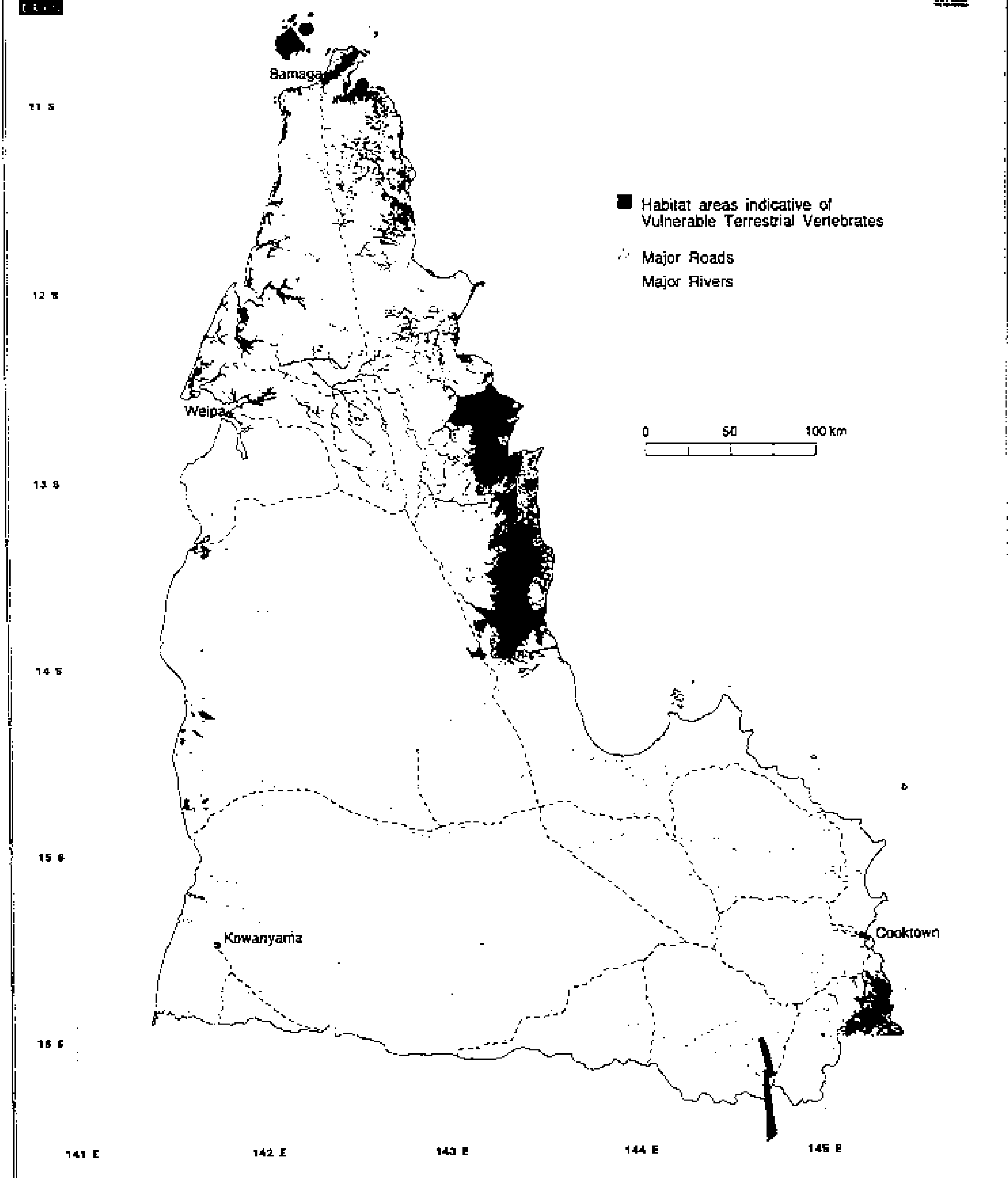



Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 07, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Queensland Government. 1995. Nature Conservation Act.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
See AHC for complete bibliography and sources.

**Caveats....**
The designation of vulnerable vertebrate species is per the Queensland and Commonwealth Governments.
See AHC for specific taxa and explaination of habitat types.
Areas depicted above are a combination of several vegetation classes (after Neldner) within particular regions and geological features. Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.6

Black-breasted Button-quail, Northern Hopping Mouse (*Notomys aquilo)*, and Yakka Skink *(Egernia rugosa)* have been recorded.

17.2.3 Rare terrestrial vertebrate species.

There are fifty-eight rare species recorded on Cape York Peninsula. Many of these species are largely restricted to rainforest areas. Rare species confined to the Wet Tropical Forests, within the CYPLUS study area, include the Tapping Nursery Frog(*Cophixalus concinnus*), Bloomfield Nursery Frog (*Cophixalus exiguus*), Cricket Chirper frog (*Sphenophryne fryi,)* Spotted-tail Quoll (*Dasyurus maculatus*), Bennett's Tree Kangaroo (*Dendrolagus bennettianus*), Caramel Ringtail Possum (*Pseudocheirus cinereus*), a skink (*Eulamprus tigrinus*), a skink *(Lygisaurus laevis)*, Blue-faced Finch (*Erythrura trichroa)* and Double-eyed Fig Parrot (*Cyclopsitta diophthalma macleayana)*.

Rare species confined to the Central Peninsula (McIlwraith - Iron Range) rainforests and summit vegetation, within the CYPLUS study area, include the Northern Nursery Frog (*Cophixalus crepitans*), Cape York Nursery Frog (*Cophixalus peninsularis*), Scrub Rocket Frog (*Litoria longirostris*), Cinnamon Antechinus (*Antechinus leo*), Grey Cuscus (*Phalanger intercastellanus*), Green Tree Python (*Chondropython viridis*), a gecko (*Saltuarius occultus*), the goanna *Varanus teriae* and Double-eyed Fig Parrot (*Cyclopsitta diophthalma marshalli)*.

The skink *Eugongylus rufescens* is a rainforest specialist occurring in the Lockerbie Scrub.

The Green-eyed Tree Frog, *Litoria genimaculata*, is largely confined to the Central and Wet Tropical rainforests on the Peninsula.

The lizard, *Emoia atrocostata*, is only known from the northern rainforest and on beach laterites on some of the islands of Torres Strait.

The Spotted Cuscus *(Spilocuscus maculatus)* occurs in the central and northern rainforests and also in riverine forests, interfluvial evergreen vine forest and patches of semi-deciduous vine thicket south and west to the lower reaches of the Archer River (Winter & Lethbridge 1994).

A number of rare species are restricted to boulder and/or cliff habitats. The Cape York Rock Wallaby *Petrogale coenensis* has a fragmented central Peninsula distribution on rocky mountains and hills. The Boulder Nursery Frog (*Cophixalus saxatilis*), the skink (*Nactus galgajuga* ) and the skink (*Carlia scirtetis* ) all only occur on Black Mountain, a large boulder mountain south of Cooktown. A similar boulder habitat occurs on Cape Melville and the skink *Cryptoblepharus fuhni*, and a newly described frog, are restricted to this area.

The skink (*Anomalopus pluto)* occurs in the sandy heathland and monsoon forest areas of the north-east Peninsula and on the sandstones of the Glennie Tableland.

The skinks *Lerista ingrami* and *Ctenotus rawlinsoni* are only known from the sandy heathlands of the Cape Bedford - Cape Flattery dunefields.

The inland sub-species of the Cave Swiftlet *(Collocalia spodiopygia chillagoensis)* is only known to nest in the Chillagoe and Mitchell-Palmer River karsts. A population of 2000 has been estimated for the Chillagoe area. No estimates can be made for the Mitchell-Palmer area though nests of up to 50 birds have been recorded in individual caves (DEH 1992, Chillagoe Caving Club 1988).

The Cape York Peninsula sub-species of the Rufous Owl (*Ninox rufa meesi)* probably roosts and nests in gallery rainforest and dense paperbark thickets (Garnett 1993). Four of the six recorded sightings (within the CYPLUS fauna data sets) of the species are in the Iron Range - McIlwraith Range area.

The Palm Cockatoo *(Probosciger aterrimus aterrimus)* is widespread above 14°30'S, and tends to occupy the ecotone between rainforest and open tropical woodland dominated principally by paperbarks (*Melaleuca)*. The hollow nesting trees are particularly vulnerable to fire in the dry season (Garnett 1993).

The rare turtle, *Emydura subglobosa,* is known in Australia only from the far north of Cape York Peninsula (Cogger 1992, DEH 1995).

The rare skink, *Lygisaurus tanneri,* has a restricted distribution centred on Cooktown (Cogger 1992).

The Diadem Horseshoe Bat, (*Hipposideros diadema),* is common within the Mitchell Palmer Karst (Central Queensland Spelaeological Society & QNPWS 1990).

The lizard, *Menetia koshlandae,* is only known from woodland just north of the Palmer River Crossing on the Cape Development Road (DEH 1995).

*Ramphotyphlops chamodraceane* is a recently described blind snake collected in the Weipa area (DEH 1995).

The Eastern Curlew *(Numenius madagascariensis)* occurs on Cape York Peninsula, but there are no major habitats of this species on the Peninsula (Watkins 1993, Driscoll 1994b).

The Black-necked Stork (*Ephippiorhynchus asiaticus*) is widespread across the Peninsula. The wetland area between the Holroyd and Archer Rivers may be an important dry season refuge for the species on Cape York Peninsula (Driscoll 1994b). This is probably also the case for the Radjah Shelduck *(Tadorna radjah)* (Peter Driscoll, 1994, pers. comm.).

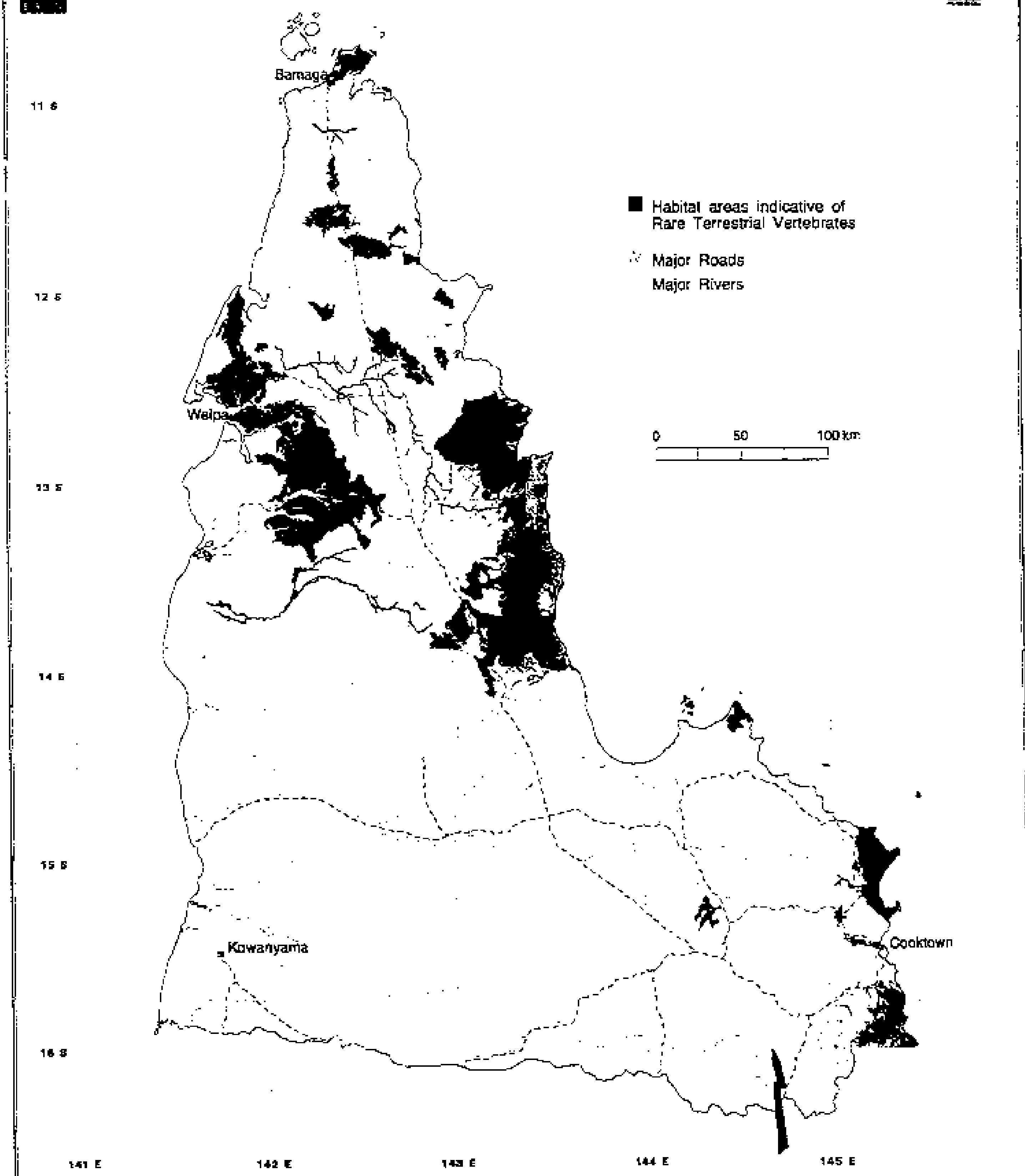
The rocky and sandy shores of the northern Great Barrier Reef area and the adjoining coastline of Cape York Peninsula are a particularly important habitat for a northern sub-species of the the Sooty Oystercatcher *(Haematopus fuliginosus opthalmicus)*, which is estimated to have a total population of only 1000 individuals. The area supports over 1% of the total estimated global population of the species (Watkins 1993, Driscoll 1994).

The Cotton Pygmy-Goose *(Nettapus coromandelianus)* reaches its northern distribution limit in the Lakefield area, and the wetlands here are the only important habitat of the species on Cape York Peninsula (Driscoll 1994b).

All recorded sites for rare and threatened species are provided with the GIS coverage provided as part of the CYPLUS Conservation and Natural Heritage Assessment Project.

Figure 17.7 shows indicative important habitat for rare species. This coverage includes: the mid-Peninsula and north-eastern rainforests; the wet tropical closed forests; Cape Melville: Black Mountain; the Cape Bedford - Cape Flattery dunefield; the Mitchell - Palmer Karst System; the Starke and north-east coastlines; and the vegetation polygons in which the Cotton Pygmy-Goose, *Ramphotyphlops chamodraceane* , *Menetia koshlandae, Lygisaurus tanneri, Emydura subglobosa,* Palm Cockatoo, Rufous Owl, *Anomalopus pluto, Petrogale coenensis,* Spotted Cuscus, *Emoia atrocostata,* and *Litoria genimaculata* have been recorded. The large polygon coverage in the Weipa area is mainly due to several records of the Palm Cockatoo in this area.

## Indicative Habitat Areas of Rare
## Terrestrial Vertebrate Species
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 07, 1996)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
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Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
See AHC for complete bibliography and sources.

**Caveats....**

The designation of rare vertebrate species is per the Queensland and Commonwealth Governments.
See AHC for specific taxa and explanation of habitat types.
Areas depicted above are a combination of several vegetation classes (after Neldner) within particular regions and geological features. Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.7

17.2.4 Rare and uncommon fish and fish communities

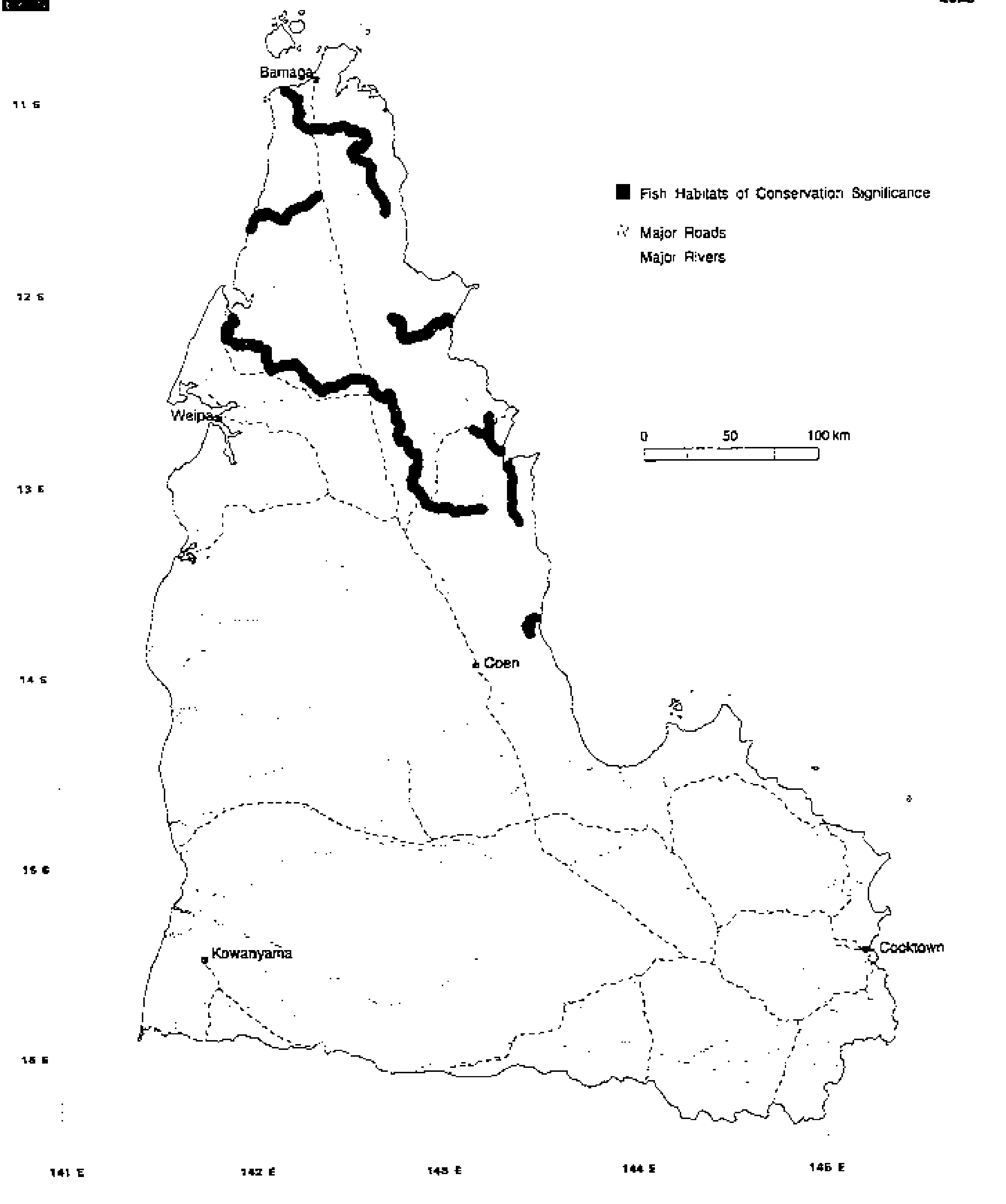
Herbert *et al* (1994) conducted a fish fauna survey of Cape York Peninsula as part of the CYPLUS Natural Resources Assessment Program NR10. The only rare species identified in the survey was the Short-finned Catfish *(Neosilurus brevidorsalis)*. This fish was collected from the Olive, Claudie and Lockhart Rivers and is also known from the Jackson and Jardine Rivers at the northern tip of Cape York Peninsula. The Short-finned Catfish is known only to occur on Cape York Peninsula and in New Guinea (Allen 1989).

The fish survey also identified a number of species that appear to be restricted to confined areas and then only occur in low numbers. The Fimbriate Gudgeon (*Oxyeleotris fimbriatus)* was collected from the Wenlock and Olive Rivers and is also known from the Jackson and Dalhunty Rivers on the north-west of the Peninsula. Obbes' Catfish *(Porochilus obbesi)* was collected in the Olive River, and is also known from the Jardine, Watson and Jacky Jacky basins. Rendahls Catfish *(Porochilus rendahli)* was collected in large numbers in Three Quarter Mile Lake, at Silver Plains. A few were collected in lagoons near the Endeavour, Wenlock, Archer, Holroyd and Palmer Rivers, while the species is also known from the Jardine River and the Normanby complex. Delicate Blue-eyes *(Pseudomugi tenellus)* were collected from Scrubby Creek, and are also known from the Jardine, Watson and Edward Rivers. The Claudie River is the only known habitat of the Spot-fin Gobies *(Redigobius chrysosoma)* on Cape York Peninsula. Freshwater Anchovies *(Thryssa scratchleyi)* were only recorded from a few locations in the Archer River catchment. Buffon's River Garfish (*Zenarchopterus buffonis)* is known from the Embley Estuary and was recorded during the fish survey from the Wenlock River.

The dunefield lakes near Shadd Point and Orford Bay, and on the Shelburne Bay and Cape Flattery dunefields each contain a unique fish assemblage, and sometimes species far outside their normal distribution. Other unique environments are found on small creeks or lagoons away from major rivers. Unique fish assemblages are found at Scrubby Creek/Three Quarter Mile Lake, Ronnie's Rocky Creek, Black Creek, Kupandhangan Swamp near Weipa and a creek near Bolt Head.

Figure 17.8 shows the river systems important for rare and uncommon fish and other significant conservation attributes discussed later in this report. It should be noted that the survey of Herbert *et al* (1994) did not cover the entire Peninsula and survey periods on specific river systems did not reflect seasonal changes.

# Fish Habitats of Special Interest
## Cape York Peninsula
## Conservation and Natural Heritage Assessment




Map prepared through the facilities of the Environmental Resources Information Network by D. Gaudo (May 07, 1995)

**Sources....**

AHC. Areas of Conservation Significance - Cape York Peninsula. In preparation.
Herbert, B., et al (1994). Fish Fauna Survey Report. Walkamin Research Station, QDPI.
Midgley, S. (1988). Some river systems of CYP. Account of Biol. Resource Study of Freshwaters. Unpub report.
Leggett, R. (1990). Freshwater fish of Iron Range and adjoining areas. Qld Nat 30 (1-2): 12-13
See Herbert above for complete bibliography and sources.

**Caveats....**

See sources or AHC Conservation and Natural Heritage Assessment for precise boundaries and descriptions.
Selection of special interest fish habitat areas on east side of CYP based on assessment by Herbert, B. (1994).
Significant fish habitats on west of CYP (Jardine, Jackson, and Wenlock Rivers) selected by AHC.
Data compilation and mapping of sites and/or areas by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.8

## 17.3 Turtles

The four species of turtles found in the CYPLUS area are considered to be rare or endangered in either an international, national or State context. The turtles are therefore considered under Sub-Criterion B1, while significant breeding and feeding areas for all the species are important under Sub-Criterion A2 (Importance for Maintenance of Existing Ecological Processes). In this assessment the DEH turtles data-set (locations and numbers of breeding records) was used in addition to a number of key references (Harris 1994, Miller 1994, Miller & Limpus 1990, and Parmenter 1994).

Significant feeding or nesting populations of four species of turtles occur within or are adjacent to the Cape York Peninsula Land Use Strategy area. The area includes significant feeding habitat or the Green Turtle *(Chelonia mydas)* and important nesting sites of the Flatback *(Natator depressus)*, Hawksbill *(Eretmochelys imbricata)* and Olive Ridley *(Lepidochelys olivacea)* turtles. Figure 17.9 shows the significant locations for turtles.

### 17.3.1 Flatback Turtle Nesting Site - Crab Island.

Crab Island, just off the north-west coast of the Peninsula, supports the largest known Flatback Turtle (*Natator depressus*) rookery. The Flatback is almost totally confined to the Australian continental shelf and its breeding is restricted to Australia. Annual nesting numbers at Crab Island are in the order of 1 000 to 2 000 individuals a year. Numerous Flatback Turtles have also been observed mating in the shallow water adjacent to the island, and the waters are likely to be an important breeding location.

The Hawksbill (*Eretmochelys imbricata)* and Olive Ridley *(Lepidochelys olivacea)* Turtles have also been recorded nesting on Crab Island. Both of these turtles are listed as nationally vulnerable under the *Endangered Species Protection Act 1992.*

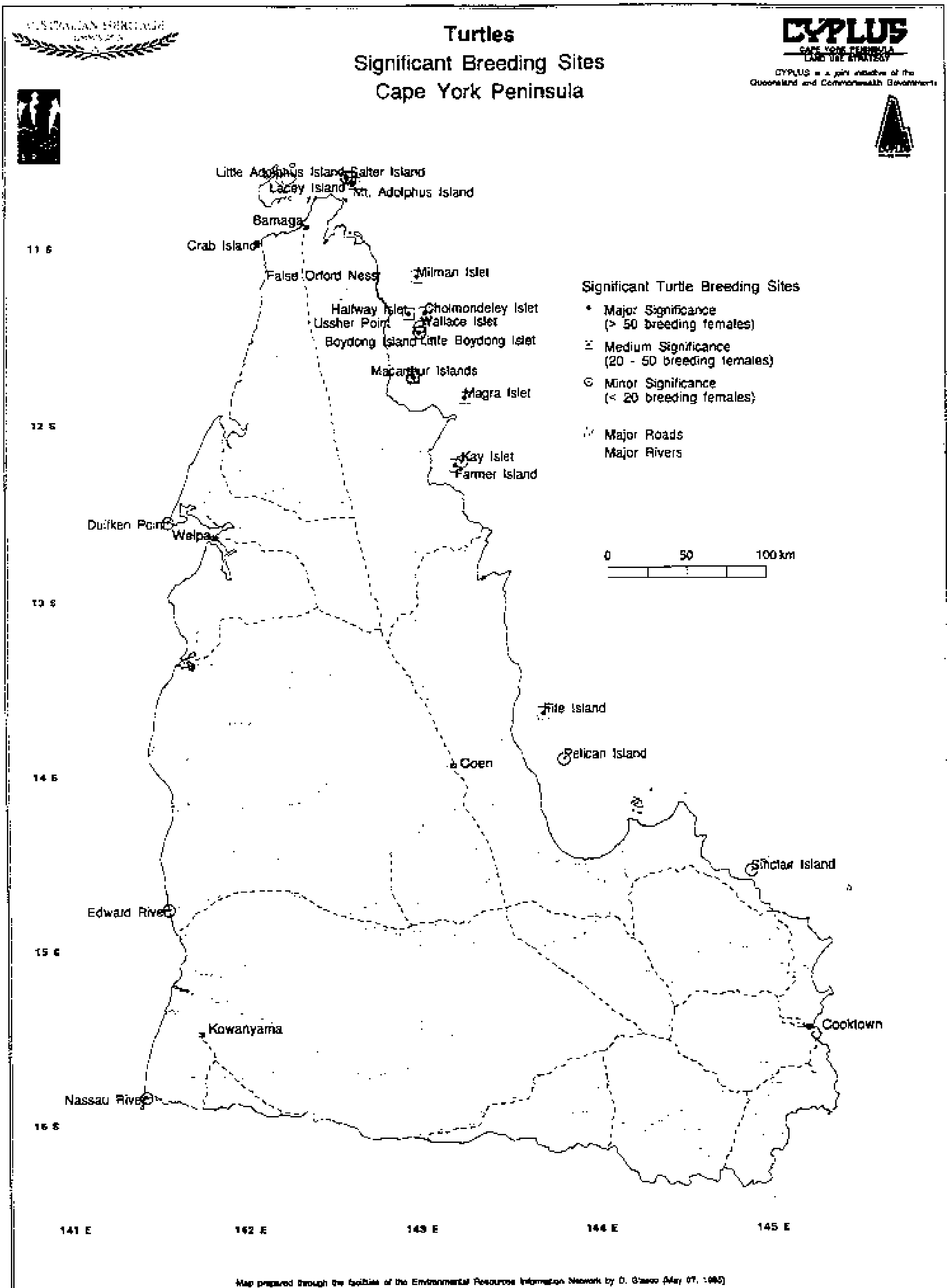
The condition of the island is natural with no major feral predators of turtle eggs known. Residents from adjacent communities on the mainland collect eggs on a regular basis during nesting season, and some adult turtles are harvested. The foraging distribution of the turtles using the Crab Island rookery is not known. Nankeen Night Herons (*Nycticorax caledonicus)* and Silver Gulls (*Larus novaehollandiae)* prey on the turtle hatchlings, while a number of adult Estuarine Crocodiles *(Crocodylus porosus)* are resident on the island.

### 17.3.2 Hawksbill nesting sites.

The Hawksbill Turtle *(Eretmochelys imbricata)* is listed as nationally vulnerable under the *Endangered Species Protection Act 1992.* It is considered to be internationally endangered. The Torres Strait and northern Great Barrier Reef region constitutes one of the few remaining large nesting populations for the species worldwide. It is estimated that over three thousand females may nest annually within the region. The major regional rookeries are well outside the CYPLUS study area, on Long, Aukane, Mimi and Kabbikane Islands/Islets. However there are several medium and minor nesting locations within or in close vicinity to the CYPLUS study area.

Medium nesting localities are used by between 20 - 50 nesting females a year and include:

Milman Island,
Chomondeley Islet,
Halfway Islet,
Boydong Island,
Magra Island,
Macarthur Islands,
Fife Island,
Farmer Island,
Lacey Island, and
Mount Adolphus Island.




**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
ODEH. 1994. Unpublished turtles dataset.
Harris, A. 1994. 'The Olive Ridley', in Proc of Aust Marine Turtle Conservation Workshop, ed. R. James.
Miller, J. 1994. 'The Hawksbill Turtle', in Proc of Aust Marine Turtle Conservation Workshop, ed. R. James.
See AHC 1995 for additional sources and complete citations.

**Caveats....**

See sources or AHC for precise locations and descriptions.
Significance criteria by AHC with consultation of subject matter experts.
Numerous sandy beaches between False Orford Ness and Ussher Point are minor breeding sites for Hawksbill Turtles.
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.9

Nesting locations of minor significance are used by between 10 - 20 nesting females a year and include:

Sinclair Island,
Wallace Island,
Little Boydong Island,
Pelican Island,
Kay Islet,
Sand beaches between False Orford Ness and Ussher Point,
Little Adolphus Island and Salter Island.

17.3.3 Green Turtle foraging areas.

The Great Barrier Reef and Torres Strait region supports a large population of Green Turtle *(Chelonia mydas)*, which is considered to be nationally vulnerable under the *Endangered Species Protection Act 1992.* The Green Turtle nests on the outer barrier islands and cays, but the seagrass beds on which it feeds lie adjacent to the CYPLUS study area. The large seagrass beds in the Cape Melville-Strake region and within the Princess Charlotte Bay area are likely to support large populations of foraging Green Turtles.

17.3.4 Olive Ridley nesting habitat.

The Olive Ridley Turtle *(Lepidochelys olivacea)* is widely distributed in the Indo-Pacific. The Olive Ridley nests sparingly throughout the Gulf of Carpentaria and the Northern Territory. It is considered to be nationally vulnerable under the *Endangered Species Protection Act 1992*. The Olive Ridley has been recorded as nesting on the sandy beaches of Crab Island, the Duifken Point area (north of Weipa), and at the mouth of the Nassau and Edward Rivers.

## 17.4 Areas of Significance for Dugong (*Dugong dugon*) Habitat

The Dugong (*Dugong dugon*) is listed as vulnerable to extinction by the International Union for the Conservation of Nature (IUCN) and is the only herbivorous marine mammal on the Convention on International Trade in Endangered Species (CITIES). Sub-Criterion B1 and Sub-Criterion A2 apply to this section of the report.

The northern Australian population is estimated at approximately 70 000 with 12 500 in the Torres Straits and 8 000 in the northern Great Barrier Reef. A significant proportion of the global dugong population is believed to occur in northern Australia (Moreton Bay to Shark Bay); however, the density of dugong populations in northern Australia are not dissimilar in other surveyed parts of the world (Heinsohn 1991).

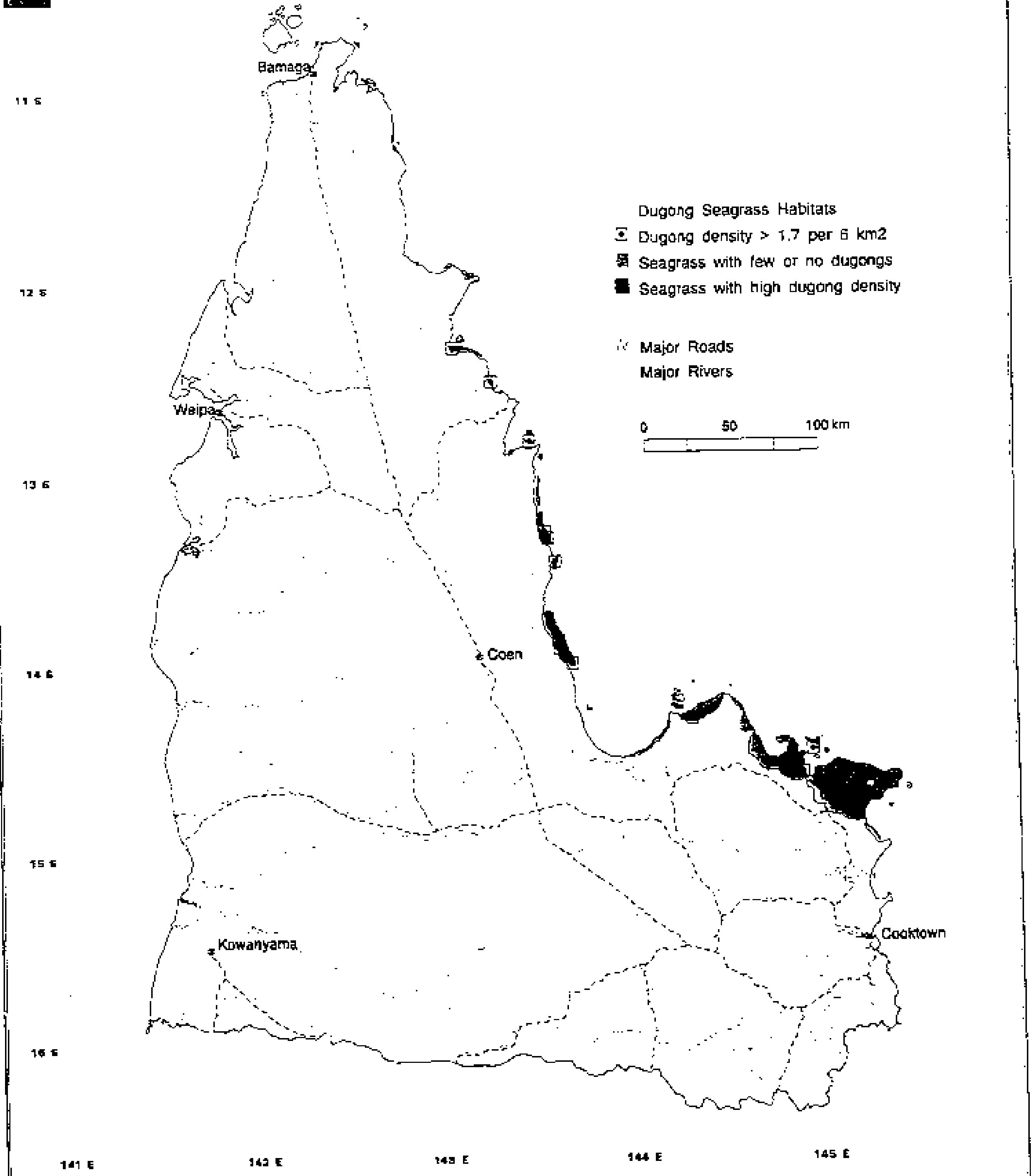
Although considerable research in northern Australia (Marsh *et al* 1984c, Marsh & Saalfeld 1989, Marsh 1990, Heinsohn 1991, Lanyon *et al* 1989, and Preen 1989) has focused on the dugong reproductive biology, there is still little detailed understanding of the life history and ecology of the species. The staple food of the dugong is seagrass, a number of species of which are consumed; deliberate consumption of invertebrates has also been reported in the southern areas of the dugong's range in Australia; this has not been observed in the tropics however (Heinsohn 1991).

Observation of dugong behaviour suggests all spend most of their time in the vicinity of inshore seagrass beds and have overlapping home ranges of 4 - 23 $km^2$. Marsh and Saalfeld (1989) note the majority were sighted in at depths of <5m. Only rarely are long-distance travels undertaken (Heinsohn 1991).

Marsh indicates that even with the most optimistic combination of life-history parameters, a low rate of natural mortality, and no man-induced mortality, a dugong population is unlikely to increase at more than about 5% per annum (Heinsohn 1991).

An analysis of areas of significance for dugong in the CYPLUS study area, was undertaken using the dugong observation information obtained from Morisette TESAG JCU. This data was derived from detailed air survey work, involving transects and measuring the number of animals in each 2.5 x 2.5 nautical mile grid of the near shore areas south of the Olive River. This information has been related to seagrasses as mapped by Coles *et al* (1985), and as described in the Marine Vegetation Analysis (Section 9.3 of this report). Relating the grid cells with a high observation rate to the associated seagrass areas has been undertaken to determine the areas of significance for this species and is mapped on Figure 17.10. The data-set does not include areas in the Torres Straits where high dugong densities are also recorded, nor is information available for the west coast of the CYPLUS area. It may be possible to include that information in the future.

## Dugongs
Important Habitats
Cape York Peninsula




**Sources....**
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Danaher, K. 1994. CYPLUS NR06 Marine Vegetation Project. Fisheries Division, QDPI.
Marsh, H. and Morissette, N. 1994. Unpublished N. Qld. dugong dataset. TESAG. James Cook University.

**Caveats....**
Seagrass areas are as delineated by Danaher (1994). West coast seagrass beds are not depicted.
Dugong densities were determined from Marsh marine surveys.
Important dugong habitats are seagrass beds with a density > 1.7 per survey area (~ 6km2).
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.10

**Table 17.1 Dugong Grid Cell Data**

| Dugong Density per Grid Cell | Number of Grid Cells | Dugong Number per Grid Cell | Number of Grid Cells |
|---|---|---|---|
| 0 | 1959 | 0 | 1959 |
| 0.1796 | 2 | 1 | 78 |
| 0.1797 | 4 | 2 | 35 |
| 0.1803 | 1 | 3 | 11 |
| 0.2695 | 3 | 4 | 10 |
| 0.2696 | 2 | **5** | **1** |
| 0.2982 | 1 | **6** | **3** |
| 0.3466 | 1 | **7** | **5** |
| 0.3593 | 2 | **8** | **3** |
| 0.3594 | 1 | **9** | **2** |
| 0.3834 | 1 | **11** | **1** |
| 0.4898 | 1 | **12** | **2** |
| 0.5389 | 33 | **13** | **1** |
| 0.5391 | 24 | **14** | **1** |
| 0.5859 | 1 | **22** | **1** |
| 0.5966 | 1 | **25** | **1** |
| 0.6258 | 1 | **29** | **1** |
| 0.6798 | 1 | | |
| 0.6949 | 1 | | |
| 0.7186 | 2 | | |
| 0.7698 | 1 | | |
| 0.7783 | 1 | | |
| 0.8084 | 1 | | |
| 1.0264 | 1 | | |
| 1.0778 | 1 | | |
| 1.0779 | 11 | | |
| 1.0783 | 13 | | |
| 1.1071 | 1 | | |
| 1.1104 | 1 | | |
| 1.1235 | 1 | | |
| 1.1578 | 1 | | |
| 1.4371 | 1 | | |
| 1.6168 | 5 | | |
| 1.6174 | 5 | | |
| **1.7891** | **1** | | |
| **1.795** | **1** | | |
| **1.8364** | **1** | | |
| **1.8862** | **1** | | |
| **2.1558** | **3** | | |
| **2.1566** | **2** | | |
| **2.4261** | **1** | | |
| **2.6957** | **1** | | |
| **2.8431** | **1** | | |
| **2.9377** | **1** | | |
| **3.2336** | **1** | | |
| **3.4624** | **1** | | |
| **3.7726** | **3** | | |
| **3.7739** | **1** | | |
| **4.3131** | **1** | | |
| **4.8504** | **1** | | |
| **5.3244** | **1** | | |
| **5.8462** | **1** | | |
| **5.9283** | **1** | | |
| **6.4673** | **1** | | |
| **7.0062** | **1** | | |
| **7.8144** | **1** | | |
| **11.8566** | **1** | | |
| **13.4785** | **1** | | |

The calculated dugong density for each grid cell was used. Those grid cells with a density above 1.7 dugongs per cell, a clear break point in the distribution, were considered indicative of the most important areas of habitat (Table 17.1). Where the grid cells related to mapped seagrass areas those seagrasss beds were delineated as areas of significance. Figure 17.10 shows these areas and in addition the high density grid cells in areas where there was no seagrass mapped.

The important difference between this information and the Marine Vegetation areas of significance (Figure 9.1) is the inclusion of the seagrasses to the north of Cape Sidmouth as being of particular habitat significance for dugongs. The few grid cells that occur where no seagrass is mapped may indicate areas where seagrass beds deeper than the 20m mapping limit are located.

## 17.5 Significant Locations for Crocodiles on Cape York Peninsula

Figure 17.11 shows areas significant for estuarine crocodiles on the Peninsula. The sites, as mapped, are described from north to south, below. Magnusson *et al* (1980) and Taplin (1987) and Jeff Miller QDEH (pers. comm. [1994]) have provided the basis for this report. However, there is no definitive currently available data on the number of crocodiles in the region. Crocodiles are considered nationally vulnerable and thus are considered under Sub-Criterion B1 and their breeding habitats under Sub-Criterion A2.

### 17.5.1 Jardine River Wetlands and Jacky Jacky Creek.

This area covers the Jardine River system including the Jardine Swamps, Jardine River National Park and Jacky Jacky Creek system.

These environments are significant breeding sites for the Estuarine Crocodile (*Crocodylus porosus*) because they are not prone to extensive flooding events, the vegetation is suitable for nesting, and disturbance is minimal. The adult population of the Jardine River and Jacky Jacky Creek Systems represent the largest breeding populations known in Queensland.

The area is characterised by extensive beach ridges and estuarine habitats with mangrove forests and permanent freshwater wetlands associated with the Jardine River and Jacky Jacky Creek. The freshwater swamps support sedge and grassland communities under a canopy of *Melaleuca* and monsoon vine forest. These areas are kept moist by seepage, and generally are not subject to the catastrophic flooding common on the Gulf Plains, due to the relatively higher elevation afforded by the Weipa Plateau. The area is remote from major settlement and is generally undisturbed. Extensive areas are available for habitation by adult *Crocodylus porosus* and many of the wetlands are suitable for nesting sites.

The Jardine River System considered here is an area of high wilderness quality, in excellent condition as a crocodile habitat. No immediate disturbances or threats known.

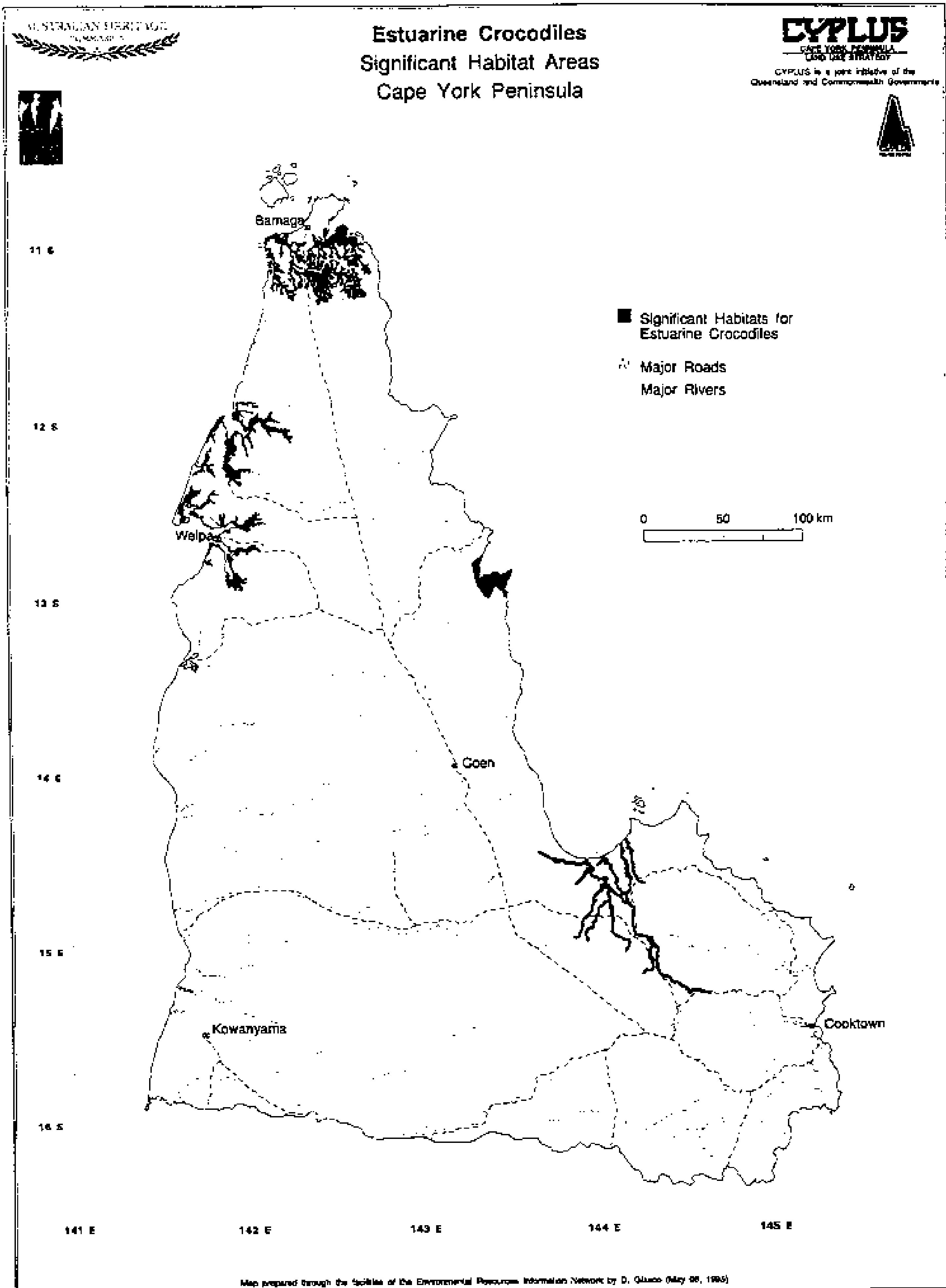
### 17.5.2 Wenlock and Dulcie River Systems.

This includes the Wenlock and Dulcie River Systems inland to the Weipa Plateau and associated ranges. Magnusson *et al.* (1980), report that the best areas of crocodile habitat occur at the following grid references: 508451, 506442-506436, 505434, 528433, 521432, 514444, 512451 for the Wenlock River, and 529471, 526468-523484 on the Dulcie River.The location of these grid references are not shown on Figure 17.11 but are shown in magnusson et al. (1980).

Along with the Jardine River Wetlands and Jacky Jacky Creek area, these systems represent significant breeding sites for the estuarine crocodile (*Crocodylus porosus*) because they are not prone to the extensive flooding events typical of the southern Gulf Plains areas, the vegetation is suitable for nesting, and disturbance is minimal. Surveys of the area have revealed a large population (588 individuals in 145 km of waterway in 1985), with many adults and a substantial recruitment of hatchlings. This area contains one of the largest breeding populations of crocodiles in Queensland.

The lower and middle reaches of the Wenlock River and the lower reaches of the Dulcie River are characterised by permanent swamps with ferns, sedges and palms under a canopy of *Melaleuca*. These areas are generally not subject to flooding due to their relatively high relief. Extensive areas suitable for nesting are located at these sites, and several nests have been sighted during survey work. A large variety of habitats suitable for adult crocodiles have been noted throughout.

Again this Wenlock river area is of high wilderness quality, in excellent condition. No immediate disturbances or threats known.




**Sources....**

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Thurgate, M. 1994. Significant Locations for Crocodiles on CYP. James Cook University.
Taplin, L.E. 1987. Management of Crocodiles in Qld. in Wildlife Management eds G. Webb et al.
Driscoll, P. 1994. Assessment of Wetlands for Nature Conservation, unpub report for CYPLUS.
Danaher, K. 1994. Marine Vegetation Project, NRAP NR05. QDPI. See AHC for complete sources and citations.

**Caveats....**

See sources or AHC for precise locations and descriptions.
Areas in Lakefield and Jardine regions determined by buffering selected drainages from AUSLIG 1:250000 GIS coverages.
Iron Range and Weipa areas based on Danaher (1994) mangrove locations and Driscoll wetlands boundaries.
Data extraction and preparation, map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 17.11

17.5.3 Iron Range National Park and Lockhart River Mangrove Swamps.

This region provides numerous small, permanent swamps which are suitable for the nesting and breeding of *C. porosus*. The extensive mangrove community of the Lockhart River estuary is one of the few locations above Cooktown to support moderate to low numbers of adult crocodiles by providing a suitable habitat and food supply. The area is in excellent condition.

The north-east coast of Cape York Peninsula has not been adequately researched for crocodile habitat and population demographics. However, preliminary surveys around the Lockhart River estuary, and in the waterways of the Iron Range National Park suggest that this area would be suitable crocodile habitat. The Lockhart River estuary is dominated by an extensive and diverse mangrove community which provides suitable habitat and feeding grounds for adult Estuarine Crocodiles (*C. porosus*). The high relief of the Iron Range National Park, and the relatively high and consistent rainfall patterns of the area, have favoured the development of small, permanent coastal swamps which are thought to be suitable as nesting sites (Miller pers. comm. [1994]).

17.5.4 Lakefield National Park.

Due to the size of the Lakefield National Park (537 000 ha), and the presence of extensive riparian thickets along most of the waterways, this area is considered to have a high conservation value in terms of protection of the habitat and feeding grounds of adult Estuarine Crocodile.

Three major river systems pass through the Lakefield National Park area - Normanby, Kennedy, and Morehead Rivers. Extensive wetlands occur throughout the Park including riparian thickets along the riverine systems, permanent swamps and lagoons. Perennial, spring-fed wetlands suitable for Estuarine Crocodile (*C. porosus*) nesting sites are not known from the area at this time, although marginal quality nesting habitat is present in mid-sections of the North Kennedy and Normanby Rivers. The coastal areas are low-lying and subject to flooding, and some of the riverine stretches become hypersaline during the dry season. Based on the limited survey data that is currently available, the Lakefield area supports a modest number of adult *C. porosus*. However, recruitment of juveniles into the area has been reported, and further surveys may reveal an increase in the population since the last surveys of the 1980s. The extensive mangrove communities of the Normanby River may provide good opportunities for adult crocodile feeding grounds. The Freshwater Crocodile (*C. johnstoni*), occurs in permanent waterbodies of the inland sections of the Park.

The Park is generally good to excellent condition as a crocodile habitat, although human population pressures from tourism (removal of animals near camping sites) and degradation of freshwater lagoons outside the park are occurring.

17.5.5 Other Sites.

According to Jeff Miller of the Queensland Department of Environment and Heritage, the only other Queensland sites with significant *C. porosus* habitat, comparable to those on the Peninsula, include Eubenangee Swamp and the Hinchinbrook coast (Hull River, Edmund Kennedy National Park and Hinchinbrook Channel). These locations do not fall into the CYPLUS area and will not be discussed further.

Once upstream of the tidal boundary, all the waterways of the central region of Cape York Peninsula, down to Einasleigh, contain significant populations of the freshwater crocodile (*Crocodylus johnstoni*). At this stage, however, no particular areas of significance for this species have been recognised amongst those rivers within the CYPLUS study area.

# 18.0 AREAS OF SIGNIFICANCE FOR THEIR CONTRIBUTION TO RESEARCH OR AS TYPE LOCALITIES

Research, teaching sites and type localities are considered under Sub-Criterion C1 (Importance for places that provide important information contributing to an increased understanding of Australian natural history). The general remoteness of Cape York Peninsula means that it has not been a significant scientific teaching area. Research sites of significance include those areas where high quality or ground-breaking research has been undertaken or is in progress, while type localities of biological specimens are important for taxonomic reference.

This assessment of natural heritage conservation values on Cape York Peninsula documented both geological and biological type localities in a systematic manner (see below and AHC 1994). However the assessment of research sites has been of an opportunistic nature and can not be regarded as comprehensive. It is hoped that further sites may be identified by researchers in response to this document.

## 18.1 Research Sites

A research site is significant if it is a place that is important for study that expands Australia's current understanding of the natural environment. The Cape Grenville Volcanics, Indian Head to Cape Bedford Exposures, Princess Charlotte Bay Chenier Ridges, Pera Head, Weipa Bauxite Cliffs, Cape Bedford - Cape Flattery Dunefields, Shelburne Bay - Olive River Dune Fields, Glen Garland Swamps and Pascoe River Beds where identified as geological or geomorphological sites of particular research significance (AHC 1994).

To date much of the biological research on Cape York Peninsula has had a survey focus, rather than the establishment of benchmark or detailed ecological research sites in which natural processes, such as succession, population fluctuations or hydrological cycles can be monitored and documented. There are, however, a few notable exceptions.

As part of a two-year survey of insects on Cape York Peninsula (Zborowski *et al* 1994), eleven permanent survey sites were established in various vegetation types across the Peninsula. The eleven areas are significant benchmark sites for monitoring fluctuations in the insect populations on Cape York Peninsula. The detailed inventory of insects occurring at each site also make them potentially important research sites into insect ecology. The areas will become the type locality for a large number of insects, and they are also of importance to insect taxonomy.

The Heathlands lease area is another important research site. In the wet season of 1992, the Royal Geographical Society of Queensland organised a base camp for forty-four scientists at Heathlands homestead. The expedition was the most comprehensive wet season study ever undertaken in Cape York Peninsula and provided ecological and baseline information for ongoing research into climatology, botany, invertebrate zoology, vertebrate zoology and evolution (Royal Geographical Society of Queensland 1993).

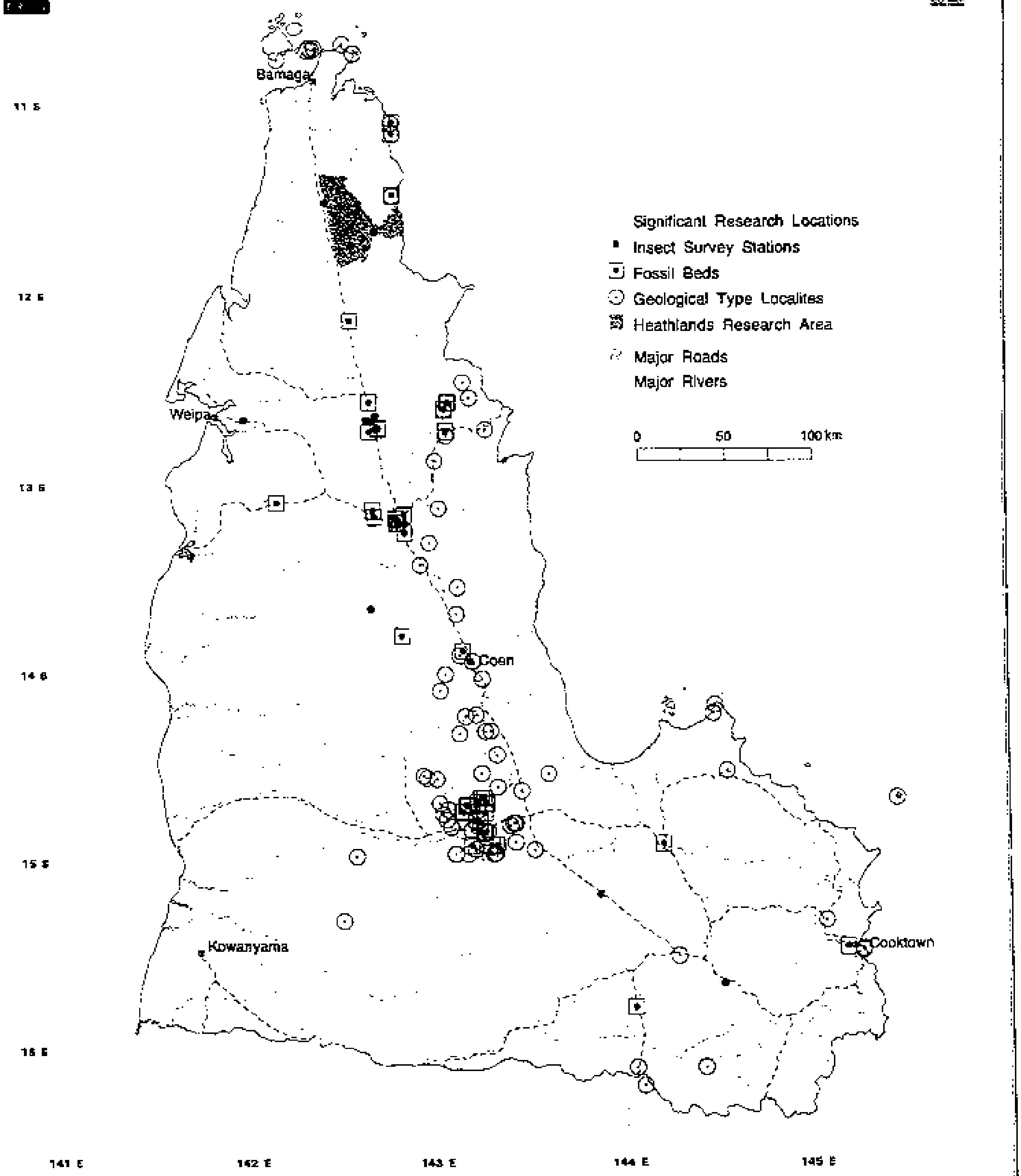
Locations of significant research sites are shown on Figure 18.1.

## 18.2 Type Localities

There are a number of different varieties of type specimens for which localities are important. These include Holotypes, (the actual specimen from which the species was described), Paratypes (specimens cited in the original publication describing the species but which are not the Holotype), Syntypes (specimens from which a species is collectively described) and Lectotypes (where a specimen has been chosen following the description of the species to act as the benchmark, usually where the original author has not submitted a Holotype or the Holotype has been destroyed). To further confuse the situation, with taxonomic revision and associated reclassification of species, the status of a type specimen can accordingly alter. To an extent all these types are significant.

## Significant Research Sites and Areas
Cape York Peninsula

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glason (May 09, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
AHC. 1994. Sites of Geological and Landform Conservation Significance on CYP.
RGSQ, Inc. 1993. CYP Scientific Expedition Report: Wet Season 1992.
Zborowski, P. et al. 1994. Project NR17 Report on Insect Survey - CYPLUS. CSIRO Div. of Ent.
See AHC 1994 for description of geological type locality sites and complete citations.

**Caveats....**
Insect point locations are permanent insect survey sites (Zborowski 1994).
The Heathlands area was the location of the most comprehensive wet season research project to date.
Geological sites are geology/stratigraphy type localities. Some fossil sites are type localities.
Data extraction and map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 18.1

The type locality of a species is important as the key area from which further specimens of the same population as the type may be sought. A preserved type specimen may deteriorate with age, it may be damaged or lose parts, or it may be lost or destroyed. A preserved or dried specimen may also not be suitable for studies of internal anatomy, chromosomes or biochemical characteristics all of which may be crucial for establishing taxonomic relationships. The information sought may only be obtained through collecting fresh specimens from the type locality. In addition, many of the Holotype specimens collected from Cape York Peninsula were collected for foreign museums in Europe and America, which means that the specimens may not be easily accessible to Australians (Monteith 1974).

The identification of faunal type localities for this project was undertaken by interrogating the Zoological Catalogue (ABRS) to determine the location of type localities on Cape York Peninsula. This entailed a systematic search through the ABRS data base, and cross-referencing of the species identified with the current nomenclature for those found on the Peninsula. It is possible there have been a few oversights in the process.

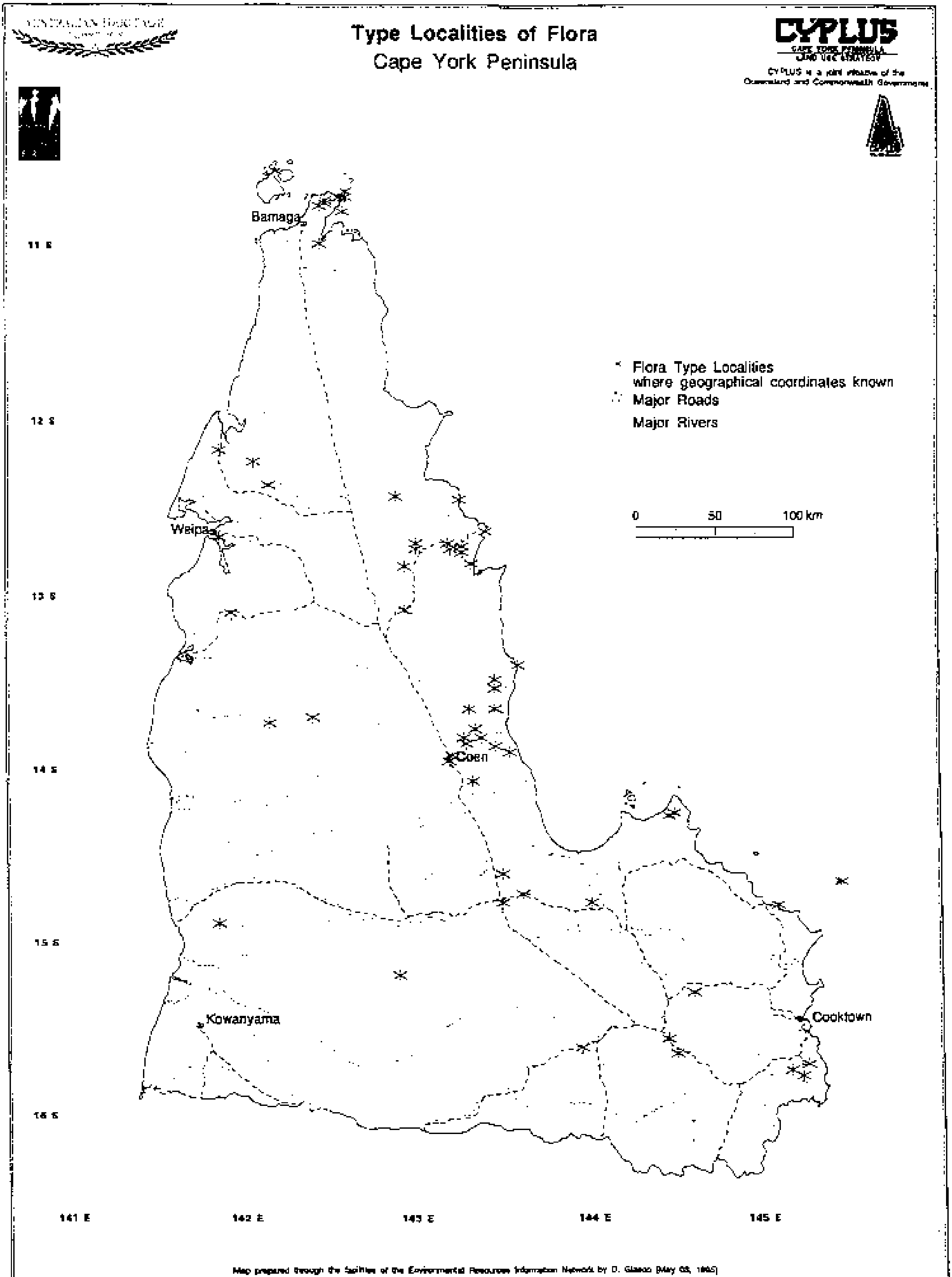
Time constraints meant that only type locations of plant species endemic to Cape York Peninsula or with disjunct populations there have been documented. The point locations of 90 species were established by reference to the Australian Plant Name Index (Chapman 1991).

In addition to the Zoological Catalogue search, the invertebrate coverage created included records collated for those data based by the Australian National Insect Collection (ANIC). Only 10 of the 32 Orders are currently on the data base and therefore able to be readily searched. The result was 77 species that have a precise type locality in the CYPLUS study area. An indication of the partial coverage that the ANIC data-set provides is that it records 13 type specimens from the Lockerbie Scrub and Somerset area, when a literature survey reveals that 18 species of butterflies, 159 species of moth, 163 beetle species and 70 spiders have a type locality there (Monteith 1974).

Cape York Peninsula has been an important centre for plant and animal collection since the times of first European exploration. Many species that have wide spread distributions across northern Australia, have their type locality on the Peninsula. Figures 18.2, 18.3, & 18.4 show type locations for flora, invertebrate and terrestrial vertebrate species respectively. Only the vertebrate coverage can be considered comprehensive.

Although the invertebrate and flora coverages are far from complete, they do highlight areas that have been a particular focus for biological collection. These areas are further highlighted in Table 18.1 which gives the general location names attached to type specimens which are without precise grid reference locations. As is evident the vicinities of Cooktown, Somerset, Thursday Island, Iron Range and Coen are the key areas on Cape York Peninsula for biological type localities (Figure 18.5).

Relative ease of access by ship (for Cooktown, Thursday Island and Somerset) and later by road (for Coen and Iron Range) together with an interest in rainforests (for example, at Iron Range and Somerset) are important reasons explaining why these areas were a focus of collecting activity. A significant feature of the collecting sites on Cape York Peninsula is that, unlike many areas of early biological collecting in Australia, many of the Cape York Peninsula sites are still in essentially in the same condition as when the collections were made.




**Sources....**

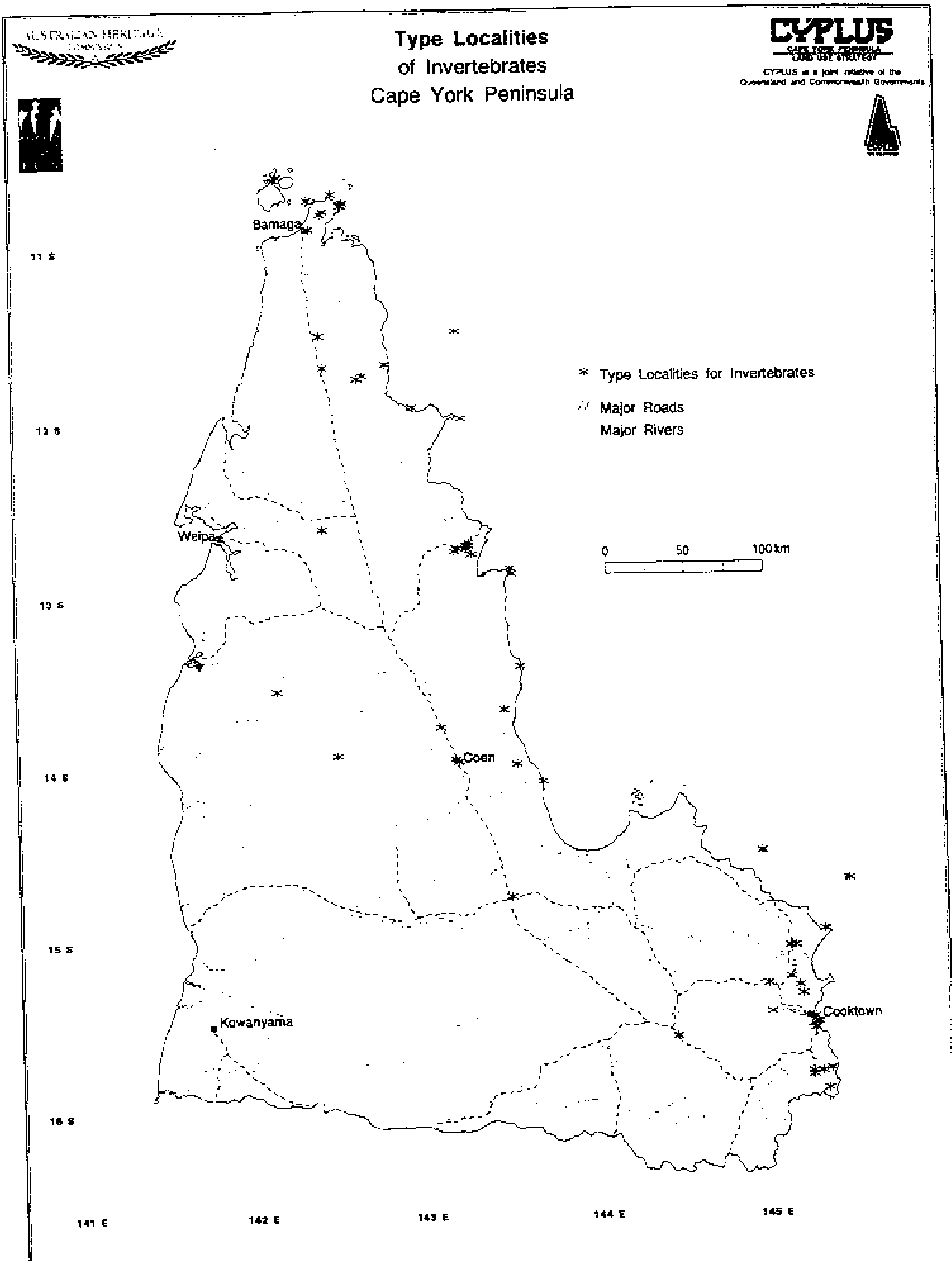
AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Chapman, Arthur D. 1991. Australian Plant Name Index (APNI). Canberra : ABRS.

**Caveats....**

Type localities extracted from APNI by AHC.
Only type localities with geographic coordinates or specific locality description were selected.
See AHC (1995) or ERIN for specific taxa and locations.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 18.2



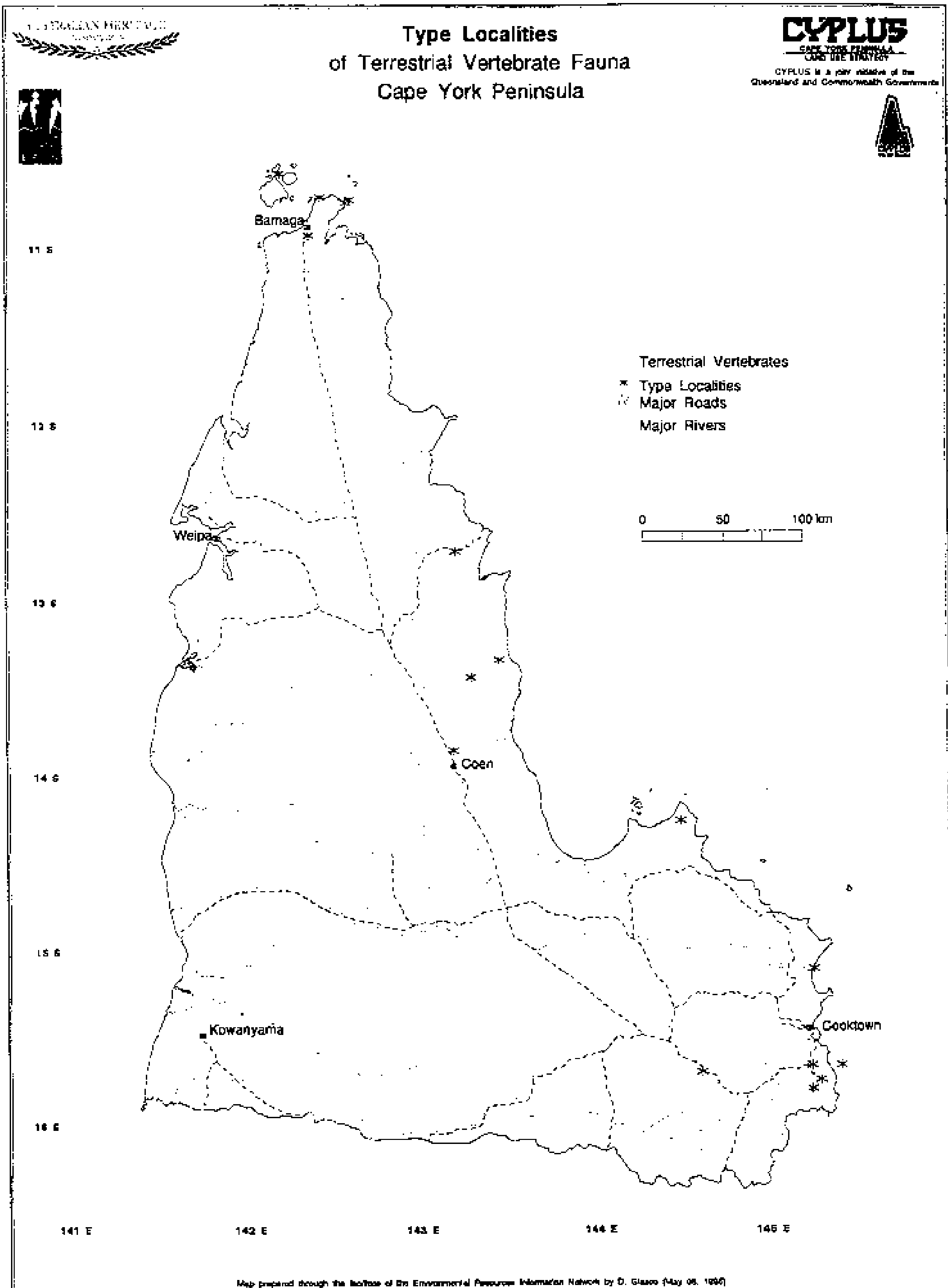

Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco [May 08, 1995]

**Sources....**
AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
ABRS. 1983-1994. Zoological Catalogue of Australia. multiple volumes.
Australian National Insect Collection.

**Caveats....**
Type localities extracted for Zoocat by AHC.
Only type localities with geographic coordinates or specific locality description were selected.
Current taxonomic designation determined by ERIN.
Map design and preparation by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 18.3




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 06, 1994)

**Sources....**

AHC. 1995. Areas of Conservation Significance - Cape York Peninsula.
Cogger, H.G. et al. 1983. Zoological Catalogue of Australia. Vol 36. Amphibia, Reptilia. ABRS.
Bannister, J.L. et al. 1988. Zoological Catalogue of Australia. Vol 36. Mammalia. ABRS.
ABRS. 1994. Census of Australian Vertebrate Species version 8.1 May 1994.

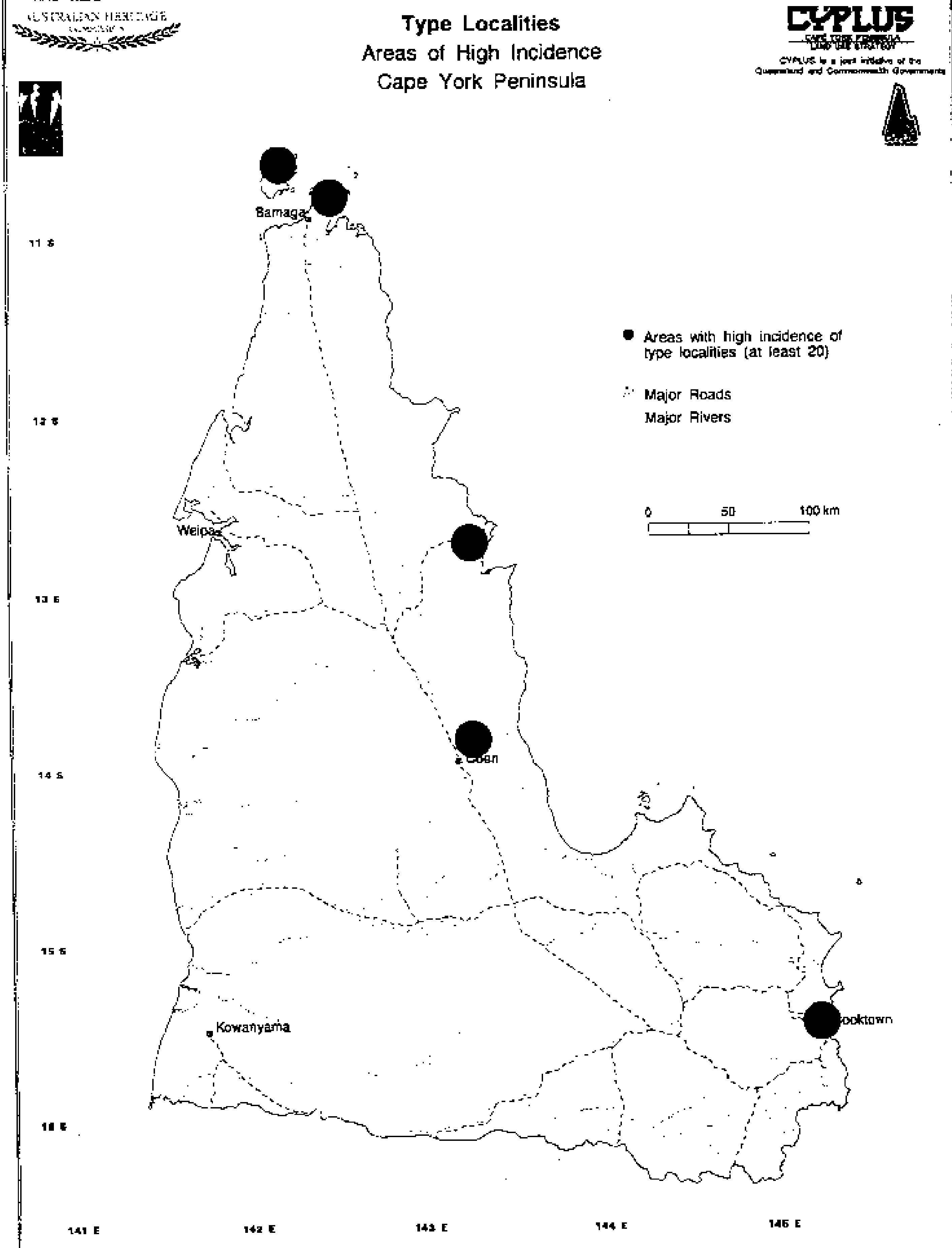
**Caveats....**

Type localities extracted for Zoocat by AHC.
Only type localities with geographic coordinates or specific locality description were selected.
Current taxonomic designation determined by ERIN using CAVS. See AHC for specific taxa and localities.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 18.4

## Type Localities
## Areas of High Incidence
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Grasso (May 08, 1995)

**Sources....**
AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
Chapman, Arthur D. 1991. Australian Plant Name Index (APNI). Canberra : ABRS.
Cogger, H.G. et al. 1983. Zoological Catalogue of Australia. Vol 36. Amphibia, Reptilia. ABRS.
Bannister, J.L. et al. 1988. Zoological Catalogue of Australia. Vol 36. Mammalia. ABRS.

**Caveats....**
Type localities extracted from APNI and ZooCat by AHC.
Areas with at least 20 type localities, flora and fauna, are depicted. No geographic coordinates provided in sources.
See AHC (1995) or ERIN for specific taxa and areas.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 18.5

**Table 18.1 Generalised Type Localities**

| Place | Animals | Plants | Total |
|---|---|---|---|
| | | | |
| Cooktown | 58 | 1 | 59 |
| Endeavour River | 31 | 10 | 41 |
| Somerset | 39 | 1 | 40 |
| Lockerbie | 8 | | 8 |
| Bamaga | 3 | | 3 |
| Thursday Island | 19 | 1 | 20 |
| Iron Range | 18 | 3 | 21 |
| Pascoe River | 4 | | 4 |
| Claudie River | 9 | | 9 |
| McIlwraith Range | 3 | 6 | 9 |
| IR - Tozers Gap | 3 | | 3 |
| MR - Lankley Ck | 3 | | 3 |
| Coen | 38 | | 38 |
| Cape Grenville | 6 | | 6 |
| Bloomfield River | 5 | | 5 |
| Utingu | 5 | | 5 |
| Stewart River | 4 | | 4 |
| Annan River | 3 | | 3 |
| Jardine River | 2 | 1 | 3 |
| Watson River | 3 | | 3 |
| Cape Flattery | 2 | | 2 |
| Evans Bay | 2 | | 2 |
| Laura | 2 | | 2 |
| Peak Point | 2 | | 2 |
| Hann River | 1 | | 1 |
| King Plain | 1 | | 1 |
| Musgrave | | 1 | 1 |
| Lower Archer River | 1 | | 1 |
| Somerset | | 1 | 1 |
| Temple Bay | | 1 | 1 |

A feature of the Cooktown and Somerset type localities is that many of the collections were made by scientists whose activities have been significant within the history of Australia and/or a scientific field. Criterion H of the Register of the National Estate addresses the importance of places for their association with individuals whose actions have been significant in the course of Australian history. These type areas, which have changed little since the original collections were made, are significant under this criterion.

The north bank of the Endeavour River has changed little since August 1770, when the scientists Joseph Banks and Daniel Solander collected a large number of plants, while the *Endeavour*, under the command of Captain James Cook was repaired. Alan Cunningham, botanist, explorer and later NSW Colonial Botanist, also collected from the Endeavour River area in 1819 and 1820 when accompanying Captain King in the *Mermaid* (Stanton 1976).

Rounding the "Cape" was a highlight of early voyages to Australia and most ships paused there for a day or two to take on water and celebrate completing that leg of the voyage. Many of these ships carried official naturalists such as John MacGillivray (*Rattlesnake)*, and J. Beete

Jukes (*Fly)* and hence Cape York and adjacent islands became a common collecting locality at a period when most of the northern coast line remained unvisited (Monteith 1974).

From 1863 till 1879 a small Government settlement was established at Somerset under the command of John Jardine, the Government Resident. The settlement became a resting location and base for scientific expeditions. This included an expedition of the *Chevert* funded by Sir William Macleay, a significant patron of Australian scientific research, who also collected animal specimens in the area. The ships that supplied the settlement with provisions also provided transport for naturalists to the area, several, such as James Cockerall and J.A. Thorpe, spent many months collecting in the area. When the Government settlement moved to Thursday Island, Frank Jardine, (John's oldest son) bought the buildings and remained there until his death in 1919. Thus, the Somerset area, and the near-by Albany Island and Lockerbie Scrub areas remained a centre for biologists visiting Cape York Peninsula (Monteith 1974).

# PART D CONSERVATION VALUES COLLATED INTO AREAS OF NATURAL CONSERVATION SIGNIFICANCE

## 19.0 AREAS OF NATURAL CONSERVATION SIGNIFICANCE

### 19.1 Introduction

The previous sixteen chapters of this report have assessed and identified the distribution of particular conservation values across Cape York Peninsula. In total, forty separate analyses of conservation values were undertaken and the results presented as maps of either point locations or areas that are significant for a particular value. These forty maps are also provided as Geographic Information System (GIS) coverages with the CYPLUS data sets.

Following the completion of the individual value coverages it was possible to combine, or over lay them all to determine the total area of conservation significance. Places of conservation significance were essentially determined from this aggregate layer.

Figure 19.1 was created by overlaying all of the fourty-two layers, with the exception of the wilderness quality, used in the assessment of natural conservation values. Figure 19.2 plots all of the twenty-three extensive or widespread values, including wilderness. These figures illustrate that the majority of the Peninsula (over 80% of the area) contains at least one significant value, with most areas being significant for more than one value. This reflects both the great diversity of conservation values found on the Peninsula, and the many individual values that extend over large areas. The extensive nature of conservation values is due both to the large scale of ecosystems found on the Peninsula and to the general lack of technological disturbance.

In determining areas of conservation significance large areas with no known conservation value were excluded, while boundaries between areas were drawn to equate to changes in the types of values present. The boundaries of the areas identified were particularly determined by the distribution of the more widespread conservation values such as wilderness quality, representative vegetation and some wetland and geological sites.

In total, thirty-six areas of conservation significance, covering 82% of the Peninsula, were identified. The largest area being the Holroyd Wilderness Area covering 1,676,110 hectares or just over 12% of the Peninsula. The names and size of all thirty-six areas are given in Table 19.1, while Figure 19.3 plots their distribution.

It is important to note that the identified areas reflect the general distribution of conservation values. Within the identified areas there may be relatively small areas of disturbance, where no natural conservation values are present. Similarly, there are some small site specific single value areas, such as geological type localities that lie outside the identified conservation areas. For example, as mapped in Figure 19.2, the Endeavour-Annan River natural conservation area contains Cooktown. Although significant geological and botanical sites do occur within the surveyed town area, clearly the majority of Cooktown and the surrounding agricultural land does not have natural conservation significance. The scale of mapping of Figure 19.2 cannot distinguish areas like Cooktown but the GIS coverages provided to CYPLUS do.

The report has identified natural conservation values across the Peninsula, but no attempt has been made to ascertain the relative significance of individual sites on the Peninsula.

The aggregate layer of conservation significance can be interrogated to highlight the distribution of any particular value, and this can be done at any scale. However, it needs to be born in mind that the reliability of the natural conservation layers corresponds to the reliability of the raw data employed from the Natural Resource Assessment Program(NRAP) and other sources specified

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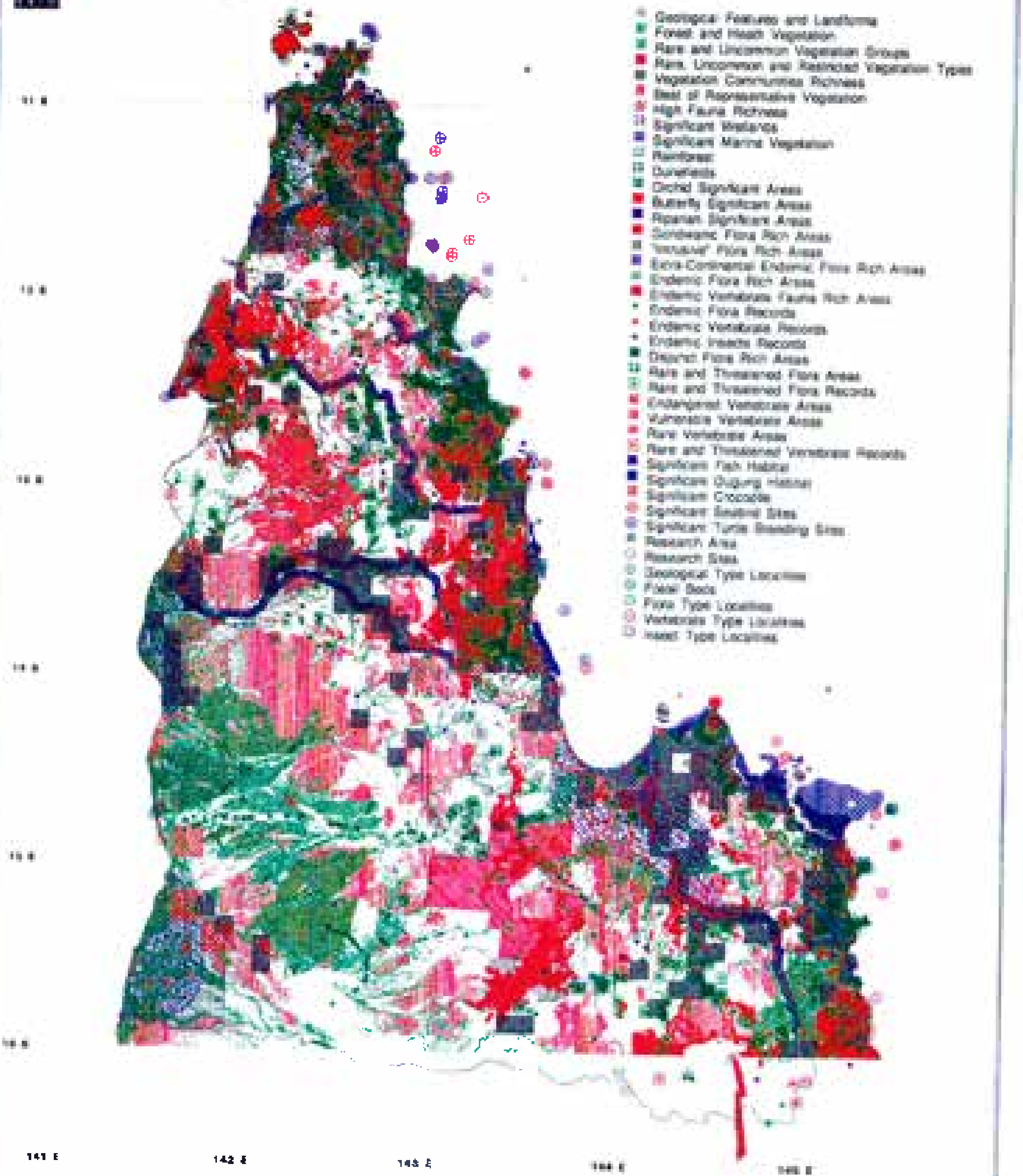
# Aggregation of Areas of Conservation Significance Cape York Peninsula

CYPLUS

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (May 10, 1996)

**Sources....**

AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. DEHP.
GIS coverages and information from CYPLUS NRAP projects NR01, NR03, NR06, NR10, NR17, NR18, NR19
See AHC 1995 for all sources and complete citations.

**Caveats....**

Areas of Conservation Significance determined by AHC with consultation with subject matter experts and public.
High Wilderness Quality and some point coverages are not depicted.
Higher densities depicted above indicates multiple conservation values/reasons an area may have.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

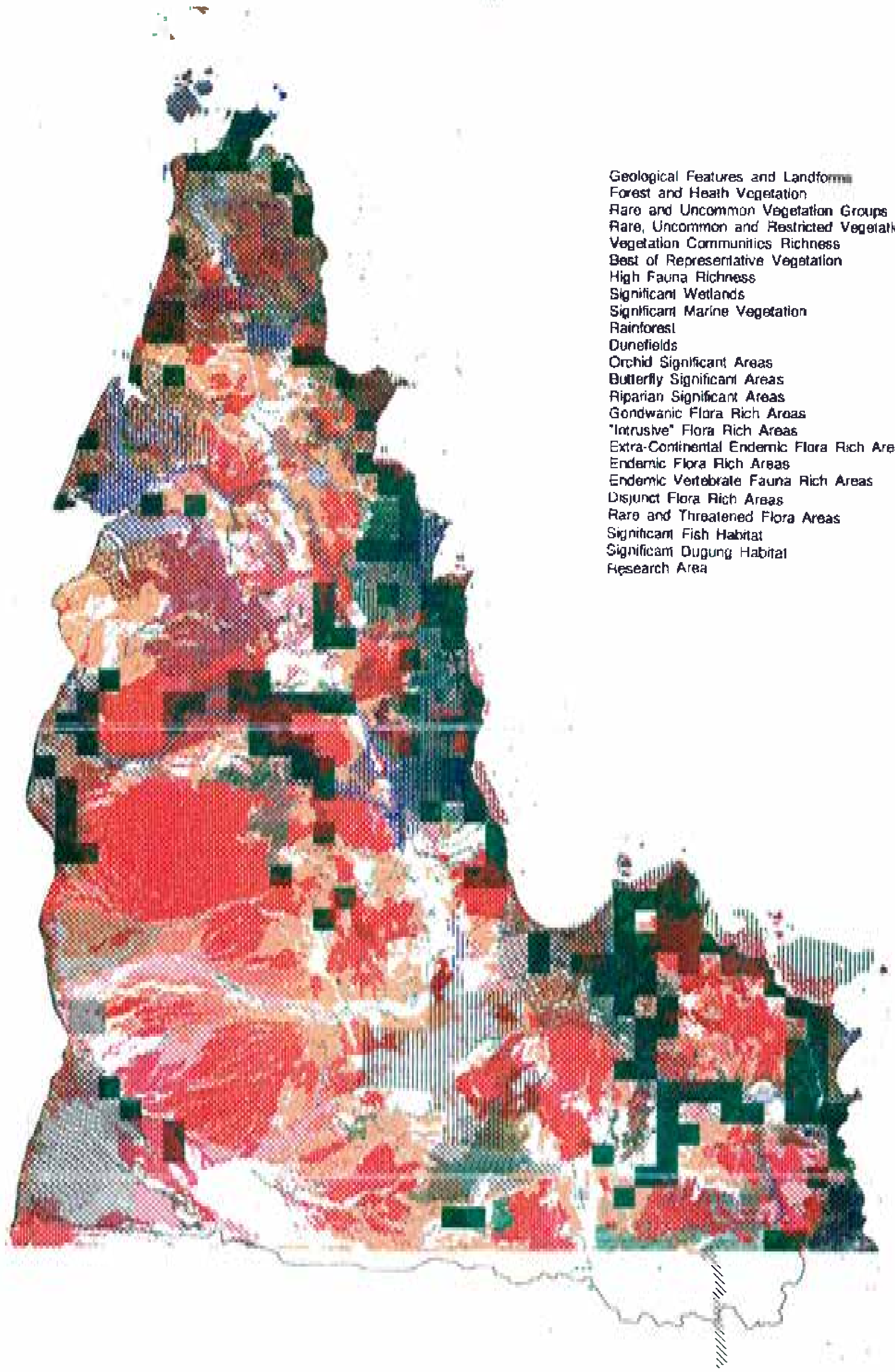
**Figure 19.1**

AUSTRALIAN HERITAGE COMMISSION

# Figure 19.2
## Widespread Values
## Cape York Peninsula

CYPLUS
CAPE YORK PENINSULA LAND USE STRATEGY

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments




Map prepared through the facilities of the Environmental Resources Information Network ERIN (March 10, 1995)

**Sources....**

AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
Neldner, V.J. and Clarkson, J.R. 1994. CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Winter, J. and Lethbridge, P. 1994. CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
GIS coverages and information from CYPLUS NRAP projects NR01, NR03, NR06, NR10, NR17, NR18, NR19.
See AHC 1995 for all sources and complete citations.

**Caveats....**

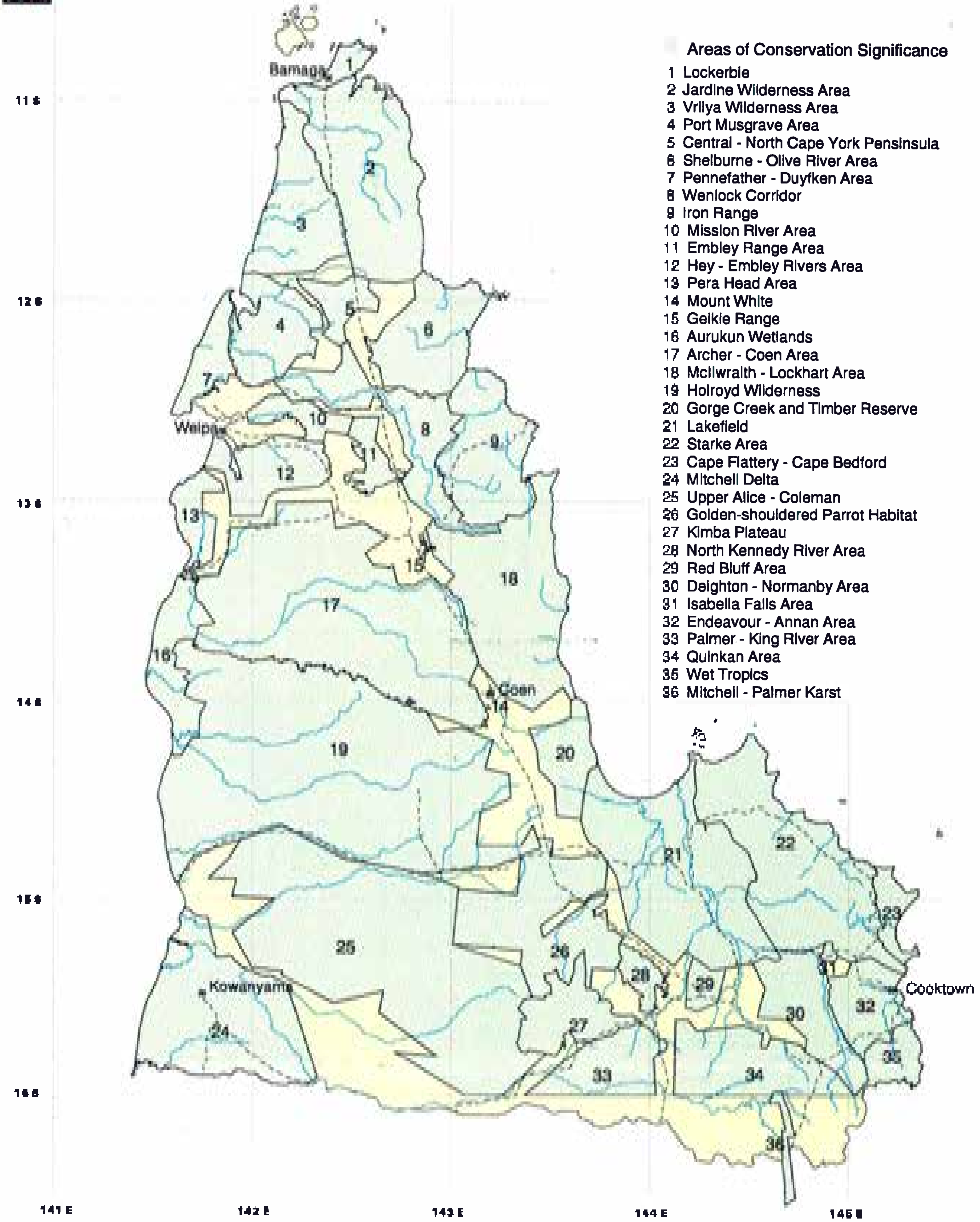
Areas of Conservation Significance determined by AHC with consultation with subject matter experts and public.
High Wilderness Quality and some point coverages are not depicted.
Higher densities depicted above indicates multiple conservation values/reasons an area may have.
Data preparation and map design by ERIN.

Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

**Figure 19.2**

Projection: Geographical representation
Spheroid: Australian National Spheroid

# Areas of Conservation Significance
## Cape York Peninsula




Map prepared through the facilities of the Environmental Resources Information Network by D. Glasco (August 22, 1995)

**Sources....**

AHC. Areas of Conservation Significance - Cape York Peninsula. In preparation.
Driscoll, P. V. 1994. Cape York Peninsula Wetland Conservation Assessment. Report to QDEH, Dec 1994.
Neldner, V.J. and Clarkson, J.R. (1994). CYPLUS NR01 Vegetation Survey. Queensland Herbarium.
Winter, J. and Lethbridge, P. (1994) CYPLUS Terrestrial Vertebrate Fauna. Final Rpt of Field Surveys. QDEH.
See text for complete list of sources used in assessment.

**Caveats....**

Areas depicted were determined by AHC. Assessment of Conservation Significance is based upon qualitative and quantitative evaluation of 40 GIS coverages or layers.
Themes included flora, fauna, wilderness quality, wetlands, and geology.
Data preparation and map design and production by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure 19.3

in this report. Thus those layers which have used the vegetation coverage of Neldner and Clarkson (1994) are reliable at the 1:250,000 scale, while faunal site records may have an accuracy only to within ten kilometres of a given point. The reliability of the major NRAP data sets used in the assessment of natural conservation value is discussed in detail in Cofinas *et al* (1994) and Glasco *et al* (1995).

Within the CYPLUS GIS it is presently possible to interrogate, for a given area, each separate coverage of conservation value. Every site record or area (polygon) within a coverage is annotated, so that by "clicking" on a particular point or polygon it can be determined what feature of significance is represented by each record i.e. what the rare animal species is recorded by a particular point record, or what rare vegetation class is recorded by a particular polygon coverage.

Currently specifications are being put together so that a program can be written to allow simultaneous searches of all forty layers of the natural conservation assessment. This will then provide a list of all the recorded conservation values of a particular area and would include a list of all endemic, biogeographically important or rare or threatened species that occur within a specified area, as well as lists of all area based values such as what rare or representative examples of vegetation classes are found within an area.

When this program has been written, detailed assessment tables of each of the thirty-six areas will be provided. These tables will match the natural conservation features of an area against the assessment criteria of Table 1.1. In the interim, the major features of natural conservation value for each of the thirty-six areas is summarised below.

**Table 19.1 Size and percentage of Cape York Peninsula for areas of natural conservation significance**

| Name of Area | Size (ha) | % Of Cape |
|---|---|---|
| 1. Lockerbie | 39895 | 0.29 |
| 2. Jardine Wilderness Area | 542072 | 3.97 |
| 3. Vrilya Wilderness Area | 295798 | 2.17 |
| 4. Port Musgrave Area | 215441 | 1.58 |
| 5. Central-North Cape York Peninsula | 78799 | 0.58 |
| 6. Shelburne-Olive River Area | 278867 | 2.04 |
| 7. Pennefather-Duyfken Area | 98094 | 0.72 |
| 8. Wenlock Corridor | 298511 | 2.19 |
| 9. Iron Range | 322669 | 2.37 |
| 10. Mission River Area | 73284 | 0.54 |
| 11. Embley Range Area | 66825 | 0.49 |
| 12. Hey-Embley Rivers Area | 187698 | 1.38 |
| 13. Pera Head Area | 88245 | 0.65 |
| 14. Mt. White | 670 | 0.00 |
| 15. Geike Range | 2685 | 0.02 |
| 16. Aurukun Wetlands | 176406 | 1.29 |
| 17. Archer-Coen Area | 1113835 | 8.17 |
| 18. McIlwraith-Lockhart Area | 555472 | 4.07 |
| 19. Holroyd Wilderness | 1676109 | 12.29 |
| 20. Gorge Creek and Timber Reserve | 139786 | 1.03 |
| 21. Lakefield | 697393 | 5.12 |
| 22. Starke Area | 643236 | 4.72 |
| 23. Cape Flattery-Cape Bedford | 66368 | 0.49 |
| 24. Mitchell Delta | 572613 | 4.20 |
| 25. Upper Alice-Coleman | 1302715 | 9.55 |
| 26. Golden-shouldered Parrot Habitat | 433337 | 3.18 |
| 27. Kimba Plateau | 174109 | 1.28 |
| 28. North Kennedy River Area | 53966 | 0.40 |
| 29. Red Bluff Area | 44034 | 0.33 |
| 30. Deighton - Normanby Area | 220368 | 1.62 |
| 31. Isabella Falls Area | 6995 | 0.05 |
| 32. Endeavour-Annan Area | 160272 | 1.18 |
| 33. Palmer-King River Area | 188385 | 1.39 |
| 34. Quinkan Area | 291737 | 2.14 |
| 35. Wet Tropics | 81571 | 0.60 |
| 36. Mitchell-Palmer Karst | 28810 | 0.21 |

## 19.1 Areas of Conservation Significance - summary of values

19.2.1 Lockerbie

The Lockerbie Area has natural conservation significance because:

- it contains a major occurrence of rainforest on the northern Peninsula;
- it supports a significant representation of nationally rare semi-deciduous notophyll vine forest;
- approximately 60% of the area supports regionally rare vegetation, predominantly notophyll vine forest and *Eucalyptus novoguinensis* woodland;
- the biota displays an important biogeographic and evolutionary relationship to New Guinea;
- it is a land fall for migratory rainforest species crossing Torres Strait;
- it is a rich and diverse area of perennial waterbodies;
- it supports a regionally rich collection of vegetation communities, which is likely also to contain a rich fauna;
- it is an important habitat of rare and uncommon insects and of endemic plant and animal species;
- it is a type locality for numerous plant and animal species;
- it supports a diverse orchid flora; and
- it contains a series of sand bars running parallel to Punsand Bay form a sand bar platform which is amongst the best examples of this landform type in Australia.

19.2.2 Jardine Wilderness Area

The Jardine Area has natural conservation significance because:

- it is one of the most important wilderness catchment systems in Australia, and is also a prime example of a river system in near natural condition;
- over 70% of the area has very high wilderness quality;
- it contains a major proportion of wilderness heathlands in Australia;
- it is an important wilderness wetland area;
- about 40% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area includes in excess of 25 classes including low open forests, open sedgelands, dune woodlands, open heath, dwarf open heath, woodlands on sandstone, notophyll vine forest and semi-deciduous vine thicket;
- it is important for maintaining ongoing geological and landform processes, from the mobile dune fields of the east coast to the prograding beach ridges of the west;

- it contains a high diversity of wetland types including mangrove communities, saline flats, various sedgeland communities, perennial waterbodies and swampy forested areas;

- it includes a richness of swamp sites, with a probable diversity in development ages;

- the extent and structural development of mangroves in the Newcastle Bay area is exceptional in a national context and it includes the most extensive stands of medium and tall mangrove forests in Queensland;

- Newcastle Bay supports one of the most diverse mangrove communities in the world;

- it contains refugial notophyll vine forest;

- a regionally large maternity colony of the Common Bent-wing Bat *(Miniopterus schreibersii)* occurs at Captain Billy's Landing;

- it is an important habitat of rare, threatened and endemic insects, bats and fish;

- from 5 - 10% of the area contains regionally rare vegetation which is predominantly types of closed forest or *Eucalyptus nesophila* woodland on old and stable dunes;

- it is an important benchmark research area;

- the fish and invertebrate fauna of the Jardine River display a strong biogeographic relationship with fauna in New Guinea;

- it is the habitat of many species with disjunct distributions across northern Australia;

- the vine forests in the area support many plant species that are endemic to Cape York Peninsula;

- the shoreline of the area is an important habitat of the vulnerable Beachstone Curlew *(Burhinus giganteus);*

- it is a major breeding habitat of the vulnerable Estuarine Crocodile*(Crocodylus porosus)* in Queensland;

- Crab Island is the largest known rookery of the vulnerable Flatback Turtle *(Natator depressus);*

- the Sach Waterhole, a sand dune lake, is the only area known on Cape York Peninsula that supports floating mats of vegetation (dominated by spikerush, *Lepironia auriculata),* a nationally endangered vegetation structure;

- relict parabolic dunes at Sharp Point and Orford Bay are amongst the largest known parabolic dunes in the world; and

- the Jardine Swamps area, between the Jardine River and Slade Point, contains well developed and representative geological and geomorphological features associated with a prograding (advancing) coastline, including the largest and most widely spaced series of beach ridges on the Peninsula and a relic delta of the Jardine.

19.2.3 Vrilya Wilderness Area

The Vrilya Wilderness Area has natural conservation significance because:

- it is a major coastal wilderness with over 90% of the area being of very high wilderness quality, including the catchments of the Jackson, Dulhunty and Skardon Rivers;
- over 70% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area includes semi-deciduous vine thicket, *Eucalyptus tetrodonta* woodlands on sandplains or sandstone plateaus, *Melaleuca* open forest over swamp, open heath, mangrove closed forest, open sedgelands and low open forests;
- the Skardon River area supports a regionally rich collection of vegetation communities;
- it is the habitat of many species with disjunct distributions across northern Australia;
- the vine forests in the area support many plant species that are endemic to Cape York Peninsula;
- the shoreline of the area is an important habitat of the vulnerable Beachstone Curlew (*Burhinus giganteus*);
- about 5 - 10% of the area contains regionally rare vegetation which is predominantly notophyll vine forest; and
- the Jackson and Dulhunty Rivers are a habitat of the nationally rare Short-finned Catfish (*Neosilurus brevidorsalis*), and other regionally restricted fish species.

19.2.4 Port Musgrave Area

The Port Musgrave Area has natural conservation significance because:

- Port Musgrave is an excellent example of a shallow estuary which demonstrates well the sedimentary processes leading to delta development;
- about 75% of the area is of very high wilderness quality;
- it supports one of the largest breeding populations, known in Queensland, of the vulnerable Estuarine Crocodile (*Crocodylus porosus*);
- it is a regionally rich and diverse area for freshwater swamps and tidal flats;
- it is considered likely to support a high diversity of vertebrate species; and
- the stands of the nationally rare Nypa Palm within the area are amongst the best representations of their type in Australia; other regionally representative vegetation in the area includes Eleocharis sedgeland and tussock grassland of marine plains.

19.2.5 Central-North Cape York Peninsula

The Central-North Cape York Area has natural conservation significance because:

- about 40% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly *Eucalyptus tetrodonta* and *Eucalyptus cullenii* woodlands; and
- the area is a habitat of the rare Palm Cockatoo *Probosciger aterrimus)*, which is endemic to the Peninsula.

19.2.6 Shelburne-Olive River Area

The Shelburne-Olive River Area has natural conservation significance because:

- the Olive River-Shelburne Bay dune fields are a world class example of the evolution of sandy landscapes in the humid tropics;
- the pear-shaped and triangular dune lakes present in the dunefields are amongst the best examples of their type in the world;
- the dunefields are one of the most extensive and least disturbed areas of active parabolic and active elongate parabolic dunes in the world;
- the area is a nationally important dunefield, heath and eucalypt woodland wilderness area with over 70% of the area being of very high wilderness quality;
- about 25% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly open heaths, *Eucalyptus tetrodonta* woodlands, or *Eucalyptus clarksoniana/E. novoguinesis* woodland in wet coastal areas;
- in an Australian context, the Olive River has an exceptionally high diversity of fish species for a river of its size, while the dune lakes support a rich fish fauna in comparison to other dune lakes in Australia;
- it contains a high diversity of wetland types and coastal wetland features;
- the dunefields support a regionally rich collection of vegetation communities, which is likely to support a rich fauna;
- the riverine vine forests of the Olive River support many plant species that are endemic to the Peninsula;
- the Olive River supports a population of the nationally rare Shortfinned Catfish *(Neosilurus ater)*, and other regionally restricted fish species;
- the Olive River supports a fish fauna of biogeographic significance, with several species at distribution limits and others having a strong relationship to the fish fauna of New Guinea;
- it includes small patches of vine forests which are both regionally and nationally rare;
- it is important to understanding the evolution of segmented dune lakes, the rate of podzol soil development in the tropics and the timing and nature of major events of deflation and dune building in northern Australia;

- the Shelburne Bay - Olive River dunefields are a landscape of outstanding aesthetic significance; White Point, a large parabolic dune and the large adjacent intertidal sand shoal are particularly prominent features; and

- the geological exposures at Cape Grenville provide information on the nature of past regional volcanic activity, and contain a high diversity of volcanic rock types.

16.2.7 Pennefather-Duyfken Area

The Pennefather-Duyfken Area has natural conservation significance because:

- about 75% of the area is of very high wilderness quality;

- about 20% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area includes vine thickets, tussock grassland, sparse herbland, *Acacia* woodland on dunes and *Melaleuca* open forest over sinkholes;

- it is particularly rich with geologically interesting sink-holes, which are subcircular depressions thought to have resulted from collapse of the surface following solution of silica by groundwater;

- south of the Pennefather River is a particularly good transect of coastal land form types from reef flat, trangressive dunes, Holocene beach ridges and Pleistocene ridges;

- it supports high population densities of mammals and other vertebrates, while the swamps of the area have a rich frog fauna;

- it is an important habitat of several vertebrate species endemic to Cape York Peninsula;

- it supports a breeding population of the endangered Little Tern (*Sterna albifrons);* and

- it is a regionally important dry season waterfowl refuge;

19.2.8 Wenlock Corridor Area

The Wenlock Corridor Area has natural conservation significance because:

- the Wenlock riparian forest is an important corridor for dispersal of many species allowing movement between the extensive rainforests on the east coast and the smaller sand ridge rainforests on the west coast;

- the riparian corridor is also an important dry season refuge for woodland species whose populations may be decimated through a combination of heat and drought;

- the Wenlock River contains the richest known freshwater fish fauna of any river in Australia;

- the riparian corridor supports many plant and animal species that are endemic to Cape York Peninsula;

- about 50% of the area has very high wilderness quality;

- about 40% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly *Eucalyptus tetrodonta* woodlands, *Eucalyptus clarksoniana* open woodlands on floodplains and heath on sandstone plateaus; and

- the banks of the Wenlock River, below the falls at Grid Ref 973860, provide good examples of ferricrete deposits, which are common on Cape York Peninsula.

19.2.9 Iron Range

The Iron Range has natural conservation significance because:

- it contains the largest remaining area of lowland rainforest in Australia;
- it is a prime example of lowland rainforest in a natural state;
- about 40% of the area supports regionally rare vegetation, including mesophyll vine forest, notophyll vine forest and a *Eucalyptus tetrodonta* community that occurs on coastal lowlands;
- it is amongst the most diverse habitats in Australia for ants, butterflies, fruit-flies, ferns, orchids and palms;
- for its catchment size, the Claudie River has one of the most diverse fish faunas of any Australian river;
- it supports at least a regionally rich vertebrate fauna;
- important 300 million year old plant fossil material occurs in the Pascoe River beds;
- as part of the mid-Peninsula rainforests, it is a stronghold for bird species shared with New Guinea and that have a restricted distribution in Australia;
- it is a part of the largest and most effective rainforest refugium on Cape York Peninsula in preserving species of relatively recent New Guinea origin and the northern extension of older Gondwanic elements;
- it is a major habitat, in a national context, for rare insect, plant and vertebrate species;
- it is a major centre of plant, insect and vertebrate endemism;
- about 40% of the area has very high wilderness quality;
- about 10% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area includes rainforests, *Eucalyptus hylandii* woodland on sandstone plateaus and a *Melaleuca viridiflora/Austromyrtus brassii* community on metamorphic hills;
- rainforests of the area form a vital corridor for the north-south movement of migratory species, including various bird, fruit-bat and butterfly species; and
- it contains a wide variety of spectacular natural scenery, from the ruggered Janet and Tozer Ranges to luxuriant rainforests, and rivers lined with closed forest.

19.2.10 Mission River Area

The Mission River Area has natural conservation significance because:

- 70% of the area is of very high wilderness quality; and
- representative vegetation in the area includes *Eucalyptus tetrodonta woodlands* on erosional surfaces or on lower slopes.

19.2.11 Embley Range

The Embley Range Area has natural conservation significance because:

- it is a good example of the remnant Aurukun landscape; and
- about 20% of the area is covered by vegetation communities that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly semi-deciduous microphyll species and *Melaleuca* over sinkholes and *Eucalyptus clarksoniana* floodplain woodland.

19.2.12 Hey-Embley Rivers Area

The Hey-Embley Rivers Area has natural conservation significance because:

- it contains extensive shell mounds, which although being cultural deposits, contain valuable information about past environmental conditions and the interaction of people with their environment;
- about 70% of the area is of very high wilderness quality;
- about 40% of the area (chiefly the eastern section) is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula. Representative vegetation occurring in the area is predominantly types of *Eucalyptus tetrodonta* woodlands; and
- the estuary of the Embley River is the only known habitat of River Garfish *(Zenarchopterus buffonis)* on Cape York Peninsula.

19.2.13 Pera Head Area

The Pera Head Area has natural conservation significance because:

- it is the most spectacular and extensive cliff on the west coast of the Peninsula; the cliffs of dark red bauxite overlying a band of contrasting white kaolin are a prominent and aesthetically significant landscape;
- the cliff profile is important to understanding the geology of the Weipa area and is one of the best bauxite exposures in the world;
- about 60% of the area is of very high wilderness quality; and
- representative vegetation present in the area includes patches of tussock grassland and bare saltpans with a sparse herbland;

19.2.14 Mt White

The Mt White Area has natural conservation significance because:

- it is a prime hill-topping site, where butterflies congregate to mate. Several of the butterflies recorded from the site are rare or uncommon species.

19.2.15 Geike Range

The Geike Range Area has natural conservation significance because:

- it is a significant geological sites, being an inverted drainage feature and remnant of the Aurukun landsurface. The Geike Range was once a former stream bed, that cemented, and then remained as a remnant above previous surrounding higher ground that was eroded away.

19.2.16 Aurukun Wetlands

The Aurukun Wetlands has natural conservation significance because:

- it contains some of the best quality coastal wetland habitats in western Cape York Peninsula;
- the wetlands around the Kirke River support an abundant wetland fauna and are likely to be the most important dry season refuge for waterbirds on Cape York Peninsula;
- it is the most important known breeding area for several waterbird species on the Peninsula;
- it contains four large Magpie Geese breeding colonies and two large waterbird breeding colonies;
- two wader roost sites of over 5000 birds and two of between 1000 and 5000 birds have been identified in the area;
- it supports the richest collection of vegetation communities any where on the west coast of the Peninsula, and this is likely to result in a rich fauna;
- several mangrove crabs which are either new species or new Australian records have been identified in the area;
- it contains a number of large shell mounds, similar in form and composition to those at Weipa, adjacent to the Love River estuary; the mounds are of great cultural significance, and they contain valuable information about past environmental conditions and the interaction of people with their environment, particularly the use of plants by the Aboriginal population of the area;
- the beach ridges, chenier ridges, marine plain and alluvial plains with their associated drainages illustrate well the ongoing geological processes that have given rise to the present day coast around much of the Gulf of Carpentaria;
- the beach ridge system to the south of Kirke River is the most extensive on the west coast of the Peninsula, while the saltpans in the Kirke estuary are unequalled anywhere in the Gulf of Carpentaria;
- about 25% of the area is of very high wilderness quality; and

- small patches of several vegetation classes rare on the Peninsula occur in the area, including notophyll vine forest, mesophyll vine forest and *Acacia crassicarpa* woodland on dunes.

19.2.17 Archer-Coen Area

The Archer-Coen Area has natural conservation significance because:

- the riparian forest is an important corridor for dispersal of many species, including the Spotted Cuscus *(Spilocuscus maculatus)*, White-tailed Rat *(Uromys caudimaculatus)*, frugivorous birds, and Palm Cockatoo *(Probosciger aterrimus)* and allows movement between the extensive rainforests on the east coast and the smaller sand ridge rainforests on the west coast;

- the riparian corridor is also an important dry season refuge for woodland species whose populations may be decimated through a combination of heat and drought; the riparian vegetation may also be the highest feature on a floodplain and of importance as a refuge habitat during times of flooding;

- about 40% of the area has very high wilderness quality;

- it contains many vegetation communities (covering about 40% of the area) that are amongst the best examples of their class on the Peninsula, including *Melaleuca argentea* riverine open forest, *Eucalyptus chlorophylla* and *E. clarksoniana* open woodlands, *E. leptophleba* open woodlands, various types of *Eucalyptus tetrodonta* woodlands, and *E. hylandii* and *E. cullenii* woodlands;

- the criss-crossing stream channels at the junction of the Archer and Coen Rivers provide an excellent example of flood plain morphologies and environments;

- the upper Archer-Coen areas support a richness of vegetation communities, which is also likely to support a rich fauna;

- several vertebrates endemic to the Peninsula have been recorded in the eucalypt woodlands in the east of the area;

- the riparian vine forests of the Archer and Coen Rivers support many plant species that are endemic to the Peninsula;

- t he Merapah Scarp consists of excellent exposures of the range of depositional cycles that have occurred on the western Peninsula;

- it contains small patches of rare vegetation types including notophyll vine forest, and a *Eucalyptus tetrodonta* community that occurs in granite valleys; and

- the Archer River is the only known locality on Cape York Peninsula of Freshwater Anchovies *(Thryssa scratchleyi)* where it only occurs in low numbers.

19.2.18 McIlwraith - Lockhart Area

The McIlwraith - Lockhart Area has natural conservation significancebecause:

- it contains the largest block of rainforest on Cape York Peninsula, and the largest wilderness rainforest in northern Australia. The area is of importance, in a national context, to the maintenance of existing processes associated with rainforest ecosystems;

- the mid-Peninsula rainforests, particularly the higher areas of the McIlwraith Range, are the largest and most effective rainforest refugium on Cape York Peninsula in preserving species of relatively recent New Guinea origin and the northern extension of older Gondwanic elements;

- south of the McIlwraith Range are large dry and hot plains which have been a major obstacle to the spread of rainforest biota. Thus many species, particularly those of a New Guinea origin, reach their southern distribution limit in the area including at least thirteen bird species;

- it is an important outlier location with several relic species having disjunct populations in the area; relic species that occur both in the Mid Peninsula and Wet Tropical forests include the plants *Bubbia semecarpoides*, *Podocarpus elatus*, and *Corynocarpus cribbianus;* it also contains several endemic and primitive species or subspecies, including *Rhodamnia sp. aff blairiana*, *Beilschmiedia sp*. "McIlwraith Range", three microhylid frogs and a primitive Gecko;

- in a national context, it is a major habitat of rare and threatened species; at least 100 rare and threatened plant species are known in the area; it is also the habitat of at least one fish, three frogs, seven reptiles, fifteen birds and three mammals which are nationally rare, vulnerable or endangered;

- a number of plant and animal species are known only from the area;

- it contains the highest concentration of regionally restricted birds anywhere in Australia;

- about 25% of the area supports vegetation types that are rare on the Peninsula;

- it contains a particularly rich collection of vegetation communities, including mesophyll vine forest, notophyll vine thicket, Araucarian notophyll vine forest, notophyll vine forests, eucalypt open forests and eucalypt woodlands;

- it is a major centre of plant, insect and vertebrate endemism;

- it has the greatest bird and mammal diversity on Cape York Peninsula;

- it supports a nationally rich orchid flora and invertebrate fauna;

- about 50% of the area (mainly the southern portion) is of very high wilderness quality;

- about 40% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; it is particularly rich in the representative vegetation classes present, including mesophyll vine forest, notophyll vine forest, closed mangrove forest, deciduous vine thickets, *Eucalyptus hylandii* woodland, *Eucalyptus clarksoniana* open forest, *Eucalyptus tetrodonta* woodland in granite valleys, *Melaleuca viridiflora* low woodland and saltpans with a sparse forbland;

- it is an important habitat of the vulnerable Estuarine Crocodile (*Crocodylus porosus*.);

- large roosting colonies of the endangered Little Tern (*Stern albifrons*) have been recorded in the area;

- the mouth of the Lockhart River consists of one of the most extensive and diverse estuarine areas on the east coast of Cape York Peninsula;

- rainforests of the area form a vital corridor for the north-south movement of migratory species, including various bird, fruit-bat and butterfly species; and

- it has outstanding scenic value, with a high diversity of striking landforms and vegetation types, including spectacular gorges, tall rainforests and near pristine coastline.

19.2.19 Holroyd Wilderness Area

The Holroyd Wilderness has natural conservation significance because:

- it is one of the largest floodplain areas in Australia, which is predominantly of very high wilderness quality;
- over 80% of the area is of very high wilderness quality;
- about 50% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area includes semi deciduous vine forest, evergreen riverine notophyll vine forest, *Eucalyptus tetrodonta* woodlands and *Eucalyptus hylandii* woodlands;
- it contains excellent examples of floodplain and coastal landforms and the ongoing processes associated with their formation; representative landforms present in the area include, chenier ridges, beach ridges, fan deposits, and marine plains;
- it includes small patches of vegetation classes that are rare on the Peninsula, including vine forests, *Acacia crassicarpa* woodland on dunes, and types of eucalypt woodlands;
- the Holroyd and Edward Rivers are a major part of an area of faunal change between the more typical northern fish fauna and the fish fauna of the southern Peninsula;
- the coastal section of the area is an important habitat of the vulnerable Northern Crimson Finch *(Neochimia phaeton evagelinae);*
- the Holroyd river scarps, in the south-east of the area, are an excellent example of their landscape type and are a relic of former down cutting along the Holroyd River, initiated by downwarping of land on the eastern edge of the Coen Inlier;
- the Strathleven inverted drainage feature is a good example of this type of landform, and has resulted from cementing of a former river bed, which has subsequently been resistant to erosion, while the surrounding plain has been eroded below its level; and
- the south-east of the area includes some swamps that are likely to contain bone fragments of Pleistocene fauna, which are important to scientific research.

19.2.20 The Gorge Creek Area and Timber Reserve

The Gorge Creek Area and Timber Reserve Area has natural conservation significance because:

- it supports a regionally rich collection of vegetation communities;
- it contains, in a regional context, a moderate diversity of wetland types and reasonably extensive tidal flats;
- about 60% of the area is of very high wilderness quality;
- about 60% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula. Representative vegetation occurring in the area

is predominantly *Eucalyptus clarksoniana - Erythrophleum chlorostachys - E. brassiana* woodland and semi-deciduous vine thicket;

- most of the thin coastal strip of the area supports rare vegetation communities including vine thickets and mangroves; and

- it includes a rare expression (on the Peninsula) of Pliocene volcanic activity, the Nephelinite outcrop supports an uncommon vine thicket vegetation.

19.2.21 Lakefield

The Lakefield Area has natural conservation significance because:

- within the context of Cape York Peninsula, it contains both a richness and high diversity of wetland types;

- it supports a high diversity of vegetation communities, and is likely to support a rich fauna community;

- the land at the base of Princess Charlotte Bay, contains the best and most extensive examples of saline flats on Cape York Peninsula; the perennial water bodies and ephemeral lakes of the area are also amongst the best representations of their type on Cape York Peninsula;

- about 30% of the area has very high wilderness quality;

- about 25% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula representative vegetation occurring in the area includes semi-deciduous vine thickets, notophyll vine thicket, and types of *Eucalyptus tetrodonta* and *Eucalyptus clarksoniana* woodlands;

- about 10% of the area supports regionally rare vegetation communities including notophyll vine forest, a *Eucalyptus clarksoniana* woodland and riverine *Melaleuca argentea* open forest;

- it contains an extensive chenier ridge system which has been unusually influenced by a major fault structure in its development;

- the extensive nature of the wetlands in the area, in particular permanent swamps and lagoons, mangrove communities and riparian thickets, combine to provide important habitat and feeding grounds of the nationally vulnerable Saltwater Crocodile (*Crocodylus porosus*).

- the riparian thickets support an unusually rich population of the Lycaenidae butterfly *Virachola democles*.

- the riverine closed forests along the Normanby River provides a substantial corridor that links the rainforests of the Wet Tropics with those patches south of the Silver Plains Holding; the corridor is also important for many species that migrate north - south across the Peninsula;

- the riverine forests also support many plant species that are endemic to the Peninsula;

- it contains an important fossil locality for molluscs, probably from the Lower Cretaceous (about 125 million years ago); and

- the chenier ridge plain north-east of River is an important product of landform processes of the last 6,000 years; the pollen, charcoal, shell and ridge system preserved in the plain provide an important regional record of vegetation changes, cyclonic events and landform processes.

19.2.22 Starcke Area

The Starke Area has natural conservation significance because:

- it contains some of the most rugged and least disturbed country on Cape York Peninsula, consisting of a dissected plateau that rises above and provides a scenic backdrop to coastal plains;

- it is one of the richest areas of vegetation communities on Cape York Peninsula;

- about 75% of the area is of very high wilderness quality;

- about 60% of the area is covered by vegetation communities that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation in the area largely occurs on the sandstones and granites of the area, and includes notophyll vine forests, a community dominated by *Eucalyptus hylandii* and a *Eucalyptus tetrodonta* community;

- about 10% of the area supports vegetation communities that are rare on the Peninsula including many vine forest communities and eucalypt woodland communities;

- Cape Melville is the largest representations of the spectacular boulder mountain landscape in Australia and these landscapes are nationally uncommon;

- the Foxtail Palm (*Wodyetia bifurcata* ),the only member of its genus, is restricted to the Melville Range area; the lizard *Cryptoblepharus fuhni* and an undescribed frog are also only known from the Melville Range;

- the head of Howick Creek supports a vine forest community in which the nationally rare *Syzygium argyropedicum* is a dominant canopy tree; this patch of vine forest is floristically unique, with no other examples of this type of vine forest known;

- many rare and threatened plant species have been recorded in the area particularly in the vicinity of Hopevale, Cape Melville and Cape Bathurst;

- the riparian rainforests along the McIvor River support a rare butterfly species;

- the vine forests of the area support many plant species that are endemic to Cape York Peninsula;

- the evergreen notophyll vine forests of the area support several plant species that have widely disjunct populations;

- the semi-deciduous notophyll/microphyll vine forest in the Mt Webb - Hopevale area support, in an Australian context, a rich lauxaniid fly fauna; and

- the eastern coastline of the area has a regionally significant diversity of coastal features and coastal wetlands.

19.2.23 Cape Flattery-Cape Bedford

The Cape Flattery-Cape Bedford Area has natural conservation significance because:

- it contains the best development of gegenwalle (Counter-wall) dunes in the world;
- it is one of the few areas in the world with extensive development of large elongate parabolic dunes;
- it is representative of dune landforms and dune vegetation found in North Queensland;
- a large component of the dunefield is of high wilderness quality, with over 50% of the area having a very high wilderness quality;
- it contains the largest diversity of dune landforms of any of the dune systems in Northern Australia;
- this area and the Olive River dunefields have the best examples of pear-shaped and triangular lake landforms in Australia;
- it is important research site for studying dune processes;
- it contains some of the best examples of evergreen mesophyll/notophyll vine forest on the Peninsula, as well as some other rare vine thicket communities;
- it is the only known habitat of two rare skink species;
- it contains the habitat of several threatened plant species and regionally uncommon vegetation types;
- the dune lakes contain a unique faunal assemblage;
- the evergreen notophyll vine forests of the area support several plant species that have widely disjunct populations;
- large roosting populations of the endangered Little Tern *(Sterna albifrons)* have been recorded in the area; and
- the cliffs and wave cut platforms at Cape Bedford are some of the best exposures of the extensive Hodgkinson Province, providing much information about regional geological events.

19.2.24 Mitchell Delta

The Mitchell Delta Area has natural conservation significance because:

- the fan deposits of the Mitchell Delta are amongst the best examples of this type of landform in the world;
- the coastal and deltaic deposits of the area provide important regional information on past climatic and landform processes;
- it contains a good example of an actively prograding coastline;
- the wetlands of the area have high biological and ecological integrity, and are important as an overwintering and stopover site for migratory waterbirds from south-eastern

Australia; it is also an important staging area for many migratory tropical waterbird species such as the Magpie Goose, Brolga and Saurus Crane;

- it is a nationally important waterbird and wader breeding habitat;
- the mouth of the Mitchell River supports a major breeding colony of the nationally endangered Little Tern;
- it is a regionally important dry season refuge for several species of waterbird;
- it includes a diverse array of wetland types with a variety of geomorphological origins, fluctuating salinities and water permanence, and diverse water plant communities;
- the Mitchell Delta supports a regionally diverse fauna;
- it includes a regionally high diversity of deltaic and coastal landforms;
- it contains small patches of vine thickets and *Eucalyptus polycarpa* woodlands which are amongst the best examples of their vegetation class; and
- about 5% of the area consists of vegetation classes that are rare on the Peninsula, including notophyll vine forest, *Acacia crassicarpa* woodland on dunes and *Eucalyptus polycarpa* woodland.

### 19.2.25 Upper Alice-Coleman

The Upper Alice-Coleman Area has natural conservation significance because:

- it is an important alluvial plain wilderness area, with over 60% of the area being of very high wilderness quality;
- about 30% of the area is covered by vegetation communities that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly riparian evergreen notophyll vine forest, *Eucalyptus hylandii* woodland and *Eucalyptus tetrodonta/E. hylandii* and *Erythrophleum chlorostachys* woodland;
- it contains small patches of evergreen mesophyll vine forest and semi deciduous mesophyll/notophyll vine forest which are rare vegetation classes on the Peninsula; and
- Bull Lake is a nationally important drought refuge for native fauna.

### 19.2.26 Golden-shouldered Parrot Habitat

The Golden-shouldered Parrot Habitat Area has natural conservation significance because:

- it is one of the two remaining known habitats of the nationally endangered Golden-shouldered Parrot (*Psephotus chrysopterygius*);
- about 25% of the area (generally the eastern sectors) is of very high wilderness quality;
- the areas of high wilderness quality contain some of the best examples of semi-deciduous mesophyll/notophyll vine forest and *Eucalyptus hylandii* woodland on the Peninsula; and
- about 5% of the area supports regionally rare vine forests.

19.2.27 Kimba Plateau

The Kimba Plateau Area has natural conservation significance because:

- the nationally vulnerable plant *Jedda multicaulis* is only known from the eastern edge of this plateau and is the only member of its genus; it has unusual cryptogeal germination unlike any other flowering plant in Australia;

- it is the highest and southern most remnant of the Aurukun land surface;

- about 30% of the area has very high wilderness quality; and

- about 80% of the Plateau supports a tall *Eucalyptus tetrodonta* woodland which is basically restricted to the Plateau and is a rare vegetation class on the Peninsula.

19.2.28 North Kennedy Area

The North Kennedy Area has natural conservation significance because:

- about 60% of the area is of very high wilderness quality; and

- the sandstone outcrops in the area support some uncommon and restricted butterfly species.

19.2.29 Red Bluff

The Red Bluff Area has natural conservation significance because:

- about 75% of the area supports rare vegetation types.

19.2.30 Deighton-Normanby Area

The Deighton-Normanby Area has natural conservation significance because:

- the riverine closed forests along the Normanby River provides a substantial corridor that links the rainforests of the Wet Tropics with those patches south of the Silver Plains Holding; the corridor is also important for many species that migrate north - south across the Peninsula;

- the riverine forests also support many plant species that are endemic to the Peninsula;

- the central part of the area is of very high wilderness quality;

- about 20% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; Representative vegetation occurring in the area is predominantly *Eucalyptus leptophleba* and *Eucalyptus nesophila* woodlands; and

- about 10% of the area supports vegetation types that are rare on the Peninsula, including deciduous vine forest and Eucalyptus *leptophleba* and *Eucalyptus cullenii* woodlands.

19.2.31 Isabella Falls Area

The Isabella Falls Area has natural conservation significance because:

- it supports a highly diverse butterfly fauna, including several rare, disjunct or uncommon species.

19.2.32 Endeavour-Annan River Area

The Endeavour-Annan River Area has natural conservation significance because:

- the shores of the Endeavour River are the type locality of many species of plants and animals and is of importance to the history of Australian natural sciences; part of the significance of the place relates to it still being in much the same condition as when Joseph Banks and Daniel Solander collected there over 200 years ago;

- the mangroves and fringing Melaleuca communities of the Endeavour and Annan Rivers support major populations of ant-plants and associated with them are significant colonies of the vulnerable butterfly *Hypochrysops apollo*, and other uncommon butterfly species;

- it supports a high diversity of vertebrate fauna;

- the cliffs and wave cut platforms between Indian Head and Cape Bedford are some of the best exposures of the extensive Hodgkinson Province, providing much information about regional geological events;

- parts of the Endeavour River, Oakey Creek and the Annan River, contain good examples of features associated with the capture or reversal of rivers, resulting from upwarping of the Eastern Escarpment;

- about 10% of the area supports vegetation classes that are rare on the Peninsula, these are predominantly eucalypt woodlands or open forests;

- about 25% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly *Eucalyptus leptophleba* and *Eucalyptus nesophila* woodlands;

- *Lygisaurus tanneri* is a rare and endemic skink has a restricted distribution centred on *Eucalyptus platyphylla* open forest west of Cooktown; and

- several locations in the area contain Permian (280 - 225 million year ago) plant fossil material.

19.2.33 Palmer-King Rivers Area

The Palmer-King Rivers Area has natural conservation significance because:

- the sandstone outcrops in the area support some uncommon and restricted butterfly species;

- it supports a regionally rich collection of vegetation communities;

- about 40% of the area is of very high wilderness quality;

- about 30% of the area is covered by vegetation communities that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly *Eucalyptus cullenii, E. hylandii* and *E. tetrodonta* woodlands.

19.2.34 Quinkan

The Quinkan Area has natural conservation significance because:

- about 70% of the area supports regionally rare vegetation classes including semi deciduous notophyll/microphyll vine thicket and *Eucalyptus crebra, Eucalyptus cullenii* and *Eucalyptus leptophleba* woodlands and open forests;

- about 30% (chiefly the western portion) is of very high wilderness quality; and

- about 30% of the area is covered by vegetation areas that are amongst the best examples of their vegetation class on the Peninsula; representative vegetation occurring in the area is predominantly *Eucalyptus tetrodonta, Eucalyptus chlorophylla, Eucalyptus cullenii* and *Eucalyptus leptophleba* woodlands.

19.2.35. Wet Tropics

The Wet Tropics Area has natural conservation significance because:

- it is an integral part of the wet tropical forests which are recognised as World Heritage;

- it supports a large number of primitive and relic plant taxa that occur no-where else in the world and are of international significance to the understanding of the origin, evolution and dispersal of flowering plants;

- it supports a large number of relic fauna that have found refuge in the area over geological time and provide information on evolutionary processes;

- it contains elements in the biota that relate to four major stages in the earth's evolutionary history;

- it has high floristic, structural, and faunal diversity;

- it supports numerous rare, threatened and highly restricted species of animal and plants;

- it supports numerous plants and animal species that are endemic to these forests;

- it is a major centre for ongoing evolution within the Australian continent;

- it contains outstanding natural beauty in the forests and the landscape;

- the spectacular boulder mountain landscape on Black Mountain is considered nationally uncommon; and

- Black Mountain supports endemic species of a frog, skink and a gecko; it is also an important roosting site of three rare bat species and several vulnerable or rare bat species as well as for regional populations of several other species.

19.2.36 Mitchell - Palmer Karst and Palmer River Crossing

The Mitchell - Palmer Karst and Palmer River Crossing area has natural conservation significance because:

- it contains a diverse and representative tower karst system which has national geological significance;
- it contains fossil deposits and geological features important to understanding past regional climates and environments;
- it is a major habitat of nationally vulnerable Cave Swiftlet (*Collocalia spodiopygia chillagoensis*) and Ghost Bat (*Macroderma gigas*), and roosting location of another two bats vulnerable or rare in Queensland;
- it is a major habitat of Godman's Rock Wallaby (*petrogale godmani*), which is endemic to Cape York Peninsula;
- it supports deciduous vine thicket, which is a broad vegetation group rare on Cape York Peninsula, and nationally uncommon; and
- the Palmer River contains the best exposures of the Palmerville Fault system, a major fault structure in North Queensland.

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## APPENDICES LIST

## APPENDIX 1 EXISTING PLACES OF CULTURAL SIGNIFICANCE CURRENTLY IN THE REGISTER OF THE NATIONAL ESTATE.

A map illustrating the location of all registered areas is given at Figure A.1, while the statement of significance, from the Register of the National Estate, for all registered cultural places is given below.

### ALEXANDRA STAMPER MILL COMPLEX, LAURA

Historically significant as the mill for the Alexandra Group of reefs in the Palmer River goldfields. This mill was the last of the 'new' mills to be erected on the fields, and is important because it remains a relatively intact and rare example of a stamping mill in the region.

### WILD IRISH GIRL ORE STAMPER, LAURA

Historically significant for its association with the important Palmer River goldfields. The Wild Irish Girl battery is of great technical significance as the only intact surviving mill situated on the palmer river goldfields. Such intact mills are rare in Australia.

### MARY WATSON'S COTTAGE RUINS, LIZARD ISLAND

The cottage was the home of mrs. Mary Watson, wife of a beche-de-mer fisherman, who with her infant son and a Chinese houseboy died tragically in a heroic attempt to reach safety after escaping from hostile Aborigines (who had landed on the island in her husband's absence).

### RAINE ISLAND BEACON, RAINE ISLAND

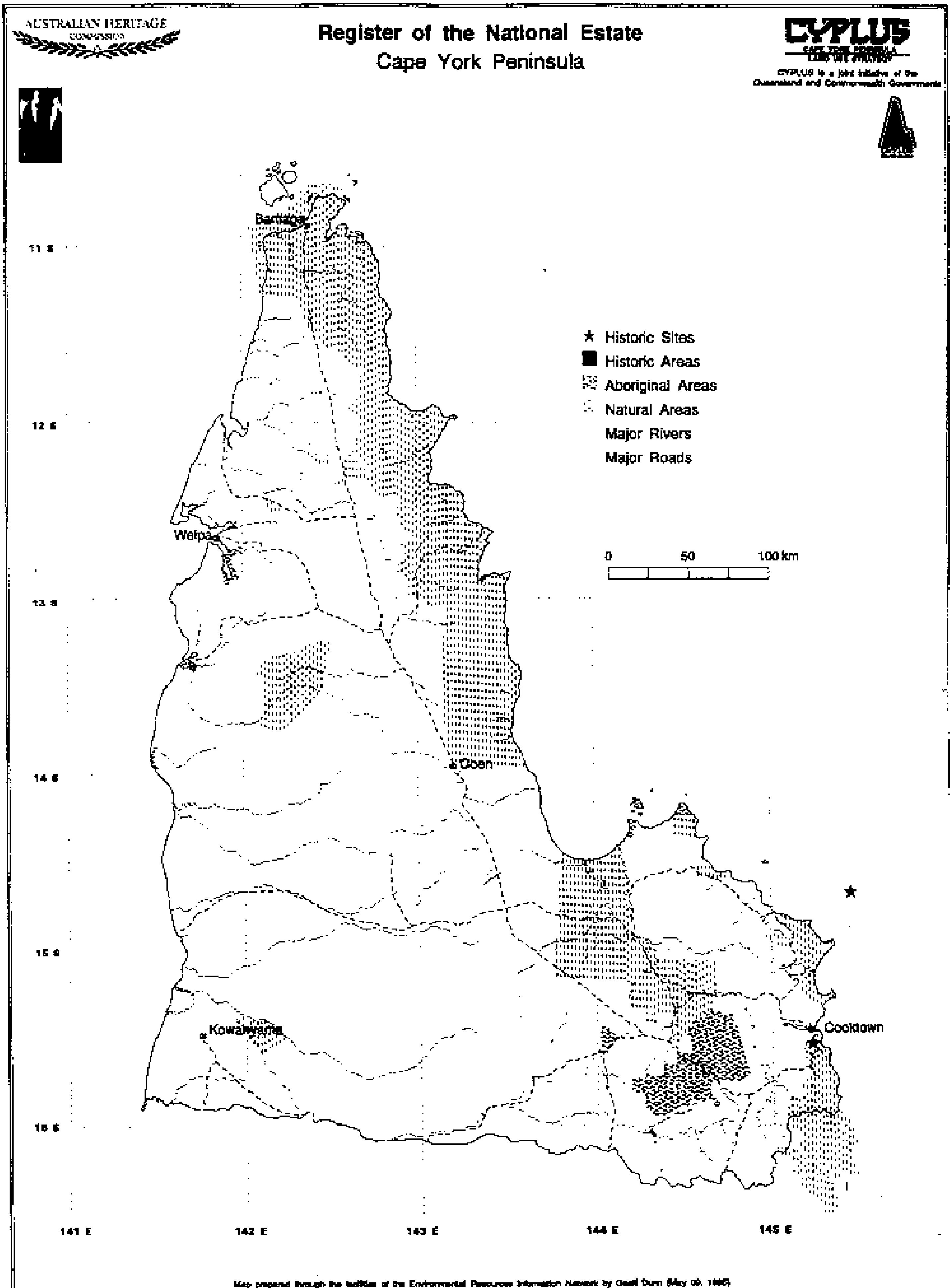
The Raine Island Beacon is significant as an early vernacular building in Northern Australia. Its cyclindrical stone structure with castellated trim is of technical and creative interest, and shows the process of construction (from materials found or manufactured on the spot) before there were any mass-produced or imported building materials. The Raine Island Beacon is significant as a dramatic landmark feature, adopted by the Raine Island Corporation for their logo. The Raine Island Beacon is significant as a monument to the colony's development of marine aids around the coast of Queensland and the economic development of the region. The Beacon also stands as a monument to the convict way of life when inexpensive labour was used extensively at that period of time.

### JAMES COOK HISTORICAL MUSEUM, COOKTOWN

Built as St. Mary's convent during 1886-89, in response to the efforts of bishop Hutchinson. Commandeered by the armed forces during 1941 -1945 and not re-occupied by the Sisters of Mercy. Proposals for demolition brought demands for preservation - restored to house the James Cook Historical Museum, and the grounds to become A J. Banks Memorial Garden. Opened by Queen Elizabeth 2nd. in 1970.

### MRS WATSON'S MONUMENT, COOKTOWN

Townscape and historical significance.




**Sources....**
AHC. 1995. Areas of Conservation Significance on Cape York Peninsula.
AHC. Contextual data download from Register of National Estate Data Base (RNEDB).
AUSLIG. 1994. "AHC Digital Boundary Set".

**Caveats....**
Areas depicted above were on the Register of National Estate as of December 1994.
Linkage of AUSLIG boundary set and AHC RNEDB download by ERIN.
Data preparation and map design by ERIN.

Projection: Geographical representation
Spheroid: Australian National Spheroid
Scale approx. 1:2,225,000 at A3 size
Scale approx. 1:3,125,000 at A4 size

Figure A.1

## QUINKAN COUNTRY, LAURA

The area is highly significant for both cultural and natural reasons. It is relatively untouched, of high aesthetic value and representative of deeply incised plateau country of Cape York. It contains some of the largest bodies of prehistoric art in the world. The paintings are generally large and well-preserved, and engravings of great antiquity occur. The Quinkan art is outstanding both in variety, quantity and quality.

## POSSESSION ISLAND NATIONAL PARK, SOMERSET

Site where captain James Cook proclaimed possession of the east coast of Australia from Torres Strait to New South Wales on 22/8/1770.

## WESTPAC BUILDING, COOKTOWN

Classified for architectural merit. Architect thought to be F.D.G. Stanley.

## ANNAN RIVER ROAD BRIDGE, COOKTOWN

This is a very long bridge, it has 22 metal girder spans, typically 15.3 m, totalling 336 m. When completed, it was probably the third-longest Australian metal girder bridge, after Echuca (1875, 442 m) and Stratford (1887, 869 m). Of these bridges only Echuca and Annan River remain in their original condition. The location of this large bridge at a site which is now so remote results from the earlier importance of the north Queensland goldfields; the bridge lay on the route from Cooktown to the Palmer River. The form of the bridge is distinctive, with shallow metal plate girders made flush on the outside faces. The original metal pier head- stocks have been encased in concrete, but the original screw piles used for the main raking piles still remain. Similar bridges were built across the endeavour river, north of Cooktown and near Mackay. Of these, only part of the original Endeavour River Bridge remains. Another unusual feature of the bridge was the use of specially designed collapsible railings built in such a way that they could be rapidly hinged down (in the direction along the bridge) during periods of flood, reducing the risk of damage from floating debris. These railings have been removed, but in 1982 some of the pieces were still visible, stacked on the northern bank.

## COOKTOWN POWDER MAGAZINE, COOKTOWN

Cooktown's powder magazine has a strong association with the Palmer River goldrush and Cooktown's resultant rise in importance as a port during the 1870s. The structure, built in 1876, is a rare example of an early powder magazine in Queensland; it is possibly the oldest extant in the State. The building is of further interest for its specialised building techniques (eg. pegged timber floors, heavy hardwood frame and small windows).

## STONYVILLE TOWNSHIP, WATER RACE AND CHINESE CEMETERY

Historically significant as part of the Palmer River goldfield and in particular as the largest established alluvial gold field worked by Chinese miners in far north Queensland. The Stoneyville area is important for its collection of sites associated with the field and including the townsite, alluvial workings featuring a rare and impressive 1300 metre aqueduct, and cemetery. These sites are probably the last remaining complex of sites associated with early alluvial mining by Chinese on the Palmer goldfields (c.1875), and are still relatively intact.

## PALMER RIVER GOLDFIELD FOUR DEEP MINES, LAURA

These four mines and associated battery ruins are the principal surviving evidence of a major Australian goldfield, largely responsible for the settlement of the far north of Queensland in the 1870's. The sites are significant in this region for the quantity and variety of their mining relics.

## BLACKWOOD ISLAND, COOKTOWN

Blackwood Island is of mythological significance to Aborigines. It symbolises the dead body of the whale speared by culture heroes Itjibiya and Almbarrin after leaving Bathurst Heads on their way to Clack Island where they now reside.

## BATHURST BAY AREA, COOKTOWN

This area contains many Aboriginal rock paintings and archaeological occupation deposits and burials, and the whole region is important in the mythology of local Aborigines. There are also places with historic significance such as shipwreck sites and a recruiting station for lugger crews.

## DENHAM ISLAND, COOKTOWN

Denham Island is a major Moon-Myth site, believed to have been originally joined to Bathurst Heads but later pushed out by the moon.

## CAPE MELVILLE, COOKTOWN

This Cape and its rocks as well as Pipon Island (Walmbaywi) are the locus of the major carpet snake myth of the area. There is a painting of the snake in Cape Melville and a major traditional residential site. The Cape was also the scene of several wrecks and mass drownings of lugger crews in the 1890's and there is a monument on the 300m high mountain

## CLACK ISLAND, COOKTOWN

Clack Island has a major place in Aboriginal ritual and mythology, and also has a large number of paintings. It is the traditional centre for male ritual activities and is the resting-place of the two culture heroes, Itjibiya and Almbarrin, who are the dominant figures of traditional mythology in the region.

## STANLEY ISLAND, COOKTOWN

There are several spectacular art sites on Stanley Island, the best known being the huge Yintayin rock shelter (Tindale's "Endaen"). An important mythological site occurs at Muyu-Walin figuring in the major Itjibiya mythic cycle.

## CAPE KEERWEER, AURUKUN

Cape Keerweer was one of the first Australian places named in journals and on the charts of Dutch explorers from 1606. Its prosaic meaning, 'turn-again', typifies many later European place names. Along the sandy beaches in this area of Cape York, Aboriginal people first encountered Europeans, their firearms and their alcohol. For these reasons it symbolises the first recorded cultural contacts between Aborigines and Europeans. During these encounters the pattern of later racial relations was symbolically set with alcohol and sugar, and the betrayal of trust with treachery. The Aboriginal response was a determination to resist aggression which is still celebrated in oral traditions of the area. The numerous Aboriginal sites here are being systematically and comprehensively recorded in what promises to be a highly valuable database of not only Australian, but international significance. Cape Keerweer is an historic site of great importance in the history of race relations in Australia.

## ST GEORGE RIVER ABORIGINAL SITES, LAURA

This sandstone outlier contains twelve decorated rockshelters. Eleven of them have engravings, which are generally rare in the Laura-Koolburra region. These engravings are an important example of the early rock art of Australia, dated at the nearby Early Man Shelter at more than 13,500 years old.

## BATHURST HEADS, COOKTOWN

On Bathurst Heads there is a major art and residential site at Walayi-Mini. There are hundreds of drawings, and unusual subjects such as butterflies, bees and moths. Other rock painting sites are wakarrma shelter and east and west worei shelters. Walayi-Mini shelter was the point of departure for myth heroes Itjibiya and Almbarrin for Clack Island.

## WEIPA SHELL MOUNDS AREA, WEIPA

This Weipa area contains more than 300 Aboriginal shell mounds of most impressive and unusual size and form. They include some of the largest middens in the world. Shell, bone, charcoal and stone and bone artefacts have been excavated from them and they have an antiquity of at least one thousand years.

## KOOLBURRA ABORIGINAL SITES, LAURA

The Koolburra Plateau is fringed by escarpments and gorges containing many rock art sites. 175 have been recorded. They are mainly paintings, including some large galleries with many figures. Engravings also occur. Two occupation sites have been excavated, green ant shelter yielding 6000 year old occupation. There are also open-air campsites, ochre quarries and axe-grinding grooves. Fairview Station

## FLINDERS ISLAND

Flinders island is an integral part of the mythological complex of the Flinders Group. There is also a major residential site on the sandspit, and one of the earliest recruiting centres in the nineteenth century for the lugger trade.

## CHALMERS TO MAYTOWN COACH ROAD, LAURA

This road is of historical significance for its early association (1877) with gold mining on the Palmer River fields and with the Cobb Company coach line which began using the road in 1879. The road is of technological interest for the examples of road construction offered including hand-made cuttings, sandstone walling, drainage systems and safeguards. The road is also of interest for the collection of associated sites including wayside houses, staging posts, Chinese gardens and mine workings.

## COOKS MONUMENT

Erected 107 years after James Cook's landing at the Endeavour River, the monument is historically significant as an early memorial commemorating the landing, the landing site being the only place in Australia other than Botany Bay where Cook's party came ashore for any length of time during the momentous 1770 voyage. Being in a prominent location near the original site of Cook's landing, the monument has landscape significance.

## CAPE YORK PENINSULA CULTURAL VALUES

Cultural heritage in Queensland is currently covered by two pieces of legislation, the *Queensland Heritage Act 1992* (historic sites) and the *Cultural Records (Landscapes Queensland and Queensland Estate) Act 1987* (Aboriginal sites and storyplaces), which are administered by the Heritage Branch of the Queensland Department of Environment and Heritage. Permits are required from DEH to undertake survey under this legislation.

Other relevant heritage legislation includes the *Australian Heritage Commission Act 1975* which obliges Commonwealth bodies not to undertake actions which will have an adverse effect on the National Estate (there are both natural and cultural environment places in the National Estate on the Cape and others nominated), and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* administered by Aboriginal and Torres Strait Islander Commission.

## CAPE YORK PENINSULA HISTORIC VALUES

Cultural heritage places that are considered part of the historic environment are commonly regarded as only the built environment but they also include modified landscapes of historic meaning and places that have social and aesthetic importance to communities.

Considering the area of Cape York there are comparatively few such places either entered in the Register of the National Estate or nominated to the Register. Of the 21 historic cultural places nominated to the Register of the National Estate, most are either historic structures of Cooktown, and mining sites of Normanby, Palmer River and the Laura area. The exceptions are the Chalmers to Maytown Coach Road, Raine Island Beacon, the Quinkan Hotel, Mrs Watson's Cottage at Lizard Island and the former Musgrave Telegraph Station.

Historic mining sites are of great concern to heritage authorities as many are being reworked without any respect given to their historic fabric. A study of historic Queensland mining sites is currently being carried out and approximately 20 individual sites - either mill sites or mine sites in the Cape York area were surveyed, along with the large workings at Wenlock. The Commission expects that there will some nominations to the Register resulting from this work. The Commission is also aware of studies which have been undertaken by individuals such as the Somerset Graves study and the Lockhart River study but to date there have been no nominations to the Register from these projects. The Cooktown study by Gordon Grimwade and the Palmer River study by Noreen Kirkman, contributed a number of nominations to the Register.

Some historic places are strongly linked with the Aboriginal and Torres Strait Islander environment and therefore will require consultation with relevant Aboriginal and Torres Strait Islander communities to fully understand their importance.

In recent years the Commission has encouraged comprehensive assessments for the Register. In some cases these have been done as local government inventory surveys, in other cases they have been identified as part of 'type' or historic thematic study such as mining sites or World War II sites. Areas of low population, such as Cape York, have not been conducive for such studies. It is helpful to the Commission when a network of contacts can be established to assist in providing additional place information when required to complete assessments. This is naturally more available in more densely populated areas.

In order to undertake a comprehensive study of significant historic environment places on Cape York a strategy which covered the following aspects would be required:

a. Consultation with local communities to establish what places have importance to them. These places may be historic structures but they may also be places valued by community members for associations, such as places of community events, landmark features, or places that have strong aesthetic importance for community members.

b. A history of Cape York which covered all human activities and the resulting landscape disturbance in the region. From that study the major historic themes could be identified and important places related to those themes identified. Places could be classified into types based on their physical form and thematic relationship and their significance could be established from type comparisons.

   The historic themes of importance in Cape York would no doubt include:

   - early exploration and first contact places;
   - pioneering, early settlement and pastoralism;
   - fishing;
   - communication and services;
   - mining;
   - Australian defence including World War II sites;
   - community settlements;
   - tourism; and
   - scientific work including primary industry development trials.

c. Types of places which could have historic, cultural significance could be:

   - structures such as buildings and their curtilage, bridges or towers;
   - complexes consisting of groups of structures such as a pastoral station;
   - sites being places which were once the site of an event or a structure;
   - natural landscapes with strong meaning or aesthetic importance;
   - cultural landscapes with strong meaning or aesthetic importance;
   - features such as trees, rock, beaches, viewpoints, waterfalls, lakes; and
   - linear networks such as roads, trails and routes.

The Commission will be assessing those places that have been nominated to the Register of the National Estate and that have sufficient information to support the assessment. The Commission is aware that Tourism Resources study by Peter James has listed themes and places which relate to those themes. It is therefore recommended that a planned assessment program for these places is undertaken to help safeguard significance prior to tourism or other development impacts that may be proposed for the area.

## CAPE YORK ABORIGINAL AND TORRES STRAIT ISLANDER CULTURAL VALUES

The population of Cape York Peninsula has a majority of Aboriginal people, most of whom now live in DOGIT's (Deed of Grant in Trust) - areas of land which are subject to land claim under the *Queensland Lands Act 1991).* Permission is required to go onto DOGIT land.

Most Aboriginal communities retain close cultural links with their land, with a strong understanding of the religious importance of the land. This generally reflects as a web of interrelated places integrally interwoven with each other - not as individual 'dots on the map' of 'sacred sites'. There are also archaeological sites which increasingly are of contemporary importance to communities as evidence of past associations with the land, and politically useful to land claims. Historic places are also important to Aboriginal people as part of their recent past and their links with non-Aboriginal settlement on the Cape.

The Aboriginal/Torres Strait Islander view of heritage is that it is not public, that is, it is owned; heritage is not a matter of sites, but a relationship between culture and landscape. This relationship exists over most of the Peninsula. Obviously, any documentation of Aboriginal/Torres Strait Islander places of significance needs to be directed and owned by the relevant Aboriginal/Torres Strait Islander community(ies). Recognition of the widespread cultural values on the Peninsula should be considered in any landuse decision making, with the inclusion of adequate consultation and clearance steps.

# APPENDIX 2 METHODS USED TO DERIVE WILDERNESS QUALITY - INCLUDING DETERMINATION OF BIOPHYSICAL NATURALNESS LAYER.

The National Wilderness Inventory (NWI) is an environmental data base and a set of modelling procedures which are designed to assist in the planning and management of remote and natural lands in Australia. The NWI is compiled and maintained by the Australian Heritage Commission and is accessible through the Environmental Resources Information Network.

The inventory is designed to assess wilderness quality across the Australian landscape. It is a decision-making tool which supports purposes such as monitoring wilderness loss, delineating wilderness areas, defining management options and predicting the effects of development on wilderness values.

The NWI has, to date, made a major contribution to wilderness planning and management in many parts of Australia. For instance, the wilderness assessment process required under wilderness legislation in South Australia is underpinned by the NWI data base and wilderness analysis procedures. The results of the Victorian component of the NWI were utilised as the starting point for a Victorian Land Conservation Council investigation of wilderness in that state. NWI procedures for wilderness identification and assessment have also been incorporated into the management planning process for the Wet Tropics World Heritage Area. The NWI also forms a key part of the process for implementing the wilderness reserves component of the National Forests Strategy.

The program is designed to measure variation in wilderness quality in the landscape using consistent and objectively measurable criteria. The data base that is produced may then be used in an entirely flexible way to assist in determining which areas meet specified criteria for wilderness, which will be suitable for wilderness management and which should be considered for inclusion in a wilderness protection system.

## A2.1 PRINCIPLES OF THE SURVEY METHODOLOGY

The evaluation of wilderness in the NWI is based on the concept of wilderness as part of a continuum of remote and natural conditions which vary in intensity from pristine to urban.

The wilderness inventory procedure is implemented by measuring variation in wilderness quality across the landscape using four wilderness quality 'indicators' that represent the two essential attributes of wilderness; remoteness and naturalness. These derive from the definition of wilderness quality as the extent to which a location is remote from and undisturbed by the influence of modern technological society. These indicators are:

- **Remoteness from Settlement** - how remote a site is from places of permanent human occupation;
- **Remoteness from Access** - how remote a site is from established access routes;
- **Apparent Naturalness** - the degree to which a site is free from permanent structures associated with modern technological society;
- **Biophysical Naturalness** - the degree to which a site is free from biophysical disturbances caused by the influence of modern technological society.

Numeric values are calculated for each of the indicators for areas with an essentially natural cover and by standardising and combining these values a simple estimation of total wilderness quality, a total wilderness quality index, may be produced.

## A2.2 STRUCTURE OF THE INVENTORY

### A2.2.1 The Primary Data Base

A wide range of geographical information is required for the calculation of wilderness indicator values. This is the primary data base for the NWI.

The primary data base for Remoteness from Access includes all classes of road and vehicle tracks, railways, aircraft landing grounds and cleared area boundaries. The Remoteness from Settlement primary data base includes permanently occupied buildings and built up areas. The Apparent Naturalness primary data base includes all structures, including those mentioned previously. The primary data base for Biophysical Naturalness includes a variety of information relating to land use.

The degree of confidence which may be placed in final wilderness evaluations depends particularly on the accuracy and precision of the primary data. This raises issues in so far as change is ubiquitous in the Australian landscape and information about access, settlement and land use is often poorly recorded and lacking in currency. Even the most recently available information may be inaccurate and out of date. Field verification may be possible in situations where there are serious doubts as to the validity of information and where accuracy and precision is important. However, the expense of these activities is generally prohibitive. The NWI, in base-line surveys, has placed heavy reliance on pre-existing, documented primary data sources.

### A2.2.1 The Wilderness Data Base

GIS modelling techniques are applied to the primary data base to produce a secondary data base; the wilderness data base. This data base is constructed by establishing a grid of sampling points across all areas selected for inclusion in the survey. A range of measurements are calculated for each sampling point which are then processed to produce values for each of the four wilderness quality indicators. These indicator values are, in turn, processed to produce a total wilderness quality index.

The wilderness data base consists of all measurements used to derive wilderness indicator values, the wilderness indicator values themselves, and the final wilderness quality index. Together, these attributes form a powerful and comprehensive data base which can be used for addressing a wide range of planning requirements for remote and natural lands.

## A2.3. WILDERNESS QUALITY ASSESSMENT

### A2.3.1 Remoteness from Settlement

A value for Remoteness from Settlement is based on the calculation of distance from each grid point to the nearest settlement feature. This measure of remoteness does not take into account the features of local terrain. (Terrain is a factor affecting many aspects of wilderness assessment and this will be introduced into NWI wilderness survey procedures in future).

Four grades of permanent occupation are defined, according to the degree of settlement they represent. A total Remoteness from Settlement value is derived by assigning a weight to each grade of settlement to reflect its considered level of influence on remoteness. This weighting factor is then used to standardise distance measures between the different settlement grades. This, in effect, converts all settlement locations to a major settlement equivalent. The nearest standardised distance for each grid point is then recorded. In this way the final indicator value reflects the greater influence of, for example, a small town compared with a single station or farmhouse in reducing remoteness values. The weighting factor applied to each grade of settlement in base-line NWI surveys is presented in Table A2.1.

**TABLE A2.1 Settlement Features**

| Settlement Grade | Descriptor | Weighting Factor* |
|---|---|---|
| Major | Built-up areas and commercial and/or service location with 100 permanent residents or more | 1.00 |
| Intermediate | Commercial and/or service location with more than ten but less than 100 permanent residents | 0.80 |
| Minor | Commercial and/or service location with ten permanent residents or less | 0.74 |
| Residential | Residential location only | 0.66 |

* major settlement equivalent

### A2.3.2 Remoteness from Access

Values for Remoteness from Access are derived by measuring distance to access features. Four grades of access are defined, according to the level of access provided and the degree of use received.

Weighting is applied in the same manner to the Remoteness from Settlement indicator to standardise all access features to high grade equivalence. The final indicator value therefore reflects the greater influence of, for example, a highway compared with that of a four-wheel drive track. The weighting factor applied to each grade of access in the base-line NWI survey is presented in Table A2.2.

**TABLE A2.2 Access Features**

| Access Grade | Descriptor | Weighting Factor* |
|---|---|---|
| High | Major two-wheel drive roads: generally sealed or at least surfaced to ensure regular and continuous public use | 1.00 |
| Medium | Minor roads: generally unsurfaced, or, if surfaced, then irregularly used and maintained. Also included are constructed and maintained airstrips and operating railways | 0.71 |
| Low | Vehicle tracks (usually four-wheel drive) | 0.33 |
| Very Low | Established but unconstructed vehicle access routes (e.g. beach access) and cleared lines; established walking tracks; cleared land | 0.20 |

* high grade access equivalent

### A2.3.3 Apparent Naturalness

The Apparent Naturalness indicator is designed to account for the apparent impact that structures and disturbances have on wilderness quality. Relevant structures include: buildings, yards, bridges, bores, windmills, pipelines, fence-lines etc. Values for this indicator in base-line NWI surveys are obtained simply by calculating distance to the nearest defined structure. Three grades of artefacts are defined, according to their scale and permanence. Weighting is applied for Apparent Naturalness in the same manner to the previous indicators, so that all structures are standardised to major equivalence. The weighting factor applied to each grade of structure in base-line NWI surveys is presented in Table A2.3.

**TABLE A2.3 Apparent Naturalness Structures**

| Structure Grade | Descriptor | Weighting Factor* |
|---|---|---|
| Major | Intrusive infrastructure (including medium and high grade access routes) and cleared land boundaries | 0.71 |
| Medium | Small-scale infrastructure (including four-wheel drive tracks) | 0.40 |
| Minor | Minor structures | 0.16 |

* major structure equivalent

### A2.3.4 Biophysical Naturalness

The Biophysical Naturalness Indicator is a measure of ecosystem integrity, determined through an indirect assessment of intensity of landuse as a proxy for ecosystem integrity. For Cape York Peninsula, the Biophysical Naturalness coverage has been developed using five-data sets available from the Natural Resources Assessment Program (NRAP) reports. These were considered to provide the best systematic indication of current biophysical naturalness across the Peninsula. Additionally, the coding was consistent with that used across Australia by the National Wilderness Inventory (NWI). Information incorporated from the CYPLUS NRAP and Land Use Assessment Program (LUP) data sets has been selected to ensure that the best indication of existing (rather than potential) Biophysical Naturalness has been derived.

The flow chart used to derive the Biophysical Naturalness layer is at Table A2.4 with an explanation following.

The data sets incorporated in deriving the Biophysical Naturalness layer were:

- Neldner and Clarkson; Vegetation Coverage - NRO1;
- Biggs and Philip; Soils Mapping - NR02;
- Qld Dept of Primary Industry; Ground Water Resources - NR16;
- Cotter A Study of the Pastoral Industry - QDPI LUP; and
- Qld Lands Dept Cadastral Mapping - DCDB.

Although a CYPLUS Land Use Program (LUP) addressing weeds and feral animals was available the data-sets were insufficiently systematic for inclusion in the derivation of the Biophysical Naturalness layer. Although it was hoped to include weed and feral animal information for CYPLUS, this has not been possible elsewhere in Australia either.

The NWI analysis was undertaken by the AHC using ArcInfo Version 6.1.1. The data-sets used in determining Biophysical Naturalness have been provided by Queensland Land Information Section (QLIS) from the CYPLUS GIS.

The flow chart illustrated shows how the data-sets have been combined to achieve an indication of Biophysical Naturalness on a scale of 0 - 5 (lowest to highest), and is consistent with that indicator used in the NWI elsewhere. In the determination of the Biophysical Naturalness coverage, categories within the original data-sets were chosen to be consistent with the NWI. These coverages were then combined using the 'Union' command to create one coverage with the attributes as attached.

**Table A2.4 Flow Chart for Biophysical Naturalness Codes for CYP**

| If | and | and | and | and | and | then |
|---|---|---|---|---|---|---|
| **Veg Class** | **LUSE** | **TENURE** | **GRAZING** | **SOIL** | **Bores** | **BN** |
| - | - | 0 | - | - | - | 5 |
| - | - | - | 0 | - | - | 5 |
| 208 | - | - | - | - | - | 5 |
| 202, 203, 204, 205, 207 | - | - | - | - | - | 0 |
| 206 | - | - | - | - | 0 | 1 |
| | | | | | 100 | 0 |
| Other Veg 1 - 201 & 209 | 4, 5, 6, 7, 8 | - | - | - | - | 0 |
| | 3 | - | - | - | - | 0 |
| | 2 | - | - | - | - | 1 |
| | 0 ,1 | 5, 11 | - | - | - | 0 |
| | | 1 | - | - | 0 | 3 |
| | | | | | 100 | 2 |
| | | 2, 6, 21, 22 | - | - | - | 5 |
| | | 16, 18 | 6, 7, 8, 9 | 0, 1, 2, 3 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 4,5 | 0, 1,2 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 4,5 | 3 | 0 | 3 |
| | | | | | 100 | 2 |
| | | | 1, 2, 3 | 0, 1, 2, 3 | 0 | 3 |
| | | | | | 100 | 2 |
| | | 3, 4, 7, 8, 9, 10, 12, 13, 14, 15, 17, 19, 20, 23, 24,99 | 8, 9 | 0, 1, 2,3 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 7 | 0, 1,2 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 7 | 3 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 6 | 0, 1, 2 | 0 | 5 |
| | | | | | 100 | 3 |
| | | | 6 | 3 | 0 | 3 |
| | | | | | 100 | 2 |
| | | | 4, 5 | 0, 1, 2 | 0 | 3 |
| | | | | | 100 | 2 |
| | | | 4, 5 | 3 | 0 | 2 |
| | | | | | 100 | 1 |
| | | | 1, 2, 3 | 0, 1, 2, 3 | 0 | 2 |
| | | | | | 100 | 1 |

## A2.4 THE PROCESS FOR DELINEATING BIOPHYSICAL NATURALNESS COVERAGE.

### A2.4.1 Vegetation Class - Neldner, Clarkson Vegetation Mapping

In the Neldner, Clarkson Vegetation Coverage (1994) , each vegetation class has a code. A number of classes directly indicate Biophysical Naturalness irrespective of other factors, for example:

- Seas and Estuaries - Class 208;
- Mining overburden, Cropped lands etc - Classes 202, 203, 204, 205, 207; and
- Native Pasture cleared of Woody Vegetation - Class 206.

These were directly calculated to Biophysical Naturalness codes (BN) of 5, 0 and 1 respectively

For all the other vegetation classes it is considered that land use, grazing intensity and soil characteristics will contribute to the Biophysical Naturalness. **Land use, Tenure, Grazing** and **Soil degradability** are incorporated in the analyses as on the flow diagram.

### A2.4.2 LUSE - Land use coding from the Biggs & Philip Soils Coverage.

A field for current land use was incorporated in the Biggs & Philip (1994) soils mapping. In a similar fashion to the vegetation coverage, there were land use categories that indicate Biophysical Naturalness irrespective of other factors, and these categories were able to be directly given a Biophysical Naturalness code consistent with that used elsewhere across Australia as follows:

- Complete Clearing, cultivation, or highly disturbed - BN = 0;
- Extensive Clearing - BN = 1; and
- Limited Clearing - BN = 2.

Where land use is coded a 'No Effective Disturbance' or 'Disturbance only by Hoofed Animals' then consideration of **tenure, grazing rate**, and **soil degradability** was incorporated on the flow diagram.

LUSE was incorporated as follows;

| Biggs & Philips LUSE Code | Description | BN Code |
|---|---|---|
| 0 | No effective disturbance | Consider other parameters |
| 1 | No effective disturbance other than by hoofed animals. | Consider other parameters |
| 2 | Limited Clearing | 2 |
| 3 | Extensive Clearing | 1 |
| 4 | Complete Clearing, Pasture | 0 |
| 5 | Complete Clearing Pasture Stage | 0 |
| 6 | Cultivation Rainfed | 0 |
| 7 | Cultivation Irrigated | 0 |
| 8 | Highly Disturbed | 0 |

### A2.4.3 Tenure - Determined from the Qld Dept of Lands DCBD coverage. (Qld Lands 1994)

The tenure codes were reclassified for this analysis according to the attached table (Table A2.5). Some categories were considered to provide a direct indication of Biophysical Naturalness irrespective of other consideration while in other tenure categories Biophysical Naturalness coding was calculated as follows for those instances:

- Housing Commission Lease and Industrial Lease - BN = 0;
- Action Pending - BN = 3 or less;
- Vacant Crown Land, Harbours and Marine, State forest and Timber Reserves - BN = 5; and
- Freehold Reserves and National Park, (Considered impacted by grazing but to a lesser level than for other grazable tenures.

For tenures other than above, ie some form of leases, freehold or Aboriginal tenure, assume that grazing has occurred and the impact is related to the **soil degradability** and potential **grazing rate**.

Biophysical Naturalness for the later two categories was determined incorporating the following information.

### A2.4.4 Grazing Rate: From Cotter Pastoral Industry Mapping of Country Types.

Cotter (1994) identified the potential grazing rate for the country types mapped as an indication of suitability for cattle harvesting. These classes were themselves derived from the Neldner, Clarkson Vegetation coverage (1994). These rates were grouped into nine categories that equated with the probability of grazing density. These nine categories of grazing suitability have been further grouped into five to give an indication of long term grazing impact .

'Average' grazing rate as follows:

| Grazing Rate | Five Group Code | Nine Group Code |
|---|---|---|
| > 175 hectares per beast | Impact Insignificant | (8,9) |
| 145 - 175 hectares per beast | Impact Minimal | (7) |
| 60 - 145 hectares per beast | Impact Very Light | (6) |
| 30 - 60 hectares per beast | Impact Light | (4,5) |
| < 30 hectares per beast | Impact Moderate | (1,2,3). |

These categories have been considered in association with the Soil Degradability as it was considered that grazing rate alone would not provide a direct indicator of Biophysical Naturalness. The flow chart graphically illustrates the connections.

### A2.4.5 Soil Degradability: From the Biggs & Philip Soils Mapping

This information was used to strengthen the relationship between intensity of landuse to ecosystem integrity. Biggs and Philip (1994) identified three categories as indicators of Soil Degradation potential. When used in relation with the grazing rate information described above, an indication of existing disturbance can be achieved. For example stable soils only capable of maintaining a low grazing rate were considered to be of higher Biophysical Naturalness than areas of higher grazing density on very unstable soils. Soil Degradation potentials as mapped by Biggs and Philip are as follows:

| | |
|---|---|
| 1 Stable soils | - low potential for degradation. |
| 2 Unstable Soils | - moderate potential for degradation. |
| 3 Very unstable Soils | - susceptible to degradation. |

Table A2.5

Cape York Peninsula - Tenure Groupings for Wilderness Analsyis

| NWI Grouping of Tenures | Broad Description Appropriate to NWI Tenure Grouping | DCBD Code | Naturalness |
|---|---|---|---|
| | | | |
| 1 | Action Pending | AP | =<3 |
| 2 | Crown Land | CL | 5 (Check) |
| 3 | Free hold and Aboriginal tenure | FH & (+AB_TENURE) | Grazed |
| 4 | Free Hold but Not Aboriginal Tenure | FH & (-AB_TENURE) | Grazed |
| 5 | Housing Commission Lease | HL | 1 |
| 6 | Harbours and Marine | HM | 5? |
| 7 | Lands Lease - Roads | LL61 | Grazing |
| 8 | Occupational Lease | LL 62 | Grazing |
| 9 | Permit to Occupy | LL 63 | Grazing |
| 10 | Grazing Homestead Perpetual Lease | LL 100 GHPL | Grazing |
| 11 | Non Competitive Lease Industrial | LL 100 NCL | 1 |
| 12 | Pastoral Holding | LL 100 PH | Grazing |
| 13 | Special Lease | LL 100 SL | Grazing |
| 14 | Special Lease - Freehold | LL 100 SLPF | Grazing |
| 15 | Aboriginal Lease | ALL | Grazing |
| 16 | Freehold Reserve | LL 64 SLPF | =<5 |
| 17 | Mining Tenure | MT | Grazing |
| 18 | National Park | NP | =5 (Grazing) |
| 19 | Pastoral Holding | PH | Grazing |
| 20 | Reserve | RE | Grazing |
| 21 | State Forest | SF | 5 (WETMA) |
| 22 | Timber Reserve | TR | 5(WETMA) |
| 23 | freehold | fh | Ignore (coding error) |
| 24 | ??? | LL PER | Grazing |

0 No soils information - low potential for degradation.

The category 0 exists where there are slight differences in the extent of GIS coverages and the Vegetation, Tenure etc coverages extend beyond the soils coverage. These small peripheral and coastal areas and consequently considered of low potential for degradation by grazing.

### A2.4.6 Bores: From Queensland Department of Primary Industries Ground Water Coverage (QDPI 1994)

The presence of both grazing cattle and feral or pest species, is strongly influenced by availability of water. The Cotter Country Types effectively address the availability of surface water across the Peninsula. The ground water coverage of bores was used to provide additional information regarding water sources to enable grazing impact to be modelled accordingly. Only the location of water supply bores was considered. Biophysical Naturalness for areas within a ten kilometre radius of the bores, the approximate distance from a bore that cattle will range if the bore is the only supply of water. A Code = 100 for areas <10km from a bore compared with Code = 0 for those areas >10km from bores.

### A2.4.7 Calculation of Biophysical Naturalness

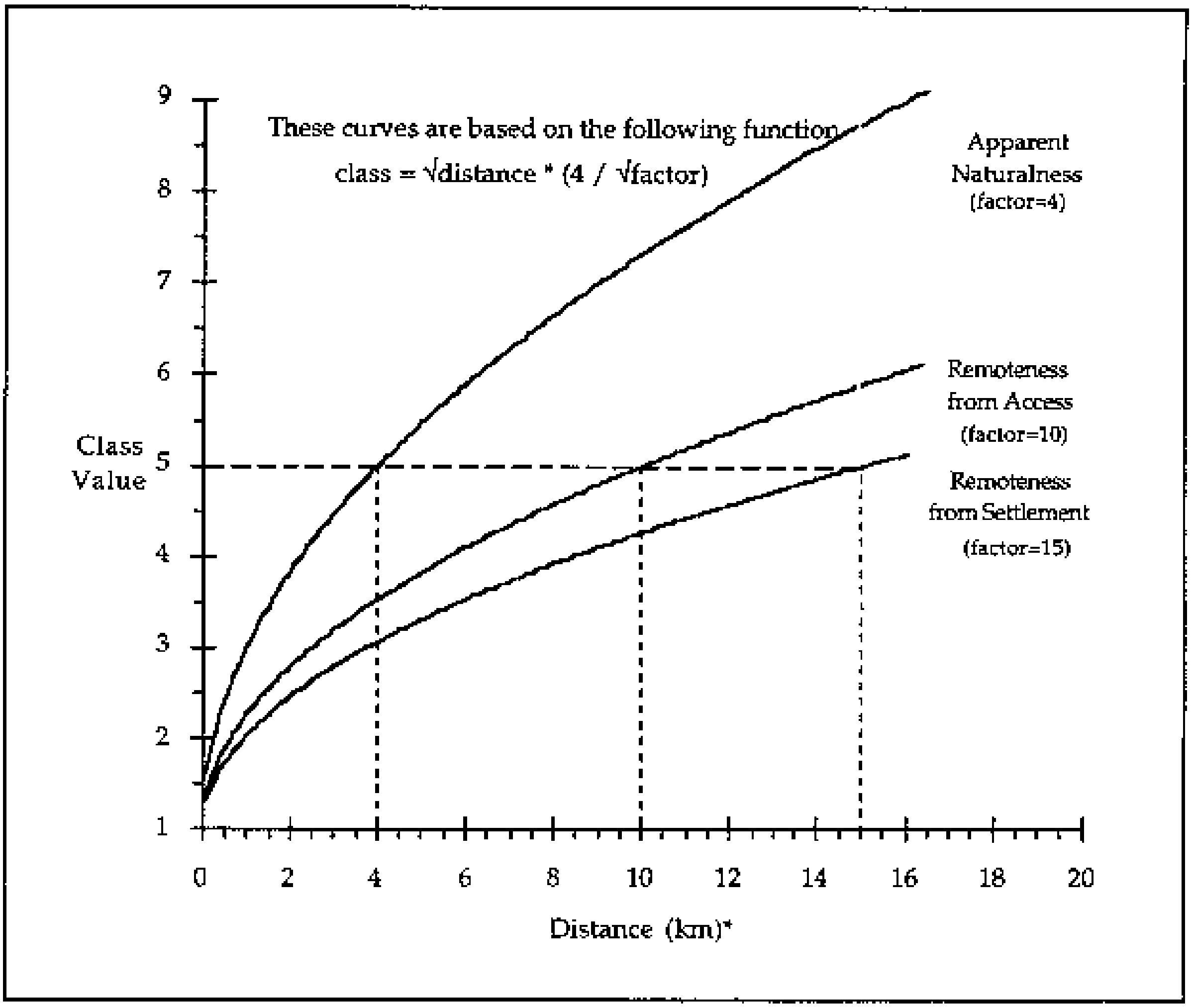
The attributes described above were combined following a logical decision tree (Table A1.1) to derive the overall Biophysical Naturalness Indicator. The National Wilderness Inventory scale use of 0 - 5 ensures a consistent indication of Biophysical Naturalness across Australia. While undertaking the calculation of Biophysical Naturalness, frequent checks were made of the number of polygons affected to ensure the analysis was discrete as anticipated. The distribution of the quality of Biophysical Naturalness across Cape York Peninsula is shown at Figure 3.1, in the main body of this report.

## A2.6 TOTAL WILDERNESS QUALITY

A total wilderness quality index may be produced by performing operations on wilderness indicator measurements. Key operations include standardising, deriving class values for the distance-based indicator measurements and combining indicator class values.

Base-line NWI surveys express variation in wilderness quality in terms of a standardised classed scale. Class values for Remoteness from Access, Remoteness from Settlement, and Apparent Naturalness are assigned according to the standard functions shown in Figure 4. Each of these distance-based indicators are represented by continuous data, so that there is no defined upper limit to class values. This is not the case for Biophysical Naturalness which is categorical data, having a built-in five level standard. Biophysical Naturalness indicator class values may be included in a total wilderness quality assessment on a comparably weighted basis by setting a maximum class limit at five for the distance-based indicators. The class five level for each of the distance-based indicators is shown in Figure A2.1.

**FIGURE A2.1 Wilderness Indicator Classification**




* Measurements are weighted and expressed in terms of distance from: high grade access equivalent, major settlement equivalent and major structure equivalent.

A total wilderness quality estimate may be produced by combining indicator class values. The standard process is additive, resulting in a total wilderness quality scale ranging from minimum to maximum indicator class value combinations. This procedure rests on the assumption that each indicator contributes independently and equally to total wilderness quality.
The additive process may also incorporate procedures which ensure wilderness quality assessments meet specific requirements. For instance, minimum thresholds for each indicator may be applied to ensure the exclusion of areas which do not meet minimum levels of remoteness and naturalness.

**APPENDIX 3 Rare and Uncommon Vegetation Communities. Threshold determination and results.**

The analysis of rare and uncommon vegetation communities across the region is outlined in Section 4 of the report. This appendix details the thresholds and their derivation and results of the analysis.

Determination of Rare, and Uncommon communities was undertaken at two mapping scales. One using Broad Vegetation Groups (BVG's) and another using the 201 Vegetation Classes both obtainable from the Neldner, Clarkson vegetation mapping. The scale of mapping is important in any map unit based analysis, by doing the analysis at two scales it is possible to effectively test the sensitivity of the analysis to scale issues. The detailed rule set for determining Rare and Uncommon are as follows.

**Broad Vegetation Groups (BVG).**

Aim: To determine rare and uncommon status on the basis of BVG's and the area of the Peninsula occupied by each BVG. (See Table A3.1).

Thresholds: Rare =< 0.75% (approx 100,000 ha) of the total CYPLUS study area.

Uncommon =< 2% (approx 200,000 ha) of the total CYPLUS study area

(The determination of the thresholds was data-driven and equated with clear break points in the distribution of the areas of the Broad Vegetation Groups).

Result: A total of 13.23% of the Peninsula was determined to contain Rare (R=3.29%) or uncommon communities (U=9.94%).

**201 Vegetation Classes**

Using the 201 vegetation categories thresholds for rare and uncommon classes were determined on the basis of both total area and total polygon frequency. Those communities with a lower polygon frequency being restricted. Table A3.2 incorporates consideration of rare, uncommon, restricted, and limited communities as outlined following.

Area

Thresholds: Rare < 0.05% (approx 6000 ha) of the total CYPLUS study area.

Uncommon <0.08% (approx 10,000 ha) of the total CYPLUS study area.

(Again the determination of the categories was data-driven).

Polygon Frequency

Thresholds: Restricted = Vegetation class occurs in less than 30 polygons within the study area.

Limited = Vegetation class occurs in less than 60 polygons within the study area.

(The determination of the thresholds was data-driven. There are approx. 17,000 vegetation polygons mapped across the Peninsula).

To classify communities at the 201 vegetation class level as rare, uncommon or common the area and frequency analyses were combined as below.

| | |
|---|---|
| **Rare** | Rare by area analysis, or<br>Restricted by frequency analysis, or<br>Both Uncommon and Limited. |
| **Uncommon** | Uncommon by Area Analysis, or<br>Limited by Frequency analysis. |
| **Common** | Neither Rare nor Uncommon as above. |

| BVG | Total Area | % Total Area | Description |
|---|---|---|---|
| | | | |
| 16 | 2,590,314.11 | 19.45% | 'Woodlands and tall woodlands dominated by Eucalyptus tetrodonta on deeply weathered plateaus and remnants.' |
| 17 | 2,251,985.64 | 16.91% | 'Woodlands dominated by Eucalyptus tetrodonta on erosional surfaces and residual sands.' |
| 18 | 1,389,290.96 | 10.43% | 'Low open-woodlands and low woodlands dominated by Melaleuca viridiflora on depositional plains.' |
| 10 | 967,412.11 | 7.26% | 'Woodlands dominated by Eucalyptus hylandii or E. tetrodonta on sandstone metamorphic and ironstone ranges.' |
| 8 | 751,821.43 | 5.64% | 'Woodlands and open-woodlands dominated by Eucalyptus clarksoniana E. novoguinensis or E. polycarpa.' |
| 7 | 668,932.29 | 5.02% | 'Woodlands and open-woodlands dominated by Eucalyptus chlorophylla E. microtheca or E. acroleuca.' |
| 21 | 537,537.26 | 4.04% | 'Tussock grasslands on marine plains.' |
| 9 | 528,952.85 | 3.97% | 'Woodlands and open-woodlands dominated by Eucalyptus cullenii E. crebra or E. persistens subsp. tardecidens.' |
| 24 | 445,745.25 | 3.35% | 'Open-heaths and dwarf open-heaths on dunefields sandplains and headlands.' |
| 11 | 407,800.20 | 3.06% | 'Open-woodlands and woodlands dominated by Eucalyptus leptophleba on river frontages and northern undulating plains.' |
| 30 | 352,085.27 | 2.64% | 'Miscellaneous vegetation group dominated by Acacia spp. or members of the myrtaceae family occurring on a variety of landforms.' |
| 6 | 334,906.35 | 2.51% | 'Gallery closed-forests and Melaleuca spp. dominated open-forests on alluvia.' |
| 20 | 329,768.28 | 2.48% | 'Low open-woodlands and tall shrublands dominated by Melaleuca stenostachya M. citrolens or other Melaleuca spp.' |
| | | | |
| 19 | 182,643.33 | 1.37% | 'Open-forests and low open-forests dominated by Melaleuca spp. in seasonally inundated swamps.' |
| 2 | 180,258.73 | 1.35% | 'Closed-forests of the McIlwraith-Iron Range region.' |
| 23 | 171,403.29 | 1.29% | 'Tussock grasslands on longitudinal drainage depressions headlands o |
| 29 | 153,593.21 | 1.15% | 'Rocky and bare sandy areas e.g. saltpans sand blows and rock pavements.' |
| 26 | 142,674.55 | 1.07% | 'Closed-forests and low closed-forests dominated by mangroves.' |
| 27 | 136,090.13 | 1.02% | 'Sedgelands lakes and lagoons.' |

| BVG | Total Area | % Total Area | Description |
|---|---|---|---|
| 13 | 123,431.83 | 0.93% | 'Open-forests and woodlands dominated by Eucalyptus nesophila or E. hylandii.' |
| 12 | 118,814.44 | 0.89% | 'Woodlands dominated by Eucalyptus leptophleba E. platyphylla or E. erythrophloia on undulating hills and plains in the south-east.' |
| 14 | 115,381.88 | 0.87% | 'Eucalyptus spp. open-forests of the Wet Tropics region.' |
| | | | |
| 22 | 99,887.91 | 0.75% | 'Closed-tussock grasslands and open-woodlands on undulating clay plains.' |
| 25 | 95,940.51 | 0.72% | 'Woodlands and herblands on beach ridges and the littoral margin.' |
| 3 | 74,561.59 | 0.56% | 'Closed-forests of northern Cape York Peninsula and the Torres Strait Islands.' |
| 5 | 61,469.06 | 0.46% | 'Deciduous low closed-forests on slopes and alluvia.' |
| 1 | 50,995.73 | 0.38% | 'Closed-forests of the Wet Tropics region.' |
| 4 | 42,906.76 | 0.32% | 'Closed-forests of coastal dunes dunefields and the Jardine River frontage.' |
| 15 | 10,914.18 | 0.08% | 'Open-forests and woodlands dominated by Eucalyptus tessellaris E. clarksoniana or E. brassiana on coastal plains and ranges.' |
| 28 | 1,182.73 | 0.01% | 'Vegetation of the coral atolls and sand cays.' |
| | | | |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 159 | 614,823.05 | 4.62% | 3320 | Common | 'Melaleuca viridiflora +/- Petalostigma pubescens +/- emergent Eucalyptus clarksoniana (Low-lying plains) LOW' |
| 101 | 705,250.29 | 5.29% | 1016 | Common | 'Eucalyptus tetrodonta E. nesophila (Plateaus red earth soils & earthy sands) W' |
| 92 | 484,270.77 | 3.64% | 984 | Common | 'Eucalyptus tetrodonta +/- E. clarksoniana +/- Erythrophleum chlorostachys (Low-lying sandy areas) W' |
| 110 | 43,918.35 | 0.33% | 760 | Common | 'Thryptomene oligandra +/- Neofabricia mjoebergii +/- Melaleuca viridiflora +/- Grevillea pteridifolia +/- Acacia torulosa (Drainage depressions) W' |
| 76 | 385,659.89 | 2.90% | 754 | Common | tetrodonta +/- E. cullenii (Sandstone plateaus) W' |
| 98 | 861,931.07 | 6.47% | 729 | Common | 'Eucalyptus tetrodonta E. hylandii var. campestris Erythrophleum chlorostachys +/- Eucalyptus setosa (Sand ridges west of Dividing Range) W' |
| 194 | 97,542.11 | 0.73% | 629 | Common | 'Bare saltpans with areas of Halosarcia spp. sparse forbland (SH) &/or Xerochloa imberbis TG &/or Suriana maritima woody forbland (OH) or Sesuvium portulacastrum OH (Saltpans & saline flats) SH' |
| 53 | 31,324.10 | 0.24% | 602 | Common | 'Melaleuca saligna +/- M. leucadendra +/- M. viridiflora Lophostemon suaveolens +/- Asteromyrtus symphyocarpa &/or M. sp. (Emu Lagoon J.R.Clarkson+ 9582) (Sinkholes & swamps) OF' |
| 48 | 114,924.05 | 0.86% | 578 | Common | 'Melaleuca argentea +/- M. leucadendra +/- Acacia auriculiformis +/- Syzygium forte +/- Leptospermum parvifolium (Major streams) (M. saligna in minor streams) OF' |
| 180 | 59,737.25 | 0.45% | 568 | Common | 'Eriachne spp. +/- Aristida spp. +/- Eragrostis spp. +/- Fimbristylis spp. (Holroyd drainage lines) CTG' |
| 12 | 15,286.65 | 0.11% | 523 | Common | 'Semi Deciduous Notophyll Vine Forest (Small patches on plateaus northern CYP) CF' |
| 34 | 71,607.48 | 0.54% | 518 | Common | 'Rhizophora stylosa +/- Bruguiera gymnorhiza +/- Avicennia marina (Outer mangroves) CF' |
| 199 | 19,275.35 | 0.14% | 516 | Common | 'Ephemeral lakes - seasonally dry LL' |
| 65 | 72,987.27 | 0.55% | 486 | Common | 'Eucalyptus clarksoniana/E. novoguinensis +/- Lophostemon suaveolens +/- Parinari nonda +/- Erythrophleum chlorostachys +/- Melaleuca viridiflora (River frontages) W' |
| 67 | 125,478.25 | 0.94% | 470 | Common | 'Eucalyptus clarksoniana/E. polycarpa +/- Erythrophleum chlorostachys +/- E. tetrodonta +/- E. confertiflora (Adjacent western streams) W' |
| 188 | 286,420.00 | 2.15% | 468 | Common | 'Panicum spp. Fimbristylis spp. +/- Oryza australiensis +/- Sporobolus virginicus +/- Eriachne spp. (Coastal plains Rutland Plains) TG' |
| 113 | 274,092.00 | 2.06% | 458 | Common | 'Eucalyptus chlorophylla (Southern plains) OW-W' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 24 | 27,554.36 | 0.21% | 450 | Common | 'Simple Evergreen Notophyll Vine Forest (North-east CYP) (Sometimes emergent Callitris intratropica) CF' |
| 183 | 17,132.97 | 0.13% | 442 | Common | 'Oryza spp. +/- Eleocharis spp. +/- Panicum trachyrhachis +/- Fimbristylis spp. (Seasonally inundated marine plains) CTG' |
| 132 | 10,377.87 | 0.08% | 439 | Common | 'Ceriops tagal +/- Avicennia marina (Landward mangrove zone) LCF' |
| 77 | 287,240.74 | 2.16% | 434 | Common | 'Eucalyptus hylandii var. hylandii +/- E. tetrodonta +/- E. cullenii +/- Melaleuca stenostachya (Ironstone knolls & erosional surfaces) W' |
| 191 | 43,874.24 | 0.33% | 392 | Common | 'Restio tetraphyllus subsp. meiostachyus +/- Leptocarpus spathaceus +/- Nepenthes mirabilis +/- Gahnia sieberiana (Drainage swamps) OSG-CSG' |
| 54 | 56,423.03 | 0.42% | 367 | Common | 'Acacia crassicarpa +/- Syzygium suborbiculare +/- Parinari nonda +/- Acacia spp. (Dunes on west coast) W' |
| 155 | 22,901.17 | 0.17% | 359 | Common | 'Melaleuca stenostachya +/- M. foliolosa +/- shrubby layer (Sandstone scarps) LOW' |
| 109 | 149,533.76 | 1.12% | 358 | Common | 'Melaleuca viridiflora +/- M. saligna +/- Asteromyrtus symphyocarpa +/- Lophostemon suaveolens +/- Melaleuca spp. (Sinkholes & drainage depressions) W' |
| 70 | 244,091.46 | 1.83% | 349 | Common | 'Eucalyptus cullenii +/- E. clarksoniana (Acid volcanic ranges) W' |
| 171 | 183,321.23 | 1.38% | 342 | Common | 'Asteromyrtus lysicephala +/- Jacksonia thesioides +/- Choriceras tricorne +/- Neofabricia myrtifolia +/- emergent Melaleuca stenostachya (Heaths over sandstone plateau) OH' |
| 103 | 154,932.55 | 1.16% | 339 | Common | 'Eucalyptus tetrodonta +/- E. nesophila (&/or E. hylandii var. campestris) +/- Erythrophleum chlorostachys +/- Eucalyptus leptophleba +/- E. confertiflora (Yellow earths lower slopes) W' |
| 26 | 44,657.34 | 0.34% | 335 | Common | 'Simple Evergreen Notophyll Vine Forest with Acacia aulacocarpa +/- Eucalyptus tessellaris +/- Blepharocarya involucrigera emergents (Iron Range & Wet Tropics) (= Tracey 13d) CF' |
| 63 | 67,203.83 | 0.50% | 321 | Common | 'Eucalyptus clarksoniana +/- Melaleuca viridiflora +/- Erythrophleum chlorostachys +/- E. leptophleba (Plains) W' |
| 153 | 46,185.79 | 0.35% | 303 | Common | 'Melaleuca citrolens +/- M. foliolosa +/- M. viridiflora +/- M. acacioides (Longitudinal drainage depressions) LOW' |
| 18 | 67,899.77 | 0.51% | 302 | Common | 'Evergreen Notophyll Vine Forest (Major streams) CF' |
| 126 | 18,842.17 | 0.14% | 293 | Common | 'Deciduous Vine Thicket dominated by Cochlospermum gillivraei +/- Canarium australianum +/- Acacia aulacocarpa (Granite slopes) (= Tracey 11) LCF' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 47 | 95,038.66 | 0.71% | 276 | Common | 'Lophostemon suaveolens +/- Dillenia alata +/- Xanthostemon crenulatus +/- Melaleuca leucadendra (Alluvial & swampy areas) OF' |
| 102 | 282,456.40 | 2.12% | 265 | Common | 'Eucalyptus tetrodonta +/- E. nesophila +/- Asteromyrtus brassii +/- heath understorey (Sand plains over sandstone) W-OW' |
| 116 | 127,184.60 | 0.95% | 254 | Common | 'Eucalyptus leptophleba +/- E. papuana +/- E. clarksoniana (Rolling plains northern CYP brown clays) OW' |
| 158 | 621,375.01 | 4.67% | 240 | Common | 'Melaleuca viridiflora +/- Petalostigma banksii (Plains) LOW' |
| 95 | 308,062.30 | 2.31% | 235 | Common | 'Eucalyptus tetrodonta +/- E. confertiflora +/- E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- E. clarksoniana +/- E. leptophleba (Rolling Downs erosional area) W' |
| 186 | 62,516.93 | 0.47% | 217 | Common | 'Themeda arguens +/- Dichanthium sericeum +/- Capillipedium parviflorum +/- Fimbristylis spp. +/- Sorghum spp. (Marine plains) CTG' |
| 114 | 123,453.73 | 0.93% | 215 | Common | 'Eucalyptus clarksoniana +/- Melaleuca viridiflora +/- E. platyphylla (Plains & floodplains yellow earths) OW' |
| 144 | 35,426.81 | 0.27% | 210 | Common | 'Melaleuca viridiflora +/- low trees (Drainage areas) LW' |
| 135 | 38,510.09 | 0.29% | 203 | Common | 'Asteromyrtus brassii Neofabricia myrtifolia Allocasuarina littoralis +/- Welchiodendron longivalve (Northern CYP sandy plateaus) LOF' |
| 3 | 11,866.45 | 0.09% | 202 | Common | 'Complex Mesophyll Vine Forest (Wet Tropics) (Metamorphics) (= Tracey 2a & 1a) CF' |
| 21 | 69,714.74 | 0.52% | 199 | Common | 'Notophyll Vine Forest (Iron & McIlwraith Ranges) CF' |
| 104 | 278,864.94 | 2.09% | 194 | Common | 'Eucalyptus tetrodonta +/- E. nesophila +/- E. clarksoniana +/- shrubby layer (Earthy sands on plateaus in south) W' |
| 82 | 51,822.68 | 0.39% | 194 | Common | 'Eucalyptus nesophila +/- E. brassiana W to OF (Metamorphic hills) W' |
| 139 | 15,845.06 | 0.12% | 189 | Common | 'Melaleuca sp. (Emu Lagoon J.R.Clarkson+ 9582) (Western swamps) LOF' |
| 94 | 96,117.33 | 0.72% | 187 | Common | 'Eucalyptus tetrodonta +/- E. clarksoniana +/- E. tessellaris (Coastal lowlands) W' |
| 88 | 132,438.47 | 0.99% | 181 | Common | 'Eucalyptus polycarpa (or E. clarksoniana) +/- E. papuana +/- E. curtipes (E. papuana OW on edge) (Levees Mitchell floodplain) W' |
| 185 | 20,271.47 | 0.15% | 180 | Common | 'Sporobolus virginicus (Western coastal plains) CTG' |
| 58 | 33,185.19 | 0.25% | 178 | Common | 'Eucalyptus chlorophylla +/- E. clarksoniana (Lakefield south-east CYP) W' |
| 80 | 37,131.86 | 0.28% | 171 | Common | 'Eucalyptus leptophleba E. tessellaris +/- E. clarksoniana (Riverine levees) W' |
| 165 | 22,938.92 | 0.17% | 166 | Common | 'Melaleuca citrolens +/- M. foliolosa &/or Antidesma parvifolium (Western drainage lines) TS' |
| 198 | 28,664.12 | 0.22% | 159 | Common | 'Sand blows or bare sand areas (Sand cays & river beds) & sparse scattered shrubs SH' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 97 | 225,442.67 | 1.69% | 156 | Common | 'Eucalyptus tetrodonta (or E. nesophila) E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- Xanthorrhoea johnsonii +/- E. cullenii (Granite valleys) W' |
| 44 | 15,608.75 | 0.12% | 155 | Common | 'Eucalyptus tessellaris E. clarksoniana +/- Lophostemon suaveolens +/- Acacia crassicarpa (Coastal areas) OF-W' |
| 172 | 30,378.02 | 0.23% | 153 | Common | 'Asteromyrtus lysicephala +/- Neofabricia myrtifolia +/- Thryptomene oligandra +/- Hibbertia banksii +/- emergent low trees (Sandplains in dunefields) OH-CH' |
| 37 | 23,823.06 | 0.18% | 151 | Common | 'Eucalyptus clarksoniana (or E. novoguinensis) E. tessellaris +/- Acacia polystachya +/- rainforest species (Coastal ranges McIlwraith Range) OF' |
| 75 | 101,535.15 | 0.76% | 149 | Common | 'Eucalyptus hylandii var. hylandii E. tetrodonta (Ironstone knolls Aurukun) W' |
| 152 | 99,603.74 | 0.75% | 148 | Common | 'Eucalyptus microtheca +/- E. chlorophylla +/- Acacia ditricha +/- Lysiphyllum cunninghamii (Mitchell River floodplain) LOW' |
| 176 | 46,525.79 | 0.35% | 148 | Common | 'Neofabricia myrtifolia +/- Jacksonia thesioides +/- Thryptomene oligandra +/- Leucopogon spp. (Quaternary dunefields) OH-CH' |
| 154 | 86,253.88 | 0.65% | 147 | Common | 'Melaleuca saligna +/- M. viridiflora +/- M. citrolens (Longitudinal drainage depressions) LOW' |
| 182 | 80,073.65 | 0.60% | 147 | Common | 'Imperata cylindrica +/- Mnesithea rottboellioides +/- Arundinella setosa (Coastal plains hillslopes & islands Lockhart River) CTG' |
| 86 | 63,764.43 | 0.48% | 146 | Common | 'Eucalyptus phoenicea +/- E. tetrodonta +/- E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- Eucalyptus clarksoniana (Sandy colluvia Laura Basin) W' |
| 2 | 846,463.47 | 6.36% | 145 | Common | 'Eucalyptus tetrodonta E. nesophila +/- Erythrophleum chlorostachys (Bauxite plateau) TW' |
| 175 | 13,328.53 | 0.10% | 144 | Common | 'Melaleuca arcana Thryptomene oligandra Asteromyrtus lysicephala +/- Baeckea frutescens (Swamp sandplains) OH' |
| 178 | 16,354.49 | 0.12% | 140 | Common | 'Asteromyrtus lysicephala Neofabricia myrtifolia Grevillea pteridifolia +/- Melaleuca viridiflora DOH &/or Schizachyrium spp. (Sandstone plateaus) TG' |
| 81 | 54,603.64 | 0.41% | 137 | Common | 'Eucalyptus leptophleba E. platyphylla +/- E. tessellaris +/- E. clarksoniana (Cooktown rolling hills) W' |
| 8 | 49,887.99 | 0.37% | 136 | Common | 'Semi Deciduous Mesophyll Vine Forest (Claudie River & Normanby River) CF' |
| 100 | 242,290.86 | 1.82% | 127 | Common | 'Eucalyptus tetrodonta E. hylandii var. hylandii +/- E. nesophila +/- E. cullenii (or E. crebra) (Sandstone plateaus) W' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 32 | 10,297.57 | 0.08% | 126 | Common | 'Deciduous Notophyll/Microphyll Vine Thicket +/- Gyrocarpus americanus +/- Bombax ceiba emergents (Laura Basin) CF (Semi Deciduous Notophyll Vine Forest on colluvium)' |
| 71 | 61,975.99 | 0.47% | 125 | Common | 'Eucalyptus culleniiE. hylandii var. campestris +/- Melaleuca stenostachya (Ranges) W' |
| 190 | 32,366.08 | 0.24% | 118 | Common | 'Eleocharis dulcis (Marine plains) CSG' |
| 106 | 13,918.86 | 0.10% | 115 | Common | 'Melaleuca stenostachya Acacia leptostachya (Erosional slopes into creeks) W' |
| 112 | 130,646.62 | 0.98% | 111 | Common | 'Eucalyptus acroleuca (Lakefield floodplains) OW-W' |
| 124 | 12,484.99 | 0.09% | 109 | Common | 'Evergreen Notophyll Vine Forest dominated by Welchiodendron longivalve +/- Acacia polystachya +/- Canarium australianum (Northern islands & headlands) LCF' |
| 61 | 35,686.48 | 0.27% | 106 | Common | 'Eucalyptus clarksoniana +/- E. papuana +/- Erythrophleum chlorostachys +/- Melaleuca nervosa (North-west Lakefield) W' |
| 31 | 10,629.97 | 0.08% | 102 | Common | 'Semi Deciduous Vine Thicket with canopy of Neofabricia myrtifolia Syzygium suborbiculare +/- Terminalia muelleri +/- Thryptomene oligandra (Dune scrub) (West coast) CF' |
| 96 | 64,110.79 | 0.48% | 100 | Common | 'Eucalyptus tetrodonta E. hylandii var. hylandii +/- Erythrophleum chlorostachys (Sandstone plateaus) W' |
| 72 | 41,262.10 | 0.31% | 97 | Common | 'Eucalyptus cullenii +/- E. tetrodonta +/- Erythrophleum chlorostachys +/- Eucalyptus confertiflora +/- E. clarksoniana (Erosional surfaces off bauxite plateau) W' |
| 146 | 29,000.26 | 0.22% | 97 | Common | 'Melaleuca viridiflora +/- Neofabricia myrtifolia +/- Allocasuarina littoralis +/- Asteromyrtus brassii +/- Acacia spp. (Undulating plains thin sand cover) LW' |
| 74 | 47,211.84 | 0.35% | 95 | Common | 'Eucalyptus hylandii var. hylandii +/- E. nesophila +/- Welchiodendron longivalve +/- mid-dense shrub layer (Slopes & undulating plains northern CYP & Torres Strait Islands) W' |
| 62 | 81,232.17 | 0.61% | 94 | Common | 'Eucalyptus clarksoniana +/- E. papuana +/- Melaleuca nervosa +/- Piliostigma malabaricum +/- E. chlorophylla +/- E. microtheca (Archer River floodplain) W' |
| 117 | 44,180.03 | 0.33% | 94 | Common | 'Eucalyptus microtheca +/- E. papuana (Archer River floodplains) OW' |
| 125 | 24,578.31 | 0.18% | 94 | Common | 'Deciduous Microphyll Vine Thicket +/- emergent Lagerstroemia archeriana (Central CYP riverine areas on heavy clays) LCF' |
| 87 | 27,788.63 | 0.21% | 93 | Common | 'Eucalyptus platyphylla +/- E. clarksoniana (Flat wet plains) W-OF' |
| 69 | 99,757.01 | 0.75% | 92 | Common | 'Eucalyptus cullenii E. clarksoniana +/- E. chlorophylla +/- E. confertiflora (Granite slopes) W-OW' |
| 189 | 14,717.55 | 0.11% | 91 | Common | 'Themeda triandra TG or Schizachyrium spp. +/- Eriachne spp. (Headlands & islands) TG' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 118 | 21,118.53 | 0.16% | 89 | Common | 'Eucalyptus papuana +/- E. leptophleba (Rolling to flat plains Batavia Downs) OW' |
| 150 | 28,559.47 | 0.21% | 87 | Common | 'Eucalyptus chlorophylla +/- Melaleuca stenostachya (Hillslopes) LOW' |
| 64 | 72,359.81 | 0.54% | 85 | Common | 'Eucalyptus clarksoniana +/- Syzygium eucalyptoides +/- Melaleuca viridiflora W (Aurukun/Holroyd drainage)' |
| 115 | 170,009.39 | 1.28% | 84 | Common | 'Eucalyptus leptophleba &/or E. chlorophylla +/- E. papuana +/- Erythrophleum chlorostachys +/- E. cullenii (Erosional slopes Coen) OW' |
| 79 | 65,337.85 | 0.49% | 80 | Common | 'Eucalyptus leptophleba +/- E. papuana +/- E. clarksoniana +/- E. erythrophloia +/- E. cullenii (Lakeland basalt) W-OW' |
| 20 | 13,166.50 | 0.10% | 80 | Common | 'Evergreen Notophyll Vine Forest dominated by Syzygium spp. & Terminalia spp. (Beach rainforest on east coast) CF' |
| 120 | 13,568.71 | 0.10% | 78 | Common | 'Acacia crassicarpa Syzygium banksii +/- Neofabricia myrtifolia +/- Leucopogon yorkensis subcanopy (Low Microphyll Vine Forest) (Coastal dunes) LCF' |
| 177 | 10,965.75 | 0.08% | 78 | Common | 'Acacia humifusa +/- Myrtella obtusa +/- Grevillea pteridifolia +/- Petalostigma pubescens (Coastal dunes & headlands) DOH' |
| 78 | 17,087.95 | 0.13% | 74 | Common | 'Eucalyptus leptophleba +/- E. clarksoniana +/- Erythrophleum chlorostachys (Sandstone colluvium Laura) W' |
| 168 | 32,506.09 | 0.24% | 72 | Common | 'Asteromyrtus lysicephala +/- Baeckea frutescens +/- emergent Thryptomene oligandra & Neofabricia myrtifolia (Jardine River sandplain) OH' |
| 41 | 21,970.46 | 0.16% | 72 | Common | 'Eucalyptus nesophila +/- Eucalyptus spp. (Wet Tropics) (= Tracey 16k) OF' |
| 151 | 98,135.61 | 0.74% | 71 | Common | 'Eucalyptus chlorophylla +/- Melaleuca viridiflora (Flat plains Mitchell River floodplain) LOW' |
| 60 | 28,330.98 | 0.21% | 67 | Common | 'Eucalyptus clarksoniana Erythrophleum chlorostachys E. brassiana +/- E. tessellaris +/- Canarium australianum Melaleuca nervosa (Running Creek) W' |
| 10 | 10,217.75 | 0.08% | 65 | Common | 'Semi Deciduous Mesophyll/Notophyll Vine Forest CF (Alluvia Cooktown)' |
| 157 | 127,602.80 | 0.96% | 61 | Common | 'Melaleuca viridiflora M. stenostachya +/- Xanthorrhoea johnsonii (Lakefield flat plains) LOW' |
| | | | | | |
| 131 | 52,583.36 | 0.39% | 53 | Limited | 'Avicennia marina +/- Ceriops tagal (Landward mangrove zone) LCF-OF' |
| 167 | 15,324.76 | 0.12% | 52 | Limited | 'Piliostigma malabaricum (Rokeby) TOS-LOW' |
| 84 | 12,009.93 | 0.09% | 51 | Limited | 'Eucalyptus novoguinensis +/- E. tessellaris +/- E. nesophila (Northern CYP) W' |
| 66 | 74,504.96 | 0.56% | 50 | Limited | 'Eucalyptus clarksoniana/E. novoguinensis with mid-dense shrub layer +/- E. platyphylla (Coastal wet areas) W' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 193 | 28,419.81 | 0.21% | 50 | Limited | 'Mixed graminoids & forbs (Beach foredunes) CH' |
| 5 | 17,190.79 | 0.13% | 47 | Limited | 'Complex Notophyll Vine Forest +/- Agathis robusta (Wet Tropics) (= Tracey 6) CF' |
| 73 | 10,956.06 | 0.08% | 42 | Limited | 'Eucalyptus erythrophloia (Lakeland basalt flows) W' |
| 138 | 11,267.09 | 0.08% | 40 | Limited | 'Melaleuca arcana (Dune swamps) LOF' |
| 108 | 69,777.48 | 0.52% | 39 | Limited | 'Melaleuca viridifloraAsteromyrtus brassii +/- M. stenostachya (Flat sandplains south of Lockhart River) W' |
| 140 | 13,804.61 | 0.10% | 37 | Limited | 'Neofabricia myrtifolia Asteromyrtus brassii Lophostemon suaveolens Leucopogon yorkensis +/- Callitris intratropica emergents (Elliot Creek) LOF' |
| 197 | 12,728.41 | 0.10% | 37 | Limited | 'Rock pavements on mountains or rivers (eg. Archer River) or islands SH' |
| 170 | 28,036.08 | 0.21% | 35 | Limited | 'Asteromyrtus lysicephala +/- Jacksonia thesioides +/- Choriceras tricorne +/- Banksia dentata (Adjacent streams central Peninsula) OH' |
| 91 | 140,250.67 | 1.05% | 34 | Limited | 'Eucalyptus tessellaris +/- E. clarksoniana +/- E. acroleuca +/- E. leptophleba (Lakefield levees) W' |
| 145 | 27,374.49 | 0.21% | 34 | Limited | 'Melaleuca viridiflora Asteromyrtus symphyocarpa +/- Eucalyptus novoguinensis +/- M. stenostachya (Torres Strait Islands north of Jeannie R.) LW' |
| 184 | 34,615.53 | 0.26% | 31 | Limited | 'Sorghum spp. Themeda arguens (Southern Lakefield & Olive Vale grasslands) CTG' |
| 17 | 13,122.04 | 0.10% | 31 | Limited | 'Evergreen Mesophyll/Notophyll Vine Forest (Sandstone gullies Cooktown area) CF' |
| | | | | | |
| 11 | 9,688.57 | 0.07% | 86 | Uncommon | 'Semi Deciduous Notophyll Vine Forest (Lockerbie) CF' |
| 196 | 9,005.54 | 0.07% | 113 | Uncommon | 'Mixed herb species +/- emergent low trees (Coastal dunes (west coast) & grassland at edge of Weipa plateau) SH' |
| 121 | 7,709.58 | 0.06% | 70 | Uncommon | 'Asteromyrtus angustifolia +/- Acacia crassicarpa +/- Syzygium spp. +/- Araucaria cunninghamii emergents (Araucarian Microphyll Vine Forest) (Coastal dunes) LCF' |
| 49 | 6,970.19 | 0.05% | 63 | Uncommon | 'Melaleuca dealbata +/- Acacia crassicarpa (Dune swales) OF-W' |
| 200 | 6,723.33 | 0.05% | 176 | Uncommon | 'Perennial lakes with sedgelands on the margins (Lakes in dunefields) LL' |
| 35 | 6,103.34 | 0.05% | 86 | Uncommon | 'Acacia shirleyi (Rocky rises southern CYP) OF' |
| | | | | | |
| 147 | 8,384.55 | 0.06% | 34 | Limited + Uncommon | 'Melaleuca viridiflora +/- Xanthorrhoea johnsonii +/- Acacia brassii (Coen plains) LW' |
| 107 | 8,922.77 | 0.07% | 31 | Limited + Uncommon | 'Melaleuca viridiflora Asteromyrtus brassii +/- M. stenostachya (Metamorphic hills Wattle Hills) W' |
| | | | | | |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 123 | 10,254.62 | 0.08% | 29 | Restricted | 'Evergreen Notophyll Vine Forest dominated by Terminalia muelleri Cupaniopsis anacardioides Syzygium suborbiculare (Beach ridges & dunes) LCF' |
| 93 | 17,421.46 | 0.13% | 28 | Restricted | 'Eucalyptus tetrodonta E. clarksoniana +/- E. brassiana (Stabilised dunes Archer Pt & Barrow Pt) W' |
| 169 | 30,390.87 | 0.23% | 27 | Restricted | 'Asteromyrtus lysicephala Choriceras tricorne Xanthorrhoea johnsonii Banksia dentata (Sand sheets north-east of Coen) OH' |
| 111 | 18,417.97 | 0.14% | 25 | Restricted | 'Corypha utan (Northern Lakefield) OW' |
| 105 | 56,442.54 | 0.42% | 24 | Restricted | 'Eucalyptus tetrodonta +/- E. nesophila +/- Lophostemon suaveolens +/- M. stenostachya (Metamorphic & granite undulating hills) W' |
| 179 | 98,336.15 | 0.74% | 23 | Restricted | 'Neofabricia myrtifolia +/- Labichea buettneriana +/- Leucopogon ruscifolius (Exposed sandplains Cape Flattery) DOH' |
| 25 | 50,134.87 | 0.38% | 22 | Restricted | 'Simple Evergreen Notophyll Vine Forest dominated by Callitris intratropica emergents CF (occasionally C. intratropica OF)' |
| 156 | 12,356.97 | 0.09% | 22 | Restricted | 'Melaleuca stenostachya +/- M. viridiflora (Plains) LOW' |
| 164 | 27,119.04 | 0.20% | 21 | Restricted | 'Melaleuca acacioides +/- Hakea pedunculata with emergent M. citrolens & M. viridiflora (Behind mangrove areas) TS' |
| 85 | 23,241.04 | 0.17% | 20 | Restricted | 'Eucalyptus phoenicea +/- E. nesophila +/- E umbra (Cape Bedford & wetter sandstones) OF-LOF' |
| 36 | 19,384.57 | 0.15% | 19 | Restricted | 'Eucalyptus brassiana E. clarksoniana Allocasuarina littoralis (Western Mcllwraith & wet coastal areas) OF' |
| 1 | 125,312.76 | 0.94% | 18 | Restricted | 'Eucalyptus tetrodonta +/- E. hylandii +/- Erythrophleum chlorostachys (The Desert) TW' |
| 43 | 14,095.75 | 0.11% | 18 | Restricted | 'Eucalyptus platyphylla E. leptophleba Erythrophleum chlorostachys +/- other Eucalyptus spp. (Ranges & flats Wet Tropics) (= Tracey 16h) OF-W' |
| 23 | 11,184.03 | 0.08% | 18 | Restricted | 'Simple Evergreen Notophyll Vine Forest (= Tracey 8 & 10) (Wet Tropics) CF' |
| 195 | 6,892.17 | 0.05% | 18 | Restricted | 'Granite boulders covered with Blue Green Algae & scattered trees (Ranges Black Mountain Cape Melville) SH' |
| 136 | 6,636.42 | 0.05% | 18 | Restricted | 'Eucalyptus hylandii var. hylandii &/or E. crebra +/- E. brassiana +/- Lophostemon suaveolens (Southern headlands & Melville Range) LOF' |
| 15 | 7,929.85 | 0.06% | 17 | Restricted | 'Araucarian Notophyll Vine Forest with emergent Araucaria cunninghamii (Altanmoui Mcilwraith & Melville Ranges) CF' |
| 173 | 17,342.76 | 0.13% | 16 | Restricted | 'Asteromyrtus lysicephala Thryptomene oligandra Neofabricia myrtifolia +/- emergent Melaleuca arcana OH' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 166 | 7,911.24 | 0.06% | 16 | Restricted | 'Neofabricia myrtifolia Acacia calyculata Jacksonia thesioides +/- Leptospermum purpurascens (Sandstone breakaways Janet Range) TOS' |
| 142 | 18,874.82 | 0.14% | 14 | Restricted | 'Eucalyptus persistens subsp. tardecidens Melaleuca stenostachya (Southern metamorphic plateaus) LW' |
| 46 | 26,938.88 | 0.20% | 13 | Restricted | 'Eucalyptus umbra (CREB track) (= Tracey 16k) OF' |
| 52 | 13,808.86 | 0.10% | 9 | Restricted | acacioides (Bathurst Heads edge of salt pans) OF' |
| 68 | 35,795.41 | 0.27% | 8 | Restricted | 'Eucalyptus crebra E. ellipsoidea or E. hylandii var. campestris (Southern ranges) W' |
| 99 | 22,885.92 | 0.17% | 7 | Restricted | 'Eucalyptus tetrodonta E. hylandii var. campestris +/- E. cullenii W' |
| 134 | 34,451.92 | 0.26% | 6 | Restricted | 'Acacia brassii (Northern ranges & islands) LOF' |
| 90 | 13,471.74 | 0.10% | 6 | Restricted | 'Eucalyptus staigeriana (Metamorphic ranges Maytown area) W' |
| 141 | 7,269.98 | 0.05% | 6 | Restricted | 'Allocasuarina sp. V.J.Neldner 3976 +/- Acacia crassicarpa +/- Grevillea glauca +/- Melaleuca viridiflora (Sandstone plateaus) LW' |
| 143 | 15,519.83 | 0.12% | 5 | Restricted | 'Melaleuca foliolosa Grevillea striata Hakea persiehana M. viridiflora (Old beach ridge Marina Plains) LW' |
| 174 | 10,361.09 | 0.08% | 5 | Restricted | 'Leucopogon yorkensis +/- Asteromyrtus brassii +/- Pouteria sericea (Torres Strait Islands) OH' |
| 57 | 43,587.81 | 0.33% | 4 | Restricted | 'Eucalyptus brassiana (Bathurst Head drainage areas) W' |
| 149 | 15,228.18 | 0.11% | 4 | Restricted | 'Acacia ditricha Albizia procera (Rokeby) LOW' |
| 16 | 8,306.80 | 0.06% | 3 | Restricted | 'Evergreen Mesophyll Vine Forest with Archontophoenix alexandrae (Streams) CF' |
| 187 | 57,264.05 | 0.43% | 2 | Restricted | 'Grassland/sedgeland with emergent Pandanus spp. (Torres Strait Islands) CTG-OSG' |
| | | | | | |
| 119 | 5,298.78 | 0.04% | 28 | Rare | 'Terminalia aridicola var. chillagoensis T. platyphylla (Olive Vale heavy clays) OW' |
| 163 | 5,227.10 | 0.04% | 23 | Rare | 'Leptospermum purpurascens (Granite hills Pascoe River area) TS' |
| 160 | 4,802.27 | 0.04% | 28 | Rare | 'Excoecaria agallocha +/- Aegiceras corniculatum +/- Lumnitzera spp. with emergent Avicennia marina (Inland tidal rivers) CS' |
| 83 | 4,766.52 | 0.04% | 9 | Rare | 'Eucalyptus nesophila +/- E. novoguinensis +/- E. hylandii var. campestris +/- E. tetrodonta (Old stabilised dunes & sandy colluvium) W' |
| 6 | 4,750.21 | 0.04% | 27 | Rare | 'Semi Deciduous Mesophyll Vine Forest (Wet Tropics) (= Tracey 4) CF' |
| 161 | 4,648.27 | 0.03% | 61 | Rare | 'Leucopogon yorkensis +/- Asteromyrtus angustifolia +/- Acacia spp. (Sandplains) CS' |
| 19 | 4,287.98 | 0.03% | 26 | Rare | 'Evergreen Notophyll Vine Forest dominated by Melaleuca leucadendra Xanthostemon crenulatus & Lophostemon suaveolens (Swamps) CF' |
| 7 | 4,161.02 | 0.03% | 35 | Rare | 'Semi Deciduous Mesophyll Vine Forest (Metamorphic slopes - Mt Stuckey) CF' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 22 | 3,880.21 | 0.03% | 38 | Rare | 'Notophyll Vine Forest of Welchiodendron longivalve Syzygium branderhorstii Ficus spp. & Palms (Torres Strait Islands) CF' |
| 50 | 3,804.90 | 0.03% | 22 | Rare | 'Melaleuca leucadendra +/- Eucalyptus tereticornis +/- Nauclea orientalis +/- Acacia oraria +/- Lagerstroemia archeriana +/- M. linariifolia var. trichostachya (Streams in metamorphics) OF' |
| 59 | 3,674.99 | 0.03% | 4 | Rare | 'Eucalyptus chlorophylla with Terminalia platyptera & Melaleuca stenostachya subcanopy W (Laura River)' |
| 181 | 3,353.68 | 0.03% | 8 | Rare | 'Heteropogon triticeus Themeda arguens Sorghum plumosum +/- Piliostigma malabaricum (Piccaninny Plains) CTG' |
| 130 | 3,253.00 | 0.02% | 7 | Rare | 'Terminalia sp. +/- low trees with frequent scandent scrubs +/- Melaleuca citrolens +/- Eucalyptus acroleuca emergents (Lakefield depressions) LCF-CS' |
| 162 | 3,250.12 | 0.02% | 43 | Rare | 'Premna serratifolia +/- mixed shrub spp. (Sand cays) CS' |
| 40 | 3,242.14 | 0.02% | 11 | Rare | 'Eucalyptus intermedia E. leptophleba Erythrophleum chlorostachys +/- E. tereticornis (Bloomfield hills) OF' |
| 9 | 3,183.52 | 0.02% | 28 | Rare | 'Semi Deciduous Mesophyll/Notophyll Vine Forest (Granite slopes - Birthday Mtn) CF' |
| 42 | 2,757.55 | 0.02% | 29 | Rare | 'Eucalyptus pellita +/- E. intermedia +/- Allocasuarina torulosa +/- Acacia flavescens (Rossville) (= Tracey 13a) OF' |
| 27 | 2,610.18 | 0.02% | 42 | Rare | 'Simple Evergreen Notophyll Vine Forest with Eucalyptus pellita emergents CF' |
| 29 | 2,596.65 | 0.02% | 1 | Rare | 'Simple Evergreen Notophyll Vine Forest +/- Wodyetia bifurcata (Melville Range) CF' |
| 201 | 2,435.69 | 0.02% | 67 | Rare | 'Permanent lakes & lagoons frequently with fringing woodlands (Lakefield N.P.) LL' |
| 13 | 2,374.09 | 0.02% | 12 | Rare | 'Semi Deciduous Notophyll/Microphyll Vine Forest (Mt Webb) CF' |
| 51 | 2,256.70 | 0.02% | 48 | Rare | 'Melaleuca quinquenervia open-forest (Coastal swamps) OF' |
| 45 | 2,244.46 | 0.02% | 7 | Rare | 'Eucalyptus tindaliae (Mt Poverty) OF' |
| 55 | 2,224.19 | 0.02% | 36 | Rare | 'Casuarina equisetifolia (Foredunes) OF-LOW' |
| 137 | 2,205.36 | 0.02% | 3 | Rare | 'Lophostemon suaveolens sandy plateaus) LOF' |
| 129 | 1,984.46 | 0.01% | 98 | Rare | 'Semi-deciduous microphyll species +/- emergent Melaleuca spp. (Sinkholes Mission River road) LCF' |
| 192 | 1,748.53 | 0.01% | 68 | Rare | 'Lepturus repens +/- Ipomoea pescaprae +/- Tribulus cistoides (Island cay vegetation) CH' |
| 133 | 1,697.09 | 0.01% | 25 | Rare | 'Pemphis acidula +/- Avicennia marina +/- Rhizophora stylosa (Islands) LCF' |
| 39 | 1,442.42 | 0.01% | 7 | Rare | 'Eucalyptus crebra +/- E. intermedia +/- Lophostemon suaveolens +/- Allocasuarina littoralis (Rossville ranges) (= Tracey 16j) OF' |

| Veg Class | Total Area | % Tot Area | Freq. | Status | Description |
|---|---|---|---|---|---|
| 148 | 1,262.50 | 0.01% | 2 | Rare | 'Welchiodendron longivalve Melaleuca viridiflora & Neofabricia myrtifolia & Acacia brassii (Ridge crests Iron Range area) LW' |
| 122 | 1,224.98 | 0.01% | 52 | Rare | 'Evergreen Notophyll Vine Forest dominated by Manilkara kauki +/- Mimusops elengi +/- Terminalia spp. (Islands) LCF' |
| 38 | 786.40 | 0.01% | 2 | Rare | 'Eucalyptus cloeziana (Rossville ranges) (= Tracey 16c) OF' |
| 89 | 656.59 | 0.00% | 1 | Rare | 'Eucalyptus similis (Ebagoola) W' |
| 56 | 599.04 | 0.00% | 9 | Rare | 'Eucalyptus acmenoides E. citriodora E. crebra (Mt Janet sandstone capping) W' |
| 127 | 578.98 | 0.00% | 14 | Rare | 'Deciduous Vine Thicket with Wodyetia bifurcata (Cape Melville granite slopes) LCF' |
| 209 | 533.84 | 0.00% | 275 | Rare | 'Unsurveyed island probably rocky &/or sandy with little vascular plant cover' |
| 33 | 435.33 | 0.00% | 11 | Rare | 'Deciduous Vine Forest (Lakeland area on basalt hills eg. Mt Earl Mt Scatterbrain) CF' |
| 4 | 410.71 | 0.00% | 7 | Rare | 'Complex Mesophyll Vine Forest on basalt (Shipton Flat) (= Tracey 5b) CF' |
| 128 | 155.60 | 0.00% | 4 | Rare | 'Pisonia grandis (Islands) LCF' |
| 30 | 44.05 | 0.00% | 1 | Rare | 'Simple Microphyll Vine Fern Thicket (Mt Finnigan) (= Tracey 10) CF' |
| 14 | 36.52 | 0.00% | 1 | Rare | 'Semi Deciduous Notophyll/Microphyll Vine Thicket CF' |
| 202 | 14.02 | 0.00% | 2 | Rare | 'Alien species eg. Agave sisalana Cryptostegia grandiflora' |
| 28 | 0.00 | 0.00% | 0 | Rare | 'Simple Evergreen Notophyll Vine Forest (= Tracey 10) (High peaks Wet Tropics) CF' |
| | | | | | |
| | 13,319,251.94 | | | | |
| | | | | | |

**APPENDIX 4 D1 Representative Vegetation Classes. Method details and results.**

The method considered wilderness, biophysical naturalness and the area of each mapped vegetation unit. This was undertaken by using the ArcInfo 'Relate' function, between the NWI coverage (a lattice) and the Vegetation coverage (polygon based).

The indicators were:

- The size of the mapped vegetation unit from the vegetation mapping;
- The biophysical condition from the NWI Biophysical naturalness coverage; and
- The integrity of that unit as estimated from the NWI wilderness quality of the unit.

For each vegetation polygon three attributes were calculated as follows:

- The area of each polygon - directly obtained from the vegetation polygon coverage.
- The mean Wilderness Quality of each polygon - The NWI is based on a lattice with its centre points 500m apart (~540,000 points on the Peninsula). A number of these points intersected with each vegetation polygon (~17,000 polygons total) therefore it is possible to determine the mean of the Wilderness Quality values for each point that relate to each polygon; and
- The mean biophysical indicator from the NWI coverage - this was derived similarly to the Wilderness Quality above but used only the Biophysical Naturalness Indicator of the NWI coverage.

To select the best examples of each vegetation class using these indicators the attributes for each polygon need to be compared with appropriate characteristics of each vegetation class. To achieve this for each of the 201 communities, the mean and standard deviation of polygon areas, polygon Wilderness Quality means, and polygon Biophysical Naturalness means were calculated.

The individual vegetation polygon attributes were then compared to the vegetation class-wide characteristics to select the larger classes with better condition and integrity, these then representing the better examples of that community on the Peninsula.

The first trial of this analysis selected those examples that were larger or of higher value than the mean for each of the vegetation community characteristics. This trial failed to select representative examples of each vegetation class, with only 50% approximately of classes having polygons that satisfied these criteria.

This occurred because the distribution of polygon areas was negatively skewed, ie. the majority of vegetation communities were mapped with a small number of very large polygons and a proportionately greater number of smaller polygons. The mean value for the polygon areas is driven by these few very large values. Thus only a very few polygons are above the mean size for a particular vegetation class. In about 50% of cases these few large polygons were below the mean for either wilderness quality or biophysical naturalness.

A further analysis was run by:

- First selecting all polygons of each vegetation class that were greater in area than 0.75 of a standard deviation below the mean for that vegetation community;

- Secondly selecting from that subset those polygons with a Wilderness Quality greater than the mean Wilderness Quality (a continuous variable ranging from 0 - 26) for that vegetation class; and

- Thirdly from that set selecting those polygons where the Biophysical Naturalness (only five integer categories in the original coverage) was equal to or greater than the mean.

(When considered collectively, at a value of about 0.75 standard deviations below the mean areas there was a strong break-point on the area distribution curve. Selection of all polygons larger than one standard deviation below the mean failed to discriminate on this area basis as some 80% of polygons were selected while selection polygons only larger than the mean restricted the choices to such an extent that this area condition swamped the other considerations.)

This analysis resulted in the selection of the better representations of vegetation areas for the majority of the vegetation communities (see Table A4.1).

Using the above methodology no representative polygons were found for twenty-five of the 201 vegetation classes. Fifteen of these communities are rare or restricted and so not surprisingly had a smaller number of polygons to select from. Further analysis of these was not undertaken as rare vegetation communities have been considered in detail previously. (Section Four of the main report).

For the ten more common vegetation communities (Table A4.2) the analysis was modified by dropping consideration of the wilderness quality characteristics. Thus employing two criteria instead of three. The analysis by using only two characteristics was still selecting the larger areas of best integrity as being characteristic of their class (see Table A4.2). This analysis successfully determined areas for seven of these communities.

**Table A4.2 Representative Vegetation Classes Requiring additional analysis**

| Vegetation Class | D1 Polygon Frequency | Total D1 Area Hectares |
|---|---|---|
| | | |
| 95 | 1 | 258,800.87 |
| 121 | 2 | 3,249.38 |
| 64 | 1 | 3,491.22 |
| 158 | 2 | 5,420.55 |
| 62 | 1 | 2,312.76 |
| 150 | 1 | 10,352.40 |
| 139 | 4 | 245.42 |

The remaining three vegetation classes (two of which are uncommon) were considered independently to identify the best polygons on the basis of the three variables. Vegetation classes 5 & 167 were uncommon and Vegetation Class 49 being common overall but not as the polygon dominant vegetation class. The rule set used for these classes is outlined in Table A4.3, following.

**Table A4.3 Rule Sets for Vegetation Classes, 5, 49 & 167.**

| **Vegetation Class** | **Area Consideration** | **Biophysical Naturalness** | **Polygons Selected** |
|---|---|---|---|
| 5 | > 0.75 STD below Mean | Equal to the mean rounded to 2 decimal points (4.22) | 1 |
| 49 | > 0.75 STD below Mean | Equal to 3 (below the mean, 3.02, for this vegetation class) | 1 |
| | and, independent of area | Highest value polygon (4.6) above mean (3.02) | 1 |
| 167 | N/A | Equal to or greater than 3. The mean for this class being 2.01. | 2 |

| Veg Class | Total Area | Area D1 Ha | Total Veg Class Freq | D1 Freq |
|---|---|---|---|---|
| | | | | |
| 1 | 125,312.76 | | 12 | - |
| 2 | 846,463.47 | 305,697.14 | 130 | 2 |
| 3 | 11,866.45 | | 200 | - |
| 4 | 410.71 | 74.28 | 6 | 1 |
| 5 | 17,190.79 | 11,637.74 | 28 | 1 |
| 6 | 4,750.21 | 3,716.54 | 23 | 1 |
| 7 | 4,161.02 | 1,225.51 | 28 | 3 |
| 8 | 49,887.99 | 13,221.40 | 102 | 6 |
| 9 | 3,183.52 | 298.59 | 20 | 1 |
| 10 | 10,217.75 | 1,976.76 | 42 | 4 |
| 11 | 9,688.57 | 9,570.39 | 83 | 1 |
| 12 | 15,286.65 | 2,541.03 | 512 | 38 |
| 13 | 2,374.09 | | 8 | - |
| 14 | 36.52 | 36.62 | 1 | 1 |
| 15 | 7,929.85 | 274.36 | 4 | 1 |
| 16 | 8,306.80 | | 2 | - |
| 17 | 13,122.04 | 237.62 | 19 | 2 |
| 18 | 67,899.77 | 17,182.02 | 182 | 2 |
| 19 | 4,287.98 | 415.16 | 19 | 1 |
| 20 | 13,166.50 | 1,048.15 | 55 | 4 |
| 21 | 69,714.74 | 39,452.71 | 152 | 2 |
| 22 | 3,880.21 | 93.44 | 31 | 1 |
| 23 | 11,184.03 | 2,321.98 | 14 | 1 |
| 24 | 27,554.36 | 10,584.73 | 412 | 26 |
| 25 | 50,134.87 | 1,958.18 | 17 | 4 |
| 26 | 44,657.34 | 8,359.13 | 151 | 7 |
| 27 | 2,610.18 | 524.08 | 41 | 3 |
| 28 | | | | - |
| 29 | 2,596.65 | | 0 | - |
| 30 | 44.05 | 73.73 | 1 | 1 |
| 31 | 10,629.97 | 2,760.06 | 59 | 6 |
| 32 | 10,297.57 | 938.75 | 93 | 17 |
| 33 | 435.33 | 117.92 | 11 | 1 |
| 34 | 71,607.48 | 53,534.19 | 380 | 149 |
| 35 | 6,103.34 | 1,201.80 | 70 | 14 |
| 36 | 19,384.57 | | 8 | - |
| 37 | 23,823.06 | 9,801.21 | 64 | 2 |
| 38 | 786.40 | 653.44 | 1 | 1 |
| 39 | 1,442.42 | 1,012.87 | 3 | 1 |
| 40 | 3,242.14 | | 1 | - |
| 41 | 21,970.46 | 16,726.89 | 40 | 1 |
| 42 | 2,757.55 | 1,149.02 | 9 | 1 |
| 43 | 14,095.75 | | 10 | - |
| 44 | 15,608.75 | 4,654.59 | 69 | 7 |

| Veg Class | Total Area | Area D1 Ha | Total Veg Class Freq | D1 Freq |
|---|---|---|---|---|
| 45 | 2,244.46 | | 3 | - |
| 46 | 26,938.88 | 240.42 | 6 | 1 |
| 47 | 95,038.66 | 6,150.57 | 128 | 8 |
| 48 | 114,924.05 | 10,443.52 | 222 | 5 |
| 49 | 6,970.19 | 635.15 | 5 | 2 |
| 50 | 3,804.90 | | 11 | - |
| 51 | 2,256.70 | | 15 | - |
| 52 | 13,808.86 | | 2 | - |
| 53 | 31,324.10 | 9,197.04 | 409 | 139 |
| 54 | 56,423.03 | 29,194.10 | 244 | 30 |
| 55 | 2,224.19 | 13.11 | 1 | 1 |
| 56 | 599.04 | 336.26 | 7 | 1 |
| 57 | 43,587.81 | | 1 | - |
| 58 | 33,185.19 | 6,417.93 | 70 | 4 |
| 59 | 3,674.99 | 3,822.62 | 4 | 1 |
| 60 | 28,330.98 | 10,330.30 | 42 | 5 |
| 61 | 35,686.48 | 5,030.72 | 46 | 1 |
| 62 | 81,232.17 | 2,312.76 | 60 | 1 |
| 63 | 67,203.83 | 10,219.73 | 119 | 4 |
| 64 | 72,359.81 | 3,491.22 | 38 | 1 |
| 65 | 72,987.27 | 5,331.78 | 184 | 5 |
| 66 | 74,504.96 | 621.18 | 21 | 1 |
| 67 | 125,478.25 | 5,747.70 | 312 | 41 |
| 68 | 35,795.41 | | 5 | - |
| 69 | 99,757.01 | 44,169.68 | 25 | 6 |
| 70 | 244,091.46 | 63,959.82 | 197 | 5 |
| 71 | 61,975.99 | 1,448.47 | 67 | 1 |
| 72 | 41,262.10 | 14,197.87 | 54 | 3 |
| 73 | 10,956.06 | 791.28 | 20 | 2 |
| 74 | 47,211.84 | | 58 | - |
| 75 | 101,535.15 | 25,432.32 | 88 | 6 |
| 76 | 385,659.89 | 177,798.51 | 550 | 47 |
| 77 | 287,240.74 | 174,916.62 | 241 | 25 |
| 78 | 17,087.95 | 1,229.39 | 31 | 1 |
| 79 | 65,337.85 | 8,470.22 | 43 | 4 |
| 80 | 37,131.86 | 2,930.47 | 55 | 4 |
| 81 | 54,603.64 | 19,261.84 | 83 | 12 |
| 82 | 51,822.68 | 27,860.43 | 91 | 8 |
| 83 | 4,766.52 | | 3 | - |
| 84 | 12,009.93 | | 29 | - |
| 85 | 23,241.04 | 1,018.18 | 12 | 1 |
| 86 | 63,764.43 | 14,226.13 | 110 | 3 |
| 87 | 27,788.63 | 4,458.68 | 23 | 5 |
| 88 | 132,438.47 | 44,432.06 | 123 | 8 |
| 89 | 656.59 | | 0 | - |

| Veg Class | Total Area | Area D1 Ha | Total Veg Class Freq | D1 Freq |
|---|---|---|---|---|
| 90 | 13,471.74 | | 0 | - |
| 91 | 140,250.67 | 1,803.82 | 13 | 2 |
| 92 | 484,270.77 | 94,562.45 | 676 | 18 |
| 93 | 17,421.46 | 3,445.47 | 15 | 3 |
| 94 | 96,117.33 | 7,392.54 | 124 | 6 |
| 95 | 308,062.30 | 258,800.87 | 112 | 1 |
| 96 | 64,110.79 | 24,317.85 | 59 | 4 |
| 97 | 225,442.67 | 84,295.71 | 112 | 7 |
| 98 | 861,931.07 | 509,001.46 | 642 | 50 |
| 99 | 22,885.92 | 27,273.34 | 7 | 2 |
| 100 | 242,290.86 | 22,972.67 | 62 | 4 |
| 101 | 705,250.29 | 310,924.33 | 769 | 48 |
| 102 | 282,456.40 | 75,364.69 | 174 | 4 |
| 103 | 154,932.55 | 69,688.74 | 184 | 29 |
| 104 | 278,864.94 | 151,441.97 | 163 | 3 |
| 105 | 56,442.54 | | 10 | - |
| 106 | 13,918.86 | 4,513.41 | 7 | 1 |
| 107 | 8,922.77 | 1,866.91 | 10 | 1 |
| 108 | 69,777.48 | 2,411.10 | 22 | 3 |
| 109 | 149,533.76 | 2,627.11 | 173 | 39 |
| 110 | 43,918.35 | 604.38 | 237 | 4 |
| 111 | 18,417.97 | 420.70 | 13 | 1 |
| 112 | 130,646.62 | 6,154.34 | 44 | 5 |
| 113 | 274,092.00 | 33,879.55 | 172 | 18 |
| 114 | 123,453.73 | 64,593.61 | 99 | 6 |
| 115 | 170,009.39 | 11,294.87 | 23 | 1 |
| 116 | 127,184.60 | 28,303.72 | 91 | 5 |
| 117 | 44,180.03 | 12,325.08 | 69 | 1 |
| 118 | 21,118.53 | 2,067.41 | 40 | 2 |
| 119 | 5,298.78 | 870.73 | 15 | 1 |
| 120 | 13,568.71 | 930.51 | 52 | 2 |
| 121 | 7,709.58 | 3,249.38 | 44 | 2 |
| 122 | 1,224.98 | 89.22 | 30 | 2 |
| 123 | 10,254.62 | 1,570.32 | 18 | 1 |
| 124 | 12,484.99 | 91.27 | 52 | 1 |
| 125 | 24,578.31 | 1,707.48 | 65 | 2 |
| 126 | 18,842.17 | 10,212.44 | 214 | 4 |
| 127 | 578.98 | | 0 | - |
| 128 | 155.60 | | 2 | - |
| 129 | 1,984.46 | 512.88 | 93 | 26 |
| 130 | 3,253.00 | 537.40 | 6 | 2 |
| 131 | 52,583.36 | 2,299.99 | 23 | 5 |
| 132 | 10,377.87 | 3,311.57 | 73 | 3 |
| 133 | 1,697.09 | | 9 | - |
| 134 | 34,451.92 | | 0 | - |

| Veg Class | Total Area | Area D1 Ha | Total Veg Class Freq | D1 Freq |
|---|---|---|---|---|
| 135 | 38,510.09 | 4,127.16 | 95 | 1 |
| 136 | 6,636.42 | 4,793.09 | 11 | 1 |
| 137 | 2,205.36 | | 2 | - |
| 138 | 11,267.09 | 945.65 | 18 | 2 |
| 139 | 15,845.06 | 245.42 | 115 | 4 |
| 140 | 13,804.61 | 12,969.72 | 19 | 4 |
| 141 | 7,269.98 | | 1 | - |
| 142 | 18,874.82 | | 2 | - |
| 143 | 15,519.83 | 2,051.90 | 4 | 1 |
| 144 | 35,426.81 | 8,481.93 | 124 | 6 |
| 145 | 27,374.49 | 8,662.81 | 23 | 1 |
| 146 | 29,000.26 | 17,776.69 | 39 | 6 |
| 147 | 8,384.55 | 4,083.25 | 26 | 3 |
| 148 | 1,262.50 | 918.64 | 1 | 1 |
| 149 | 15,228.18 | 151.97 | 1 | 1 |
| 150 | 28,559.47 | 10,352.40 | 43 | 1 |
| 151 | 98,135.61 | 16,414.90 | 33 | 2 |
| 152 | 99,603.74 | 15,358.46 | 54 | 3 |
| 153 | 46,185.79 | 16,944.26 | 56 | 4 |
| 154 | 86,253.88 | 5,503.10 | 85 | 5 |
| 155 | 22,901.17 | 13,985.58 | 106 | 9 |
| 156 | 12,356.97 | 733.06 | 8 | 1 |
| 157 | 127,602.80 | 12,796.21 | 39 | 1 |
| 158 | 621,375.01 | 5,420.55 | 110 | 2 |
| 159 | 614,823.05 | 53,270.96 | 1482 | 109 |
| 160 | 4,802.27 | 157.47 | 5 | 1 |
| 161 | 4,648.27 | 2,097.14 | 32 | 3 |
| 162 | 3,250.12 | 16.70 | 9 | 1 |
| 163 | 5,227.10 | 923.33 | 2 | 1 |
| 164 | 27,119.04 | 156.54 | 8 | 1 |
| 165 | 22,938.92 | 15,242.01 | 48 | 4 |
| 166 | 7,911.24 | 601.18 | 4 | 1 |
| 167 | 15,324.76 | 51.94 | 45 | 2 |
| 168 | 32,506.09 | 15,181.20 | 41 | 8 |
| 169 | 30,390.87 | 17,096.79 | 23 | 2 |
| 170 | 28,036.08 | 2,692.18 | 19 | 2 |
| 171 | 183,321.23 | 46,403.85 | 227 | 25 |
| 172 | 30,378.02 | 20,983.67 | 67 | 9 |
| 173 | 17,342.76 | 17,852.86 | 10 | 4 |
| 174 | 10,361.09 | | 1 | - |
| 175 | 13,328.53 | 2,627.92 | 45 | 9 |
| 176 | 46,525.79 | 28,712.23 | 97 | 3 |
| 177 | 10,965.75 | 1,091.01 | 54 | 2 |
| 178 | 16,354.49 | 5,608.01 | 82 | 3 |
| 179 | 98,336.15 | 3,621.59 | 10 | 2 |

| Veg Class | Total Area | Area Dt Ha | Total Veg Class Freq | Dt Freq |
|---|---|---|---|---|
| 180 | 59,737.25 | 1,487.73 | 195 | 4 |
| 181 | 3,353.68 | | 8 | - |
| 182 | 80,073.65 | 1,415.75 | 66 | 7 |
| 183 | 17,132.97 | 2,641.32 | 255 | 18 |
| 184 | 34,615.53 | 9,034.07 | 21 | 1 |
| 185 | 20,271.47 | 1,202.64 | 41 | 3 |
| 186 | 62,516.93 | 19,174.13 | 149 | 7 |
| 187 | 57,264.05 | | 0 | - |
| 188 | 286,420.00 | 127,743.97 | 313 | 36 |
| 189 | 14,717.55 | 735.22 | 36 | 3 |
| 190 | 32,366.08 | 2,083.64 | 45 | 4 |
| 191 | 43,874.24 | 32,090.45 | 222 | 94 |
| 192 | 1,748.53 | 6.27 | 41 | 1 |
| 193 | 28,419.81 | 241.39 | 17 | 3 |
| 194 | 97,542.11 | 39,845.99 | 367 | 30 |
| 195 | 6,892.17 | | 7 | - |
| 196 | 9,005.54 | 1,323.00 | 36 | 4 |
| 197 | 12,728.41 | 459.88 | 20 | 2 |
| 198 | 28,664.12 | 3,120.35 | 106 | 4 |
| 199 | 19,275.35 | 2,266.11 | 365 | 28 |
| 200 | 6,723.33 | 222.45 | 153 | 4 |
| 201 | 2,435.69 | | 45 | - |
| 202 | 14.02 | 20.04 | 1 | 1 |
| 209 | 533.84 | 23.09 | 275 | 1 |
| | | | | |
| Totals | 13,319,251.94 | 3,741,184.19 | 17899 | 1531 |
| | | | | |

## APPENDIX 5

**Part I**

### Modern Bibliography of Cape York Peninsula Butterflies

prepared by
*P.S. Valentine*
December 1994

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**Part 2**

## PARTICULAR BUTTERFLY FAUNA OF INTEREST IN CAPE YORK PENINSULA .

HESPERIIDAE
*Allora doleschallii*
***Allora major***
*Chaetocneme denitza*
***Chaetocneme critomedia***
***Rachelia extrusa***
*Trapezites macqueeni*
***Toxidia inornata***
*Proeidosa polysema*
*Telicota brachydesma*
***Mimene atropatene***
***Borbo cinnara***
PAPILIONIDAE
*Graphium macfarlanei*
*Graphium aristeus*
PIERIDAE
***Eurema candida***
***Elodina claudia***
***Delias aruna***
***Appias celestina***
***Appias ada***
NYMPHALIDAE
***Euploea batesii***
***Euploea algea***
*Euploea darchia*
***Euploea usipetes***
***Elymnias agondas***
***rsotriaena medus***
***Hypocysta angustata***
***Taenaris artemis***
***Charaxes latona***
***Apaturina erminea***
***Lexias aeropa***
***Pantoporia venilia***
***Hypolimnas anomola***
LIBYTHEIDAE
*Libythea geoffroy*

LYCAENIDAE
***Acrodipsas hirtipes***
***Acrodipsas melania***
***Hypochrysops theon***
***Hypochrysops hippuris***
***Hypochrysops cleon***
***Hypochrysops elgneri***
*Hypochrysops polycletus*
*Philiris diana*
***Philiris azula***
***Philirus ziska***
***Deudorix epirus***
***Virachola democles***

*Zetona delospila*
***Petrelaea tombugensis***
*Ionolyce helicon*
***Jamides cytus***
***Catochrysops amasea***
***Pithecops dionisius***
***Neopithecops lucifer***
***Praetaxila segecia***

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extre Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Acanthaceae | Acanthus | ebracteatus | subsp. | ebarbatus | | Y | | | | |
| Acanthaceae | Acanthus | ebracteatus | | | | | | | Y | |
| Acanthaceae | Acanthus | ilicifolius | | | | | Y | | | |
| Acanthaceae | Asystasia | australasica | | | | | | | Y | |
| Acanthaceae | Dicliptera | spicata | | | | | | | Y | |
| Acanthaceae | Graptophyllum | pictum | | | | | Y | | | |
| Acanthaceae | Hemigraphis | royenii | | | K | Y | | | | |
| Acanthaceae | Hypoestes | floribunda | var. | canescens | | Y | | | | |
| Acanthaceae | Lepidagathis | royenii | | | K | | | | | |
| Acanthaceae | Peristrophe | brassii | | | R | Y | | | | |
| Acanthaceae | Rhaphidospora | cavernarum | | | K | | | | | |
| Adiantaceae | Adiantum | hispidulum | var. | hypoglaucum | | Y | | | | |
| Adiantaceae | Adiantum | hispidulum | | | | | Y | | | |
| Adiantaceae | Doryopteris | concolor | | | | | | | | Y |
| Adiantaceae | Doryopteris | ludens | | | K | | | | | Y |
| Adiantaceae | Doryopteris | sp. | | | | | | | | Y |
| Adiantaceae | Taenitis | blechnoides | | | | | | | Y | Y |
| Adiantaceae | Taenitis | pinnata | | | | | | | | Y |
| Adiantaceae | Taenitis | sp. | | | | | | | | Y |
| Agavaceae | Cordyline | fruticosa | | | | | Y | | | |
| Aizoaceae | Macarthuria | sp. McIvor River (J.R. Clarkson 5447) | | | K | | | | | |
| Alismataceae | Limnophyton | australiense | | | R | Y | | | | |
| Alseuosmiaceae | Crispiloba | disperma | | | R | | | | | |
| Amaranthaceae | Alternanthera | sessilis | | | | | | | Y | |
| Amaranthaceae | Cyathula | prostrata | | | | | Y | | | |
| Anacardiaceae | Buchanania | arborescens | | | | | Y | | | |
| Anacardiaceae | Pleiogynium | timorense | | | | | Y | | | |
| Angiopteridaceae | Angiopteris | evecta | | | | | | Y | | |
| Angiopteridaceae | Angiopteris | sp. | | | | | | Y | | |
| Annonaceae | Ancana | hirsuta | | | R | | | Y | | |
| Annonaceae | Ancana | sp. | | | | | | Y | | |
| Annonaceae | Artabotrys | sp. Claudie River (B. Gray 3240) | | | R | | | | | |
| Annonaceae | Cananga | odorata | | | | | Y | Y | | |
| Annonaceae | Cananga | sp. | | | | | | Y | | |
| Annonaceae | Desmos | wardianus | | | | | | | Y | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clerk Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Annonaceae | Goniothalamus | australis | | | | | | Y | | |
| Annonaceae | Goniothalamus | sp. | | | | | | Y | | |
| Annonaceae | Haplostichanthus | johnsonii | | | R | | | Y | | |
| Annonaceae | Haplostichanthus | sp. | | | | | | Y | | |
| Annonaceae | Haplostichanthus | sp. Iron Range (L.J. Brass 19096) | | | | | | Y | | |
| Annonaceae | Haplostichanthus | sp. Mt Finnigan (L.W. Jessup 632) | | | R | | | Y | | |
| Annonaceae | Haplostichanthus | sp. Rocky River Scrub (P.I. Forster+ PIF10617) | | | | | | Y | | |
| Annonaceae | Haplostichanthus | sp. Topaz (L.W. Jessup 520) | | | R | | | Y | | |
| Annonaceae | Melodorum | sp. Claudie River (B.P. Hyland 21171V) | | | K | | | | | |
| Annonaceae | Melodorum | sp. Font Hills (G. Sankowsky 380) | | | K | | | | | |
| Annonaceae | Miliusa | traceyi | | | | | | | Y | |
| Annonaceae | Mitrephora | sp. | | | | | | Y | | |
| Annonaceae | Mitrephora | sp. Lockerbie (B.P. Hyland 2527) | | | | | | Y | | |
| Annonaceae | Polyalthia | australis | | | | | | Y | | |
| Annonaceae | Polyalthia | nitidissima | | | | | Y | Y | | |
| Annonaceae | Polyalthia | sp. | | | | | | Y | | |
| Annonaceae | Polyaulax | cylindrocarpa | | | | | | | Y | |
| Annonaceae | Polyaulax | sp. Mt Lewis (L.W. Jessup 554) | | | K | | | | | |
| Annonaceae | Uvaria | membranacea | | | | | | Y | | |
| Annonaceae | Uvaria | rufa | | | K | | | Y | | |
| Annonaceae | Uvaria | sp. | | | | | | Y | | |
| Annonaceae | Xylopia | maccreae | | | | | | Y | | |
| Annonaceae | Xylopia | sp. | | | | | | Y | | |
| Annonaceae | Xylopia | sp. Bertiehaugh Homestead (C. Dalliston CC173) | | | | | | Y | | |
| Apiaceae | Trachymene | geraniifolia | | | | Y | | | | |
| Apiaceae | Trachymene | longipedunculata | | | | | | | Y | |
| Apiaceae | Trachymene | psammophila | | | | | | | Y | |
| Apiaceae | Trachymene | tenuifolia | | | | Y | | | | |
| Apocynaceae | Alstonia | actinophylla | | | | | Y | | | |
| Apocynaceae | Alyxia | orophila | | | R | | | | | |
| Apocynaceae | Alyxia | spicata | | | | | Y | | | |
| Apocynaceae | Carissa | laxiflora | | | | Y | Y | | | |
| Apocynaceae | Carissa | ovata | | | | | Y | | | |
| Apocynaceae | Cerbera | manghas | | | | | Y | | | |
| Apocynaceae | Ichnocarpus | serpyllifolius | | | | Y | | | | |
| Apocynaceae | Melodinus | forbesii | | | | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotsp | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Apocynaceae | Nelsosperma | poweri | | | R | | | | | |
| Apocynaceae | Ochrosia | minima | | | | Y | Y | | | |
| Apocynaceae | Parsonsia | densivestita | | | K | | | | | |
| Apocynaceae | Parsonsia | sp. Capt Billy Landing (K.A. Williams 85222) | | | K | | | | | |
| Apocynaceae | Parsonsia | sp. Possum Scrub (P.I. Forster+ PIF13519) | | | R | | | | | |
| Apocynaceae | Parsonsia | sp. Windin Falls (B. Gray 169) | | | V | | | | | |
| Apocynaceae | Tabernaemontana | pandacaqui | | | | | Y | | | |
| Apocynaceae | Wrightia | versicolor | | | R | | | | | |
| Aponogetonaceae | Aponogeton | elongatus | | | V | | | | | |
| Aponogetonaceae | Aponogeton | queenslandicus | | | R | | | | | |
| Araceae | Alocasia | brisbanensis | | | | Y | | | | |
| Araceae | Pothos | brassii | | | R | | Y | | | |
| Araceae | Remusatia | vivipara | | | R | | | | | |
| Araceae | Rhaphidophora | pachyphylla | | | R | | | | | |
| Araceae | Scindapsus | altissimus | | | R | Y | | | | |
| Araceae | Typhonium | flagelliforme | | | | | | | Y | |
| Araliaceae | Schefflera | bractescens | | | R | Y | | | | |
| Araliaceae | Schefflera | versteegii | | | | | Y | | | |
| Araucariaceae | Agathis | robusta | | | | | | Y | | |
| Araucariaceae | Agathis | sp. | | | | | | Y | | |
| Araucariaceae | Araucaria | cunninghamii | | | | | | Y | | |
| Araucariaceae | Araucaria | sp. | | | | | | Y | | |
| Araucariaceae | | ARAUCARIACEAE | | | | | | Y | | |
| Arecaceae | Arenga | australasica | | | V | | | | | |
| Arecaceae | Arenga | microcarpa | | | K | Y | | | | |
| Arecaceae | Calamus | aruensis | | | R | Y | | | | |
| Arecaceae | Calamus | warburgii | | | V | Y | | | | |
| Arecaceae | Caryota | rumphiana | var. | albertii | | Y | | | | |
| Arecaceae | Caryota | rumphiana | | | | Y | | | | |
| Arecaceae | Corypha | utan | | | | | | | Y | |
| Arecaceae | Gulubia | costata | | | V | | | | Y | |
| Arecaceae | Linospadix | microcarya | | | R | | | | | |
| Arecaceae | Linospadix | palmeriana | | | R | | | | | |
| Arecaceae | Livistona | sp. Cooktown (A.K. Irvine 2179) | | | R | | | | | |
| Arecaceae | Livistona | sp. Paluma Range (A.K. Irvine 1928) | | | R | | | | | |
| Arecaceae | Normanbya | normanbyi | | | V | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotep | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Arecaceae | Ptychosperma | macarthurii | | | | | | | Y | |
| Arecaceae | Wodyetia | bifurcata | | | V | Y | | | | |
| Aristolochiaceae | Aristolochia | chalmersii | | | R | Y | | | | |
| Aristolochiaceae | Aristolochia | indica | | | | Y | | | | |
| Aristolochiaceae | Aristolochia | sp. Lamond Hill (G. Sankowsky+ 392) | | | K | | | | | |
| Aristolochiaceae | Aristolochia | sp. Woopen Creek (G. Sankowsky+ 665) | | | K | | | | | |
| Asclepiadaceae | Cryptolepis | grayi | | | R | | | | | |
| Asclepiadaceae | Cynanchum | brachystelmoides | | | | | | | Y | |
| Asclepiadaceae | Cynanchum | ovalifolium | | | | Y | Y | | | |
| Asclepiadaceae | Dischidia | littoralis | | | V | | | | | |
| Asclepiadaceae | Dischidia | ovata | | | | Y | Y | | | |
| Asclepiadaceae | Gunnessia | pepo | | | | Y | | | | |
| Asclepiadaceae | Heterostemma | acuminatum | | | R | | Y | | | |
| Asclepiadaceae | Hoya | anulata | | | R | | Y | | | |
| Asclepiadaceae | Hoya | macgillivrayi | | | R | | | | | |
| Asclepiadaceae | Hoya | revoluta | | | R | | Y | | | |
| Asclepiadaceae | Marsdenia | sp. Bromley (D.J. Little AQ561263) | | | E | | | | | |
| Asclepiadaceae | Marsdenia | velutina | | | | | | | Y | |
| Asclepiadaceae | Sarcolobus | hullsii | | | | | | | Y | |
| Asclepiadaceae | Sarcolobus | vittatus | | | R | Y | | | | |
| Asclepiadaceae | Secamone | auriculata | | | R | Y | Y | | | |
| Asclepiadaceae | Tylophora | williamsii | | | V | | | | | |
| Aspleniaceae | Asplenium | macilwraithense | | | K | | | | | |
| Aspleniaceae | Asplenium | nidus | | | | | Y | | | |
| Asteraceae | Acomis | sp. Alice River (J.R. Clarkson 5016) | | | K | | | | | |
| Asteraceae | Adenostemma | lavenia | | | | | | | Y | |
| Asteraceae | Allopterigeron | filifolius | | | | | | | Y | |
| Asteraceae | Blainvillea | acmella | | | | | | | Y | |
| Asteraceae | Calotis | porphyroglossa | | | | | | | Y | |
| Asteraceae | Helichrysum | boormanii | var. | gillivrayi | | Y | | | | |
| Asteraceae | Pleurocarpaea | denticulata | | | | | | | Y | |
| Asteraceae | Vernonia | cinerea | | | | | Y | | | |
| Austrobaileyaceae | Austrobaileya | scandens | | | | | | Y | | |
| Austrobaileyaceae | Austrobaileya | sp. | | | | | | Y | | |
| Austrobaileyaceae | | AUSTROBAILEYACEAE | | | | | | Y | | |
| Balanophoraceae | Balanophora | fungosa | subsp. | indica | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Bignoniaceae | Deplanchea | tetraphylla | | | | | Y | | | |
| Bignoniaceae | Dolichandrone | spathacea | | | R | | Y | | | |
| Bignoniaceae | Neosepicaea | viticoides | | | R | | | | | |
| Bignoniaceae | Tecomanthe | sp. Roaring Meg (L.J. Brass 20326) | | | R | | | | | |
| Blechnaceae | Blechnum | orientale | | | | | Y | | | |
| Bombacaceae | Bombax | ceiba | var. | leiocarpum | | | | | | Y |
| Bombacaceae | Bombax | sp. | | | | | | | | Y |
| Bombacaceae | Camptostemon | schultzii | | | | | | | Y | |
| Boraginaceae | Carmona | retusa | | | V | | | | | |
| Boraginaceae | Coldenia | procumbens | | | | | Y | | | |
| Boraginaceae | Cordia | dichotoma | | | | | Y | | | |
| Boraginaceae | Cordia | subcordata | | | | | Y | | | |
| Boraginaceae | Cordia | wallichii | | | | | | | Y | |
| Boraginaceae | Heliotropium | bracteatum | var. | leptostachyum | | Y | | | | |
| Burmanniaceae | Burmannia | disticha | | | | | | | Y | |
| Burmanniaceae | Burmannia | juncea | | | | | | | Y | |
| Burseraceae | Canarium | australasicum | | | | | | | | Y |
| Burseraceae | Canarium | australianum | var. | australianum | | | | | | Y |
| Burseraceae | Canarium | australianum | var. | glabrum | | | | | | Y |
| Burseraceae | Canarium | australianum | var. | velutinum | | | | | | Y |
| Burseraceae | Canarium | indicum | | | | Y | | | | Y |
| Burseraceae | Canarium | muelleri | | | | | | | | Y |
| Burseraceae | Canarium | sp. | | | | | | | | Y |
| Burseraceae | Canarium | vitiense | | | | | Y | | | Y |
| Burseraceae | Garuga | floribunda | | | | | Y | | | Y |
| Burseraceae | Garuga | floribunda | var. | floribunda | | | | | | Y |
| Burseraceae | Garuga | sp. | | | | | | | | Y |
| Burseraceae | | BURSERACEAE | | | | | | | | Y |
| Caesalpiniaceae | Caesalpinia | hymenocarpa | | | K | Y | | | | |
| Caesalpiniaceae | Cassia | queenslandica | | | R | | | | | |
| Caesalpiniaceae | Crudia | papuana | | | R | | Y | | | |
| Caesalpiniaceae | Intsia | bijuga | | | | | Y | | | |
| Caesalpiniaceae | Labichea | buettneriana | | | R | Y | | | | |
| Caesalpiniaceae | Senna | leptoclada | | | | | | | Y | |
| Caesalpiniaceae | Senna | odorata | | | | Y | | | | |
| Campanulaceae | Lobelia | douglasiana | | | R | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Capparaceae | Capparis | sarmentosa | | | | | | | Y | |
| Capparaceae | Cleome | tetrandra | var. | pentata | | Y | | | | |
| Capparaceae | Crateva | religiosa | | | R | | Y | | Y | |
| Caryophyllaceae | Polycarpaea | corymbosa | var. | torrensis | | Y | | | | |
| Caryophyllaceae | Polycarpaea | violacea | | | | | | | Y | |
| Celastraceae | Euonymus | globularis | | | R | | | | | |
| Celastraceae | Hypsophila | halleyana | | | R | | | | | |
| Celastraceae | Pleurostylia | opposita | | | | | | | Y | |
| Centrolepidaceae | Centrolepis | strigosa | | | | | | | Y | |
| Ceratophyllaceae | Ceratophyllum | demersum | | | | | Y | | | |
| Chenopodiaceae | Halosarcia | halocnemoides | | | | | | | Y | |
| Chenopodiaceae | Sarcocornia | quinqueflora | subsp. | quinqueflora | | Y | | | | |
| Chenopodiaceae | Sclerostegia | tenuis | | | | | | | Y | |
| Chrysobalanaceae | Maranthes | corymbosa | | | | | Y | | Y | |
| Clusiaceae | Calophyllum | bicolor | | | V | Y | | | | |
| Clusiaceae | Calophyllum | inophyllum | | | | | Y | | | |
| Clusiaceae | Calophyllum | sil | | | | | Y | | | |
| Clusiaceae | Garcinia | dulcis | | | | | Y | | | |
| Clusiaceae | Garcinia | kajewskii | | | | Y | | | | |
| Clusiaceae | Garcinia | sp. Claudie River (L.J. Brass 19658) | | | K | | | | | |
| Clusiaceae | Garcinia | warrenii | | | | | Y | | | |
| Clusiaceae | Mesua | sp. Boonjee (A.K. Irvine 1218) | | | V | | | | | |
| Combretaceae | Combretum | trifoliatum | | | R | | Y | | | |
| Combretaceae | Dansiea | grandiflora | | | K | Y | | | | |
| Combretaceae | Lumnitzera | littorea | | | | | Y | | | |
| Combretaceae | Terminalia | arenicola | | | | | Y | | | |
| Combretaceae | Terminalia | catappa | | | | | Y | | | |
| Combretaceae | Terminalia | complanata | | | | | Y | | | |
| Combretaceae | Terminalia | prostrata | | | K | | | | Y | |
| Commelinaceae | Murdannia | cryptantha | | | | Y | | | | |
| Commelinaceae | Murdannia | gigantea | | | | | | | Y | |
| Commelinaceae | Murdannia | vaginata | | | | | | | Y | |
| Connaraceae | Rourea | brachyandra | | | R | | | | | |
| Convolvulaceae | Evolvulus | alsinoides | | | | | Y | | | |
| Convolvulaceae | Ipomoea | diversifolia | | | | | | | Y | |
| Convolvulaceae | Ipomoea | stolonifera | | | K | | | | Y | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Convolvulaceae | Ipomoea | tiliacea | | | | Y | Y | | | |
| Convolvulaceae | Lepistemon | urceolatus | | | | | | | | Y |
| Convolvulaceae | Merremia | peltata | | | | | Y | | | |
| Convolvulaceae | Operculina | brownii | | | R | | | | Y | |
| Costaceae | Costus | potierae | | | | | Y | | | |
| Cucurbitaceae | Diplocyclos | palmatus | subsp. | affinis | | Y | | | | |
| Cucurbitaceae | Momordica | cochinchinensis | | | K | | Y | | | |
| Cucurbitaceae | Muellerargia | timorensis | | | E | | | | | |
| Cucurbitaceae | Mukia | sp. Little Annan River (B. Gray 101) | | | K | | | | | |
| Cucurbitaceae | Zehneria | mucronata | | | | | | | Y | |
| Cunoniaceae | Ceratopetalum | macrophyllum | | | | Y | | | | |
| Cunoniaceae | Ceratopetalum | sp. Mt Hemmant (B.P. Hyland RFK3338) | | | K | | | | | |
| Cunoniaceae | Ceratopetalum | succirubrum | | | | | Y | | | |
| Cyatheaceae | Cyathea | exilis | | | E | | | | | |
| Cyatheaceae | Cyathea | felina | | | R | | Y | | | |
| Cycadaceae | Cycas | media | | | | | Y | | | |
| Cycadaceae | Cycas | rumphii | | | | Y | | | | |
| Cycadaceae | Cycas | silvestris | | | V | | | | | |
| Cymodoceaceae | Thalassodendron | ciliatum | | | | Y | | | | |
| Cyperaceae | Arthrostylis | aphylla | | | | | | | Y | |
| Cyperaceae | Carex | raffiesiana | | | R | | | | | |
| Cyperaceae | Cyperus | cyperinus | | | | | Y | | | |
| Cyperaceae | Cyperus | digitatus | | | | | Y | | | |
| Cyperaceae | Cyperus | forax | | | | Y | | | | |
| Cyperaceae | Cyperus | flavidus | | | | | Y | | | |
| Cyperaceae | Cyperus | gunnii | subsp. | gunnii | | Y | | | | |
| Cyperaceae | Cyperus | iria | | | | | Y | | | |
| Cyperaceae | Cyperus | serotinus | | | K | | | | Y | |
| Cyperaceae | Cyperus | sphaeroideus | | | | | | | Y | |
| Cyperaceae | Eleocharis | geniculata | | | | | Y | | | |
| Cyperaceae | Eleocharis | ochrostachys | | | | | Y | | Y | |
| Cyperaceae | Fimbristylis | acicularis | | | | | Y | | | |
| Cyperaceae | Fimbristylis | costiglumis | | | K | | | | | |
| Cyperaceae | Fimbristylis | cymosa | | | | | | | Y | |
| Cyperaceae | Fimbristylis | dichotoma | | | | | Y | | | |
| Cyperaceae | Fimbristylis | lanceolata | | | | | | | Y | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Cyperaceae | Fimbristylis | sericea | | | | | | | Y | |
| Cyperaceae | Hypolytrum | compactum | | | K | | Y | | | |
| Cyperaceae | Hypolytrum | nemorum | | | | | Y | | | |
| Cyperaceae | Hypolytrum | proliferum | | | | Y | | | | |
| Cyperaceae | Lipocarpha | microcephala | | | | | Y | | | |
| Cyperaceae | Paramapania | parvibractea | | | R | | Y | | | |
| Cyperaceae | Rhynchospora | gracillima | | | K | | | | Y | |
| Cyperaceae | Rhynchospora | submarginata | | | | | | | Y | |
| Cyperaceae | Scleria | carphiformis | | | K | | Y | | Y | |
| Cyperaceae | Scleria | ciliaris | | | | | Y | | | |
| Cyperaceae | Scleria | lithosperma | | | | | | | Y | |
| Cyperaceae | Scleria | pergracilis | | | K | | | | | |
| Cyperaceae | Tricostularia | undulata | | | | | | | Y | |
| Datiscaceae | Tetrameles | nudiflora | | | R | | | | | |
| Davalliaceae | Davallia | solida | | | | | Y | | | |
| Davalliaceae | Humata | pectinata | | | | | | | | Y |
| Davalliaceae | Humata | repens | | | | | | | | Y |
| Davalliaceae | Humata | sp. | | | | | | | | Y |
| Dennstaedtiaceae | Microlepia | sp. | | | | | | | | Y |
| Dennstaedtiaceae | Microlepia | speluncae | | | | | | | | Y |
| Dichapetalaceae | Dichapetalum | sp. Claudie River (B.P. Hyland 7006) | | | K | | | | | |
| Dilleniaceae | Dillenia | alata | | | | | Y | | | |
| Dilleniaceae | Hibbertia | banksii | f. | banksii | | Y | Y | | | |
| Dilleniaceae | Hibbertia | banksii | f. | rigidula | | Y | | | | |
| Dilleniaceae | Hibbertia | cymosa | | | | Y | | | | |
| Dilleniaceae | Hibbertia | dealbata | | | | | | | Y | |
| Dilleniaceae | Hibbertia | echiifolia | | | R | | | | Y | |
| Dilleniaceae | Hibbertia | laurana | | | | Y | | | | |
| Dilleniaceae | Hibbertia | millerii | | | | Y | | | | |
| Dilleniaceae | Hibbertia | scandens | | | | | | | Y | |
| Dilleniaceae | Hibbertia | sp. Mt Tozer (L.J. Brass 19024) | | | K | | | | | |
| Dioscoreaceae | Dioscorea | bulbifera | var. | elongata | | Y | | | | |
| Dioscoreaceae | Dioscorea | pentaphylla | var. | papuana | K | Y | | | | |
| Droseraceae | Drosera | prolifera | | | | Y | | | | |
| Dryopteridaceae | Tectaria | brachiata | | | | | | | | Y |
| Dryopteridaceae | Tectaria | confluens | | | | | | | | Y |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rolap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Dryopteridaceae | Tectaria | silfolia | | | K | | | | | Y |
| Dryopteridaceae | Tectaria | sp. | | | | | | | | Y |
| Ebenaceae | Diospyros | calycantha | | | | | | | Y | |
| Ebenaceae | Diospyros | ferrea | | | | | | | Y | |
| Ebenaceae | Diospyros | littorea | | | | | Y | | Y | |
| Ebenaceae | Diospyros | maritima | | | | | Y | | | |
| Ebenaceae | Diospyros | sp. Bamaga (B.P. Hyland 2517) | | | R | | | | | |
| Ebenaceae | Diospyros | sp. Mt Lewis (L.S. Smith 10107) | | | R | | | | | |
| Elaeagnaceae | Elaeagnus | triflora | | | | | Y | | | |
| Elaeocarpaceae | Elaeocarpus | angustifolius | | | | | Y | | | |
| Elaeocarpaceae | Elaeocarpus | sp. Mt Lewis (B.P. Hyland 2907) | | | R | | | | | |
| Elaeocarpaceae | Elaeocarpus | thelmae | | | R | | | | | |
| Epacridaceae | Leucopogon | cuspidatus | | | V | | | | | |
| Epacridaceae | Leucopogon | lavarackii | | | | Y | | | | |
| Epacridaceae | Leucopogon | malayanus | subsp. | novoguineensis | | Y | | | | |
| Epacridaceae | Leucopogon | spathaceus | | | R | | | | | |
| Ericaceae | Agapetes | meiniana | | | | | | | | Y |
| Ericaceae | Agapetes | sp. | | | | | | | | Y |
| Ericaceae | Rhododendron | lochiae | | | R | | | | | |
| Eriocaulaceae | Eriocaulon | fistulosum | | | K | | | | | |
| Eriocaulaceae | Eriocaulon | heterogynum | | | | | | | Y | |
| Eriocaulaceae | Eriocaulon | pusillum | | | K | | | | | |
| Euphorbiaceae | Acalypha | compacta | | | | Y | | | | |
| Euphorbiaceae | Acalypha | lanceolata | | | | Y | Y | | | |
| Euphorbiaceae | Alchornea | rugosa | | | | | Y | | | |
| Euphorbiaceae | Aleurites | moluccana | var. | moluccana | | | Y | | | |
| Euphorbiaceae | Antidesma | hylandii | | | | Y | | | | |
| Euphorbiaceae | Breynia | cernua | | | | | Y | | | |
| Euphorbiaceae | Cleistanthus | myrianthus | | | R | | | | | |
| Euphorbiaceae | Codiaeum | membranaceum | | | | Y | | | | |
| Euphorbiaceae | Codiaeum | variegatum | var. | moluccanum | | | Y | | | |
| Euphorbiaceae | Croton | brachypus | | | R | Y | | | | |
| Euphorbiaceae | Croton | capitis-york | | | | Y | | | | |
| Euphorbiaceae | Croton | stockeri | | | R | Y | | | | |
| Euphorbiaceae | Endospermum | myrmecophilum | | | | | Y | | | |
| Euphorbiaceae | Excoecaria | agallocha | | | | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Euphorbiaceae | Glochidion | capitis-york | | | | Y | | | | |
| Euphorbiaceae | Glochidion | harveyanum | | | | | Y | | | |
| Euphorbiaceae | Glochidion | lobocarpum | | | | | Y | | | |
| Euphorbiaceae | Glochidion | macrocarpum | | | | Y | | | | |
| Euphorbiaceae | Glochidion | philippicum | | | | | Y | | | |
| Euphorbiaceae | Glochidion | pruinosum | | | | Y | | | | |
| Euphorbiaceae | Glochidion | pungens | | | R | | | | | |
| Euphorbiaceae | Glochidion | sessiliflorum | var. | sessiliflorum | | Y | | | | |
| Euphorbiaceae | Glochidion | sumatranum | | | | | Y | | | |
| Euphorbiaceae | Macaranga | inamoena | | | | | | | | Y |
| Euphorbiaceae | Macaranga | involucrata | var. | mallotoides | | | | | | Y |
| Euphorbiaceae | Macaranga | polyadenia | | | V | | Y | | | Y |
| Euphorbiaceae | Macaranga | sp. | | | | | | | | Y |
| Euphorbiaceae | Macaranga | subdentata | | | | | | | | Y |
| Euphorbiaceae | Macaranga | tanarius | | | | | | | | Y |
| Euphorbiaceae | Mallotus | mollissimus | | | | | Y | | | |
| Euphorbiaceae | Mallotus | philippensis | | | | | Y | | | |
| Euphorbiaceae | Margaritaria | indica | | | R | Y | | | Y | |
| Euphorbiaceae | Omphalea | papuana | | | R | | | | | |
| Euphorbiaceae | Phyllanthus | amarus | | | | | Y | | | |
| Euphorbiaceae | Phyllanthus | ciccoides | var. | puberulus | | Y | | | | |
| Euphorbiaceae | Phyllanthus | clamboides | | | | | Y | | | |
| Euphorbiaceae | Phyllanthus | hypospodius | | | R | | | | | |
| Euphorbiaceae | Phyllanthus | praelongipes | | | | Y | | | | |
| Euphorbiaceae | Phyllanthus | trachygyne | | | | | | | Y | |
| Euphorbiaceae | Pimelodendron | amboinicum | | | R | | Y | | | |
| Euphorbiaceae | Sauropus | elachophyllus | | | | | | | Y | |
| Euphorbiaceae | Sauropus | podenzanae | | | | Y | | | | |
| Eupomatiaceae | Eupomatia | bennettii | | | | | | Y | | |
| Eupomatiaceae | Eupomatia | laurina | | | | | Y | Y | | |
| Eupomatiaceae | Eupomatia | sp. | | | | | | Y | | |
| Eupomatiaceae | | EUPOMATIACEAE | | | | | | Y | | |
| Fabaceae | Abrus | precatorius | | | | | Y | | | |
| Fabaceae | Alysicarpus | muelleri | var. | muelleri | | Y | | | | |
| Fabaceae | Bossiaea | arenicola | | | R | Y | | | | |
| Fabaceae | Crotalaria | acicularis | | | | | | | Y | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rolsp | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Fabaceae | Crotalaria | montana | | | | | Y | | | |
| Fabaceae | Crotalaria | sessiliflora | | | | | | | Y | |
| Fabaceae | Cyclocarpa | stellaris | | | | Y | | | | |
| Fabaceae | Dalbergia | candenatensis | | | | | Y | | | |
| Fabaceae | Dalbergia | densa | var. | australis | | Y | | | | |
| Fabaceae | Daviesia | mimosoides | subsp. | mimosoides | | Y | | | | |
| Fabaceae | Daviesia | rectinata | | | | | | | Y | |
| Fabaceae | Dendrolobium | umbellatum | | | | | Y | | | |
| Fabaceae | Derris | involuta | | | | | | | Y | Y |
| Fabaceae | Derris | rubrocalyx | subsp. | rubrocalyx | K | | | | | Y |
| Fabaceae | Derris | sp. | | | | | | | | Y |
| Fabaceae | Derris | sp. Claudie River (L.J. Webb+ 8348) | | | | | | | | Y |
| Fabaceae | Derris | trifoliata | | | | | | | | Y |
| Fabaceae | Desmodium | brownii | | | | | | | Y | |
| Fabaceae | Desmodium | nemorosum | | | | | | | Y | |
| Fabaceae | Desmodium | ormocarpoides | | | | | Y | | | |
| Fabaceae | Desmodium | tenax | | | | Y | | | | |
| Fabaceae | Dunbaria | singuliflora | | | | | | | Y | |
| Fabaceae | Erythrina | insularis | | | | Y | | | | |
| Fabaceae | Erythrina | variegata | | | | | Y | | | |
| Fabaceae | Indigofera | saxicola | | | | | | | Y | |
| Fabaceae | Indigofera | trifoliata | | | | | Y | | | |
| Fabaceae | Millettia | sp. Barratt Creek (G. Sankowsky 429) | | | K | | | | | |
| Fabaceae | Ormocarpum | orientale | | | K | | Y | | | |
| Fabaceae | Phylacium | bracteosum | | | R | | Y | | | |
| Fabaceae | Phyllodium | pulchellum | | | R | | Y | | | |
| Fabaceae | Phyllodium | sp. Monteblon (H.S. McKee 9430) | | | K | | | | | |
| Fabaceae | Pongamia | pinnata | | | | | Y | | | |
| Fabaceae | Pterocarpus | sp. Archer River (B.P. Hyland 3078) | | | K | | | | | |
| Fabaceae | Sesbania | erubescens | | | R | | | | | |
| Fabaceae | Sophora | tomentosa | | | | | Y | | | |
| Fabaceae | Tephrosia | debilis | | | K | | | | | |
| Fabaceae | Tephrosia | maculata | | | K | | | | Y | |
| Fabaceae | Tephrosia | oligophylla | | | K | | | | | |
| Fabaceae | Tephrosia | savannicola | | | R | | | | | |
| Fabaceae | Tephrosia | simplicifolia | | | | | | | Y | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clerk Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Fabaceae | Vigna | marina | | | | | Y | | | |
| Fabaceae | Zornia | maritima | | | | | | | Y | |
| Fabaceae | Zornia | ramosa | | | | Y | | | | |
| Gesneriaceae | Lenbrassia | australiana | var. | glabrescens | | Y | | | | |
| Gleicheniaceae | Dicranopteris | linearis | | | | | Y | | | |
| Gleicheniaceae | Sticherus | milnei | | | R | | | | | |
| Goodeniaceae | Goodenia | subauriculata | | | | Y | | | | |
| Goodeniaceae | Scaevola | taccada | | | | | Y | | | |
| Grammitaceae | Calymmodon | luerssenianus | | | | | | | | Y |
| Grammitaceae | Ctenopteris | blechnoides | | | V | | | | | |
| Grammitaceae | Grammitis | adspersa | | | K | | | | | |
| Grammitaceae | Grammitis | reinwardtii | | | V | | | | | |
| Grammitaceae | Scleroglossum | wooroonooran | | | | | | | | Y |
| Grammitidaceae | Calymmodon | sp. | | | | | | | | Y |
| Grammitidaceae | Scleroglossum | sp. | | | | | | | | Y |
| Grossulariaceae | Argophyllum | verae | | | K | Y | | | | |
| Haemodoraceae | Haemodorum | brevicaule | | | | | | | Y | |
| Haloragaceae | Myriophyllum | coronatum | | | V | Y | | | | |
| Haloragaceae | Myriophyllum | muricatum | | | K | | | | | |
| Hamamelidaceae | Noahdendron | nicholasii | | | | Y | | | | |
| Hamamelidaceae | Ostrearia | australiana | | | R | | | | | |
| Hanguanaceae | Hanguana | malayana | | | | | | | Y | |
| Hernandiaceae | Gyrocarpus | americanus | subsp. | americanus | | Y | | Y | | |
| Hernandiaceae | Gyrocarpus | sp. | | | | | | Y | | |
| Hernandiaceae | Hernandia | albiflora | | | R | | | Y | | |
| Hernandiaceae | Hernandia | nymphaeifolia | | | | | Y | Y | | |
| Hernandiaceae | Hernandia | sp. | | | | | | Y | | |
| Hernandiaceae | | HERNANDIACEAE | | | | | | Y | | |
| Himantandraceae | Galbulimima | baccata | | | | | | Y | | |
| Himantandraceae | Galbulimima | sp. | | | | | | Y | | |
| Himantandraceae | | HIMANTANDRACEAE | | | | | | Y | | |
| Hippocrateaceae | Salacia | chinensis | | | | | Y | | | |
| Hydrocharitaceae | Vallisneria | gracilis | | | R | | | | | |
| Hymenophyllaceae | Gonocormus | saxifragoides | | | | | Y | | | |
| Hymenophyllaceae | Hymenophyllum | eboracense | | | R | | | | | |
| Hymenophyllaceae | Hymenophyllum | whitei | | | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Hymenophyllaceae | Microgonium | bimarginatum | | | | | | | | Y |
| Hymenophyllaceae | Microgonium | motleyi | | | | | | | | Y |
| Hymenophyllaceae | Microgonium | sp. | | | | | | | | Y |
| Hymenophyllaceae | Microgonium | tahitense | | | | | | | | Y |
| Hymenophyllaceae | Reediella | humilis | | | | | | | | Y |
| Hymenophyllaceae | Reediella | sp. | | | | | | | | Y |
| Hymenophyllaceae | Trichomanes | johnstonense | | | | | | | | Y |
| Hymenophyllaceae | Trichomanes | sp. | | | | | | | | Y |
| Icacinaceae | Rhyticaryum | longifolium | | | R | Y | Y | | | |
| Lamiaceae | Anisomeles | inodora | | | | Y | | | | |
| Lamiaceae | Plectranthus | arenicola | | | R | Y | | | | |
| Lamiaceae | Plectranthus | scutellarioides | | | | | Y | | | |
| Lamiaceae | Prostanthera | sp. Mt Mulligan (J.R. Clarkson 5838) | | | K | | | | | |
| Lamiaceae | Teucrium | ajugaceum | | | K | Y | | | | |
| Lamiaceae | Teucrium | racemosum | var. | racemosum | | Y | | | | |
| Lauraceae | Beilschmiedia | castrisinensis | | | R | | | | | |
| Lauraceae | Beilschmiedia | obtusifolia | | | | | Y | | | |
| Lauraceae | Beilschmiedia | peninsularis | | | R | Y | | | | |
| Lauraceae | Cassytha | filiformis | | | | | Y | | | |
| Lauraceae | Cinnamomum | baileyanum | | | R | | | | | Y |
| Lauraceae | Cinnamomum | laubatii | | | | | | | | Y |
| Lauraceae | Cinnamomum | oliveri | | | | | | | | Y |
| Lauraceae | Cinnamomum | sp. | | | | | | | | Y |
| Lauraceae | Cryptocarya | bamagana | | | K | Y | | | | |
| Lauraceae | Cryptocarya | bellendenkerana | | | R | | | | | |
| Lauraceae | Cryptocarya | brassii | | | | Y | Y | | | |
| Lauraceae | Cryptocarya | burckiana | | | R | Y | | | | |
| Lauraceae | Cryptocarya | claudiana | | | R | Y | | | | |
| Lauraceae | Cryptocarya | endiandrifolia | | | | Y | | | | |
| Lauraceae | Cryptocarya | exfoliata | | | | | Y | | | |
| Lauraceae | Cryptocarya | glaucocarpa | | | R | Y | | | | |
| Lauraceae | Cryptocarya | laevigata | | | | | Y | | | |
| Lauraceae | Endiandra | collinsii | | | R | Y | | | | |
| Lauraceae | Endiandra | cooperana | | | | Y | | | | |
| Lauraceae | Endiandra | glauca | | | | Y | | | | |
| Lauraceae | Endiandra | grayi | | | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Lauraceae | Endiandra | limnophila | | | | | | | Y | |
| Lauraceae | Litsea | bindoniana | | | | | | | | Y |
| Lauraceae | Litsea | breviumbellata | | | | | | | | Y |
| Lauraceae | Litsea | connorsii | | | | | | | | Y |
| Lauraceae | Litsea | fawcettiana | | | | | | | | Y |
| Lauraceae | Litsea | glutinosa | | | | | Y | | | Y |
| Lauraceae | Litsea | leeleana | | | | | | | | Y |
| Lauraceae | Litsea | macrophylla | | | R | Y | | | | Y |
| Lauraceae | Litsea | reticulata | | | | | | | | Y |
| Lauraceae | Litsea | sp. | | | | | | | | Y |
| Lecythidaceae | Barringtonia | acutangula | | | | | Y | | | |
| Lecythidaceae | Barringtonia | asiatica | | | | | Y | | | |
| Lecythidaceae | Barringtonia | racemosa | | | | | Y | | | |
| Leeaceae | Leea | indica | | | | | Y | | | |
| Leeaceae | Leea | rubra | | | | | | | Y | |
| Lentibulariaceae | Utricularia | caerulea | | | | | Y | | | |
| Lentibulariaceae | Utricularia | lateriflora | | | | | | | Y | |
| Lentibulariaceae | Utricularia | muelleri | | | | | | | Y | |
| Liliaceae | Caesia | setifera | | | | | | | Y | |
| Liliaceae | Dianella | incollata | | | K | | | | | |
| Liliaceae | Dianella | pavopennacea | | | | | | | Y | |
| Lindsaeaceae | Lindsaea | repens | var. | marquesensis | E | | | | | |
| Lindsaeaceae | Lindsaea | repens | var. | sessilis | K | | | | | |
| Lindsaeaceae | Lindsaea | terrae-reginae | | | | Y | | | | |
| Lindsaeaceae | Lindsaea | walkerae | | | R | | | | | |
| Loganiaceae | Fagraea | berteroana | | | | | Y | | | |
| Loganiaceae | Fagraea | racemosa | | | | | Y | | | |
| Loganiaceae | Mitrasacme | neglecta | | | | | | | Y | |
| Loganiaceae | Mitrasacme | pygmaea | | | | | Y | | | |
| Loganiaceae | Mitrasacme | tenuiflora | | | | | | | Y | |
| Loganiaceae | Mitreola | petiolata | | | K | | | | Y | |
| Lomariopsidaceae | Bolbitis | quoyana | | | | | | | | Y |
| Lomariopsidaceae | Bolbitis | sp. | | | | | | | | Y |
| Lomariopsidaceae | Bolbitis | taylorii | | | | | | | | Y |
| Lomariopsidaceae | Elaphoglossum | queenslandicum | | | | | | | | Y |
| Lomariopsidaceae | Elaphoglossum | sp. | | | | | | | | Y |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotep | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Loranthaceae | Amyema | congener | subsp. | divergens | | Y | | | | |
| Loranthaceae | Amyema | quaternifolia | | | | Y | | | | |
| Loranthaceae | Cecarria | obtusifolia | | | K | Y | | | | |
| Loranthaceae | Dactyliophora | novaeguineae | | | R | Y | | | | |
| Loranthaceae | Decaisnina | brittenii | subsp. | brittenii | | | | | | Y |
| Loranthaceae | Decaisnina | brittenii | subsp. | speciosa | | | | | | Y |
| Loranthaceae | Decaisnina | hollrungii | | | | | | | | Y |
| Loranthaceae | Decaisnina | signata | subsp. | signata | | | | | | Y |
| Loranthaceae | Decaisnina | sp. | | | | | | | | Y |
| Loranthaceae | Dendrophthoe | falcata | | | | | Y | | | Y |
| Loranthaceae | Diplatia | furcata | | | | | | | Y | |
| Loranthaceae | Diplatia | tomentosa | | | | Y | | | | |
| Lycopodiaceae | Huperzia | carinata | | | E | | | | | |
| Lycopodiaceae | Huperzia | phlegmaria | | | R | | Y | | | |
| Lycopodiaceae | Huperzia | phlegmarioides | | | V | | | | | |
| Lycopodiaceae | Huperzia | squarrosa | | | | Y | | | | |
| Lycopodiaceae | Lycopodiella | limosa | | | R | | | | | |
| Lycopodiaceae | Lycopodiella | serpentina | | | | | | | Y | |
| Lythraceae | Pemphis | acidula | | | | | Y | | | |
| Malvaceae | Abelmoschus | moschatus | | | | | | | Y | |
| Malvaceae | Hibiscus | setulosus | | | | | | | Y | |
| Malvaceae | Hibiscus | tiliaceus | | | | | Y | | | |
| Malvaceae | Macrostelia | grandifolia | subsp. | grandifolia | R | Y | | | | |
| Malvaceae | Macrostelia | grandifolia | subsp. | macilwraithensis | R | Y | | | | |
| Malvaceae | Urena | lobata | | | | | Y | | | |
| Marattiaceae | Marattia | oreades | | | | | | | | Y |
| Marattiaceae | Marattia | sp. | | | | | | | | Y |
| Melastomataceae | Medinilla | balls-headleyi | | | R | | | | | |
| Melastomataceae | Memecylon | hylandii | | | | Y | | | | |
| Melastomataceae | Pternandra | coerulescens | | | | | | | Y | |
| Meliaceae | Aglaia | argentea | | | R | | Y | | Y | |
| Meliaceae | Aglaia | brassii | | | R | | | | | |
| Meliaceae | Aglaia | elaeagnoidea | | | | | Y | | | |
| Meliaceae | Aglaia | sapindina | | | | | Y | | | |
| Meliaceae | Aglaia | spectabilis | | | | | Y | | | |
| Meliaceae | Dysoxylum | arborescens | | | | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Meliaceae | Dysoxylum | micranthum | | | | Y | | | | |
| Meliaceae | Dysoxylum | parasiticum | | | | | Y | | | |
| Meliaceae | Dysoxylum | pettigrewianum | | | | | Y | | | |
| Meliaceae | Dysoxylum | setosum | | | R | | | | | |
| Meliaceae | Dysoxylum | sp. Gosschalk (B. Gray 786) | | | K | | | | | |
| Meliaceae | Melia | azedarach | | | | | Y | | | |
| Meliaceae | Synoum | muelleri | | | | Y | | | | |
| Meliaceae | Vavaea | amicorum | | | | | Y | | | |
| Meliaceae | Xylocarpus | granatum | | | | | Y | | | |
| Meliaceae | Xylocarpus | rumphii | | | | Y | | | | |
| Menispermaceae | Cissampelos | pareira | | | K | Y | | | | |
| Menispermaceae | Cissampelos | pareira | var. | Upper Massey C | K | | | | | |
| Menispermaceae | Hypserpa | polyandra | var. | polyandra | | Y | | | | |
| Menispermaceae | Pycnarrhena | ozantha | | | K | | | | | |
| Menispermaceae | Tiliacora | australiana | | | R | | | | Y | |
| Menispermaceae | Tinospora | angusta | | | R | Y | | | | |
| Menyanthaceae | Nymphoides | elliptica | | | K | | | | | |
| Menyanthaceae | Nymphoides | triangularis | | | | Y | | | | |
| Mimosaceae | Acacia | albizioides | | | R | | | | | |
| Mimosaceae | Acacia | armillata | | | R | | | | | |
| Mimosaceae | Acacia | armitii | | | R | | | | | |
| Mimosaceae | Acacia | aulacocarpa | | | | | Y | | | |
| Mimosaceae | Acacia | auriculiformis | | | | | Y | | | |
| Mimosaceae | Acacia | brassii | | | | Y | | | | |
| Mimosaceae | Acacia | fleckeri | | | R | Y | | | | |
| Mimosaceae | Acacia | latescens | | | | | | | Y | |
| Mimosaceae | Acacia | mangium | | | | | Y | | | |
| Mimosaceae | Acacia | ommatosperma | | | R | Y | | | | |
| Mimosaceae | Acacia | pennata | subsp. | kerrii | R | Y | | | | |
| Mimosaceae | Acacia | rothii | | | | | | | Y | |
| Mimosaceae | Acacia | simsii | | | | | Y | | | |
| Mimosaceae | Acacia | sp. McIvor River (J.R. Clarkson 5475) | | | V | | | | | |
| Mimosaceae | Albizia | procera | | | | | Y | | | |
| Mimosaceae | Albizia | retusa | subsp. | morobei | R | Y | | | | |
| Mimosaceae | Albizia | retusa | subsp. | retusa | R | Y | | | | |
| Mimosaceae | Albizia | sp. Windsor Tableland (B. Gray 2161) | | | R | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotep | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Mimosaceae | Archidendron | hirsutum | | | R | | | | | |
| Mimosaceae | Archidendropsis | xanthoxylon | | | R | | | | | |
| Mimosaceae | Entada | phaseoloides | | | | | Y | | | |
| Mimosaceae | Entada | pursaetha | | | | Y | | | | |
| Mimosaceae | Pithecellobium | hendersonii | | | | Y | | | | |
| Monimiaceae | Austromatthaea | elegans | | | | | | Y | | |
| Monimiaceae | Austromatthaea | sp. | | | | | | Y | | |
| Monimiaceae | Daphnandra | repandula | | | | | | Y | | |
| Monimiaceae | Daphnandra | sp. | | | | | | Y | | |
| Monimiaceae | Doryphora | aromatica | | | | | | Y | | |
| Monimiaceae | Doryphora | sp. | | | | | | Y | | |
| Monimiaceae | Gen. | Nov. (Aq63687) sp. | | | | | | Y | | |
| Monimiaceae | Gen. Nov. (Aq63687) | sp. Davies Creek (L.J. Webb+ 6430) | | | | | | Y | | |
| Monimiaceae | Hedycarya | loxocarya | | | | | | Y | | |
| Monimiaceae | Hedycarya | sp. | | | | | | Y | | |
| Monimiaceae | Kibara | rigidifolia | | | | | | Y | | |
| Monimiaceae | Kibara | sp. | | | | | | Y | | |
| Monimiaceae | Palmeria | scandens | | | | | | Y | | |
| Monimiaceae | Palmeria | sp. | | | | | | Y | | |
| Monimiaceae | Steganthera | macooraia | | | | | | Y | | |
| Monimiaceae | Steganthera | sp. | | | | | | Y | | |
| Monimiaceae | Tetrasynandra | laxiflora | | | | | | Y | | |
| Monimiaceae | Tetrasynandra | longipes | | | | | | Y | | |
| Monimiaceae | Tetrasynandra | pubescens | | | | | | Y | | |
| Monimiaceae | Tetrasynandra | sp. | | | | | | Y | | |
| Monimiaceae | Tetrasynandra | sp. Iron Range (L.J. Brass 19070) | | | | | | Y | | |
| Monimiaceae | Wilkiea | angustifolia | | | | | | Y | | |
| Monimiaceae | Wilkiea | huegeliana | | | | | | Y | | |
| Monimiaceae | Wilkiea | sp. | | | | | | Y | | |
| Monimiaceae | Wilkiea | sp. Mt Molloy (L.S. Smith 3955) | | | | | | Y | | |
| Monimiaceae | Wilkiea | sp. Palmerston (B.P. Hyland 80) | | | K | | | Y | | |
| Monimiaceae | Wilkiea | sp. Somerset (L.J. Webb+ 11845) | | | | | | Y | | |
| Monimiaceae | | MONIMIACEAE | | | | | | Y | | |
| Moraceae | Antiaris | toxicaria | var. | macrophylla | | | Y | | | |
| Moraceae | Artocarpus | altilis | | | | Y | | | | |
| Moraceae | Fatoua | pilosa | | | R | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Moraceae | Ficus | adenosperma | var. | adenosperma | | | | | | Y |
| Moraceae | Ficus | albipila | var. | albipila | | | | | | Y |
| Moraceae | Ficus | benjamina | var. | benjamina | | | | | | Y |
| Moraceae | Ficus | congesta | | | | | Y | | | Y |
| Moraceae | Ficus | congesta | var. | congesta | | | | | | Y |
| Moraceae | Ficus | copiosa | | | | | | | | Y |
| Moraceae | Ficus | coronata | | | | | | | | Y |
| Moraceae | Ficus | crassipes | | | | | | | | Y |
| Moraceae | Ficus | destruens | | | | | | | | Y |
| Moraceae | Ficus | drupacea | var. | drupacea | | | | | | Y |
| Moraceae | Ficus | drupacea | var. | glabrata | | | | | | Y |
| Moraceae | Ficus | fraseri | | | | | | | | Y |
| Moraceae | Ficus | hispida | var. | hispida | | | | | | Y |
| Moraceae | Ficus | hispida | | | | | | | | Y |
| Moraceae | Ficus | leptoclada | | | | | Y | | | Y |
| Moraceae | Ficus | melinocarpa | var. | hololampra | K | Y | | | | Y |
| Moraceae | Ficus | microcarpa | var. | hillii | | | | | | Y |
| Moraceae | Ficus | microcarpa | var. | latifolia | | | | | | Y |
| Moraceae | Ficus | microcarpa | var. | microcarpa | | | | | | Y |
| Moraceae | Ficus | mollior | | | | | Y | | | Y |
| Moraceae | Ficus | nodosa | | | | | Y | | | Y |
| Moraceae | Ficus | obliqua | var. | obliqua | | | | | | Y |
| Moraceae | Ficus | obliqua | var. | petiolaris | | | | | | Y |
| Moraceae | Ficus | opposita | var. | aculeata | | | | | | Y |
| Moraceae | Ficus | opposita | var. | opposita | | | | | | Y |
| Moraceae | Ficus | pantoniana | var. | pantoniana | | | | | | Y |
| Moraceae | Ficus | platypoda | var. | platypoda | | | | | | Y |
| Moraceae | Ficus | pleurocarpa | | | | | | | | Y |
| Moraceae | Ficus | racemosa | var. | racemosa | | | | | | Y |
| Moraceae | Ficus | scobina | | | | | | | Y | Y |
| Moraceae | Ficus | septica | var. | cauliflora | | | | | | Y |
| Moraceae | Ficus | septica | var. | septica | | | | | | Y |
| Moraceae | Ficus | sp. | | | | | | | | Y |
| Moraceae | Ficus | superba | var. | henneana | | | | | | Y |
| Moraceae | Ficus | tinctoria | subsp. | tinctoria | | | | | | Y |
| Moraceae | Ficus | triradiata | var. | sessilicarpa | K | | | | | Y |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Moraceae | Ficus | triradiata | var. | triradiata | | | | | | Y |
| Moraceae | Ficus | variegata | var. | variegata | | | | | | Y |
| Moraceae | Ficus | virens | var. | dasycarpa | | | | | | Y |
| Moraceae | Ficus | virens | var. | sublanceolata | | | | | | Y |
| Moraceae | Ficus | virens | var. | virens | | | | | | Y |
| Moraceae | Ficus | virgata | var. | virgata | | | | | | Y |
| Myristicaceae | Horsfieldia | australiana | | | | | | Y | | |
| Myristicaceae | Horsfieldia | sp. | | | | | | Y | | |
| Myristicaceae | Myristica | insipida | | | | | | Y | | |
| Myristicaceae | Myristica | muelleri | | | | | | Y | | |
| Myristicaceae | Myristica | sp. | | | | | | Y | | |
| Myristicaceae | | MYRISTICACEAE | | | | | | Y | | |
| Myrsinaceae | Aegiceras | corniculatum | | | | | Y | | | |
| Myrsinaceae | Ardisia | fasciculata | | | | Y | | | | |
| Myrsinaceae | Embelia | curvinervia | | | | | | | Y | |
| Myrsinaceae | Rapanea | urceolata | | | | Y | | | | |
| Myrtaceae | Acmena | mackinnoniana | | | R | | | | | |
| Myrtaceae | Acmenosperma | pringlei | | | R | Y | | | | |
| Myrtaceae | Asteromyrtus | angustifolia | | | | Y | | | | |
| Myrtaceae | Asteromyrtus | brassii | | | | Y | Y | | | |
| Myrtaceae | Asteromyrtus | magnifica | | | | | | | Y | |
| Myrtaceae | Asteromyrtus | symphyocarpa | | | | | Y | | | |
| Myrtaceae | Austromyrtus | lucida | | | R | Y | | | | |
| Myrtaceae | Austromyrtus | sp. Bamaga (B.P. Hyland 10235) | | | R | | | | | |
| Myrtaceae | Austromyrtus | sp. Byerstown Range G.P. Guymer 2037) | | | R | | | | | |
| Myrtaceae | Austromyrtus | sp. Claudie River G.P. Guymer 2052) | | | K | | | | | |
| Myrtaceae | Austromyrtus | sp. McIlwraith Range (B.P. Hyland 11148) | | | R | | | | | |
| Myrtaceae | Backhousia | bancroftii | | | R | | | | | |
| Myrtaceae | Baeckea | sp. Tozer Range (L.J. Brass 19348) | | | V | | | | | |
| Myrtaceae | Callistemon | citrinus | | | | | | | Y | |
| Myrtaceae | Eucalyptus | brassiana | var. | S.T.Blake x E.pellita | | Y | | | | |
| Myrtaceae | Eucalyptus | brassiana | | | | | Y | | | |
| Myrtaceae | Eucalyptus | confertiflora | | | | | Y | | | |
| Myrtaceae | Eucalyptus | erythrophloia | | | | | Y | | | |
| Myrtaceae | Eucalyptus | intermedia | | | | | Y | | | |
| Myrtaceae | Eucalyptus | leptophleba | | | | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Myrtaceae | Eucalyptus | nesophila | | | | | Y | | Y | |
| Myrtaceae | Eucalyptus | novoguinensis | | | | | Y | | | |
| Myrtaceae | Eucalyptus | papuana | | | | | Y | | | |
| Myrtaceae | Eucalyptus | pellita | | | | | Y | | | |
| Myrtaceae | Eucalyptus | phoenicea | | | | | | | Y | |
| Myrtaceae | Eucalyptus | tereticornis | | | | | Y | | | |
| Myrtaceae | Eucalyptus | tessellaris | | | | | Y | | | |
| Myrtaceae | Eucalyptus | tokwa | | | | | Y | | Y | |
| Myrtaceae | Homoranthus | tropicus | | | R | Y | | | | |
| Myrtaceae | Leptospermum | purpurascens | | | R | | | | | |
| Myrtaceae | Lophostemon | suaveolens | | | | | Y | | | |
| Myrtaceae | Melaleuca | argentea | | | | | Y | | | |
| Myrtaceae | Melaleuca | quinquenervia | | | | | Y | | | |
| Myrtaceae | Melaleuca | viridiflora | | | | | Y | | | |
| Myrtaceae | Mitrantia | bilocularis | | | | Y | | | | |
| Myrtaceae | Neofabricia | mjoebergii | | | | Y | | | | |
| Myrtaceae | Neofabricia | sericisepala | | | | Y | | | | |
| Myrtaceae | Rhodamnia | australis | | | | | | | Y | |
| Myrtaceae | Rhodomyrtus | effusa | | | R | | | | | |
| Myrtaceae | Rhodomyrtus | trineura | subsp. | capensis | | Y | | | | |
| Myrtaceae | Sphaerantia | chartacea | | | R | | | | | |
| Myrtaceae | Syzygium | amplum | | | K | | | | | |
| Myrtaceae | Syzygium | aqueum | | | R | | Y | | | |
| Myrtaceae | Syzygium | argyropedicum | | | R | Y | | | | |
| Myrtaceae | Syzygium | bamagense | | | | Y | | | | |
| Myrtaceae | Syzygium | buettnerianum | | | R | | Y | | | |
| Myrtaceae | Syzygium | bungadinnia | | | | Y | | | | |
| Myrtaceae | Syzygium | fibrosum | | | | | Y | | | |
| Myrtaceae | Syzygium | macilwraithianum | | | R | | | | | |
| Myrtaceae | Syzygium | malaccense | | | R | | Y | | | |
| Myrtaceae | Syzygium | pseudofastigiatum | | | R | | | | | |
| Myrtaceae | Syzygium | puberulum | | | K | | | | | |
| Myrtaceae | Syzygium | rubrimolle | | | R | | | | | |
| Myrtaceae | Syzygium | sayeri | | | | | Y | | | |
| Myrtaceae | Syzygium | sharonae | | | | Y | | | | |
| Myrtaceae | Syzygium | tierneyanum | | | | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotsp | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Myrtaceae | Syzygium | velarum | | | V | Y | | | | |
| Myrtaceae | Syzygium | xerampelinum | | | R | | | | | |
| Myrtaceae | Uromyrtus | metrosideros | | | R | | | | | |
| Myrtaceae | Waterhousea | hedraiophylla | | | R | | | | | |
| Myrtaceae | Welchiodendron | longivalve | | | | | Y | | | |
| Myrtaceae | Xanthostemon | arenarius | | | R | Y | | | | |
| Myrtaceae | Xanthostemon | crenulatus | | | | Y | | | | |
| Myrtaceae | Xanthostemon | formosus | | | | Y | | | | |
| Myrtaceae | Xanthostemon | graniticus | | | | Y | | | | |
| Myrtaceae | Xanthostemon | verticillatus | | | R | | | | | |
| Myrtaceae | Xanthostemon | xerophilus | | | R | Y | | | | |
| Myrtaceae | Xanthostemon | youngii | | | V | Y | | | | |
| Nephrolepidaceae | Nephrolepis | biserrata | | | | | Y | | | |
| Nyctaginaceae | Pisonia | umbellifera | | | | | Y | | | |
| Nymphaeaceae | Nymphaea | atrans | | | | Y | | | | |
| Nymphaeaceae | Nymphaea | elleniae | | | | Y | | | | |
| Olacaceae | Anacolosa | papuana | | | K | Y | Y | | | |
| Olacaceae | Olax | aphylla | | | | | | | Y | |
| Olacaceae | Olax | pendula | | | | | | | Y | |
| Oleaceae | Notelaea | longifolia | f. | longifolia | | Y | | | | |
| Onagraceae | Ludwigia | prostrata | | | | Y | | | | |
| Ophioglossaceae | Helminthostachys | zeylanica | | | | | Y | | | |
| Opiliaceae | Cansjera | leptostachya | | | | | Y | | | |
| Opiliaceae | Opilia | amentacea | | | | | Y | | | |
| Orchidaceae | Acriopsis | javanica | | | V | Y | | | | Y |
| Orchidaceae | Acriopsis | sp. | | | | | | | | Y |
| Orchidaceae | Anoectochilus | sp. | | | | | | | | Y |
| Orchidaceae | Anoectochilus | yatesiae | | | | | | | | Y |
| Orchidaceae | Aphyllorchis | queenslandica | | | K | | | | | |
| Orchidaceae | Apostasia | sp. | | | | | | | | Y |
| Orchidaceae | Apostasia | wallichii | | | | | | | | Y |
| Orchidaceae | Appendicula | australiensis | | | R | Y | | | | Y |
| Orchidaceae | Appendicula | sp. | | | | | | | | Y |
| Orchidaceae | Arthrochilus | dockrillii | | | | | | Y | | |
| Orchidaceae | Arthrochilus | irritabilis | | | | | | Y | | |
| Orchidaceae | Arthrochilus | rosulatus | | | | Y | | Y | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotsp | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Orchidaceae | Arthrochilus | sabulosus | | | | Y | | Y | | |
| Orchidaceae | Arthrochilus | sp. | | | | | | Y | | |
| Orchidaceae | Bromheadia | finlaysoniana | | | | | | | | Y |
| Orchidaceae | Bromheadia | sp. | | | | | | | | Y |
| Orchidaceae | Bulbophyllum | blumei | | | R | Y | | | | |
| Orchidaceae | Bulbophyllum | gracillimum | | | V | Y | | | | |
| Orchidaceae | Bulbophyllum | grandimesense | | | R | | | | | |
| Orchidaceae | Bulbophyllum | longiflorum | | | V | | | | | |
| Orchidaceae | Bulbophyllum | macphersonii | var. | spathulatum | | Y | | | | |
| Orchidaceae | Bulbophyllum | windsorense | | | | Y | | | | |
| Orchidaceae | Bulbophyllum | wolfei | | | | Y | | | | |
| Orchidaceae | Cadetia | collinsii | | | R | Y | | | | |
| Orchidaceae | Cadetia | wariana | | | R | Y | | | | |
| Orchidaceae | Calochilus | caeruleus | | | | | | Y | | |
| Orchidaceae | Calochilus | holtzei | | | | | | Y | | |
| Orchidaceae | Calochilus | sp. | | | | | | Y | | |
| Orchidaceae | Corybas | neocaledonicus | | | K | | | Y | | |
| Orchidaceae | Corybas | sp. | | | | | | Y | | |
| Orchidaceae | Corymborkis | sp. | | | | | | | | Y |
| Orchidaceae | Corymborkis | veratrifolia | | | | | | | | Y |
| Orchidaceae | Cymbidium | leroyi | | | | Y | | | | |
| Orchidaceae | Dendrobium | antennatum | | | E | | Y | | | |
| Orchidaceae | Dendrobium | bifalce | | | | Y | | | | |
| Orchidaceae | Dendrobium | bigibbum | | | V | | | | | |
| Orchidaceae | Dendrobium | capitisyork | | | | Y | | | | |
| Orchidaceae | Dendrobium | carronii | | | V | Y | | | | |
| Orchidaceae | Dendrobium | discolor | var. | broomfieldii | | Y | | | | |
| Orchidaceae | Dendrobium | johannis | | | V | | | | | |
| Orchidaceae | Dendrobium | lithocola | | | E | | | | | |
| Orchidaceae | Dendrobium | lobbii | | | R | | Y | | | |
| Orchidaceae | Dendrobium | luteocilium | | | | Y | | | | |
| Orchidaceae | Dendrobium | malbrownii | | | R | | | | | |
| Orchidaceae | Dendrobium | mirbelianum | | | E | | Y | | | |
| Orchidaceae | Dendrobium | nindii | | | E | | | | | |
| Orchidaceae | Dendrobium | phalaenopsis | | | V | | | | | |
| Orchidaceae | Dendrobium | stuartii | | | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Orchidaceae | Dendrobium | superbiens | | | V | | | | | |
| Orchidaceae | Dendrobium | toressae | | | R | | | | | |
| Orchidaceae | Dendrobium | tozerensis | | | V | Y | | | | |
| Orchidaceae | Dendrobium | trilamellatum | | | | | | | Y | |
| Orchidaceae | Dendrobium | wassellii | | | R | | | | | |
| Orchidaceae | Didymoplexis | pallens | | | K | | | | | Y |
| Orchidaceae | Didymoplexis | sp. | | | | | | | | Y |
| Orchidaceae | Diplocaulobium | glabrum | | | | Y | | | | |
| Orchidaceae | Dipodium | ensifolium | | | R | | | | | |
| Orchidaceae | Dipodium | hamiltonianum | | | | | | | Y | |
| Orchidaceae | Dipodium | pictum | | | E | Y | | | | |
| Orchidaceae | Eria | dischorensis | | | R | | | | | Y |
| Orchidaceae | Eria | eriaeoides | | | | | | | | Y |
| Orchidaceae | Eria | fitzalanii | | | | | | | | Y |
| Orchidaceae | Eria | inornata | | | | Y | | | | Y |
| Orchidaceae | Eria | irukandjiana | | | R | | | | | Y |
| Orchidaceae | Eria | kingii | | | | | | | | Y |
| Orchidaceae | Eria | queenslandica | | | | | | | | Y |
| Orchidaceae | Eria | sp. | | | | | | | | Y |
| Orchidaceae | Eulophia | sp. | | | | | | | | Y |
| Orchidaceae | Eulophia | venosa | | | | | | | | Y |
| Orchidaceae | Eulophia | zollingeri | | | K | | | | | Y |
| Orchidaceae | Flickingeria | comata | | | | Y | | | | |
| Orchidaceae | Flickingeria | convexa | | | R | | | | | |
| Orchidaceae | Gastrodia | queenslandica | | | R | | | | | |
| Orchidaceae | Geodorum | densiflorum | | | | | | | | Y |
| Orchidaceae | Geodorum | sp. | | | | | | | | Y |
| Orchidaceae | Goodyera | grandis | | | R | | | | | Y |
| Orchidaceae | Goodyera | sp. | | | | | | | | Y |
| Orchidaceae | Habenaria | hymenophylla | | | R | | | | Y | |
| Orchidaceae | Habenaria | macraithii | | | E | Y | | | | |
| Orchidaceae | Habenaria | rumphii | | | R | | | | | |
| Orchidaceae | Hetaeria | oblongifolia | | | | | | | | Y |
| Orchidaceae | Hetaeria | sp. | | | | | | | | Y |
| Orchidaceae | Liparis | condylobulbon | | | R | | | | | |
| Orchidaceae | Liparis | nugentiae | | | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Orchidaceae | Luisia | teretifolia | | | | | | | Y | |
| Orchidaceae | Malaxis | fimbriata | | | R | Y | | | | |
| Orchidaceae | Malaxis | lawleri | | | E | | | | | |
| Orchidaceae | Malaxis | marsupichila | | | | | | | Y | |
| Orchidaceae | Nervilia | aragoana | | | | | | | Y | |
| Orchidaceae | Nervilia | crociformis | | | R | Y | | | | |
| Orchidaceae | Oberonia | carnosa | | | R | Y | | | | |
| Orchidaceae | Oeceoclades | pulchra | | | R | Y | | | | |
| Orchidaceae | Pachystoma | pubescens | | | R | | | | | |
| Orchidaceae | Phaius | pictus | | | V | Y | | | | |
| Orchidaceae | Phaius | tancarvilleae | | | E | | Y | | | |
| Orchidaceae | Phalaenopsis | rosenstromii | | | E | | | | | Y |
| Orchidaceae | Phalaenopsis | sp. | | | | | | | | Y |
| Orchidaceae | Phreatia | baileyana | | | | | | | | Y |
| Orchidaceae | Phreatia | crassiuscula | | | | | | | | Y |
| Orchidaceae | Phreatia | sp. | | | | | | | | Y |
| Orchidaceae | Pomatocalpa | marsupiale | | | V | Y | | | | |
| Orchidaceae | Pseudovanilla | foliata | | | | | | | | Y |
| Orchidaceae | Pseudovanilla | sp. | | | | | | | | Y |
| Orchidaceae | Rhinerrhiza | moorei | | | V | Y | | | | |
| Orchidaceae | Robiquetia | wassellii | | | R | Y | | | | |
| Orchidaceae | Sarcochilus | hirticalcar | | | V | Y | | | | |
| Orchidaceae | Schoenorchis | micrantha | | | | | Y | | | |
| Orchidaceae | Schoenorchis | sarcophylla | | | R | Y | | | | |
| Orchidaceae | Spathoglottis | paulinae | | | V | | | | | |
| Orchidaceae | Spathoglottis | plicata | | | V | | Y | | | |
| Orchidaceae | Taeniophyllum | confertum | | | K | | | | | |
| Orchidaceae | Taeniophyllum | lobatum | | | K | | | | | |
| Orchidaceae | Taeniophyllum | malianum | | | | Y | | | | |
| Orchidaceae | Thelasis | carinata | | | K | Y | | | | Y |
| Orchidaceae | Thelasis | sp. | | | | | | | | Y |
| Orchidaceae | Trachoma | speciosum | | | | Y | | | | |
| Orchidaceae | Trichoglottis | australiensis | | | V | Y | | | | |
| Orchidaceae | Vanda | hindsii | | | V | Y | | | | Y |
| Orchidaceae | Vanda | sp. | | | | | | | | Y |
| Oxalidaceae | Biophytum | petersianum | | | | Y | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Pandanaceae | Freycinetia | marginata | | | R | | | | | |
| Pandanaceae | Freycinetia | percostata | | | R | | | | Y | |
| Pandanaceae | Pandanus | cochleatus | | | | Y | | | | |
| Pandanaceae | Pandanus | gemmifer | | | R | | | | | |
| Pandanaceae | Pandanus | oblatus | | | | Y | | | | |
| Pandanaceae | Pandanus | somersetensis | | | | Y | | | | |
| Pandanaceae | Pandanus | sphaericus | | | | Y | | | | |
| Pandanaceae | Pandanus | zea | | | R | Y | | | | |
| Parkeriaceae | Ceratopteris | thalictroides | | | | | Y | | | |
| Passifloraceae | Passiflora | foetida | var. | gossypiifolia | | Y | | | | |
| Pedaliaceae | Josephinia | imperatricis | | | | Y | | | | |
| Piperaceae | Piper | caninum | | | | | Y | | | |
| Pittosporaceae | Pittosporum | ferrugineum | | | | | Y | | | |
| Poaceae | Apluda | mutica | | | R | | Y | | | |
| Poaceae | Aristida | cumingiana | | | K | | Y | | | |
| Poaceae | Aristida | hygrometrica | | | | | Y | | | |
| Poaceae | Aristida | utilis | var. | grandiflora | | Y | | | | |
| Poaceae | Arthragrostis | clarksoniana | | | K | Y | | | | |
| Poaceae | Arthraxon | castratus | | | | Y | Y | | | |
| Poaceae | Bambusa | forbesii | | | R | | Y | | | |
| Poaceae | Brachiaria | kurzii | | | K | | Y | | | |
| Poaceae | Cenchrus | caliculatus | | | | Y | | | | |
| Poaceae | Centotheca | philippinensis | | | V | | Y | | | |
| Poaceae | Chrysopogon | setifolius | | | | | | | Y | |
| Poaceae | Coix | gasteenii | | | K | Y | | | | |
| Poaceae | Cymbopogon | globosus | | | | Y | Y | | | |
| Poaceae | Cyrtococcum | capitis-york | | | K | | Y | | | |
| Poaceae | Dallwatsonia | folliana | | | K | Y | | | | |
| Poaceae | Dimeria | acinaciformis | | | K | | Y | | | |
| Poaceae | Echinochloa | picta | | | | | Y | | | |
| Poaceae | Ectrosia | anomala | | | K | | | | | |
| Poaceae | Ectrosia | laxa | | | | | | | Y | |
| Poaceae | Ectrosia | leporina | | | | | | | Y | |
| Poaceae | Elytrophorus | spicatus | | | | | Y | | | |
| Poaceae | Enteropogon | dolichostachyus | | | K | | Y | | Y | |
| Poaceae | Eremochloa | ciliaris | | | R | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clerk Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Poaceae | Eremochloa | muricata | | | E | Y | Y | | | |
| Poaceae | Eriachne | agrostidea | | | | | | | Y | |
| Poaceae | Eriachne | anomala | | | | | | | Y | |
| Poaceae | Eriachne | filiformis | | | | | | | Y | |
| Poaceae | Eriachne | insularis | | | | | | | Y | |
| Poaceae | Eriachne | pallescens | var. | pallescens | | Y | | | | |
| Poaceae | Eriachne | stipacea | | | | | | | Y | |
| Poaceae | Eulalia | mackinlayi | | | | | | | Y | |
| Poaceae | Garnotia | stricta | var. | longiseta | R | Y | Y | | | |
| Poaceae | Germainia | capitata | | | V | | Y | | Y | |
| Poaceae | Germainia | grandiflora | | | | | | | Y | |
| Poaceae | Heterachne | baileyi | | | R | Y | | | | |
| Poaceae | Heteropogon | contortus | | | | | Y | | | |
| Poaceae | Ischaemum | tropicum | | | | | Y | | Y | |
| Poaceae | Lepturus | geminatus | | | R | | | | Y | |
| Poaceae | Lepturus | repens | | | | | Y | | | |
| Poaceae | Lepturus | xerophilus | | | R | | | | | |
| Poaceae | Lophatherum | gracile | | | K | | Y | | | |
| Poaceae | Oplismenus | compositus | | | | | Y | | | |
| Poaceae | Paspalum | multinodum | | | K | Y | | | | |
| Poaceae | Phragmites | australis | | | | | Y | | | |
| Poaceae | Pseudopogonatherum | irritans | | | | | Y | | | |
| Poaceae | Sacciolepis | indica | | | | | Y | | | |
| Poaceae | Scrotochloa | tararaensis | | | K | Y | Y | | | |
| Poaceae | Scrotochloa | urceolata | | | K | Y | Y | | | |
| Poaceae | Sorghum | plumosum | var. | plumosum | | | Y | | | |
| Poaceae | Sporobolus | pulchellus | | | | | | | Y | |
| Poaceae | Thaumastochloa | monilifera | | | | | | | Y | |
| Poaceae | Thelepogon | australiensis | | | K | | | | | |
| Poaceae | Themeda | intermedia | | | | Y | | | | |
| Poaceae | Themeda | triandra | | | | | Y | | | |
| Poaceae | Vetiveria | rigida | | | | Y | | | | |
| Podocarpaceae | Podocarpus | elatus | | | | | | Y | | |
| Podocarpaceae | Podocarpus | grayae | | | | | | Y | | |
| Podocarpaceae | Podocarpus | sp. | | | | | | Y | | |
| Podocarpaceae | | PODOCARPACEAE | | | | | | Y | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Polygalaceae | Polygala | pycnophylla | | | R | | | | Y | |
| Polygalaceae | Polygala | rhinanthoides | | | | | | | Y | |
| Polygonaceae | Persicaria | barbata | | | | | Y | | | |
| Polypodiaceae | Colysis | ampla | | | | | | | | Y |
| Polypodiaceae | Colysis | sayeri | | | | | | | | Y |
| Polypodiaceae | Colysis | sp. | | | | | | | | Y |
| Polypodiaceae | Crypsinus | simplicissimus | | | | | | | | Y |
| Polypodiaceae | Crypsinus | sp. | | | | | | | | Y |
| Polypodiaceae | Drynaria | rigidula | | | | | Y | | | |
| Polypodiaceae | Drynaria | sparsisora | | | | | Y | | | |
| Polypodiaceae | Lecanopteris | sinuosa | | | K | | Y | | | |
| Polypodiaceae | Pyrrosia | longifolia | | | | | Y | | | |
| Portulacaceae | Calandrinia | pumila | | | | | | | Y | |
| Proteaceae | Banksia | dentata | | | | | | | Y | |
| Proteaceae | Buckinghamia | ferruginiflora | | | R | | | | | |
| Proteaceae | Carnarvonia | araliifolia | | | | | | Y | | |
| Proteaceae | Carnarvonia | sp. | | | | | | Y | | |
| Proteaceae | Grevillea | glauca | | | | | Y | | | |
| Proteaceae | Hakea | muelleriana | | | | | | | Y | |
| Proteaceae | Helicia | australasica | | | | | Y | | | |
| Proteaceae | Helicia | recurva | | | | Y | | | | |
| Proteaceae | Macadamia | claudiensis | | | V | | | | | |
| Proteaceae | Placospermum | coriaceum | | | | | | Y | | |
| Proteaceae | Placospermum | sp. | | | | | | Y | | |
| Proteaceae | Stenocarpus | cryptocarpus | | | R | | | | | |
| Proteaceae | Triunia | montana | | | R | | | | | |
| Psilotaceae | Psilotum | complanatum | | | | | Y | | | |
| Psilotaceae | Psilotum | nudum | | | | | Y | | | |
| Pteridaceae | Acrostichum | aureum | | | | | Y | | | |
| Restionaceae | Leptocarpus | schultzii | | | | Y | | | | |
| Rhamnaceae | Alphitonia | excelsa | | | | | Y | | | |
| Rhamnaceae | Alphitonia | incana | | | | | Y | | | |
| Rhamnaceae | Alphitonia | obtusifolia | | | | | | | Y | |
| Rhamnaceae | Cryptandra | sp. *Mt Mulligan (J.R. Clarkson 5949)* | | | K | | | | | |
| Rhamnaceae | Gouania | australiana | | | R | | | | | |
| Rhamnaceae | Gouania | hillii | | | R | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Rhamnaceae | Ziziphus | oenoplia | | | | | | | Y | |
| Rhizophoraceae | Bruguiera | cylindrica | | | | | Y | | | |
| Rhizophoraceae | Bruguiera | gymnorhiza | | | | | Y | | | |
| Rhizophoraceae | Bruguiera | parviflora | | | | | Y | | | |
| Rhizophoraceae | Bruguiera | sexangula | | | | | Y | | | |
| Rhizophoraceae | Carallia | brachiata | | | | | Y | | | |
| Rhizophoraceae | Ceriops | tagal | | | | | Y | | | |
| Rhizophoraceae | Rhizophora | apiculata | | | | | Y | | | |
| Rhizophoraceae | Rhizophora | mucronata | | | | | Y | | | |
| Rhizophoraceae | Rhizophora | stylosa | | | | | Y | | | |
| Rosaceae | Rubus | moluccanus | | | | | Y | | | |
| Rubiaceae | Aidia | sp. Gap Creek (L.W. Jessup 651) | | | K | | | | | |
| Rubiaceae | Canthium | sp. Thursday Island (E. Cowley 10) | | | K | | | | | |
| Rubiaceae | Gardenia | actinocarpa | | | | Y | | | | |
| Rubiaceae | Gardenia | psidioides | | | V | Y | | | | |
| Rubiaceae | Gardenia | rupicola | | | K | | | | | |
| Rubiaceae | Gardenia | scabrella | | | R | Y | | | | |
| Rubiaceae | Guettarda | speciosa | | | | | Y | | | |
| Rubiaceae | Hedyotis | novoguineensis | | | | Y | | | | |
| Rubiaceae | Hedyotis | philippensis | | | R | Y | | | | |
| Rubiaceae | Hodgkinsonia | frutescens | | | V | | | | | |
| Rubiaceae | Knoxia | sumatrensis | | | | | Y | | | |
| Rubiaceae | Lasianthus | cyanocarpus | | | K | | Y | | | |
| Rubiaceae | Lasianthus | strigosus | | | | | Y | | | |
| Rubiaceae | Morinda | citrifolia | | | | | Y | | | |
| Rubiaceae | Morinda | umbellata | | | | | Y | | | |
| Rubiaceae | Myrmecodia | beccarii | | | V | | | | | |
| Rubiaceae | Myrmecodia | tuberosa | | | | Y | | | | |
| Rubiaceae | Nauclea | orientalis | | | | | Y | | | |
| Rubiaceae | Oldenlandia | corymbosa | | | | | | | Y | |
| Rubiaceae | Oldenlandia | polyclada | | | R | | | | | |
| Rubiaceae | Ophiorrhiza | australiana | subsp. | heterostyla | | Y | | | | |
| Rubiaceae | Psychotria | lorentzii | | | K | | | | | |
| Rubiaceae | Psychotria | nesophila | | | | | | | Y | |
| Rubiaceae | Psychotria | submontana | | | R | | | | | |
| Rubiaceae | Randia | audasii | | | R | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotep | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Rubiaceae | Spermacoce | buckleyi | | | | Y | | | | |
| Rubiaceae | Spermacoce | laevigata | var. | laevigata | | Y | | | | |
| Rubiaceae | Tarenna | australis | | | | Y | | | | |
| Rubiaceae | Uncaria | lanosa | var. | appendiculata | | | | | | Y |
| Rubiaceae | Uncaria | sp. | | | | | | | | Y |
| Rutaceae | Acronychia | chooreechillum | | | R | | | | | |
| Rutaceae | Acronychia | laevis | | | | | Y | | | |
| Rutaceae | Boronia | sp. Massy Creek (R.G. Coveny+ 7174) | | | K | | | | | |
| Rutaceae | Boronia | sp. Mt Mulligan (J.R. Clarkson 5301) | | | K | | | | | |
| Rutaceae | Clausena | brevistyla | | | | | Y | | | |
| Rutaceae | Eriostemon | australasius | subsp. | banksii | | Y | | | | |
| Rutaceae | Eriostemon | sp. Mt Tozer (L.J. Brass 19483) | | | V | | | | | |
| Rutaceae | Euodia | hortensis | | | | Y | | | | |
| Rutaceae | Flindersia | brassii | | | R | | | | | |
| Rutaceae | Flindersia | ifflaiana | | | | | Y | | | |
| Rutaceae | Flindersia | pimenteliana | | | | | Y | | | |
| Rutaceae | Flindersia | schottiana | | | | | Y | | | |
| Rutaceae | Medicosma | glandulosa | | | R | | | | | |
| Rutaceae | Medicosma | riparia | | | R | | Y | | | |
| Rutaceae | Medicosma | sessiliflora | | | R | | | | | |
| Rutaceae | Microcitrus | garrawayae | | | R | | | | | |
| Rutaceae | Micromelum | minutum | | | | | Y | | | |
| Rutaceae | Zanthoxylum | parviflorum | | | | | | | Y | |
| Rutaceae | Zanthoxylum | rhetsa | | | K | | Y | | | |
| Rutaceae | Zieria | sp. Russell River (S. Johnson in 1892) | | | K | | | | | |
| Santalaceae | Dendromyza | reinwardtiana | | | R | | Y | | Y | |
| Santalaceae | Exocarpos | latifolius | | | | | Y | | | |
| Sapindaceae | Alectryon | repandodentatus | | | K | | | | | |
| Sapindaceae | Allophylus | cobbe | | | | | Y | | | |
| Sapindaceae | Arytera | macrobotrys | | | R | | | | | |
| Sapindaceae | Arytera | pseudofoveolata | | | K | | | | | |
| Sapindaceae | Atalaya | australiana | | | | Y | | | | |
| Sapindaceae | Cupaniopsis | fleckeri | | | | Y | | | | |
| Sapindaceae | Dictyoneura | obtusa | | | | | Y | | | |
| Sapindaceae | Dimocarpus | australianus | | | | Y | | | | |
| Sapindaceae | Diploglottis | harpullioides | | | R | | | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Sapindaceae | Diploglottis | macrantha | | | | Y | | | | |
| Sapindaceae | Dodonaea | oxyptera | | | R | | | | | |
| Sapindaceae | Dodonaea | polyandra | | | | | Y | | | |
| Sapindaceae | Guioa | comesperma | | | | Y | | | | |
| Sapindaceae | Guioa | sp. Mt Misery (P.I. Forster+ PIF10757) | | | K | | | | | |
| Sapindaceae | Harpullia | arborea | | | R | | Y | | | |
| Sapindaceae | Harpullia | ramiflora | | | R | Y | Y | | | |
| Sapindaceae | Jagera | javanica | subsp. | australiana | V | | | | | |
| Sapindaceae | Lepiderema | hirsuta | | | R | | | | | |
| Sapindaceae | Lepidopetalum | xylocarpum | | | | Y | | | | |
| Sapindaceae | Mischocarpus | albescens | | | R | | | | | |
| Sapindaceae | Rhysotoechia | bifoliolata | subsp. | nitida | | Y | | | | |
| Sapindaceae | Sarcopteryx | acuminata | | | R | | | | | |
| Sapindaceae | Toechima | erythrocarpum | | | | | Y | | | |
| Sapindaceae | Tristiropsis | canarioides | | | R | | Y | | | |
| Sapotaceae | Chrysophyllum | lanceolatum | | | R | | Y | | | |
| Sapotaceae | Chrysophyllum | sp. Mt Lewis (A.K. Irvine 1042) | | | R | | | | | |
| Sapotaceae | Planchonella | euphlebia | var. | cryptophlebia | | Y | | | | |
| Sapotaceae | Planchonella | obovoidea | | | | | Y | | | |
| Sapotaceae | Planchonella | ripicola | | | R | | | | | |
| Schizaeaceae | Schizaea | dichotoma | | | | | Y | | | |
| Scrophulariaceae | Adenosma | caerulea | | | | Y | | | | |
| Scrophulariaceae | Buchnera | ciliata | | | | | | | Y | |
| Scrophulariaceae | Limnophila | brownii | | | | | | | Y | |
| Scrophulariaceae | Limnophila | chinensis | | | | | | | Y | |
| Scrophulariaceae | Torenia | polygonoides | | | R | Y | | | | |
| Selaginellaceae | Selaginella | gracillima | | | | | | | Y | |
| Selaginellaceae | Selaginella | uliginosa | | | | | | | Y | |
| Simaroubaceae | Harrisonia | brownii | | | | | | | Y | |
| Simaroubaceae | Quassia | bidwillii | | | V | | | | Y | |
| Simaroubaceae | Quassia | sp. Kennedy River (J.R. Clarkson 5645) | | | K | | | | | |
| Smilacaceae | Smilax | australis | | | | | Y | | | |
| Smilacaceae | Smilax | blumei | | | K | | Y | | | |
| Smilacaceae | Smilax | calophylla | | | | | Y | | | |
| Smilacaceae | Smilax | kaniensis | | | K | Y | | | | |
| Solanaceae | Solanum | dunalianum | | | V | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotep | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Solanaceae | Solanum | lasiocarpum | | | | Y | | | | |
| Solanaceae | Solanum | multiglochidiatum | | | R | | | | | |
| Sonneratiaceae | Sonneratia | lanceolata | | | | | | | Y | |
| Stackhousiaceae | Stackhousia | sp. McIvor River (J.R. Clarkson 5201) | | | K | | | | | |
| Stemonaceae | Stemona | angusta | | | V | Y | | | | |
| Stemonaceae | Stemona | australiana | | | | | | | Y | |
| Sterculiaceae | Argyrodendron | sp. Whyanbeel (B.P. Hyland RFK1106) | | | R | | | | | |
| Sterculiaceae | Brachychiton | albidus | | | R | | | | | |
| Sterculiaceae | Brachychiton | grandiflorus | | | R | | | | | |
| Sterculiaceae | Brachychiton | muellerianus | | | | Y | | | | |
| Sterculiaceae | Brachychiton | velutinosus | | | R | | | | | |
| Sterculiaceae | Brachychiton | vitifolius | | | R | | | | | |
| Sterculiaceae | Commersonia | bartramia | | | | | Y | | | |
| Sterculiaceae | Helicteres | angustifolia | | | | | | | Y | |
| Sterculiaceae | Melochia | corchorifolia | | | | | Y | | | |
| Sterculiaceae | Sterculia | shillinglawii | subsp. | shillinglawii | R | Y | | | | |
| Sterculiaceae | Sterculia | shillinglawii | | | | | Y | | | |
| Stylidiaceae | Stylidium | javanicum | | | | Y | | | | |
| Stylidiaceae | Stylidium | pedunculatum | | | | | | | Y | |
| Stylidiaceae | Stylidium | quadrifurcatum | | | | | | | Y | |
| Symplocaceae | Symplocos | sp. Mt Finnigan (L.J. Brass 20129) | | | R | | | | | |
| Symplocaceae | Symplocos | stawellii | var. | montana | R | | | | | |
| Theaceae | Ternstroemia | cherryi | | | | | Y | | | |
| Thelypteridaceae | Amphineuron | sp. | | | | | | | | Y |
| Thelypteridaceae | Amphineuron | terminans | | | | | | | | Y |
| Thelypteridaceae | Macrothelypteris | sp. | | | | | | | | Y |
| Thelypteridaceae | Macrothelypteris | torresiana | | | | | | | | Y |
| Thelypteridaceae | Pronephrium | sp. | | | | | | | | Y |
| Thelypteridaceae | Pronephrium | triphyllum | | | | | | | | Y |
| Thelypteridaceae | Sphaerostephanos | heterocarpus | | | | | | | | Y |
| Thelypteridaceae | Sphaerostephanos | sp. | | | | | | | | Y |
| Thymelaeaceae | Jedda | multicaulis | | | V | Y | | | | |
| Thymelaeaceae | Pimelea | linifolia | | | | Y | | | | |
| Thymelaeaceae | Pimelea | umbratica | | | R | | | | | |
| Tiliaceae | Berrya | javanica | | | | Y | | | | |
| Tiliaceae | Brownlowia | argentata | | | R | | Y | | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Tiliaceae | Grewia | australis | | | K | | | | | |
| Tiliaceae | Grewia | mesomischa | | | | Y | | | | |
| Tiliaceae | Grewia | oxyphylla | | | | Y | | | | |
| Tiliaceae | Trichospermum | pleiostigma | | | | | Y | | | |
| Ulmaceae | Trema | orientalis | | | | | Y | | | |
| Urticaceae | Laportea | interrupta | | | | | Y | | | |
| Verbenaceae | Avicennia | marina | var. | marina | | Y | | | | |
| Verbenaceae | Callicarpa | brevistyla | | | | | | | Y | |
| Verbenaceae | Clerodendrum | inerme | | | | | Y | | | |
| Verbenaceae | Clerodendrum | parvulum | | | | Y | | | | |
| Verbenaceae | Faradaya | splendida | | | | | Y | | | |
| Verbenaceae | Petraeovitex | multiflora | | | | Y | | | | |
| Verbenaceae | Premna | hylandiana | | | K | Y | | | | |
| Verbenaceae | Premna | serratifolia | | | | | Y | | | |
| Verbenaceae | Vitex | helogiton | | | | | Y | | | |
| Verbenaceae | Vitex | melicopea | | | | | | | Y | |
| Verbenaceae | Vitex | trifolia | var. | trifolia | | | Y | | | |
| Violaceae | Hybanthus | stellarioides | | | | Y | | | | |
| Violaceae | Rinorea | bengalensis | | | | | Y | | | |
| Viscaceae | Notothixos | incanus | | | | | | | Y | |
| Viscaceae | Notothixos | leiophyllus | | | | | Y | | | |
| Vitaceae | Cissus | aristata | | | K | | Y | | | |
| Vitaceae | Tetrastigma | pisicarpum | | | | Y | | | | |
| Vittariaceae | Antrophyum | callifolium | | | | | | | | Y |
| Vittariaceae | Antrophyum | plantagineum | | | R | | | | | Y |
| Vittariaceae | Antrophyum | sp. | | | | | | | | Y |
| Vittariaceae | Vittaria | elongata | | | | | Y | | | |
| Winteraceae | Bubbia | queenslandiana | subsp. | queenslandiana | R | | | Y | | |
| Winteraceae | Bubbia | semecarpoides | | | | | | Y | | |
| Winteraceae | Bubbia | sp. | | | | | | Y | | |
| Winteraceae | Bubbia | whiteana | | | | Y | | Y | | |
| Winteraceae | Drimys | membranea | | | | Y | | Y | | |
| Winteraceae | Tasmannia | insipida | | | | | | Y | | |
| Winteraceae | Tasmannia | membranea | | | | | Y | Y | | |
| Winteraceae | Tasmannia | sp. | | | | | | Y | | |
| Winteraceae | Zygogynum | semecarpoides | var. | whiteanum | | Y | | Y | | |

| Family | Genus | Species | Infra-species rank | Infraspecies | Clark Rotap | Erin end | Extra Cont | Gondw | Disjunct | Indo-malay |
|---|---|---|---|---|---|---|---|---|---|---|
| Winteraceae | | WINTERACEAE | | | | | | Y | | |
| Xanthorrhoeaceae | Lomandra | montana | | | | Y | | | | |
| Xyridaceae | Xyris | indica | | | | | | | Y | |
| Xyridaceae | Xyris | paludosa | | | | Y | | | | |
| Zingiberaceae | Amomum | dallachyi | | | R | | | | | |
| Zingiberaceae | Amomum | queenslandicum | | | R | | | | | |
| Zingiberaceae | Etlingera | australasica | | | R | | | | | |
| Zingiberaceae | Globba | marantina | | | R | Y | | | | |

| Class | Genus | Species | Endemic | Rare/ Threatened | CYP and outside Aust. |
|---|---|---|---|---|---|
| | | | | | |
| Amphibia | Cophixalus | bombiens | Y | R | |
| Amphibia | Cophixalus | concinnus | | R | |
| Amphibia | Cophixalus | crepitans | Y | R | |
| Amphibia | Cophixalus | exiguus | Y | R | |
| Amphibia | Cophixalus | peninsularis | Y | R | |
| Amphibia | Cophixalus | saxatilis | Y | R | |
| Amphibia | Crinia | remota | Y | | Y |
| Amphibia | Cyclorana | manya | Y | R | |
| Amphibia | Litoria | genimaculata | | R | |
| Amphibia | Litoria | longirostris | Y | R | |
| Amphibia | Litoria | nannotis | | E | |
| Amphibia | Litoria | nigrofrenata | Y | | Y |
| Amphibia | Litoria | rheocola | | E | |
| Amphibia | Nyctimystes | dayi | | E | |
| Amphibia | Sphenophryne | fryi | | R | |
| Amphibia | Sphenophryne | gracilipes | Y | | Y |
| Amphibia | Taudactylus | acutirostris | | E | |
| Amphibia | Uperoleia | mimula | Y | | Y |
| Aves | Accipiter | novaehollandiae | | R | |
| Aves | Anas | castanea | | R | |
| Aves | Arses | telescophthalmus | Y | | Y |
| Aves | Cacomantis | castaneiventris | Y | | Y |
| Aves | Casuarius | casuarius | | V | |
| Aves | Chlamydera | cerviniventris | Y | | Y |
| Aves | Collocalia | spodiopygius | | R | |
| Aves | Conopophila | albogularis | | | |
| Aves | Cyclopsitta | diophthalma | | R | |
| Aves | Drymodes | superciliaris | Y | | Y |
| Aves | Eclectus | roratus | Y | V | Y |
| Aves | Ephippiorhynchus | asiaticus | | R | |
| Aves | Erythrotriorchis | radiatus | | E | |
| Aves | Erythrura | gouldiae | | E | |
| Aves | Geoffroyus | geoffroyi | Y | | Y |
| Aves | Glycichaera | fallax | Y | | Y |
| Aves | Lophoictinia | isura | | R | |
| Aves | Manucodia | keraudrenii | Y | | Y |
| Aves | Microeca | griseoceps | Y | | Y |
| Aves | Monarcha | frater | Y | | Y |
| Aves | Neochmia | ruficauda | | E | |
| Aves | Nettapus | coromandelianus | | R | |
| Aves | Ninox | rufa | | R | |
| Aves | Numenius | madagascariensis | | R | |
| Aves | Pitta | erythrogaster | Y | | Y |

| Class | Genus | Species | Endemic | Rare/ Threatened | CYP and outside Aust. |
|---|---|---|---|---|---|
| Aves | Podargus | ocellatus | | | |
| Aves | Probosciger | aterrimus | Y | R | Y |
| Aves | Psephotus | chrysopterygius | | E | |
| Aves | Ptiloris | magnificus | Y | | Y |
| Aves | Sericornis | beccarii | Y | | Y |
| Aves | Sterna | albifrons | | E | |
| Aves | Syma | torotoro | Y | | Y |
| Aves | Tadorna | radjah | | R | |
| Aves | Tregellasia | leucops | Y | | Y |
| Aves | Trichodere | cockerelli | | Y | |
| Aves | Turnix | melanogaster | | V | |
| Aves | Turnix | olivii | | K | |
| Aves | Xanthotis | chrysotis | Y | | Y |
| Mammalia | Antechinomys | laniger | | | |
| Mammalia | Antechinus | leo | Y | | R |
| Mammalia | Dasyurus | maculatus | | R | |
| Mammalia | Dendrolagus | bennettianus | | R | |
| Mammalia | Dobsonia | moluccensis | Y | R | Y |
| Mammalia | Echymipera | rufescens | Y | | Y |
| Mammalia | Hipposideros | cervinus | Y | V | Y |
| Mammalia | Hipposideros | diadema | | R | |
| Mammalia | Hipposideros | semoni | | V | |
| Mammalia | Isoodon | obesulus | | | |
| Mammalia | Kerivoula | papuensis | | R | |
| Mammalia | Leggadina | lakedownensis | Y | | |
| Mammalia | Macroderma | gigas | | R | |
| Mammalia | Melomys | capensis | Y | | |
| Mammalia | Mesembriomys | gouldii | | | |
| Mammalia | Notomys | aquilo | V | | |
| Mammalia | Petrogale | coenensis | Y | R | |
| Mammalia | Petrogale | godmani | Y | | Y |
| Mammalia | Phalanger | intercastellanus | Y | R | Y |
| Mammalia | Phascogale | tapoatafa | | | |
| Mammalia | Pogonomys | loriae | Y | | |
| Mammalia | Pseudocheirus | cinereus | Y | R | |
| Mammalia | Pteropus | conspicillatus | V | | |
| Mammalia | Saccolaimus | mixtus | Y | R | Y |
| Mammalia | Saccolaimus | saccolaimus | | R | |
| Mammalia | Sminthopsis | archeri | Y | R | Y |
| Mammalia | Sminthopsis | virginiae | | | |
| Mammalia | Spilocuscus | maculatus | Y | R | Y |
| Mammalia | Taphozous | australis | V | | |
| Reptilia | Acanthophis | antarcticus | | R | |
| Reptilia | Anomalopus | pluto | Y | K | |
| Reptilia | Carlia | coensis | Y | | |

| Class | Genus | Species | Endemic | Rare/ Threatened | CYP and outside Aust. |
|---|---|---|---|---|---|
| Reptilia | Carlia | dogare | Y | | |
| Reptilia | Carlia | rimula | Y | | |
| Reptilia | Carlia | scirtetis | Y | R | |
| Reptilia | Chondropython | viridis | Y | R | Y |
| Reptilia | Cryptoblepharus | fuhni | Y | R | |
| Reptilia | Ctenotus | nullum | Y | | |
| Reptilia | Ctenotus | quinkan | Y | | |
| Reptilia | Ctenotus | rawlinsoni | Y | R | |
| Reptilia | Cyrtodactylus | louisiadensis | Y | | Y |
| Reptilia | Egernia | rugosa | V | | |
| Reptilia | Emoia | atrocostata | Y | R | Y |
| Reptilia | Emoia | longicauda | Y | | Y |
| Reptilia | Eretmochelys | imbricata | V | | |
| Reptilia | Eugongylus | rufescens | Y | | Y |
| Reptilia | Eulamprus | tigrinus | | R | |
| Reptilia | Furina | tristis | Y | | Y |
| Reptilia | Glaphyromorphus | nigricaudis | Y | | Y |
| Reptilia | Glaphyromorphus | pardalis | Y | | Y |
| Reptilia | Glaphyromorphus | pumilus | Y | | Y |
| Reptilia | Lerista | ingrami | Y | R | |
| Reptilia | Lophognathus | temporalis | | | |
| Reptilia | Lygisaurus | laevis | Y | | |
| Reptilia | Lygisaurus | sesbrauna | Y | | |
| Reptilia | Lygisaurus | tanneri | Y | R | |
| Reptilia | Menetia | koshlandae | Y | | |
| Reptilia | Nactus | galgajuga | Y | R | |
| Reptilia | Nactus | pelagicus | Y | | Y |
| Reptilia | Oedura | castelnaui | Y | | Y |
| Reptilia | Pseudothecadacty | australis | Y | | |
| Reptilia | Ramphotyphlops | broomi | | R | |
| Reptilia | Saltuarius | occultus | Y | R | |
| Reptilia | Saproscincus | spectabilis | Y | | |
| Reptilia | Simoselaps | warro | | K | |
| Reptilia | Varanus | indicus | | | |
| Reptilia | Varanus | semiremex | | R | |
| Reptilia | Varanus | teriae | Y | R | |

| BVG | TITLE | DESCRIPTION | Area of BVG (sq. km) | No. of gonwanic species (n = 104) | No. of intrusive species (n=103) | No. of extra-continental species (n=21) | No of disjunct species (n=134) |
|---|---|---|---|---|---|---|---|
| 1 | 'RAINF_WET_TR' | 'Closed-forests of the Wet Tropics region.' | 521 | 70 | 53 | 6 | 8 |
| 2 | 'RAINF_MCILW' | 'Closed-forests of the McIlwraith-Iron Range region.' | 1805 | 45 | 60 | 17 | 27 |
| 3 | 'RAINF_NORTH' | 'Closed-forests of northern Cape York Peninsula and the Torres Strait Islands.' | 752 | 22 | 19 | 11 | 28 |
| 4 | 'RAINF_DUNES' | 'Closed-forests of coastal dunes dunefields and the Jardine River frontage.' | 430 | 12 | 3 | 5 | 12 |
| 5 | 'RAINF_DECID' | 'Deciduous low closed-forests on slopes and alluvia.' | 616 | 15 | 13 | 4 | 10 |
| 6 | 'RAINF_ALLUVIA' | 'Gallery closed-forests and Melaleuca spp. dominated open-forests on alluvia.' | 3358 | 39 | 43 | 13 | 50 |
| 7 | BOX_CHLOROPHYLLA' | 'Woodlands and open-woodlands dominated by Eucalyptus chlorophylla E. microtheca or E. acroleuca.' | 6695 | 6 | 6 | 2 | 17 |
| 8 | 'BLOODWOOD' | 'Woodlands and open-woodlands dominated by Eucalyptus clarksoniana E. novoguinensis or E. polycarpa.' | 7520 | 11 | 7 | 7 | 33 |
| 9 | 'CULLENII_RANGES' | 'Woodlands and open-woodlands dominated by Eucalyptus cullenii E. crebra or E. persistens subsp. tardecidens.' | 5299 | 12 | 21 | 6 | 19 |
| 10 | HYLANDII_RANGES' | 'Woodlands dominated by Eucalyptus hylandii or E. tetrodonta on sandstone metamorphic and ironstone ranges.' | 9690 | 15 | 13 | 5 | 32 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | BOX_LEPTOPHLEBA_N' | 'Open-woodlands and woodlands dominated by Eucalyptus leptophleba on river frontages and northern undulating plains.' | 4079 | 17 | 15 | 5 | 21 |
| 12 | BOX_ LEPTOPHLEBA_SE' | 'Woodlands dominated by Eucalyptus leptophleba E. platyphylla or E. erythrophloia on undulating hills and plains in the south-east.' | 1192 | 13 | 10 | 2 | 10 |
| 13 | 'NESOPHILA' | 'Open-forests and woodlands dominated by Eucalyptus nesophila or E. hylandii.' | 1240 | 23 | 19 | 8 | 21 |
| 14 | 'EUCALYPT_WET_TR' | 'Eucalyptus spp. open-forests of the Wet Tropics region.' | 110 | 30 | 33 | 2 | 3 |
| 15 | TESSELL_COASTAL' | 'Open-forests and woodlands dominated by Eucalyptus tessellaris E. clarksoniana or E. brassiana on coastal plains and ranges.' | 1155 | 35 | 30 | 14 | 30 |
| 16 | 'TETRO_PLATEAU' | 'Woodlands and tall woodlands dominated by Eucalyptus tetrodonta on deeply weathered plateaus and remnants.' | 25910 | 28 | 27 | 14 | 84 |
| 17 | TETRO_EROSIONAL' | 'Woodlands dominated by Eucalyptus tetrodonta on erosional surfaces and residual sands.' | 22527 | 18 | 21 | 9 | 55 |
| 18 | 'MELAL_VIRID' | 'Low open-woodlands and low woodlands dominated by Melaleuca viridiflora on depositional plains.' | 13904 | 13 | 14 | 8 | 32 |
| 19 | 'MELAL_WET' | 'Open-forests and low open-forests dominated by Melaleuca spp. in seasonally inundated swamps.' | 1827 | 2 | 2 | 1 | 6 |
| 20 | 'MELAL_MISC' | 'Low open-woodlands and tall shrublands dominated by Melaleuca stenostachya M. citrolens or other Melaleuca spp.' | 3282 | 4 | 8 | 3 | 14 |
| 21 | 'GRASS_MARINE' | 'Tussock grasslands on marine plains.' | 5396 | 6 | 8 | 3 | 11 |
| 22 | 'GRASS_CLAY' | 'Closed-tussock grasslands and open-woodlands on undulating clay plains.' | 1000 | 2 | 1 | 0 | 5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | 'GRASS_MISC' | 'Tussock grasslands on longitudinal drainage depressions headlands o | 1714 | 9 | 6 | 3 | 7 |
| 24 | 'HEATH' | 'Open-heaths and dwarf open-heaths on dunefields sandplains and headlands.' | 4461 | 23 | 17 | 11 | 55 |
| 25 | 'LITTORAL' | 'Woodlands and herblands on beach ridges and the littoral margin.' | 981 | 3 | 4 | 1 | 6 |
| 26 | 'MANGROVE' | 'Closed-forests and low closed-forests dominated by mangroves.' | 1594 | 12 | 11 | 6 | 17 |
| 27 | 'WETLAND' | 'Sedgelands lakes and lagoons.' | 1360 | 19 | 11 | 10 | 22 |
| 28 | 'CORAL_ISLANDS' | 'Vegetation of the coral atolls and sand cays.' | 31 | 0 | 0 | 0 | 0 |
| 29 | 'MISC_BARE' | 'Rocky and bare sandy areas e.g. saltpans sand blows and rock pavements.' | 1568 | 3 | 5 | 5 | 15 |
| 30 | 'MISC_MYRTACEAE' | 'Miscellaneous vegetation group dominated by Acacia spp. or members of the myrtaceae family occurring on a variety of landforms.' | 3511 | 29 | 24 | 12 | 29 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 1 | 1,253.00 | Eucalyptus tetrodonta +/- E. hylandii +/- Erythrophleum chlorostachys (The Desert) | 0 | 1 | 3 | 0 | 2 | 0 |
| 2 | 8,463.00 | 'Eucalyptus tetrodonta E. nesophila +/- Erythrophleum chlorostachys (Bauxite plateau) TW' | 0 | 2 | 12 | 1 | 6 | 1 |
| 3 | 104.00 | Complex Mesophyll Vine Forest (Wet Tropics) (Metamorphics) | 19 | 17 | 30 | 2 | 0 | 7 |
| 4 | 4.00 | 'Complex Mesophyll Vine Forest on basalt (Shipton Flat) (= Tracey 5b) CF' | 7 | 14 | 28 | 1 | 0 | 3 |
| 5 | 110.00 | 'Complex Notophyll Vine Forest +/- Agathis robusta (Wet Tropics) (= Tracey 6) CF' | 10 | 14 | 19 | 2 | 0 | 3 |
| 6 | 40.00 | 'Semi Deciduous Mesophyll Vine Forest (Wet Tropics) (= Tracey 4) CF' | 6 | 11 | 25 | 2 | 0 | 2 |
| 7 | 41.00 | 'Semi Deciduous Mesophyll Vine Forest (Metamorphic slopes - Mt Stuckey) CF' | 4 | 12 | 17 | 1 | 0 | 1 |
| 8 | 489.00 | 'Semi Deciduous Mesophyll Vine Forest (Claudie River & Normanby River) CF' | 17 | 27 | 66 | 23 | 5 | 31 |
| 9 | 37.00 | 'Semi Deciduous Mesophyll/Notophyll Vine Forest (Granite slopes - Birthday Mtn) CF' | 10 | 17 | 34 | 13 | 10 | 11 |
| 10 | 101.00 | 'Semi Deciduous Mesophyll/Notophyll Vine Forest CF (Alluvia Cooktown)' | 10 | 21 | 0 | 2 | 1 | 3 |
| 11 | 96.00 | 'Semi Deciduous Notophyll Vine Forest (Lockerbie) CF' | 9 | 21 | 45 | 16 | 4 | 15 |
| 12 | 152.00 | 'Semi Deciduous Notophyll Vine Forest (Small patches on plateaus northern CYP) CF' | 10 | 11 | 35 | 10 | 9 | 12 |
| 13 | 29.00 | 'Semi Deciduous Notophyll/Microphyll Vine Forest (Mt Webb) CF' | 6 | 15 | 35 | 5 | 2 | 5 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 14 | 1.00 | 'Semi Deciduous Notophyll/Microphyll Vine Thicket CF' | 1 | 4 | 10 | 2 | 3 | 4 |
| 15 | 79.00 | 'Araucarian Notophyll Vine Forest with emergent Araucaria cunninghamii (Altanmoui McIlwraith & | 5 | 10 | 21 | 6 | 3 | 6 |
| 16 | 65.00 | 'Evergreen Mesophyll Vine Forest with Archontophoenix alexandrae (Streams) CF' | 13 | 13 | 49 | 17 | 8 | 15 |
| 17 | 35.00 | 'Evergreen Mesophyll/Notophyll Vine Forest (Sandstone gullies Cooktown area) CF' | 7 | 11 | 19 | 10 | 0 | 3 |
| 18 | 785.00 | 'Evergreen Notophyll Vine Forest (Major streams) CF' | 10 | 16 | 63 | 18 | 11 | 14 |
| 19 | 26.00 | 'Evergreen Notophyll Vine Forest dominated by Melaleuca leucadendra Xanthostemon crenulatus & | 6 | 11 | 42 | 13 | 8 | 5 |
| 20 | 62.00 | 'Evergreen Notophyll Vine Forest dominated by Syzygium spp. & Terminalia spp. (Beach rainforest | 10 | 22 | 55 | 23 | 17 | 20 |
| 21 | 776.00 | 'Notophyll Vine Forest (Iron & McIlwraith Ranges) CF' | 17 | 28 | 65 | 30 | 7 | 39 |
| 22 | 1.00 | 'Notophyll Vine Forest of Welchiodendron longivalve Syzygium branderhorstii Ficus spp. & Palms (Torres | 1 | 4 | 10 | 1 | 1 | 0 |
| 23 | 63.00 | 'Simple Evergreen Notophyll Vine Forest (= Tracey 8 & 10) (Wet Tropics) CF' | 12 | 5 | 13 | 1 | 0 | 5 |
| 24 | 319.00 | 'Simple Evergreen Notophyll Vine Forest (North-east CYP) (Sometimes emergent Callitris intratropica) CF' | 13 | 17 | 64 | 25 | 11 | 23 |
| 25 | 38.00 | 'Simple Evergreen Notophyll Vine Forest dominated by Callitris intratropica emergents CF (occasionally | 6 | 1 | 14 | 11 | 1 | 3 |
| 26 | 855.00 | 'Simple Evergreen Notophyll Vine Forest with Acacia aulacocarpa +/- Eucalyptus tessellaris +/- Blepharocarya involucrigera emergents (Iron Range & | 13 | 12 | 48 | 18 | 8 | 25 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 27 | 26.00 | 'Simple Evergreen Notophyll Vine Forest with Eucalyptus pellita emergents CF' | 5 | 6 | 13 | 1 | 0 | 1 |
| 28 | 1.00 | 'Simple Evergreen Notophyll Vine Forest (= Tracey 10) (High peaks Wet Tropics) CF' | 6 | 5 | 11 | 0 | 0 | 4 |
| 29 | 9.00 | 'Simple Evergreen Notophyll Vine Forest +/- Wodyetia bifurcata (Melville Range) CF' | 1 | 5 | 16 | 5 | 1 | 3 |
| 30 | 1.00 | 'Simple Microphyll Vine Fern Thicket (Mt Finnigan) (= Tracey 10) CF' | 4 | 0 | 1 | 0 | 0 | 5 |
| 31 | 127.00 | 'Semi Deciduous Vine Thicket with canopy of Neofabricia myrtifolia Syzygium suborbiculare +/- Terminalia muelleri +/- Thryptomene oligandra (Dune | 3 | 6 | 18 | 2 | 3 | 0 |
| 32 | 62.00 | 'Deciduous Notophyll/Microphyll Vine Thicket +/- Gyrocarpus americanus +/- Bombax ceiba emergents (Laura Basin) CF (Semi Deciduous Notophyll Vine | 4 | 12 | 34 | 11 | 11 | 15 |
| 33 | 4.00 | 'Deciduous Vine Forest (Lakeland area on basalt hills eg. Mt Earl Mt Scatterbrain) CF' | 1 | 7 | 12 | 1 | 0 | 5 |
| 34 | 663.00 | 'Rhizophora stylosa +/- Bruguiera gymnorhiza +/- Avicennia marina (Outer mangroves) CF' | 0 | 0 | 13 | 1 | 1 | 0 |
| 35 | 85.00 | 'Acacia shirleyi (Rocky rises southern CYP) OF' | 0 | 0 | 1 | 1 | 1 | 0 |
| 36 | 98.00 | 'Eucalyptus brassiana E. clarksoniana Allocasuarina littoralis (Western McIlwraith & wet coastal areas) | 0 | 2 | 22 | 2 | 1 | 1 |
| 37 | 362.00 | 'Eucalyptus clarksoniana (or E. novoguinensis) E. tessellaris +/- Acacia polystachya +/- rainforest | 2 | 9 | 33 | 4 | 3 | 4 |
| 38 | 3.00 | 'Eucalyptus cloeziana (Rossville ranges) (= Tracey 16c) OF' | 0 | 0 | 10 | 0 | 2 | 0 |
| 39 | 11.00 | 'Eucalyptus crebra +/- E. intermedia +/- Lophostemon suaveolens +/- Allocasuarina littoralis | 0 | 1 | 15 | 0 | 1 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 40 | 9.00 | 'Eucalyptus intermedia E. leptophleba Erythrophleum chlorostachys +/- E. tereticornis (Bloomfield hills) | 0 | 2 | 17 | 0 | 2 | 0 |
| 41 | 183.00 | 'Eucalyptus nesophila +/- Eucalyptus spp. (Wet Tropics) (= Tracey 16k) OF' | 0 | 3 | 34 | 0 | 4 | 1 |
| 42 | 20.00 | 'Eucalyptus pellita +/- E. intermedia +/- Allocasuarina torulosa +/- Acacia flavescens | 0 | 1 | 11 | 0 | 2 | 0 |
| 43 | 29.00 | 'Eucalyptus platyphylla E. leptophleba Erythrophleum chlorostachys +/- other Eucalyptus spp. (Ranges & | 0 | 2 | 21 | 0 | 2 | 0 |
| 44 | 247.00 | 'Eucalyptus tessellaris E. clarksoniana +/- Lophostemon suaveolens +/- Acacia crassicarpa | 0 | 5 | 42 | 5 | 7 | 2 |
| 45 | 4.00 | 'Eucalyptus tindaliae (Mt Poverty) OF' | 0 | 0 | 6 | 0 | 0 | 0 |
| 46 | 14.00 | 'Eucalyptus umbra (CREB track) (= Tracey 16k) OF' | 0 | 0 | 9 | 0 | 2 | 0 |
| 47 | 474.00 | 'Lophostemon suaveolens +/- Dillenia alata +/- Xanthostemon crenulatus +/- Melaleuca leucadendra | 0 | 1 | 19 | 7 | 2 | 1 |
| 48 | 1,758.00 | 'Melaleuca argentea +/- M. leucadendra +/- Acacia auriculiformis +/- Syzygium forte +/- Leptospermum parvifolium (Major streams) (M. saligna in minor | 0 | 2 | 26 | 2 | 2 | 0 |
| 49 | 110.00 | 'Melaleuca dealbata +/- Acacia crassicarpa (Dune swales) OF-W' | 0 | 2 | 6 | 2 | 0 | 0 |
| 50 | 79.00 | 'Melaleuca leucadendra +/- Eucalyptus tereticornis +/- Nauclea orientalis +/- Acacia oraria +/- Lagerstroemia archeriana +/- M. linariifolia var. | 0 | 2 | 8 | 0 | 0 | 0 |
| 51 | 26.00 | 'Melaleuca quinquenervia open-forest (Coastal swamps) OF' | 0 | | 3 | 1 | 0 | 0 |
| 52 | 12.00 | 'Melaleuca saligna +/- Hakea pedunculata +/- M. acacioides (Bathurst Heads edge of salt pans) OF' | 0 | | 1 | 0 | 0 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 53 | 305.00 | 'Melaleuca saligna +/- M. leucadendra +/- M. viridiflora Lophostemon suaveolens +/- Asteromyrtus symphyocarpa &/or M. sp. (Emu | 0 | 1 | 19 | 6 | 4 | 1 |
| 54 | 670.00 | 'Acacia crassicarpa +/- Syzygium suborbiculare +/- Parinari nonda +/- Acacia spp. (Dunes on west | 0 | 3 | 23 | 2 | 3 | 0 |
| 55 | 20.00 | 'Casuarina equisetifolia (Foredunes) OF-LOW' | 0 | 1 | 2 | 0 | 0 | 0 |
| 56 | 19.00 | 'Eucalyptus acmenoides E. citriodora E. crebra (Mt Janet sandstone capping) W' | 0 | 0 | 2 | 0 | 1 | 0 |
| 57 | 3.00 | 'Eucalyptus brassiana (Bathurst Head drainage areas) W' | 0 | 0 | 4 | 0 | 0 | 0 |
| 58 | 718.00 | 'Eucalyptus chlorophylla +/- E. clarksoniana (Lakefield south-east CYP) W' | 0 | 1 | 11 | 0 | 0 | 1 |
| 59 | 36.00 | 'Eucalyptus chlorophylla with Terminalia platyptera & Melaleuca stenostachya subcanopy W (Laura River)' | 0 | 0 | 1 | 0 | 0 | 0 |
| 60 | 234.00 | 'Eucalyptus clarksoniana Erythrophleum chlorostachys E. brassiana +/- E. tessellaris +/- Canarium australianum Melaleuca nervosa (Running | 0 | 2 | 14 | 0 | 2 | 0 |
| 61 | 359.00 | 'Eucalyptus clarksoniana +/- E. papuana +/- Erythrophleum chlorostachys +/- Melaleuca nervosa | 0 | 3 | 21 | 0 | 2 | 0 |
| 62 | 431.00 | 'Eucalyptus clarksoniana +/- E. papuana +/- Melaleuca nervosa +/- Piliostigma malabaricum +/- E. chlorophylla +/- E. microtheca (Archer River | 0 | 1 | 10 | 1 | 1 | 1 |
| 63 | 991.00 | 'Eucalyptus clarksoniana +/- Melaleuca viridiflora +/- Erythrophleum chlorostachys +/- E. leptophleba | 0 | 0 | 13 | 0 | 3 | 0 |
| 64 | 379.00 | 'Eucalyptus clarksoniana +/- Syzygium eucalyptoides +/- Melaleuca viridiflora W (Aurukun/Holroyd | 0 | 0 | 6 | 4 | 3 | 1 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 65 | 1,195.00 | 'Eucalyptus clarksoniana/E. novoguinensis +/- Lophostemon suaveolens +/- Parinari nonda +/- Erythrophleum chlorostachys +/- Melaleuca viridiflora | 0 | 3 | 29 | 3 | 8 | 1 |
| 66 | 113.00 | 'Eucalyptus clarksoniana/E. novoguinensis with mid-dense shrub layer +/- E. platyphylla (Coastal wet | 0 | 3 | 23 | 7 | 6 | 3 |
| 67 | 1,152.00 | 'Eucalyptus clarksoniana/E. polycarpa +/- Erythrophleum chlorostachys +/- E. tetrodonta +/- | 0 | 2 | 13 | 0 | 6 | 1 |
| 68 | 269.00 | 'Eucalyptus crebra E. ellipsoidea or E. hylandii var. campestris (Southern ranges) W' | 0 | | 5 | 0 | 1 | 0 |
| 69 | 1,370.00 | 'Eucalyptus cullenii E. clarksoniana +/- E. chlorophylla +/- E. confertiflora (Granite slopes) W- | 0 | 1 | 10 | 0 | 2 | 1 |
| 70 | 2,520.00 | 'Eucalyptus cullenii +/- E. clarksoniana (Acid volcanic ranges) W' | 0 | 3 | 21 | 0 | 5 | 2 |
| 71 | 664.00 | 'Eucalyptus culleniiE. hylandii var. campestris +/- Melaleuca stenostachya (Ranges) W' | 0 | 2 | 13 | 0 | 7 | 0 |
| 72 | 710.00 | 'Eucalyptus cullenii +/- E. tetrodonta +/- Erythrophleum chlorostachys +/- Eucalyptus confertiflora +/- E. clarksoniana (Erosional surfaces | 0 | 0 | 8 | 2 | 7 | 3 |
| 73 | 47.00 | 'Eucalyptus erythrophloia (Lakeland basalt flows) W' | 0 | 0 | 9 | 0 | 0 | 0 |
| 74 | 95.00 | 'Eucalyptus hylandii var. hylandii +/- E. nesophila +/- Welchiodendron longivalve +/- mid-dense shrub layer (Slopes & undulating plains northern CYP & Torres | 0 | 2 | 17 | 4 | 6 | 2 |
| 75 | 887.00 | 'Eucalyptus hylandii var. hylandii E. tetrodonta (Ironstone knolls Aurukun) W' | 0 | 0 | 7 | 0 | 1 | 0 |
| 76 | 3,155.00 | 'Eucalyptus hylandii var. hylandii +/- E. tetrodonta +/- E. cullenii (Sandstone plateaus) W' | 0 | 1 | 16 | 3 | 9 | 2 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 77 | 3,864.00 | 'Eucalyptus hylandii var. hylandii +/- E. tetrodonta +/- E. cullenii +/- Melaleuca stenostachya (Ironstone | 0 | 1 | 14 | 3 | 11 | 4 |
| 78 | 258.00 | 'Eucalyptus leptophleba +/- E. clarksoniana +/- Erythrophleum chlorostachys (Sandstone colluvium | 0 | 1 | 9 | 0 | 0 | 0 |
| 79 | 309.00 | 'Eucalyptus leptophleba +/- E. papuana +/- E. clarksoniana +/- E. erythrophloia +/- E. cullenii | 0 | 0 | 10 | 0 | 2 | 0 |
| 80 | 574.00 | 'Eucalyptus leptophleba E. tessellaris +/- E. clarksoniana (Riverine levees) W' | 0 | 2 | 17 | 1 | 1 | 1 |
| 81 | 527.00 | 'Eucalyptus leptophleba E. platyphylla +/- E. tessellaris +/- E. clarksoniana (Cooktown rolling hills) | 0 | 1 | 14 | 0 | 1 | 0 |
| 82 | 694.00 | 'Eucalyptus nesophila +/- E. brassiana W to OF (Metamorphic hills) W' | 1 | 4 | 28 | 5 | 9 | 1 |
| 83 | 37.00 | 'Eucalyptus nesophila +/- E. novoguinensis +/- E. hylandii var. campestris +/- E. tetrodonta (Old | 0 | 0 | 13 | 2 | 3 | 0 |
| 84 | 64.00 | 'Eucalyptus novoguinensis +/- E. tessellaris +/- E. nesophila (Northern CYP) W' | 0 | 2 | 21 | 1 | 6 | 0 |
| 85 | 60.00 | 'Eucalyptus phoenicea +/- E. nesophila +/- E umbra (Cape Bedford & wetter sandstones) OF-LOF' | 0 | 1 | 14 | 4 | 3 | 4 |
| 86 | 653.00 | 'Eucalyptus phoenicea +/- E. tetrodonta +/- E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- Eucalyptus clarksoniana (Sandy | 0 | 0 | 7 | 5 | 6 | 1 |
| 87 | 273.00 | 'Eucalyptus platyphylla +/- E. clarksoniana (Flat wet plains) W-OF' | 0 | 1 | 17 | 5 | 3 | 0 |
| 88 | 1,216.00 | 'Eucalyptus polycarpa (or E. clarksoniana) +/- E. papuana +/- E. curtipes (E. papuana OW on edge) | 0 | 2 | 15 | 0 | 1 | 0 |
| 89 | 10.00 | 'Eucalyptus similis (Ebagoola) W' | 0 | 0 | 0 | 0 | 0 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 90 | 199.00 | 'Eucalyptus staigeriana (Metamorphic ranges Maytown area) W' | 0 | 0 | 0 | 0 | 0 | 0 |
| 91 | 189.00 | 'Eucalyptus tessellaris +/- E. clarksoniana +/- E. acroleuca +/- E. leptophleba (Lakefield levees) W' | 0 | 2 | 14 | 0 | 2 | 0 |
| 92 | 6,202.00 | 'Eucalyptus tetrodonta +/- E. clarksoniana +/- Erythrophleum chlorostachys (Low-lying sandy | 0 | 2 | 24 | 5 | 9 | 2 |
| 93 | 92.00 | 'Eucalyptus tetrodonta E. clarksoniana +/- E. brassiana (Stabilised dunes Archer Pt & Barrow Pt) | 0 | 1 | 11 | 3 | 3 | 1 |
| 94 | 552.00 | 'Eucalyptus tetrodonta +/- E. clarksoniana +/- E. tessellaris (Coastal lowlands) W' | 0 | 5 | 28 | 2 | 7 | 1 |
| 95 | 3,379.00 | 'Eucalyptus tetrodonta +/- E. confertiflora +/- E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- E. clarksoniana +/- E. leptophleba | 0 | 0 | 13 | 1 | 10 | 3 |
| 96 | 623.00 | 'Eucalyptus tetrodonta E. hylandii var. hylandii +/- Erythrophleum chlorostachys (Sandstone plateaus) | 0 | 0 | 5 | 0 | 5 | 0 |
| 97 | 2,095.00 | 'Eucalyptus tetrodonta (or E. nesophila) E. hylandii var. campestris +/- Erythrophleum chlorostachys +/- Xanthorrhoea johnsonii +/- E. cullenii (Granite | 0 | 1 | 7 | 1 | 6 | 0 |
| 98 | 8,634.00 | 'Eucalyptus tetrodonta E. hylandii var. campestris Erythrophleum chlorostachys +/- Eucalyptus setosa (Sand ridges west of Dividing Range) W' | 0 | 1 | 9 | 4 | 9 | 4 |
| 99 | 228.00 | 'Eucalyptus tetrodonta E. hylandii var. campestris +/- E. cullenii W' | 0 | 2 | 11 | 0 | 3 | 0 |
| 100 | 797.00 | 'Eucalyptus tetrodonta E. hylandii var. hylandii +/- E. nesophila +/- E. cullenii (or E. crebra) (Sandstone | 0 | 1 | 13 | 2 | 7 | 0 |
| 101 | 8,683.00 | 'Eucalyptus tetrodonta E. nesophila (Plateaus red earth soils & earthy sands) W' | 0 | 3 | 29 | 5 | 13 | 4 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 102 | 2,391.00 | 'Eucalyptus tetrodonta +/- E. nesophila +/- Asteromyrtus brassii +/- heath understorey (Sand | 0 | 2 | 19 | 6 | 11 | 1 |
| 103 | 2,134.00 | 'Eucalyptus tetrodonta +/- E. nesophila (&/or E. hylandii var. campestris) +/- Erythrophleum chlorostachys +/- Eucalyptus leptophleba +/- E. | 0 | 2 | 23 | 5 | 12 | 4 |
| 104 | 2,971.00 | 'Eucalyptus tetrodonta +/- E. nesophila +/- E. clarksoniana +/- shrubby layer (Earthy sands on | 0 | 1 | 9 | 0 | 7 | 1 |
| 105 | 258.00 | 'Eucalyptus tetrodonta +/- E. nesophila +/- Lophostemon suaveolens +/- M. stenostachya | 0 | 4 | 15 | 2 | 5 | 0 |
| 106 | 394.00 | 'Melaleuca stenostachya Acacia leptostachya (Erosional slopes into creeks) W' | 0 | 0 | 2 | 1 | 0 | 0 |
| 107 | 1,343.00 | 'Melaleuca viridiflora Asteromyrtus brassii +/- M. stenostachya (Metamorphic hills Wattle Hills) W' | 0 | 0 | 7 | 2 | 1 | 0 |
| 108 | 86.00 | 'Melaleuca viridifloraAsteromyrtus brassii +/- M. stenostachya (Flat sandplains south of Lockhart | 0 | 0 | 4 | 2 | 4 | 0 |
| 109 | 759.00 | 'Melaleuca viridiflora +/- M. saligna +/- Asteromyrtus symphyocarpa +/- Lophostemon suaveolens +/- Melaleuca spp. (Sinkholes & drainage depressions) | 0 | 0 | 2 | 0 | 0 | 2 |
| 110 | 1,790.00 | 'Thryptomene oligandra +/- Neofabricia mjoebergii +/- Melaleuca viridiflora +/- Grevillea pteridifolia +/- Acacia torulosa (Drainage depressions) W' | 0 | 0 | 9 | 3 | 9 | 0 |
| 111 | 45.00 | 'Corypha utan (Northern Lakefield) OW' | 0 | 2 | 8 | 0 | 1 | 0 |
| 112 | 350.00 | 'Eucalyptus acroleuca (Lakefield floodplains) OW-W' | 0 | 1 | 5 | 0 | 2 | 0 |
| 113 | 3,370.00 | 'Eucalyptus chlorophylla (Southern plains) OW-W' | 0 | 1 | 12 | 0 | 1 | 1 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 114 | 1,451.00 | 'Eucalyptus clarksoniana +/- Melaleuca viridiflora +/- E. platyphylla (Plains & floodplains yellow earths) | 0 | 0 | 11 | 1 | 5 | 1 |
| 115 | 531.00 | 'Eucalyptus leptophleba &/or E. chlorophylla +/- E. papuana +/- Erythrophleum chlorostachys +/- E. | 0 | 2 | 22 | 0 | 7 | 2 |
| 116 | 2,706.00 | 'Eucalyptus leptophleba +/- E. papuana +/- E. clarksoniana (Rolling plains northern CYP brown | 0 | 3 | 30 | 1 | 0 | 5 |
| 117 | 280.00 | 'Eucalyptus microtheca +/- E. papuana (Archer River floodplains) OW' | 0 | 0 | 4 | 0 | 0 | 0 |
| 118 | 369.00 | 'Eucalyptus papuana +/- E. leptophleba (Rolling to flat plains Batavia Downs) OW' | 0 | 0 | 7 | 0 | 0 | 0 |
| 119 | 77.00 | 'Terminalia aridicola var. chillagoensis T. platyphylla (Olive Vale heavy clays) OW' | 1 | 1 | 8 | 1 | 13 | 0 |
| 120 | 120.00 | 'Acacia crassicarpa Syzygium banksii +/- Neofabricia myrtifolia +/- Leucopogon yorkensis subcanopy (Low Microphyll Vine Forest) (Coastal dunes) LCF' | 2 | 1 | 15 | 10 | 4 | 4 |
| 121 | 120.00 | 'Asteromyrtus angustifolia +/- Acacia crassicarpa +/- Syzygium spp. +/- Araucaria cunninghamii emergents (Araucarian Microphyll Vine Forest) | 4 | 3 | 31 | 17 | 14 | 11 |
| 122 | 1.00 | 'Evergreen Notophyll Vine Forest dominated by Manilkara kauki +/- Mimusops elengi +/- Terminalia | 2 | 13 | 33 | 3 | 3 | 1 |
| 123 | 31.00 | 'Evergreen Notophyll Vine Forest dominated by Terminalia muelleri Cupaniopsis anacardioides Syzygium suborbiculare (Beach ridges & dunes) LCF' | 3 | 8 | 29 | 3 | 10 | 4 |
| 124 | 7.00 | 'Evergreen Notophyll Vine Forest dominated by Welchiodendron longivalve +/- Acacia polystachya +/- Canarium australianum (Northern Islands & | 1 | 2 | 24 | 4 | 4 | 4 |
| 125 | 238.00 | 'Deciduous Microphyll Vine Thicket +/- emergent Lagerstroemia archeriana (Central CYP riverine areas | 3 | 8 | 26 | 7 | 4 | 7 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 126 | 272.00 | 'Deciduous Vine Thicket dominated by Cochlospermum gillivraei +/- Canarium australianum +/- Acacia aulacocarpa (Granite slopes) (= Tracey | 6 | 8 | 41 | 13 | 7 | 10 |
| 127 | 26.00 | 'Deciduous Vine Thicket with Wodyetia bifurcata (Cape Melville granite slopes) LCF' | 1 | 1 | 7 | 3 | 1 | 2 |
| 128 | 1.00 | 'Pisonia grandis (Islands) LCF' | 0 | 1 | 2 | 0 | 0 | 0 |
| 129 | 19.00 | 'Semi-deciduous microphyll species +/- emergent Melaleuca spp. (Sinkholes Mission River road) LCF' | 0 | 0 | 7 | 2 | 3 | 2 |
| 130 | 8.00 | 'Terminalia sp. +/- low trees with frequent scandent scrubs +/- Melaleuca citrolens +/- Eucalyptus acroleuca emergents (Lakefield depressions) LCF-CS' | 0 | 0 | 2 | 1 | 2 | 0 |
| 131 | 69.00 | '*Avicennia marina* +/- *Ceriops tagal* (Landward mangrove zone) LCF-OF' | 0 | 0 | 6 | 0 | 0 | 0 |
| 132 | 545.00 | 'Ceriops tagal +/- Avicennia marina (Landward mangrove zone) LCF' | 0 | 0 | 9 | 0 | 1 | 1 |
| 133 | 1.00 | 'Pemphis acidula +/- Avicennia marina +/- Rhizophora stylosa (Islands) LCF' | 1 | 0 | 16 | 1 | 1 | 0 |
| 134 | 3.00 | 'Acacia brassii (Northern ranges & islands) LOF' | 0 | 2 | 4 | 1 | 0 | 0 |
| 135 | 727.00 | 'Asteromyrtus brassii Neofabricia myrtifolia Allocasuarina littoralis +/- Welchiodendron longivalve | 0 | 1 | 21 | 7 | 12 | 1 |
| 136 | 55.00 | 'Eucalyptus hylandii var. hylandii &/or E. crebra +/- E. brassiana +/- Lophostemon suaveolens (Southern | 0 | 2 | 14 | 1 | 1 | 0 |
| 137 | 11.00 | 'Lophostemon suaveolens sandy plateaus) LOF' | 0 | 1 | 4 | 1 | 0 | 0 |
| 138 | 36.00 | 'Melaleuca *arcana* (Dune swamps) LOF' | 0 | 0 | 2 | 2 | 1 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 139 | 197.00 | 'Melaleuca sp. (Emu Lagoon J.R.Clarkson+ 9582) (Western swamps) LOF' | 0 | 0 | 3 | 2 | 2 | 0 |
| 140 | 185.00 | 'Neofabricia myrtifolia Asteromyrtus brassii Lophostemon suaveolens Leucopogon yorkensis +/- Callitris intratropica emergents (Elliot Creek) LOF' | 1 | 0 | 14 | 6 | 4 | 1 |
| 141 | 12.00 | 'Allocasuarina sp. V.J.Neldner 3976 +/- Acacia crassicarpa +/- Grevillea glauca +/- Melaleuca | 0 | 0 | 8 | 3 | 3 | 0 |
| 142 | 186.00 | 'Eucalyptus persistens subsp. tardecidens Melaleuca stenostachya (Southern metamorphic plateaus) LW' | 0 | 0 | 6 | 0 | 0 | 1 |
| 143 | 21.00 | 'Melaleuca foliolosa Grevillea striata Hakea persiehana M. viridiflora (Old beach ridge Marina | 0 | 0 | 7 | 0 | 1 | 0 |
| 144 | 542.00 | 'Melaleuca viridiflora +/- low trees (Drainage areas) LW' | 0 | 0 | 2 | 10 | 7 | 0 |
| 145 | 65.00 | 'Melaleuca viridiflora Asteromyrtus symphyocarpa +/- Eucalyptus novoguinensis +/- M. stenostachya (Torres Strait Islands north of Jeannie R.) LW' | 0 | 0 | 6 | 3 | 2 | 0 |
| 146 | 356.00 | 'Melaleuca viridiflora +/- Neofabricia myrtifolia +/- Allocasuarina littoralis +/- Asteromyrtus brassii +/- Acacia spp. (Undulating plains thin sand cover) LW' | 1 | 0 | 22 | 6 | 6 | 0 |
| 147 | 135.00 | 'Melaleuca viridiflora +/- Xanthorrhoea johnsonii +/- Acacia brassii (Coen plains) LW' | 0 | 0 | 6 | 5 | 1 | 0 |
| 148 | 12.00 | 'Welchiodendron longivalve Melaleuca viridiflora & Neofabricia myrtifolia & Acacia brassii (Ridge crests | 0 | 1 | 11 | 2 | 4 | 0 |
| 149 | 83.00 | 'Acacia ditricha Albizia procera (Rokeby) LOW' | 0 | 0 | 5 | 0 | 1 | 0 |
| 150 | 239.00 | 'Eucalyptus chlorophylla +/- Melaleuca stenostachya (Hillslopes) LOW' | 0 | 0 | 9 | 0 | 2 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 151 | 444.00 | 'Eucalyptus chlorophylla +/- Melaleuca viridiflora (Flat plains Mitchell River floodplain) LOW' | 0 | 0 | 4 | 0 | 0 | 0 |
| 152 | 984.00 | 'Eucalyptus microtheca +/- E. chlorophylla +/- Acacia ditricha +/- Lysiphyllum cunninghamii | 0 | 0 | 8 | 0 | 1 | 1 |
| 153 | 775.00 | 'Melaleuca citrolens +/- M. foliolosa +/- M. viridiflora +/- M. acacioides (Longitudinal drainage | 0 | 0 | 12 | 0 | 4 | 0 |
| 154 | 232.00 | 'Melaleuca saligna +/- M. viridiflora +/- M. citrolens (Longitudinal drainage depressions) LOW' | 0 | 2 | 3 | 1 | 2 | 0 |
| 155 | 918.00 | 'Melaleuca stenostachya +/- M. foliolosa +/- shrubby layer (Sandstone scarps) LOW' | 0 | 0 | 8 | 4 | 2 | 2 |
| 156 | 56.00 | 'Melaleuca stenostachya +/- M. viridiflora (Plains) LOW' | 0 | 0 | 7 | 2 | 4 | 0 |
| 157 | 609.00 | 'Melaleuca viridiflora M. stenostachya +/- Xanthorrhoea johnsonii (Lakefield flat plains) LOW' | 0 | 0 | 3 | 0 | 1 | 0 |
| 158 | 1,939.00 | 'Melaleuca viridiflora +/- Petalostigma banksii (Plains) LOW' | 0 | 0 | 13 | 3 | 6 | 2 |
| 159 | ####### | 'Melaleuca viridiflora +/- Petalostigma pubescens +/- emergent Eucalyptus clarksoniana (Low-lying plains) | 0 | 0 | 23 | 5 | 14 | 5 |
| 160 | 33.00 | 'Excoecaria agallocha +/- Aegiceras corniculatum +/- Lumnitzera spp. with emergent Avicennia marina | 0 | 0 | 6 | 0 | 1 | 0 |
| 161 | 81.00 | 'Leucopogon yorkensis +/- Asteromyrtus angustifolia +/- Acacia spp. (Sandplains) CS' | 1 | 1 | 17 | 9 | 5 | 3 |
| 162 | 1.00 | 'Premna serratifolia +/- mixed shrub spp. (Sand cays) CS' | 0 | 2 | 18 | 0 | 1 | 0 |
| 163 | 71.00 | 'Leptospermum purpurascens (Granite hills Pascoe River area) TS' | 0 | 0 | 6 | 3 | 1 | 3 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 164 | 2,151.35 | 'Melaleuca acacioides +/- Hakea pedunculata with emergent M. citrolens & M. viridiflora (Behind | 0 | 0 | 6 | 0 | 2 | 0 |
| 165 | 420.00 | 'Melaleuca citrolens +/- M. foliolosa &/or Antidesma parvifolium (Western drainage lines) TS' | 0 | 0 | 3 | 1 | 3 | 1 |
| 166 | 39.00 | 'Neofabricia myrtifolia Acacia calyculata Jacksonia thesioides +/- Leptospermum purpurascens | 0 | 0 | 3 | 3 | 0 | 1 |
| 167 | 153.00 | 'Piliostigma malabaricum (Rokeby) TOS-LOW' | 0 | 0 | 7 | 0 | 1 | 0 |
| 168 | 375.00 | 'Asteromyrtus lysicephala +/- Baeckea frutescens +/- emergent Thryptomene oligandra & Neofabricia myrtifolia (Jardine River sandplain) OH' | 0 | 0 | 7 | 3 | 6 | 1 |
| 169 | 292.00 | 'Asteromyrtus lysicephala Choriceras tricorne Xanthorrhoea johnsonii Banksia dentata (Sand | 0 | 0 | 3 | 1 | 1 | 0 |
| 170 | 90.00 | 'Asteromyrtus lysicephala +/- Jacksonia thesioides +/- Choriceras tricorne +/- Banksia dentata | 0 | 0 | 11 | 5 | 5 | 1 |
| 171 | 1,846.00 | 'Asteromyrtus lysicephala +/- Jacksonia thesioides +/- Choriceras tricorne +/- Neofabricia myrtifolia +/- emergent Melaleuca stenostachya (Heaths over | 0 | 2 | 15 | 6 | 5 | 2 |
| 172 | 500.00 | 'Asteromyrtus lysicephala +/- Neofabricia myrtifolia +/- Thryptomene oligandra +/- Hibbertia banksii +/- emergent low trees (Sandplains in dunefields) OH- | 0 | 0 | 4 | 2 | 2 | 1 |
| 173 | 164.00 | 'Asteromyrtus lysicephala Thryptomene oligandra Neofabricia myrtifolia +/- emergent Melaleuca arcana | 0 | 0 | 4 | 1 | 4 | 0 |
| 174 | 2.00 | 'Leucopogon yorkensis +/- Asteromyrtus brassii +/- Pouteria sericea (Torres Strait Islands) OH' | 0 | 0 | 5 | 2 | 0 | 0 |
| 175 | 164.00 | 'Melaleuca arcana Thryptomene oligandra Asteromyrtus lysicephala +/- Baeckea frutescens | 0 | 1 | 3 | 2 | 2 | 1 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 176 | 544.00 | 'Neofabricia myrtifolia +/- Jacksonia thesioides +/- Thryptomene oligandra +/- Leucopogon spp. | 1 | 0 | 9 | 8 | 5 | 1 |
| 177 | 40.00 | 'Acacia humifusa +/- Myrtella obtusa +/- Grevillea pteridifolia +/- Petalostigma pubescens (Coastal | 0 | 0 | 13 | 2 | 4 | 1 |
| 178 | 216.00 | 'Asteromyrtus lysicephala Neofabricia myrtifolia Grevillea pteridifolia +/- Melaleuca viridiflora DOH &/or Schizachyrium spp. (Sandstone plateaus) TG' | 0 | 0 | 5 | 3 | 2 | 1 |
| 179 | 81.00 | 'Neofabricia myrtifolia +/- Labichea buettneriana +/- Leucopogon ruscifolius (Exposed sandplains Cape | 0 | 0 | 4 | 3 | 1 | 1 |
| 180 | 1,460.00 | 'Eriachne spp. +/- Aristida spp. +/- Eragrostis spp. +/- Fimbristylis spp. (Holroyd drainage lines) CTG' | 0 | 0 | 2 | 0 | 2 | 0 |
| 181 | 33.00 | 'Heteropogon triticeus Themeda arguens Sorghum plumosum +/- Piliostigma malabaricum (Piccaninny | 0 | 0 | 4 | 0 | 0 | 0 |
| 182 | 94.00 | 'Imperata cylindrica +/- Mnesithea rottboellioides +/- Arundinella setosa (Coastal plains hillslopes & islands | 0 | 3 | 19 | 1 | 2 | 1 |
| 183 | 772.00 | 'Oryza spp. +/- Eleocharis spp. +/- Panicum trachyrhachis +/- Fimbristylis spp. (Seasonally | 0 | 0 | 2 | 0 | 1 | 0 |
| 184 | 173.00 | 'Sorghum spp. Themeda arguens (Southern Lakefield & Olive Vale grasslands) CTG' | 0 | 0 | 5 | 0 | 0 | 0 |
| 185 | 237.00 | 'Sporobolus virginicus (Western coastal plains) CTG' | 0 | 0 | 2 | 0 | 0 | 0 |
| 186 | 790.00 | 'Themeda arguens +/- Dichanthium sericeum +/- Capillipedium parviflorum +/- Fimbristylis spp. +/- Sorghum spp. (Marine plains) CTG' | 0 | 0 | 8 | 1 | 2 | 0 |
| 187 | 1.00 | 'Grassland/sedgeland with emergent Pandanus spp. (Torres Strait Islands) CTG-OSG' | 0 | 0 | 3 | 0 | 2 | 1 |
| 188 | 3,112.00 | 'Panicum spp. Fimbristylis spp. +/- Oryza australiensis +/- Sporobolus virginicus +/- Eriachne | 0 | 0 | 6 | 1 | 1 | 0 |

| Veg Class No. | Area (sq km) | Vegetation Class Description | No. of Gondwanic species | No. of Intrusive species | No. of Extra-continental species | No. of Endemic species | No. of disjunct species | No. of rare and threatened species |
|---|---|---|---|---|---|---|---|---|
| 189 | 10.00 | 'Themeda triandra TG or Schizachyrium spp. +/- Eriachne spp. (Headlands & islands) TG' | 0 | 1 | 22 | 2 | 2 | 1 |
| 190 | 209.00 | 'Eleocharis dulcis (Marine plains) CSG' | 0 | 0 | 0 | 0 | 0 | 0 |
| 191 | 682.00 | 'Restio tetraphyllus subsp. meiostachyus +/- Leptocarpus spathaceus +/- Nepenthes mirabilis +/- | 0 | 1 | 16 | 5 | 11 | 4 |
| 192 | 1.00 | 'Lepturus repens +/- Ipomoea pescaprae +/- Tribulus cistoides (Island cay vegetation) CH' | 0 | 2 | 11 | 1 | 0 | 0 |
| 193 | 27.00 | 'Mixed graminoids & forbs (Beach foredunes) CH' | 0 | 0 | 17 | 2 | 4 | 1 |
| 194 | 1,113.00 | 'Bare saltpans with areas of Halosarcia spp. sparse forbland (SH) &/or Xerochloa imberbis TG &/or Suriana maritima woody forbland (OH) or Sesuvium | 0 | 0 | 6 | 1 | 0 | 0 |
| 195 | 31.00 | 'Granite boulders covered with Blue Green Algae & scattered trees (Ranges Black Mountain Cape | 0 | 4 | 1 | 0 | 0 | 1 |
| 196 | 97.00 | 'Mixed herb species +/- emergent low trees (Coastal dunes (west coast) & grassland at edge of Weipa | 0 | 0 | 5 | 1 | 2 | 0 |
| 197 | 47.00 | 'Rock pavements on mountains or rivers (eg. Archer River) or islands SH' | 0 | 0 | 1 | 0 | 2 | 1 |
| 198 | ####### | 'Sand blows or bare sand areas (Sand cays & river beds) & sparse scattered shrubs SH' | 0 | 0 | 0 | 0 | 0 | 0 |
| 199 | 358.00 | 'Ephemeral lakes - seasonally dry LL' | 0 | 0 | 1 | 0 | 0 | 0 |
| 200 | 52.00 | 'Perennial lakes with sedgelands on the margins (Lakes in dunefields) LL' | 0 | 0 | 0 | 0 | 1 | 0 |
| 201 | 46.00 | 'Permanent lakes & lagoons frequently with fringing woodlands (Lakefield N.P.) LL' | 0 | 0 | 3 | 0 | 0 | 0 |

| BVG | TITLE | DESCRIPTION | Area of BVG (sq. km) | No. of endemic species | Endemics Restricted to BVG | Rare/ Uncommon endemics within BVG |
|---|---|---|---|---|---|---|
| 1 | 'RAINF_WET_TR' | 'Closed-forests of the Wet Tropics region.' | 521 | 61 | 8 | 15 |
| 2 | 'RAINF_MCILW' | 'Closed-forests of the McIlwraith-Iron Range region.' | 1805 | 119 | 4 | 17 |
| 3 | 'RAINF_NORTH' | 'Closed-forests of northern Cape York Peninsula and the Torres Strait Islands.' | 752 | 59 | 5 | 4 |
| 4 | 'RAINF_DUNES' | 'Closed-forests of coastal dunes dunefields and the Jardine River frontage.' | 430 | 26 | 0 | 3 |
| 5 | 'RAINF_DECID' | 'Deciduous low closed-forests on slopes and alluvia.' | 616 | 39 | 0 | 3 |
| 6 | 'RAINF_ALLUVIA' | 'Gallery closed-forests and Melaleuca spp. dominated open-forests on alluvia.' | 3358 | 109 | 3 | 14 |
| 7 | BOX_CHLOROPHYLLA' | Woodlands and open-woodlands dominated by Eucalyptus chlorophylla E. microtheca or E. acroleuca.' | 6695 | 16 | 0 | 0 |
| 8 | 'BLOODWOOD' | 'Woodlands and open-woodlands dominated by Eucalyptus clarksoniana E. novoguinensis or E. polycarpa.' | 7520 | 38 | 0 | 2 |
| 9 | 'CULLENII_RANGES' | 'Woodlands and open-woodlands dominated by Eucalyptus cullenii E. crebra or E. persistens subsp. tardecidens.' | 5299 | 40 | 3 | 5 |
| 10 | HYLANDII_RANGES' | 'Woodlands dominated by Eucalyptus hylandii or E. tetrodonta on sandstone metamorphic and ironstone ranges.' | 9690 | 47 | 2 | 10 |
| 11 | BOX_LEPTOPHLEBA_N' | 'Open-woodlands and woodlands dominated by Eucalyptus leptophleba on river frontages and northern undulating plains.' | 4079 | 29 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | BOX_ LEPTOPHLEBA_SE' | 'Woodlands dominated by Eucalyptus leptophleba E. platyphylla or E. erythrophlola on undulating hills and plains in the south-east.' | 1192 | 10 | 0 | 0 |
| 13 | 'NESOPHILA' | 'Open-forests and woodlands dominated by Eucalyptus nesophila or E. hylandii.' | 1240 | 33 | 0 | 4 |
| 14 | 'EUCALYPT_WET_TR' | 'Eucalyptus spp. open-forests of the Wet Tropics region.' | 110 | 15 | 0 | 3 |
| 15 | TESSELL_COASTAL' | 'Open-forests and woodlands dominated by Eucalyptus tessellaris E. clarksoniana or E. brassiana on coastal plains and ranges.' | 1155 | 76 | 4 | 11 |
| 16 | 'TETRO_PLATEAU' | 'Woodlands and tall woodlands dominated by Eucalyptus tetrodonta on deeply weathered plateaus and remnants.' | 25910 | 97 | 4 | 12 |
| 17 | 'TETRO_EROSIONAL' | 'Woodlands dominated by Eucalyptus tetrodonta on erosional surfaces and residual sands.' | 22527 | 64 | 1 | 8 |
| 18 | 'MELAL_VIRID' | 'Low open-woodlands and low woodlands dominated by Melaleuca viridiflora on depositional plains.' | 13904 | 51 | 0 | 5 |
| 19 | 'MELAL_WET' | 'Open-forests and low open-forests dominated by Melaleuca spp. in seasonally inundated swamps.' | 1827 | 6 | 0 | 0 |
| 20 | 'MELAL_MISC' | 'Low open-woodlands and tall shrublands dominated by Melaleuca stenostachya M. citriolens or other Melaleuca spp.' | 3282 | 11 | 0 | 1 |
| 21 | 'GRASS_MARINE' | 'Tussock grasslands on marine plains.' | 5396 | 11 | 0 | 2 |
| 22 | 'GRASS_CLAY' | 'Closed-tussock grasslands and open-woodlands on undulating clay plains.' | 1000 | 6 | 0 | 0 |
| 23 | 'GRASS_MISC' | 'Tussock grasslands on longitudinal drainage depressions headlands o | 1714 | 13 | 0 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 24 | 'HEATH' | 'Open-heaths and dwarf open-heaths on dunefields sandplains and headlands.' | 4461 | 78 | 1 | 11 |
| 25 | 'LITTORAL' | 'Woodlands and herblands on beach ridges and the littoral margin.' | 981 | 4 | 0 | 0 |
| 26 | 'MANGROVE' | 'Closed-forests and low closed-forests dominated by mangroves.' | 1594 | 28 | 0 | 0 |
| 27 | 'WETLAND' | 'Sedgelands lakes and lagoons.' | 1360 | 36 | 6 | 5 |
| 28 | 'CORAL_ISLANDS' | 'Vegetation of the coral atolls and sand cays.' | 31 | 0 | 0 | 0 |
| 29 | 'MISC_BARE' | 'Rocky and bare sandy areas e.g. saltpans sand blows and rock pavements.' | 1568 | 15 | 0 | 0 |
| 30 | 'MISC_MYRTACEAE' | 'Miscellaneous vegetation group dominated by Acacia spp. or members of the myrtaceae family occurring on a variety of landforms.' | 3511 | 79 | 1 | 8 |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| | | | | | | |
| Coleoptera | Hydrophilidae | Pilocnema | maculiapex | | Y | Y |
| Coleoptera | Scarabaeidae | Anoplognathus | macalpinei | | Y | Y |
| Coleoptera | Scarabaeidae | Anoplognathus | nebulosus | moanus | Y | Y |
| Coleoptera | Scarabaeidae | Anoplognathus | nebulosus | moanus | Y | Y |
| Coleoptera | Scarabaeidae | Coptodactyla | monstrosa | | Y | Y |
| Coleoptera | Scarabaeidae | Demarziella | yorkensis | | Y | Y |
| Coleoptera | Scarabaeidae | Lepanus | parapisoniae | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | gandju | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | latro | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | ocelliger | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | planicollis | | Y | Y |
| Coleoptera | Scarabaeidae | Onthophagus | yunkara | | Y | Y |
| Coleoptera | Scarabaeidae | Tesserodon | simplicipunctatum | | Y | Y |
| Coleoptera | Dytiscidae | Clypeodytes | darlingtoni | | Y | |
| Coleoptera | Dytiscidae | Clypeodytes | darlingtoni | | Y | |
| Coleoptera | Dytiscidae | Terradessus | caecus | | Y | |
| Coleoptera | Dytiscidae | Terradessus | caecus | | Y | |
| Coleoptera | Scarabaeidae | Amphistomus | palpebratus | | Y | |
| Coleoptera | Scarabaeidae | Amphistomus | palpebratus | | Y | |
| Coleoptera | Scarabaeidae | Amphistomus | palpebratus | | Y | |
| Coleoptera | Scarabaeidae | Amphistomus | palpebratus | | Y | |
| Coleoptera | Scarabaeidae | Amphistomus | palpebratus | | Y | |
| Coleoptera | Scarabaeidae | Demarziella | tropicalis | | Y | |
| Coleoptera | Scarabaeidae | Demarziella | tropicalis | | Y | |
| Coleoptera | Scarabaeidae | Demarziella | tropicalis | | Y | |
| Coleoptera | Scarabaeidae | Demarziella | tropicalis | | Y | |
| Coleoptera | Scarabaeidae | Onthophagus | trawalla | | Y | |
| Coleoptera | Scarabaeidae | Onthophagus | trawalla | | Y | |
| Coleoptera | Scarabaeidae | Temnoplectron | diversicolle | | Y | |
| Coleoptera | Scarabaeidae | Temnoplectron | diversicolle | | Y | |
| Coleoptera | Scarabaeidae | Temnoplectron | diversicolle | | Y | |
| Coleoptera | Scarabaeidae | Tesserodon | feehani | | Y | |
| Coleoptera | Scarabaeidae | Tesserodon | feehani | | Y | |
| Hemiptera | Cicadidae | Neopsaltoda | crassa | | Y | Y |
| Hemiptera | Cicadidae | Macrotristria | vittata | | Y | Y |
| Hemiptera | Cicadidae | Macrotristria | vittata | | Y | Y |
| Hemiptera | Cicadidae | Cicadetta | brevis | | Y | Y |
| Hemiptera | Cicadidae | Chlorocysta | fumea | | Y | Y |
| Hemiptera | Cicadidae | Chlorocysta | fumea | | Y | Y |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |
| Hemiptera | Cicadidae | Henicopsaltria | danielsi | | Y | |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Hemiptera | Cicadidae | Macrotristria | lachlani | | Y | |
| Hemiptera | Cicadidae | Macrotristria | lachlani | | Y | |
| Hemiptera | Cicadidae | Macrotristria | lachlani | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hemiptera | Cicadidae | Diceropyga | subapicalis | | Y | |
| Hymenoptera | Chalcididae | Smicromorpha | p3 | | Y | Y |
| Hymenoptera | Chalacidiae | Smicromorpha | lagynos | | Y | Y |
| Hymenoptera | Scelionidae | Calotelea | p2 | | Y | Y |
| Hymenoptera | Scelionidae | Calotelea | p3 | | Y | Y |
| Hymenoptera | Scelionidae | Calotelea | p5 | | Y | Y |
| Hymenoptera | Scelionidae | Calotelea | p5 | | Y | Y |
| Hymenoptera | Scelionidae | Calotelea | p5 | | Y | Y |
| Hymenoptera | Scelionidae | Styloteleia | p1 | | Y | Y |
| Hymenoptera | Sphecidae | Arpactophilus | p129 | | Y | Y |
| Hymenoptera | Sphecidae | Arpactophilus | p131 | | Y | Y |
| Hymenoptera | Sphecidae | Arpactophilus | p134 | | Y | Y |
| Hymenoptera | Sphecidae | Arpactophilus | p137 | | Y | Y |
| Hymenoptera | Sphecidae | Arpactophilus | p137 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p122 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p122 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p122 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p122 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p123 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p124 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p124 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p124 | | Y | Y |
| Hymenoptera | Sphecidae | Lyroda | p126 | | Y | Y |
| Hymenoptera | Sphecidae | Nitela | p119 | | Y | Y |
| Hymenoptera | Sphecidae | Nitela | p119 | | Y | Y |
| Hymenoptera | Sphecidae | Nitela | p120 | | Y | Y |
| Hymenoptera | Sphecidae | Nitela | p121 | | Y | Y |
| Hymenoptera | Sphecidae | Polemistus | p127 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p149 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p149 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p149 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p149 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p150 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p150 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p151 | | Y | Y |
| Hymenoptera | Sphecidae | Tachytes | p151 | | Y | Y |
| Hymenoptera | Chalcididae | Smicromorpha | banksi | | Y | |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Hymenoptera | Chalcididae | Smicromorpha | banksi | | Y | |
| Hymenoptera | Diapriidae | Neurogalesus | p2 | | Y | |
| Hymenoptera | Diapriidae | Neurogalesus | p2 | | Y | |
| Hymenoptera | Diapriidae | Neurogalesus | p206 | | Y | |
| Hymenoptera | Diapriidae | Neurogalesus | p206 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p6 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p6 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p6 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p7 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p7 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p9 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p9 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p9 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p9 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p9 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p10 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p10 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p11 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p11 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p11 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p11 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p11 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Scelionidae | Calotelea | p12 | | Y | |
| Hymenoptera | Sphecidae | Acanthostethus | p115 | | Y | |
| Hymenoptera | Sphecidae | Acanthostethus | p115 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p70 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p70 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p70 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p128 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p130 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p130 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p130 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p132 | | Y | |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Hymenoptera | Sphecidae | Arpactophilus | p132 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p132 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p133 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p133 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p133 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p135 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p135 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p136 | | Y | |
| Hymenoptera | Sphecidae | Arpactophilus | p136 | | Y | |
| Hymenoptera | Sphecidae | Bembecinus | p113 | | Y | |
| Hymenoptera | Sphecidae | Bembecinus | p113 | | Y | |
| Hymenoptera | Sphecidae | Bembecinus | p113 | | Y | |
| Hymenoptera | Sphecidae | Liris | p141 | | Y | |
| Hymenoptera | Sphecidae | Liris | p141 | | Y | |
| Hymenoptera | Sphecidae | Liris | p141 | | Y | |
| Hymenoptera | Sphecidae | Liris | p141 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p144 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p145 | | Y | |
| Hymenoptera | Sphecidae | Liris | p146 | | Y | |
| Hymenoptera | Sphecidae | Lyroda | p102 | | Y | |
| Hymenoptera | Sphecidae | Lyroda | p102 | | Y | |
| Hymenoptera | Sphecidae | Lyroda | p102 | | Y | |
| Hymenoptera | Sphecidae | Lyroda | p102 | | Y | |
| Hymenoptera | Sphecidae | Lyroda | p102 | | Y | |
| Hymenoptera | Sphecidae | Trypoxylon | p112 | | Y | |
| Hymenoptera | Sphecidae | Trypoxylon | p112 | | Y | |
| Hymenoptera | Sphecidae | Trypoxylon | p112 | | Y | |
| Hymenoptera | Sphecidae | Trypoxylon | p112 | | Y | |
| Isoptera | Termitidae | Lophotermes | crinitus | | Y | Y |
| Isoptera | Termitidae | Lophotermes | crinitus | | Y | Y |
| Isoptera | Termitidae | Microcerotermes | repugnans | | Y | Y |
| Isoptera | Termitidae | Paracapritermes | prolixus | | Y | Y |
| Lepidoptera | Hesperiidae | Allora | major | | Y | Y |
| Lepidoptera | Hesperiidae | Allora | major | | Y | Y |
| Lepidoptera | Hesperiidae | Rachelia | extrusa | | Y | Y |
| Lepidoptera | Hesperiidae | Tagiades | japetus | janetta | Y | Y |
| Lepidoptera | Lycaenidae | Acrodipsas | melania | | Y | Y |
| Lepidoptera | Lycaenidae | Arhopala | micale | amphis | Y | Y |
| Lepidoptera | Lycaenidae | Hypochrysops | cleon | | Y | Y |
| Lepidoptera | Nymphalidae | Euploea | alcathoe | monilifera | Y | Y |
| Lepidoptera | Nymphalidae | Euploea | usipetes | usipetes | Y | Y |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Lepidoptera | Nymphalidae | Euploea | violetta | | Y | Y |
| Lepidoptera | Pieridae | Appias | celestina | | Y | Y |
| Lepidoptera | Pieridae | Elodina | queenslandica | queenslandica | Y | Y |
| Lepidoptera | Tortricidae | Andrioplecta | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Cydia | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Cydia | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Cydia | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Epitrichosma | ceramina | | Y | Y |
| Lepidoptera | Tortricidae | Eremas | leucotrigona | | Y | Y |
| Lepidoptera | Tortricidae | Eremas | leucotrigona | | Y | Y |
| Lepidoptera | Tortricidae | Eremas | leucotrigona | | Y | Y |
| Lepidoptera | Tortricidae | Eremas | leucotrigona | | Y | Y |
| Lepidoptera | Tortricidae | Eremas | leucotrigona | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | dolichosticha | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | psammopasta | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | symploca | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | symploca | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | symploca | | Y | Y |
| Lepidoptera | Tortricidae | Eucosma | symploca | | Y | Y |
| Lepidoptera | Tortricidae | Grapholita | tornosticha | | Y | Y |
| Lepidoptera | Tortricidae | Irianassa | aetheria | | Y | Y |
| Lepidoptera | Tortricidae | Lobophora | axiologa | | Y | Y |
| Lepidoptera | Tortricidae | Parapammene | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Phricanthes | diaphorus | | Y | Y |
| Lepidoptera | Tortricidae | Phricanthes | peistica | | Y | Y |
| Lepidoptera | Tortricidae | Strophedra | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Strophedra | sp. a | | Y | Y |
| Lepidoptera | Tortricidae | Sycacantha | castanicolor | | Y | Y |
| Lepidoptera | Tortricidae | Sycacantha | symplecta | | Y | Y |
| Lepidoptera | Cossidae | Xyleutes | sp 2 | | Y | |
| Lepidoptera | Cossidae | Xyleutes | sp 2 | | Y | |
| Lepidoptera | Hesperiidae | Chaetocneme | critomedia | sphinterifera | Y | |
| Lepidoptera | Hesperiidae | Chaetocneme | critomedia | sphinterifera | Y | |
| Lepidoptera | Hesperiidae | Chaetocneme | critomedia | sphinterifera | Y | |
| Lepidoptera | Hesperiidae | Chaetocneme | critomedia | sphinterifera | Y | |
| Lepidoptera | Lycaenidae | Acrodipsas | hirtipes | | Y | |
| Lepidoptera | Lycaenidae | Acrodipsas | hirtipes | | Y | |
| Lepidoptera | Lycaenidae | Arhoipala | centaurus | centaurus | Y | |
| Lepidoptera | Lycaenidae | Arhoipala | centaurus | centaurus | Y | |
| Lepidoptera | Lycaenidae | Hypochrysops | hippuris | | Y | |
| Lepidoptera | Lycaenidae | Hypochrysops | hippuris | | Y | |
| Lepidoptera | Lycaenidae | Hypochrysops | hippuris | | Y | |
| Lepidoptera | Lycaenidae | Hypochrysops | hippuris | | Y | |
| Lepidoptera | Lycaenidae | Hypochrysops | hippuris | | Y | |
| Lepidoptera | Lycaenidae | Philiris | nitens | lucina | Y | |
| Lepidoptera | Lycaenidae | Philiris | nitens | lucina | Y | |
| Lepidoptera | Lycaenidae | Philiris | nitens | lucina | Y | |
| Lepidoptera | Lycaenidae | Philiris | ziska | titeus | Y | |
| Lepidoptera | Lycaenidae | Philiris | ziska | titeus | Y | |
| Lepidoptera | Lycaenidae | Philiris | ziska | titeus | Y | |
| Lepidoptera | Lycaenidae | Philiris | ziska | titeus | Y | |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Lepidoptera | Lycaenidae | Pithecops | dionisius | dionisius | Y | |
| Lepidoptera | Lycaenidae | Pithecops | dionisius | dionisius | Y | |
| Lepidoptera | Lycaenidae | Pithecops | dionisius | dionisius | Y | |
| Lepidoptera | Lycaenidae | Pithecops | dionisius | dionisius | Y | |
| Lepidoptera | Lycaenidae | Pithecops | dionisius | dionisius | Y | |
| Lepidoptera | Nymphalidae | Apaturina | erminea | | Y | |
| Lepidoptera | Nymphalidae | Apaturina | erminea | | Y | |
| Lepidoptera | Nymphalidae | Charaxes | latona | | Y | |
| Lepidoptera | Nymphalidae | Charaxes | latona | | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Nymphalidae | Orsotriaena | medus | moira | Y | |
| Lepidoptera | Pieridae | Delias | ennia | tindalii | Y | |
| Lepidoptera | Pieridae | Delias | ennia | tindalii | Y | |
| Lepidoptera | Pieridae | Delias | ennia | tindalii | Y | |
| Lepidoptera | Pieridae | Delias | ennia | tindalii | Y | |
| Lepidoptera | Pieridae | Delias | ennia | tindalii | Y | |
| Lepidoptera | Pieridae | Delias | nysa | nivira | Y | |
| Lepidoptera | Pieridae | Delias | nysa | nivira | Y | |
| Lepidoptera | Pieridae | Delias | nysa | nivira | Y | |
| Lepidoptera | Pieridae | Elodina | claudia | | Y | |
| Lepidoptera | Pieridae | Elodina | claudia | | Y | |
| Lepidoptera | Pieridae | Elodina | claudia | | Y | |
| Lepidoptera | Tortricidae | Amboyna | diapella | | Y | |
| Lepidoptera | Tortricidae | Amboyna | diapella | | Y | |
| Lepidoptera | Tortricidae | Amboyna | diapella | | Y | |
| Lepidoptera | Tortricidae | Asterolepis | earina | | Y | |
| Lepidoptera | Tortricidae | Asterolepis | earina | | Y | |
| Lepidoptera | Tortricidae | Asterolepis | earina | | Y | |
| Lepidoptera | Tortricidae | Asterolepis | earina | | Y | |
| Lepidoptera | Tortricidae | Asterolepis | earina | | Y | |
| Lepidoptera | Tortricidae | Laspeyresia | delomilta | | Y | Y |
| Megaloptera | Corydalidae | Archichauliodes | uncinatus | | Y | Y |
| Neuroptera | Mantispidae | Euclimacia | superba | | Y | Y |
| Odonata | Aeshnidae | Agyrtacantha | dirupta | | Y | Y |
| Odonata | Coenagrionidae | Agriocnemis | femina | | Y | Y |
| Odonata | Coenagrionidae | Agriocnemis | femina | | Y | Y |
| Odonata | Gomphidae | Hemigomphus | theischingeri | | Y | Y |
| Odonata | Petaluridae | Petalura | pulcherrima | | Y | Y |
| Odonata | Chlorocyphidae | Rhinocypha | tincta | semitincta | Y | |
| Odonata | Chlorocyphidae | Rhinocypha | tincta | semitincta | Y | |
| Odonata | Gomphidae | Antipodogomphus | edentulus | | Y | |
| Odonata | Gomphidae | Antipodogomphus | edentulus | | Y | |
| Odonata | Gomphidae | Ictinogomphus | paulini | | Y | |
| Odonata | Gomphidae | Ictinogomphus | paulini | | Y | |
| Odonata | Gomphidae | Ictinogomphus | paulini | | Y | |
| Odonata | Gomphidae | Ictinogomphus | paulini | | Y | |
| Orthoptera | Gryllidae | Amusurgus | sp. nov. | | Y | Y |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Orthoptera | Gryllidae | Aphonoides | warratinna | | Y | Y |
| Orthoptera | Gryllidae | Aphonoides | weeronga | | Y | Y |
| Orthoptera | Gryllidae | Cephalogryllus | sp.nov. | | Y | Y |
| Orthoptera | Gryllidae | Lepidogryllus | sp. | | Y | Y |
| Orthoptera | Gryllidae | Marinna | iranda | | Y | Y |
| Orthoptera | Gryllidae | Merrinella | sp.nov. | | Y | Y |
| Orthoptera | Gryllidae | Mundeicus | nillanilla | | Y | Y |
| Orthoptera | Gryllidae | Nemobiinae | gen.nov.5 | | Y | Y |
| Orthoptera | Gryllidae | Nemobiinae | gen.nov.5 | | Y | Y |
| Orthoptera | Gryllidae | Pentacentrus | kakirra | | Y | Y |
| Orthoptera | Gryllidae | Pentacentrus | sp. | | Y | Y |
| Orthoptera | Gryllidae | Pentacentrus | sp. | | Y | Y |
| Orthoptera | Gryllidae | Riatina | villosiceps | | Y | Y |
| Orthoptera | Gryllidae | Salmanites | alta | | Y | Y |
| Orthoptera | Gryllidae | Salmanites | sp.nov. | | Y | Y |
| Orthoptera | Gryllidae | Unka | sp.nov. | | Y | Y |
| Orthoptera | Gryllidae | Unka | sp.nov.5 | | Y | Y |
| Orthoptera | Eumastacidae | Biroella | sp.1 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.1 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.1 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.3 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.3 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.5 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.5 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.5 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.6 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.6 | | Y | |
| Orthoptera | Eumastacidae | Biroella | sp.6 | | Y | |
| Orthoptera | Gryllacrididae | Mooracra | canobolas | | Y | |
| Orthoptera | Gryllacrididae | Mooracra | canobolas | | Y | |
| Orthoptera | Gryllidae | Aphonoides | biangri | | Y | |
| Orthoptera | Gryllidae | Aphonoides | biangri | | Y | |
| Orthoptera | Gryllidae | Aphonoides | biangri | | Y | |
| Orthoptera | Gryllidae | Aphonoides | hackeri | | Y | |
| Orthoptera | Gryllidae | Aphonoides | hackeri | | Y | |
| Orthoptera | Gryllidae | Apterogryllus | sp. | | Y | |
| Orthoptera | Gryllidae | Apterogryllus | sp. | | Y | |
| Orthoptera | Gryllidae | Apterogryllus | sp. | | Y | |
| Orthoptera | Gryllidae | Apterogryllus | sp. | | Y | |
| Orthoptera | Gryllidae | Apterogryllus | sp. | | Y | |
| Orthoptera | Gryllidae | Metiochodes | sp. | | Y | |
| Orthoptera | Gryllidae | Metiochodes | sp. | | Y | |
| Orthoptera | Gryllidae | Myara | sp. | | Y | |
| Orthoptera | Gryllidae | Myara | sp. | | Y | |
| Orthoptera | Gryllidae | Trigonidium | amarina | | Y | |
| Orthoptera | Gryllidae | Trigonidium | amarina | | Y | |
| Orthoptera | Tettigoniidae | Dicranocercus | sp.nov.1 | | Y | |
| Orthoptera | Tettigoniidae | Dicranocercus | sp.nov.1 | | Y | |
| Orthoptera | Tettigoniidae | Neophisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Neophisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Neophisis | sp. 1 | | Y | |

| Order | Family | Genus | Species | Subsp | Rare | One Locn |
|---|---|---|---|---|---|---|
| Orthoptera | Tettigoniidae | Paraphisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 1 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 4 | | Y | |
| Orthoptera | Tettigoniidae | Paraphisis | sp. 4 | | Y | |
| Plecoptera | Gripopterygidae | Dinotoperla | spinosa | | Y | Y |
| Plecoptera | Gripopterygidae | Dinotoperla | spinosa | | Y | Y |
| Plecoptera | Gripopterygidae | Illiesoperla | tropica | | Y | Y |
| Plecoptera | Gripopterygidae | Nescioperla | curtisae | | Y | Y |

ATTACHMENT 1

TERMS OF REFERENCE

**TERMS OF REFERENCE**

**FOR**

**THE AUSTRALIAN HERITAGE COMMISSION**

**CYPLUS PROJECT**

1. Assess the environmental regionalisations prepared as a GIS base layer by ERIN.

2. Establish and present criteria for the assessment of conservation values to the Nature Working Group.

3. Consolidate flora and fauna site data, and identify sites of significance for rare and threatened, endemic, primitive, and disjunct species.

4. Identify important research sites (geology, geomorphology) and type localities.

5. Identify ecosystems, landforms, and vegetation communities that are excellent examples of their type.

6. Identify uncommon landforms and areas of high landform, soil and wetland diversity.

7. Identify significant migratory, breeding, feeding, and roosting areas of marine fauna.

8. Revise assessment of wilderness values to include criterion of biophysical naturalness.

9. Amalgamate data and assess overall conservation values with reference to obligations under international treaties or conventions, national programs, state responsibilities, and region initiatives (for review by the Nature Working Group).

## ATTACHMENT 2

## COMMENTS OF REVIEWERS

The following attachment incorporates responses from community and other groups associated with the CYPLUS process in regards to this project. These comments were circulated to the author to assist in the revision of the draft report.

From these responses, issues of fact were amended within the final report. Sections of the following comments also portray the views of the respondent in regard to the interpretation of information presented by the report.

The Cape York Peninsula Land Use Strategy recognises that various and contrasting opinions exist within the wider community. The inclusion of the attached responses is intended to ensure that the CYPLUS process is inclusive of all points of view presented by the community.

# CAPE YORK PENINSULA PASTORAL ADVISORY GROUP INC.

AREAS OF CONSERVATION SIGNIFICANCE ON CAPE YORK PENINSULA
DRAFT REPORT by Australian Heritage Commission
and Environmental Resources Information Network

C.Y.P.P.A.G. REVIEW

1. Compliance with Terms of Reference

The Report has produced an extensive list of areas and locations which apparently meet their criteria for conservation value.

The "agreed criteria" mentioned had absolutely no community input.

Australian Heritage Commission representatives addressed Working Group members and informed them of their standard methods of assessment, no consultation occurred.

2. Standard of Writing

The report does not meet the criteria of plain English reporting specified in the Terms of Reference. It is unduly repetitious, probably due to the numerous contributors all wishing to display their particular knowledge of the environment.

3. Standard of Maps, Diagrams & Tables

As with most other reports the layout of maps etc, was useful only to indicate the proposed format of the final report. The photocopies of colour maps are unable to be interpreted.

4. Adequacy of Research Methodology

At the outset of the CYPLUS project the Australian Heritage Commission stated that Cape York Peninsula had been assessed for Wilderness Quality on three criteria, and only needed the fourth, biophysical naturalness, to be assessed. This report using the results of the CYPLUS NRAP information has obviously been used to greatly expand the conservation areas without attempting to use the new information to more closely and accurately reflect the location of the prime areas.

The use of pastoral property boundaries (straight lines & right angle corners) to define significant habitat areas appears to lack any scientific analysis.

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**"Striving for a Future in Cape York Peninsula"**

5. Depth of Research

As above.

6. Accuracy and Reliability of the Data and Information

Information regarding the 'ground truthing' of data is not provided. As previously noted the scale of mapping does not allow for accurate analysis of the data. This scale of mapping is not considered sufficiently accurate for management planning on pastoral properties of 1000 sq kilometres.

How can it be considered suitable for the purpose of defining habitats of insects? Is it any wonder that this method identifies such a large proportion of Cape York Peninsula as having conservation significance.

7. Summary

It was noted on Page 5, 1.4 Previous relevant information :

"Addressing these large scale features with respect to identifying particular places of significance can prove both difficult and contentious. It is important however to consider that management of conservation values can be undertaken across a number of land tenures, arrangements and land use practices to ensure the values for which an area has been identified are appropriately managed.

The management of values has not been addressed in this project. These remain important considerations to be addressed in CYPLUS Stage 2."

This typically unnecessarily long-winded statement is the only place where acknowledgement has been made that other land uses are compatible with conservation. A clear, concise statement to this effect should be included in the executive summary and given much greater prominence.

The Golden-shouldered parrot is a prime example of this. The estimated population is 250 pairs. The proposed conservation zone is 433,337 ha. That is 1733 ha per pair. How much land do they need?

The writer, Page 97, also demonstrates a poor understanding of the subject as evidenced by the brief summary. He notes that the decline of wet season burns and a lack of naturally rocky or open areas could be a reason for their decline. This is contrary to the evidence being collected by Crowley and Garnett, the people doing the study.

Given the poor interpretation of this piece of information, how much confidence can be placed in the rest of the document.

As a catalogue of potential conservation areas it is a useful document. Most of the proposed conservation areas will need to more closely surveyed and investigated from an overall land use perspective before any genuine assessment of their value can be made.

R. Wincen

R.Wincen
Liaison Officer
08/04/1995

RESPONSE TO COMMENTS ON THE AHC/ERIN REPORT - **AREAS OF**

CONSERVATION SIGNIFICANCE ON CAPE YORK PENINSULA.

COMMENTS FROM CYPPAG

1. Commission officer, Dr Michael Mulvaney, gave an oral presentation of the intended criteria for the assessment to the Nature Working Group. The intention of the presentation was to provide an opportunity for working group members to comment on the criteria. During the discussion, following the presentation, some of the working group members voiced support of the criteria. Dr Mulvaney requested written comments on the criteria, but none were received. Nevertheless the Commission can appreciate that the impression of the presentation can be different than what was intended. The last sentence in paragraph 3 has been changed to "These criteria were presented to the CYPLUS Nature Working Group whose members had the opportunity to comment on their adequacy in assessessing conservation values of the Peninsula."

2. + 3. These issues have been addressed in the changes suggested by the Office of the Co-ordinator General.

4. The report used all recent and relevant available information derived from the CYPLUS program. The distribution of identified natural conservation values is given within the CYPLUS GIS, allowing identification of features at the 1:250,000 scale.

The only pastoral property boundary used to define areas of conservation significance was that of the Golden Shouldered Parrot Habitat. The Commission accepts that only a portion of the identified area is significant habitat of this species. However in line with the report on this species produced for CYPLUS, the Commission did not want to precisely define the habitat for fear of highlighting such areas to poachers. This is now clarified in Chapter 19 of the report.