

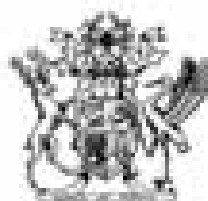


**NATURAL RESOURCES ANALYSIS PROGRAM
(NRAP)**

**TERRESTRIAL VERTEBRATE FAUNA
OF
CAPE YORK PENINSULA**

J.W. Winter and P.J. Lethbridge
Queensland Department of Environment and Heritage
1995

CYPLUS is a joint initiative of the Queensland and Commonwealth Governments

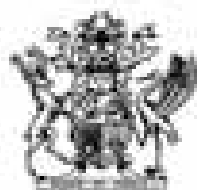


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**CAPE YORK PENINSULA LAND USE STRATEGY
(CYPLUS)**

Natural Resources Analysis Program

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1995

With appended work by:
D.C. McFarland

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Final report on project:

NR03 - TERRESTRIAL VERTEBRATE FAUNA SURVEY

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Note:

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

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Frontispiece: Cape York Peninsula Leaf-tailed Gecko (*Saltuarius occultus*), Upper Peach Tree Creek, McIlwraith Range (photograph by Phillip Lethbridge)



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	

CONTENTS

SUMMARY	v
1.0 INTRODUCTION	1
2.0 AIMS AND OBJECTIVES	2
2.2.1 CYPLUS Historical Records	2
2.2.2 CYPLUS Field Survey	3
3.0 1993 FIELD SURVEYS	5
3.1 DETERMINATION OF SURVEY PRIORITIES	5
3.1.1 Determination of data deficiencies	5
3.1.2 Confirmation of subregions selected for field surveys	7
3.2 Strategy for the selection of localities and sites	8
3.2.1 Gradsect sampling	8
3.2.2 Choice of gradsects	8
3.2.3 Selected Gradsects	9
3.2.4 Targeted Habitats	9
3.2.5 Selected Localities	9
3.2.6 Seasonality	11
3.3 Field surveys undertaken during 1993	11
3.3.1 CYPLUS program	12
3.3.2 NRCP program	14
3.4 Methods	15
3.4.1 Sampling design	15
3.4.2 Sampling methods	16
3.4.3 Source texts	17
4.0 THE QDEH DATA SET	18
4.1 Outline	18
4.2 Sources of data included in the QDEH data set	18
4.3 QDEH Database Structure	19
4.4 Validation of records	20
4.4.1 Field recording	20
4.4.2 Database entry	20
4.4.3 Custodial responsibility	21
5.0 DATA ACCUMULATED BY NR03	22
5.1 Number of records in the QDEH data set	22
5.2 Characteristics of the QDEH data set	22
5.2.1 Distribution of records from the QDEH Data Set	22
5.2.2 Time span of records	22
5.2.3 Quality control	24

5.3	Completeness of the QDEH data set	24
5.3.1	Modified Historical List	24
5.3.2	Omissions from the QDEH list	27
5.3.3	Additions to the Cape York Peninsula list	32
5.4	Conclusions	33
6.0	POTENTIAL USE OF DATA	34
6.1	Data sets available within NR03	34
6.2	Advantages and limitations of data sets	34
7.0	SUMMARY DESCRIPTION OF FAUNA	39
7.1	Faunal assemblages in relation to habitats	39
7.1.1	Habitat types and faunal relationships	39
7.2	Key habitats	43
7.2.1	Rainforest	43
7.2.2	Riparian forests	43
7.2.3	Permanent water holes and swamps	44
7.2.4	Boulder mountains and cliffs	44
7.3	Key Species	44
7.3.1	Endemic and restricted species	44
7.3.2	Susceptible conservation	45
7.3.3	Changes to distributions	46
7.3.4	Changes in population densities	47
7.4	Conservation issues	48
7.4.1	Rainforest	48
7.4.2	Riparian forest	48
7.4.3	Rocky outcrops	49
7.4.4	Wetlands	49
7.4.5	Woodlands	49
7.4.6	Conclusions	49
8.0	FAUNAL ZONES OF CAPE YORK PENINSULA	51
8.1	Closed forest fauna	51
8.1.1	Rainforest: Wet Tropics biogeographical region.	51
8.1.2	Rainforest: Cape York Peninsula biogeographical region.	52
8.1.3	Mangrove fauna	53
8.2	Open forest/woodland fauna	54
8.2.1	Peninsula Effect	54
8.2.2	South-eastern Uplands	54
8.2.3	Central-eastern Uplands	55
8.2.4	Rolling Downs	55
8.2.5	Northern Heathlands	56
8.2.6	Alluvial Plains	56
8.2.7	Dunefields	57

9.0	CONCLUSIONS	58
9.1	Fauna surveys	58
	9.1.1 Gaps within QDEH focal area	58
	9.1.2 Gaps outside the QDEH focal area	58
9.2	Fauna assemblages	58
9.3	Faunal zones	59
9.4	Target species	59
9.5	Conservation	59
10.0	ACKNOWLEDGMENTS	60
11.0	REFERENCES	61

Appendices

APPENDIX I.	QDEH DATABASE STRUCTURE	65
APPENDIX II.	HABITAT CODES AND CATEGORIES	75
APPENDIX III.	SUMMARY SPECIES LIST OF TERRESTRIAL VERTEBRATES RECORDED FROM THE CYPLUS AREA	93
APPENDIX IV.	FAUNA OF THE CAPE YORK PENINSULA BIOGEOGRAPHIC REGION (D.C. MCFARLAND, 1993)	135

Figures	Following page	
Fig. 1.	Biogeographical regions and subregions of the CYPLUS area	5
Fig. 2.	Number of record sheets in 1° blocks, 1977-81, submitted during the RAOU Bird Atlas Scheme	5
Fig. 3.	Distribution of terrestrial vertebrate records within the QDEH data set	22
Fig. 4.	Species in relation to main habitat types on Cape York Peninsula	39
Fig. 5.	Closed forest faunal regions and zones on Cape York Peninsula	51
Fig. 6.	Woodland faunal zones on Cape York Peninsula	51
Fig. I.1	Diagrammatic representation of CYPVERTS database structure.	65

Tables

Table 1.	Existing faunal information in relation to biogeographical regions and subregions.	6
Table 2.	Localities sampled by CYPLUS and NRCP projects in relation to seasons.	13
Table 3.	Summary of data source and quantity.	23
Table 4.	Differences between the QDEH and Historical species lists	25
Table 5.	Bird species requiring confirmation on mainland	27
Table 6.	Reptiles not recorded in the QDEH data set but recorded in the modified Historical set.	29

Table 7. Birds not recorded in the QDEH data set but recorded in the modified Historical set.	31
Table 8. Area of main habitats on Cape York Peninsula and number of terrestrial vertebrate species	40
Table 9. Species with a minor habitat, other than rainforest, as a core habitat.	42
Table 10. Species endemic to Cape York Peninsula or with an Australian distribution restricted to the Peninsula	45
Table 11. The decline of woodland macropods towards the apex of Cape York Peninsula.	54
Table II.1 Habitat codes	75
Table II.2 Distinct habitat codes used in the QDEH data set.	76
Table II.3 Number of records for each species against habitat type.	79

SUMMARY

Aims of the project

The primary aim of the Terrestrial Vertebrate Fauna project NR03 was to obtain information for incorporation into the subsequent Conservation Assessment in Stage II of CYPLUS by collating existing information and by undertaking field surveys in key areas lacking data on the vertebrate fauna.

The aim was achieved by establishing two subprojects:

1. the **historical records** subproject to collate existing information and which resulted in a separate report (McFarland 1993) and
2. the **field survey** subproject to obtain additional faunal information and which is the subject of this report.

The field survey program concentrated on the south-west of the Peninsula, the area most lacking in faunal information. Certain distinct habitats - dunefields and sandstone plateaux - were also targeted.

In addition data was obtained from a series of Peninsula rainforest surveys undertaken within the National Rainforest Conservation Program (NRCP) and run concurrently with the CYPLUS field program.

The QDEH data set

Systematic survey sampling was restricted to the **QDEH Focal Area** which included the northern, western and Cape Flattery areas of the Peninsula. Information from the south-eastern quarter of the Peninsula was obtained from incidental sources. Data from the CYPLUS, NRCP and other Queensland Department of Environment and Heritage surveys were incorporated into the **QDEH Database**.

Approximately 23,000 records of frogs, reptiles, birds and mammals were entered into the QDEH database. All records contain core attributes - species identity, latitude and longitude, altitude, collector and date, and many contain additional attributes such as habitat, vegetation structure, physiographic region and site characteristics.

Strict data entry validation procedures were followed and comparisons made with the total vertebrate fauna listed by the Historical subproject for the CYPLUS area.

Two new species were found - a frog in the Cape Melville Range and a skink on the Glennie Tableland. Also the geographical ranges of several species were extended into the CYPLUS area, notably a flap-footed lizard and the Squirrel Glider.

Faunal assemblages and zones

Over 80% of the Peninsula consists of woodland habitat and, as expected, the greatest proportion of species are associated with this habitat. Species numbers recorded from minor habitats - grasslands, heathlands, mangroves and rainforest - are higher than expected given the relatively small areas of these habitats. This is attributed to an overlap effect of species from adjacent habitats, mainly woodland.

However, when species were assigned to their core habitat the number of species associated with rainforest was much higher than expected, thus emphasising the concentration of biodiversity within this habitat. Species numbers in other minor habitats were low as expected from their small areas.

The Peninsula is divided into two series of faunal zones on the basis of habitat, indicator species and physiographic units.

Rainforest occurs in two distinct biogeographical regions, the Wet Tropics and Cape York Peninsula. The latter is divided into zones, the core of which is the McIlwraith Range-Iron Range area containing all rainforest species with a special summit zone. Radiating out from the core are zones of decreasing species numbers.

Woodland and other non-closed forest habitats are divided into uplands, undulating plains, northern heathlands, alluvial plains and dunefields.

Conservation issues

Wildlife conservation aims at maintaining biodiversity of the Cape York Peninsula region as a whole and within each faunal zone. Main issues are the protection and management of:

- . rainforest because of its concentrated biodiversity;
- . riparian forests because of their role as wildlife corridors and dry season refuges;
- . wetlands because of their importance to waterfowl and other aquatic species and
- . rocky hills and cliff complexes because of their endemic species and role as biodiversity hotspots in the landscape.

Equally important is conservation management of the widespread woodlands which show signs of degradation based on the contraction of species ranges and apparent decline of population densities.

Mammals identified with contracting ranges or declining populations are within the critical weight range of species most vulnerable to extinction.

Maintenance of faunal biodiversity within the Cape York Peninsula landscape will be an important criterion on which the success of the conservation strategy will eventually be judged.

1.0 INTRODUCTION

Cape York Peninsula has held a fascination for biologists ever since Banks first collected plants and animals during the enforced stay of the Endeavour at Cooktown in 1777. This interest continued with the establishment of Somerset as a port in the early nineteenth century. In the twentieth century attention became focused on the Peninsula rainforests with their high species diversity and New Guinea connections. As a result of this interest the faunal information on the Peninsula is copious but heavily biased towards circumscribed areas.

With the advent of the Cape York Peninsula Land Use Strategy (CYPLUS) it was obvious that the heavy bias of fauna collections from rainforest would impede, if not totally thwart, planning on a regional scale.

The purpose, therefore, of the Natural Resource Analysis Program (NRAP) project on the Terrestrial Vertebrate Fauna (NR03) was to retrieve the mass of existing information and collect additional data where necessary. This was achieved through two subprojects. One to collect the existing information and to undertake preliminary analysis on the data. It was Brisbane based for reasons of access to libraries and museums. A second subproject was Cairns based for the prime purpose of undertaking field surveys to redress the imbalance of faunal information from the Peninsula.

2.0 AIMS AND OBJECTIVES

2.1 Aims

The aims of the terrestrial vertebrate fauna survey project of Cape York Peninsula were set out in a listing of projects in the report *Cape York Peninsula Land Use Strategy: Natural Resources Analysis Program, January 1993*. They were:

- . to access and collate existing fauna site records and associated site habitat data;
- . to identify factors that can be incorporated into the Conservation Assessment such as;
 - . areas of high conservation value,
 - . species requiring special management,
 - . patterns of seasonal movement and
 - . keystone or indicator species;
- . to identify deficiencies in the existing data particularly with identification of;
 - . any constraints, interim conclusions or limitations arising from lack of data and
 - . any deficiencies that can be overcome within the duration of Conservation Assessment at an early stage, to enable supplementary field studies to commence as quickly as possible.

2.2 Objectives

The aims of the project were addressed by establishing two subprojects.

2.2.1 CYPLUS Historical Records

The primary aims of this subproject were to:

- . collate and analyse existing information on terrestrial vertebrates for Cape York Peninsula;
- . identify areas of the Peninsula in need of additional information to be obtained through the Field Survey subproject and
- . undertake a preliminary analysis based on existing data to assist with conservation assessment of the region.

The subproject proceeded as a discrete contract to Dr David McFarland. The final result was a faunal assessment of the vertebrate fauna, including fish, of Cape York Peninsula as a report *Fauna of the Cape York Peninsula Biogeographic Region*, August 1993. Accompanying the report was a stand-alone database with a ten minute resolution.

A component of the assessment was gap-analysis aimed at identifying poorly sampled areas of Cape York Peninsula. This aided selection of sites for field surveys carried out in the Field Survey subproject.

2.2.2 CYPLUS Field Survey

The primary aims of the field survey subproject were to:

- gather information from areas of the Peninsula lacking terrestrial vertebrate data and
- provide a validated database for use in Fauna Distribution Modelling - NRAP project NR19 - and use by QDEH and other participants in CYPLUS Phase II.

Field surveys were undertaken between February and November, 1993 by QDEH personnel.

2.2.3 Related projects

There were a number of related projects operating concurrently with NR03.

National Rainforest Conservation Program (NRCP)

A series of surveys were undertaken of rainforest and immediately adjacent habitats of the Peninsula by QDEH within the National Rainforest Conservation Program (NRCP). The series ran concurrently with the CYPLUS field surveys, using different personnel but the same methods. Data from the NRCP surveys were incorporated into the QDEH terrestrial vertebrate fauna database for the Peninsula.

NR09: Wetland fauna survey

The Wetland Fauna Survey project had access to the NR03 data set.

NR19: Fauna distribution modelling

Databases were supplied by NR03 for use in the Fauna Distribution Modelling project, NR19, undertaken by the Environmental Resources Information Network (ERIN). They were the:

- . historical records collated into a 10 minute database as part of the Historical Records subproject (McFarland 1993);
- . QDEH fauna survey database established by the Field Survey subproject (Table 3.);
- . Queensland and Australian Museum terrestrial vertebrate records for the CYPLUS project area.

ERIN also obtained other data sets directly from the respective custodians.

3.0 1993 FIELD SURVEYS

3.1 Determination of Survey Priorities

The primary aim of the CYPLUS field survey program was to obtain information on the terrestrial vertebrates from areas of Cape York Peninsula known to be seriously deficient in such records.

Field survey work was limited to one survey team of two zoologists and to a time span of one wet and one dry season. Therefore, it was crucial that sampling strategy be designed to obtain the greatest information within the logistical constraints.

3.1.1 Determination of data deficiencies

Identification of areas lacking in terrestrial vertebrate fauna data was based on stratification of the CYPLUS project area by biogeographical regions and sub-regions as defined by Stanton and Morgan (1977) (Fig. 1, Table 1).

Within each subregion, an assessment of faunal information was made from two main sources.

1. The distribution of mammal records prior to 1979 together with additional records from selected recent vertebrate surveys (Fig. 1). The more important of these additional data sets were three surveys undertaken in the Weipa region (BERS 1982, Winter & Atherton 1985, Cameron and Cogger 1992) at the extreme northern end of the Gulf plains.

This showed that the distribution of vertebrate records for the area north of 16°S latitude was concentrated on the eastern side of Cape York Peninsula and the western side as far south as Aurukun.

2. The distribution of record sheets obtained by the RAOU Atlas Scheme (Fig. 2). There is the same concentration of observations on the east coast but with a better return from the west coast than for other vertebrates. The better coverage for birds on the Peninsula reflected a greater reliance on sight records because of greater ease of field identification of species.

Records of waterbirds, obtained as part of a current wetland survey of the Gulf of Carpentaria plains (Blackman pers. comm.), supplemented the records for the west coast.

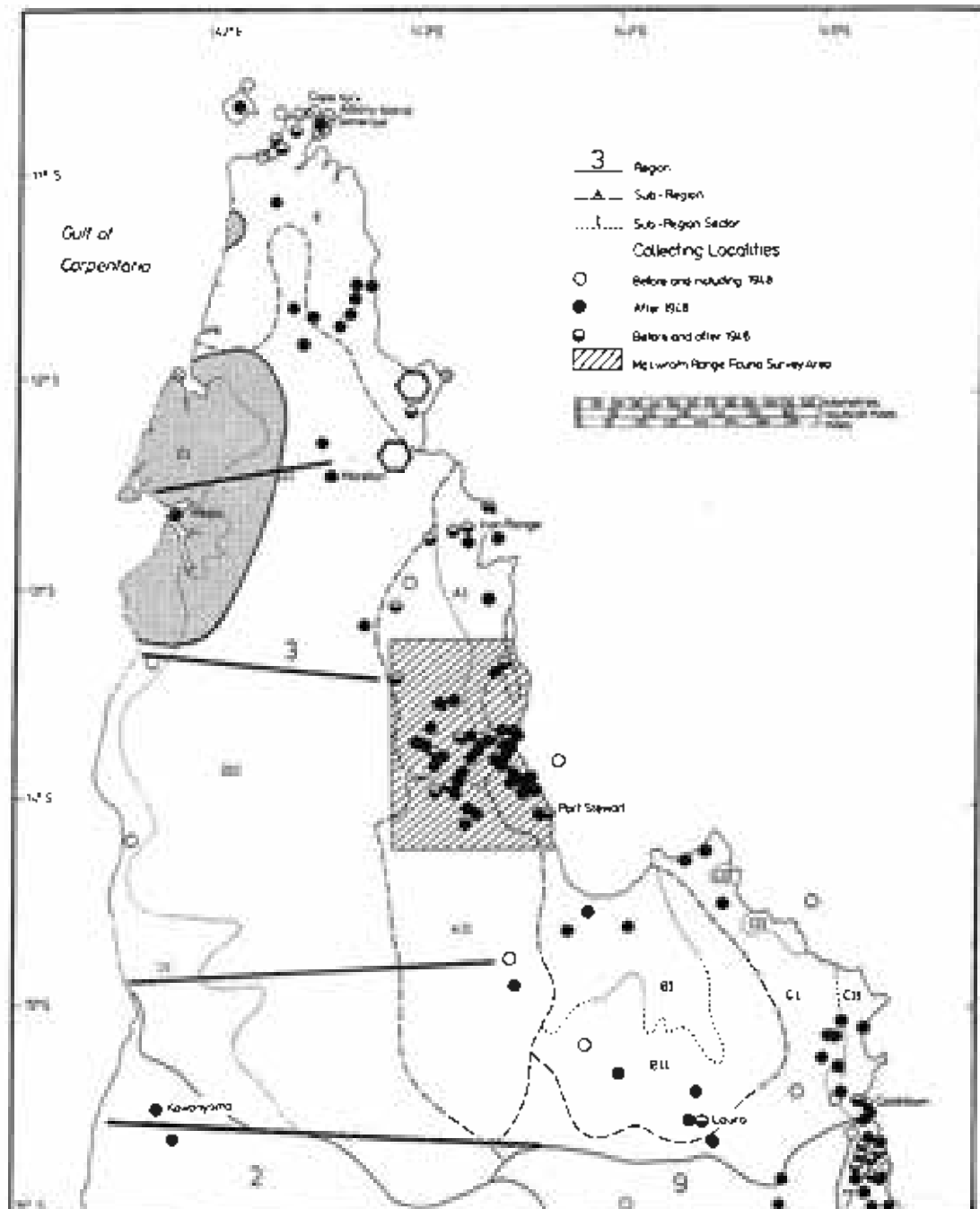


Fig. 1. Biogeographical regions and subregions of the CYPLUS area (Stanton and Morgan 1977) with collecting localities for mammals to 1979 shown as circles and subsequent major terrestrial vertebrate fauna surveys stippled. Nominal gradsects shown as heavy horizontal lines and targeted localities open hexagons (adapted from Winter and Allison 1980).

Regions: 2=Gulf Plains, 3=Cape York Peninsula, 7=Wet Tropics, 9=Einasleigh Uplands
 A to E = subregions of Cape York Peninsula (see Table 1).



Fig. 2. Number of record sheets in 1° blocks, 1977-81, submitted during the RAOU Bird Atlas Scheme (from Blakers *et al.* 1984)

Table 1. Existing faunal information in relation to biogeographical regions and subregions.

Biogeographic region and subregion	Area as % north of 16°	Description	Existing faunal Information
CYP A	15.8	Forest & woodland on igneous and metamorphic parent material	QDEH McIlwraith fauna survey plus abundant museum collections from northern rainforest section, less from southern woodland areas
CYP B	12.1	Flat plains of the Laura Basin sediments	QDEH Lakefield incidental fauna survey plus numerous museum records
CYP C	7.4	Plateaux and ranges, often strongly dissected and coastal sediments	QDEH Cape Flattery fauna survey plus numerous museum records from Cooktown and Laura areas
CYP E	6.7	Flat or gently undulating plains formed on coarse sediments	QDEH Heathlands & Weipa fauna surveys plus numerous museum records from Lockerbie area
CYP D	46.5	Vast plains adjacent to the Gulf of Carpentaria	QDEH Weipa fauna survey, Aust. Museum reptile survey & BERS survey at northern extremity of area, bird information from west coast
Gulf	6.8	Alluvial, outwash and erosional plains adjacent to the southern parts of the Gulf of Carpentaria	Concentration of miscellaneous records from Kowanyama, few records
Einiasleigh	3.6	Elevated region of complex geology and often rugged topography	In northern part sparse records restricted mainly to area adjacent to Peninsula Development Road
Wet Tropics	1.1	An essentially mountainous region with rainfall exceeding 1500mm	QDEH fauna survey plus abundant records from other sources.

The assessment indicated two priority areas for field surveys.

Priority 1 - The vast south-west plains of the Cape York Peninsula and Gulf Plains biogeographical regions within the CYPLUS project area.

These plains are the landscape most obviously lacking in faunal information. They also cover over half (53%) of the Peninsula north of 16°S (Table 1). They remain the least well documented for their vertebrate fauna, despite the surveys in the Weipa district and the wetland surveys south of Aurukun.

Additional areas considered for selection were areas containing habitats of special interest but lacking in faunal information.

Priority 2 - Areas of special interest.

One such area was the extensive sand dune complex of the Shelburne Bay - Olive River area. A factor influencing the selection of this area for survey was the possible presence of the Northern Hopping Mouse (*Notomys aquilo*) and/or the Kultar (*Antechinomys laniger*). They are two small mammals known from Cape York Peninsula from only single specimens, both collected in the late 1800s (Winter and Allison 1980).

A second area was the Glennie Tableland, a sandstone plateau highly dissected by deep gorges containing rainforest patches in their headwaters. The tableland represents the best developed sandstone cliff country north of the Deighton Plateau east of Laura. The area was selected for survey in anticipation of obtaining significant range extensions or new species of rock-dwelling animals.

3.1.2 Confirmation of subregions selected for field surveys

Confirmation for the selection of the south-west plains came from the Historical subproject. It identified the major gap in the Cape York Peninsula fauna database as the south-west plains extending north into the central plains and east into the south-east uplands (McFarland 1993, Section 4.2).

McFarland (1993) also identified the Shelburne Bay - Olive River dune complex as areas of known significant conservation value but lacking detailed faunal information.

Additional areas, covered only marginally or not at all by the field program, but identified by McFarland (1993) as requiring further fauna surveys, were the south-east uplands extending from the Quinkan country in the Laura area through to Cape Melville plus the hinterland between Cape Melville and Cape Flattery.

3.2 Strategy for the selection of localities and sites

Two major sampling strategies are available to undertake resource assessments on a regional scale: the strictly randomised stratified model and the gradsect model, the one selected for use in this project.

3.2.1 Gradsect sampling

The gradsect model has been demonstrated to be the most cost-effective sampling procedure to obtain regional biological resource information, particularly in terrain which imposes major constraints on access (Gillison and Brewer 1985, Austin and Heyligers 1991). Because cost and difficult terrain are major constraints in the present project, the gradsect model was chosen as the sampling strategy for the CYPLUS field surveys.

Gradsect sampling is "the deliberate selection of transects which contain the steepest environmental gradients" (Gillison and Brewer 1985). They are chosen to encompass the steepest gradients of environmental variables most likely to influence the distribution of biota to be sampled (Austin and Heyligers 1991).

3.2.2 Choice of gradsects

Selection of gradsects was made at two scales:

- . at the subregional scale to cover landscape variation within a subregion and
- . at the locality scale to cover habitat variation at a locality.

Subregional. Positioning of gradsects to cover subregional variation of the south-west plains was determined by two gradients considered to have the greatest influence on the distribution of fauna at the subregional scale:

- . a south-north gradient associated with;
 - . increasing temperature with decreasing latitude,
 - . the peninsula effect in which species numbers are expected to decline towards the apex of a peninsula and
 - . closer proximity to New Guinea with its rich rainforest fauna.
- . an east-west gradient associated with;
 - . decreasing rainfall,
 - . decreasing distance from the extensive wetlands and plains of the Gulf which act as a source for wetland and plains species and
 - . increasing distance from large rainforest source areas of the east coast.

Locality. Localities were positioned to sample landscapes along subregional gradsects. At each locality, sites were selected to sample the greatest range of habitat types available along the open grassland to closed forest spectrum.

3.2.3 Selected Gradsects

Four east-west gradsects were selected to survey the south-west and central plains (Fig. 1). Conceptually the gradsects extended from the west coast across the plains to the central ranges of the Peninsula and covered the north-south extent of the plains. This satisfied the two most influential environmental gradients within the landscape. From north to south they were the:

- Weipa-Moreton gradsect,
- Aurukun-Rokeby gradsect,
- Pornpuraaw-Musgrave gradsect and
- Kowanyama-Kimba gradsect

3.2.4 Targeted Habitats

In addition to the east-west gradsects two habitats were targeted for sampling, viz:

- dune fields of Shelburne Bay-Olive River and
- deeply incised sandstones of the Glennie Tableland

3.2.5 Selected Localities

The number and position of localities along each gradsect, or within a targeted habitat, was influenced by existing information, access and time. For example, access was unavailable to the coastal end of the Aurukun-Rokeby and Pornpuraaw-Musgrave gradsects during the field season but faunal information, particularly for birds, already existed for the coastal ends of these gradsects. At the eastern end of the Pornpuraaw-Musgrave gradsect a survey locality was unnecessary because of faunal information gathered in the course of two current QDEH projects centred on Artemis Station, one on the Golden-shouldered Parrot by S. Garnett and G. Crowley and the other by D. Storch on the Feral Cat as a potential predator of the parrot.

Localities selected for each gradsect and targeted habitats are listed below together with the source of records. The names refer to general areas rather than specific sites. Thus the Schramm Creek locality contains sites within the catchment of Schramm Creek but not necessarily located on the Creek itself. Similarly, the Messum Hill locality was situated 3 km to the NNE of Messum Hill. Locality and site details are provided in the trip accounts given in the supplement.

Kowanyama-Kimba gradsect	Project
Coastal Springs (Rutland Plains Holding)	CYPLUS
Shelfa Crossing (Mitchell-Alice National Park)	CYPLUS
Emu Lagoon (Mitchell-Alice National Park)	CYPLUS
Mosquito Waterhole (Oriners Holding)	CYPLUS
Oriners Outstation (Oriners Holding)	CYPLUS
Pinnacles (Pinnacles Holding)	CYPLUS
Oswald Crossing (King Junction Holding)	CYPLUS
Maytown (Palmerville Holding)	CYPLUS
Pormpuraaw-Musgrave gradsect	
Pormpuraaw	existing information
Melon Yards (Strathgordon Holding)	CYPLUS
Artemis	GSP project
Aurukun-Rokeby gradsect	
Aurukun	existing information
Horsetailer Waterhole (Archer Bend National Park)	CYPLUS
Rokeby (Rokeby National Park)	CYPLUS
Weipa-Moreton gradsect	
Andoom (Comalco Mining Lease)	CYPLUS/NRCP
Stone Crossing	CYPLUS/NRCP
Nimrod Creek (Bertiehaugh Holding)	CYPLUS/NRCP
Ducie River South (Bertiehaugh Holding)	CYPLUS/NRCP
Schramm Creek (Bramwell Holding)	CYPLUS/NRCP

Shelburne Bay-Olive River sand dune complex

Messum Hill (D. & O Reserve)	CYPLUS
Olive Dunefield (Bromley Holding)	CYPLUS
Glennie Tableland (Bromley Holding)	CYPLUS
Mount Glennie (Bromley Holding)	CYPLUS

NRCP localities. The NRCP project had different priorities to that of the CYPLUS project thus the choice of localities was made independently from the CYPLUS choices. Nevertheless, NRCP localities were chosen to complement CYPLUS localities.

The NRCP surveys comprised:

- . five seasonal sampling periods at Iron Range and Cape Weymouth
- . a wet and dry season survey of the Lockerbie Scrub
- . post wet survey of the Heathlands area
- . dry season survey of Temple Bay scrubs and mangrove habitats

3.2.6 Seasonality

Cape York Peninsula has a monsoonal climate with pronounced wet and dry seasons. During the wet season the roads are generally impassable to vehicular traffic so field work tends to be confined to the dry season. To reduce this bias, a helicopter was used to access two localities on the south-western plains, Emu Lagoon and Mosquito Waterhole, in February during the height of the wet season. The seasonal spread of the sampling at localities is given in Table 2.

In addition, a range of seasonal sampling was undertaken within the NRCP project with five sampling periods throughout the year in the Iron Range-Cape Weymouth area and a wet and dry season survey of the Lockerbie Scrub.

3.3 Field surveys undertaken during 1993

Eight field surveys were undertaken within the CYPLUS program and ten within the NRCP program - one of the field surveys was a joint CYPLUS/NRCP trip (Table 2).

A brief outline of each CYPLUS and NRCP survey trip is given below. Detailed accounts can be found in the separate field survey reports (Supplement).

3.3.1 CYPLUS program

Mitchell & Alice Rivers N.P./Oriners Holding

February 1993

A wet season survey, in the company of a party from Kowanyama, to Emu Lagoon (Ajampiythan) in the Mitchell & Alice Rivers National Park on the Gulf Plains and to Mosquito Water Hole (Ognol Ampunk), Oriners Holding, in the gentle rises of the Holroyd Plain. Access was by helicopter.

The ground was saturated by heavy rain providing a good inventory of frogs. An addition to the Peninsula's mammal fauna was the collection of the Squirrel Glider at Mosquito Waterhole.

Messum Dunefield/Olive Dunefield/Glennie Tableland

April 1993

A survey concentrating on the coastal sand masses of Shelburne Bay with one locality to the north of Messum Hill at the northern end of Shelburne Bay and a second locality in the extensive Olive River Dunefield. The sandstone escarpment country of the Glennie Tableland was surveyed at a third locality. Access was by helicopter.

Pinnacle/King River

May 1993

The Pinnacle locality sampled the Kimba Plateau, with its tall Darwin Stringybark woodland on laterite, and the break-away country on the southern edge of the plateau. A second locality at Oswald Crossing on the King River covered more open, shorter woodland on metamorphics. Access was by 4x4 vehicle.

Strathgordon

June 1993

The survey was restricted to one locality at Melon Yard on the Edward River. The range of habitats sampled was grassy woodland on alluvial plains to medium eucalypt on low interfluvial ridges. An excursion was made to Bull Lake, an important wetland site. Access was by 4x4 vehicle.

Maytown

July 1993

The main locality surveyed was to the south of Maytown where grassy woodland and poorly developed sclerophyll riparian forest occurred on hilly ridge-vale country. Soils were skeletal and derived from the extensive Hodgkinson metamorphics. A subsidiary site was located in limestone country between Maytown and Palmerville. Access was by 4x4 vehicle.

Table 2. Localities sampled by CYPLUS and NRCP projects in relation to seasons.

Localities	Seasons and months - 1993										
	Wet	Post wet		Early dry		Mid dry		Late dry			
	F	M	A	M	J	J	A	S	O	N	
CYPLUS											
Emu Lagoon	●										
Mosquito Waterhole	●										
Messum Hill			●								
Olive Dunes			●								
Glennie Tableland			●								
Pinnacles				●							
Oswald Crossing				●							
Strathgordon					●						
Maytown						●					
Coastal Springs							●				
Shelfa Crossing							●				
Oriners Outstation							●				
Horsetailer Waterhole										●	
Rokeby											●
CYPLUS/NRCP											
Schramm Creek										●	
Ducie River South										●	
Nimrod										●	
Stone Crossing										●	
West Andoom										●	
NRCP											
Lockerbie	● SM			●							
Heathlands		●									
Temple Bay											●
Iron Range/Cape Weymouth	● SM		●	●		●				●	

Rutland Plains/Mitchell-Alice N.P./Oriners Holding

August 1993

This was a dry season trip to complement the February wet season survey at Emu Lagoon and Mosquito Waterhole. At the most westerly locality, dunefield woodland and grasslands were sampled on the coastal plains at a bore known locally as Coastal Springs. At Shelfa Crossing on the Mitchell River in the Mitchell & Alice Rivers National Park, mixed sclerophyll and mesophyll riparian forest and adjacent eucalypt woodlands were surveyed. The third and most easterly of the localities was on Eight Mile Creek close to Oriners Outstation. The riparian and ridge country of the Holroyd Plain, similar to that at Mosquito Waterhole was surveyed. Access was by 4x4 vehicle.

Central rainforest patches

September 1993

This was a joint survey under the CYPLUS and NRCP programs. The primary aim was to determine the fauna of a series of interfluvial refugial remnants of vine forest between Moreton and Weipa. At each locality vine forest patches of different sizes were sampled. Access was by 4x4 vehicle.

Archer Bend N.P./Rokeby N.P.

October 1993

At Horsetailer Waterhole on the Archer River, well developed riparian vine forest and adjacent woodland habitats were surveyed. The Rokeby locality included sites on the western fall of the Geikie Range and Darwin Stringybark woodland on ridge country of the Merluna Plain. Access was by 4x4 vehicle.

3.3.2 NRCP program

The NRCP project surveyed the terrestrial vertebrates of the rainforests and adjacent habitats from Iron Range to Lockerbie with emphasis on obtaining seasonal data. One survey within this project, the Moreton to Weipa gradsect, included ants as part of the survey. It was designed to examine the effect on the fauna of rainforest patch size and its distance from the large continuous areas of rainforest of the east coast.

Iron Range/Cape Weymouth

Eight sites covering a wide range of forest habitats between Lockhart community and Cape Weymouth were surveyed five times to cover seasonal differences between April 1993 and February 1994

Lockerbie Scrub

Two visits were made to Injinoo country at the northern end of the Lockerbie Scrub to obtain seasonal information in the most northerly area of rainforest in

Australia. Survey periods sampled the early dry season (May 1993) and the wet season (February 1994).

Heathlands

Sites were situated from the east coast to the old telegraph line in the centre of the Peninsula and sampled a range of rainforest and associated sclerophyll and heath complexes in the post dry season (March 1993). This was in contrast to the CYPLUS Messum Hill survey which focused on the coastal sand dune country.

Temple Bay

The small beach rainforest patches and mangrove forests were surveyed within the Temple Bay area during the late dry season (November 1993). Access was by boat.

3.4 Methods

3.4.1 Sampling design

Because the study was a broad-scale resource assessment, sampling was also designed to be at an appropriately broad scale, to cover the observable range of habitat variation. However, search techniques and effort were standardised as far as possible to enable some quantitative site and locality comparisons.

Sampling at sites was designed to satisfy the following criteria:

- . surveys were primarily inventory surveys for broad-scale resource assessments at a regional level;
- . records to relate to major environmental attributes;
- . compatibility with survey information obtained in previous QDEH surveys over the past 20 years and
- . surveys to be undertaken by two zoologists

This was achieved by the selection of three sites at a locality, worked over a period of three days. Occasionally when logistics dictated a longer stay, four sites were established.

Site size was seven hectares. In evenly distributed habitat this was taken as a circle with a radius of 150 m. In linear habitats, such as riparian forest, the configuration of the site was adjusted accordingly to approximately 100 x 700 m. All standardised techniques were undertaken within a site.

Opportunistic observations were made both on and off sites.

Sites were of two types:

- . primary site - a site at which all survey techniques were undertaken
- . secondary site - a site lacking in one or more survey methods

3.4.2 Sampling methods

All four terrestrial vertebrate groups were sampled using a range of methods. Techniques were standardised as far as possible and based primarily on transects of indeterminate length but of fixed time and on a standard number of trap nights.

Standardised techniques were not used to sample for microchiropteran bats or for aquatic fauna.

Census trapping. At each primary site two lines of traps were set, parallel to each other and approximately 100 m apart. Each line consisted of eight small mammal Type A Elliott cage traps (33 x 10 x 9 cm) and two wire cage traps (56 x 20 x 20 cm), set approximately 10 m apart. Traps were baited with a rolled oats and vanilla essence mix and a piece of salami. At one end of each line one pit-and-fence trap was set, consisting of a single pit, 55 cm deep and approximately 25 cm in diameter centred in a seven metre fence of fly wire 30 cm tall. Traps were checked each morning.

Census transects. At each primary site three fixed-time "wandering transects" were undertaken. A transect consisted of traversing the site for 40 minutes within the habitat type of the site and recording the number of target animals heard or seen.

early morning bird census - started after it was sufficiently light to see the birds, usually between 6.30 am and 7.00 am. The number of individuals of each species were estimated and recorded either as a direct count where possible or allocated to a frequency category - several (c.1-5), common (c.6-10) or abundant (> c.10).

mid-morning reptile census - commenced after the bird census with adjustments to the time of starting according to the temperature, earlier on hot mornings and later on cool mornings. Cryptic species were searched for by stripping loose bark and by turning logs and boulders. The number of individuals of each species was recorded.

evening census for nocturnal species - commenced about half an hour after dark and was undertaken concurrently by two observers using different powered lights:

- . a 30 watt spotlight (white light) primarily for detecting arboreal mammals and nocturnal birds and
- . a low wattage torch (white light) to search for frogs and reptiles.

The number of individuals of each species were recorded or allocated to a frequency category.

The number of individuals of each species were recorded or allocated to a frequency category.

Opportunistic records. Records of animals obtained at times other than during the designated census or trapping periods were classified as opportunistic and were divided into:

- . opportunistic on-site records and
- . opportunistic off-site records.

3.4.3 Source texts

Scientific names of species for all vertebrate groups included in the fauna surveys follows those used by the Australian Biological Resources Study's vertebrate species list "Census of Australian Vertebrate Species (CAVS) Version 8.1" (1994). For field identifications of species the primary sources were Cogger (1992) for frogs and reptiles, Slater *et al.* (1986) for birds and Strahan (1993) for mammals. The use of common names followed those given in the above identification sources plus Ingram *et al.* (1993) for frogs. Coding for vegetation, land patterns and land elements follows that given in McDonald *et al.* (1990).

4.0 THE QDEH DATA SET

4.1 Outline

The Queensland Department of Environment and Heritage Cape York Peninsula terrestrial vertebrate data set (the **QDEH Data Set**) is a compilation of records obtained by QDEH personnel in the course of their duties on Cape York Peninsula. This includes data from the **CYPLUS** and **NRCP** surveys undertaken in 1993/4, other systematic fauna surveys undertaken since 1977, records kept by resident rangers and miscellaneous records.

The database - **CYPVERTS** - contains both specimen-backed and purely observational records.

Most specimens collected in the course of the surveys were lodged in museums, primarily the Queensland Museum, and will appear in both data sets. These duplicate records can be identified by museum registration numbers which are given in both data sets. Also, field numbers which are given in the QDEH set, are usually incorporated into the museum register.

4.2 Sources of data included in the QDEH data set

A number of discrete sources of data are included within the general QDEH Data Set as provided to the **CYPLUS** central GIS projects. They are identified in the database within a source field by an acronym.

CYPLUS **NR03 NRAP project**

Data collected during the field survey sub-project of NR03 between February and November, 1993.

NRCP **National Rainforest Conservation Program (NRCP)**

Data collected during the NRCP field surveys during 1993 and early 1994.

WEIPA **Weipa Fauna Survey**

Data collected during the QDEH Weipa Fauna Survey of natural habitats within Comalco's mining lease and adjacent areas between August 1980 and September 1981. Extremities of the survey area were from Vrilya Point in the north to Aurukun in the south and from the west coast inland to York Downs old homestead.

MCILWR **McIlwraith Fauna Survey**

Data collected during the QDEH survey of the McIlwraith range and adjacent areas between August 1977 and August 1979. Extremities of the

survey area were Buthen Buthen in the north to Port Stewart in the south and from the east coast inland to the Geikie Range.

FLATT Cape Flattery Fauna Survey

Data collected during a QDEH survey of the Cape Flattery dunefield in August/September 1986.

JWWDEH Data collected or collated by John Winter and associated QDEH personnel during visits to Cape York Peninsula, other than those designated as McIlwraith or Weipa survey visits, between August 1975 and October 1986. Areas of focus include the Jardine River ford, Heathlands and Laura.

JWWMIS Data collected by John Winter in a private capacity after leaving employment with QDEH in October 1986.

LFS Lakefield National Park incidental fauna survey

Data collected by Barry Lyon, a resident ranger of Lakefield National Park, in the course of an incidental fauna survey during 1979.

DM_MIS Incidental observations made by QDEH ranger Mike Delaney for the Rokeby-Coen-McIlwraith area between July 1985 and December 1993.

STORCH Data collected by QDEH ranger Daryn Storch, mainly from the Artemis area between 1986 and 1994.

GSP Golden-shouldered Parrot Project

Bird records from the Lakefield-Artemis-Coen area made available by Drs Steven Garnett and Gay Crowley from their Golden-shouldered Parrot project, for March (wet season) and July (dry season) 1993.

CYHS Cape York Herpetological Society

Private trip conducted by Phillip Lethbridge and members of CYHS.

4.3 QDEH Database Structure

The Relational Database software, Foxpro was employed to store, manipulate and retrieve data. An interactive data management module was developed to facilitate the entry, validation and storage of observations. The database consisted of the following related tables:

- OBS - Observation details

■ CSITE	-	Detailed site descriptions
■ OSITE	-	Less detailed site descriptions for opportunistic observations
■ SP_LIST	-	Dictionary of taxa
■ SPECIMEN	-	Details of specimens and museum registrations
■ OBSR	-	Lookup table of observers and codes
■ BREED	-	Additional breeding information

A description of the tables and their fields is given in Appendix I.

4.4 Validation of records

'Clean' data are the essential basis of a point database. Without it, anomalous results may occur when the data is used for scientific and planning purposes. This leads to a loss of user confidence as data errors become apparent.

4.4.1 Field recording

A predominantly observation based, as opposed to a specimen based, data set relies on the accuracy of the initial observation and wrong identifications can rarely be corrected. Consequently quality control of the original observation is particularly important. Quality of the observations was achieved through:

- . the use of experienced observers who appreciated the need for quality data;
- . the premise that sparse but high quality data are superior to a mass of doubtful data - this translates into the field observation maxim "If in doubt, leave it out";
- . the use of a limited specimen collection of species for which field identification was difficult or the taxonomy uncertain.

4.4.2 Database entry

Two systematic validation procedures were undertaken with the entry of records into the computer database.

1. An independent checking of field data sheets against the computer generated record for every record after a discrete block of data was entered.

Entry of the McIlwraith and Weipa fauna survey data onto a mainframe computer used the two-typist system.

Records entered directly from field data sheets onto a desktop computer, the system used for the remaining data, involved visual comparison of the data sheet with a similarly structured print-out produced from the digital data.

2. Logical checking of the database fields was then undertaken to ensure that records came within the known range of location and environmental parameters for a locality. For example, that all records came within the known latitude, longitude and altitude for a locality.

Finally, through repeated use of the data set by the people who were responsible for and were familiar with the records in the database, mistakes not identified in the first two validation procedures were detected and rectified.

4.4.3 Custodial responsibility

QDEH takes custodial responsibility for maintaining and upgrading the quality of the database for use by end-users of the data. This includes correcting errors detected and reported by end-users.

5.0 DATA ACCUMULATED BY NR03

5.1 Number of records in the QDEH data set

A total of 22,719 records were forwarded to ERIN as the QDEH data set for eventual incorporation into the CYPLUS GIS. The four main sources of data accumulated within the Field Survey subproject were the CYPLUS and NRCP field surveys undertaken within the time frame of the NRAP program and the two major fauna surveys - McIlwraith and Weipa - undertaken by QDEH in the late 1970s and early 1980s (Table 3). Whilst the remaining sources account for less than 10% of the data set, they include important records because they are from strategic areas (Cape Flattery, Artemis, Lakefield) or of species otherwise poorly represented (Northern Nail-tailed Wallaby, Spectacled Hare-wallaby).

Due to the ongoing nature of QDEH surveys, additional records are constantly appended to the QDEH data set and updates will be sent to the central CYPLUS GIS via ERIN for inclusion in the final data set.

5.2 Characteristics of the QDEH data set

An understanding of the limitations and strengths of the QDEH Database is important for end-users.

5.2.1 Distribution of records from the QDEH Data Set

The database is not representative of the entire CYPLUS study area. Distribution of records contained within the data set are concentrated within northern Cape York Peninsula, north of the Stewart River, and the Gulf Plains in the south-west with sites extending into the southern end of the central ranges at Maytown and an enclave of records from the Cape Flattery dunefield (Fig. 3). Use of systematic sampling sites using the full complement of survey techniques was restricted to this area. It is referred to as the focal area for the QDEH Database. Outside the focal area, records were either incidental or did not use a full range of survey techniques.

5.2.2 Time span of records

A considerable difference in the time span of the two data sets exists. The Historical Data Set extends over more than 100 years whereas the QDEH Data Set, based on fauna surveys, is restricted to the past 20 years. The longer time span is particularly advantageous when studying vagrants - species which occasionally stray into the CYPLUS area from their usual geographical ranges. Vagrants are typically mobile in nature, particularly birds and possibly bats. In addition the longer time span of the historical records provides base-line data for investigating declining populations and/or range contractions.

Table 3. Summary of data source and quantity.

Source Name	Data Source	Date Collected	# of records	% of total	# of species	# of specimens
CYPLUS	NR03/QDEH	1993	4060	18.2	297	371
NRCP	NRCP/QDEH	1993-1994	4631	20.8	345	53
MCILWR	McIlwraith Fauna Survey QDEH	1978-1979	8163	36.6	367	1137
WEIPA	Weipa Fauna Survey QDEH	1980-1981	3515	15.8	305	575
JWWDEH	J. Winter (QDEH)	1973-1986	532	2.3	171	75
JWWMIS	J. Winter (non QDEH)	1991	38	0.2	26	0
DM_MIS	Mike Delaney (QDEH)	1985-1993	21	0.1	9	0
FLATT	Cape Flattery QDEH Fauna Survey	1986	127	0.6	37	94
LFS	Lakefield Data QDEH	1979	227	1.0	112	0
STORCH	Daryn Storch QDEH	1986-1994	206	0.9	76	0
GSP	Golden-shouldered Parrot Project	1993	906	4.1	102	0
CYHS	Cape York Herp. Society	May 1994	293	1.3	128	6

Total number of records:- 22,719

5.2.3 Quality control

Quality control was higher for the QDEH set compared with the Historical set in which records, particularly records not supported by specimens, were accepted at face value from a wide range of sources.

5.3 Completeness of the QDEH data set

Because the QDEH database is a subset of all data collected on the terrestrial vertebrates of Cape York Peninsula omissions are expected from the data set. Omissions resulted from the shorter time span, incomplete coverage of the focal area, and fewer sources of the data comprising the QDEH data set compared with the comprehensive Historical data set.

To obtain a completeness measure of the QDEH data set we compared the number of species in the QDEH data set with the number of species present in the Historical data set (Table 4). This is not a totally independent test because of an overlap in sources of data used in both sets, the largest of which were the McIlwraith and Weipa fauna surveys.

5.3.1 Modified Historical List

The first step was to discount for comparison species in the Historical list species that were:

- . restricted to areas outside the QDEH data set coverage;
 - . Torres Strait and
 - . Wet Tropics Biogeographical region;
- . known taxonomic revisions;
- . unestablished introductions;
- . known erroneous localities and
- . known mistakes.

Numbers of species eliminated from the Historical list for the purposes of this comparison are given below.

Frogs Sixteen frogs in the Historical list are restricted to the Wet Tropics region.

Reptiles Twenty two reptiles in the Historical list are restricted to the Wet Tropics region and a further four to Torres Strait.

Another twenty are strictly or predominantly marine - sea snakes, turtles and the Little File Snake - and are not included in the faunal set sampled by the surveys.

Two, *Lamprolepis smaragdina* and *Candoia bibroni*, are New Guinea species known from one or two specimens only and represent failed introductions (Ingram 1977).

Table 4. Differences between the QDEH and Historical species lists with adjustments made to the Historical list to delete species restricted to regions not sampled by the QDEH set (Wet Tropics and Torres Strait - strictly marine species and species combined into one species in the QDEH list).

	Numbers of species				
	Frogs	Reptiles	Birds	Mammals	Total
In Historical list	49	180	401	104	734
In both Historical and QDEH lists	31	97	298	72	498
Historical list only	18	83	103	32	235
Modified Historical list - species deleted					
Restricted to Wet Tropics	16	22	33	15	86
Restricted to Torres Strait	-	4	2	-	6
Marine only	-	20	10	3	23
Miscellaneous (see text)	-	3	2	2	7
Modified Historical list - total	33	131	354	84	602
Modified Historical list only	2	34	56	12	104
% of species missed by QDEH surveys	6	26	16	14	17
QDEH additions	1	4	3	1	10
Total in QDEH data set	32	103	301	73	510

The Marbled Velvet Gecko (*Oedura marmorata*) was split into a number of distinct species by Bustard (1970). The Cape York Peninsula representative of this complex became the Northern Banded Velvet Gecko (*O. castelnaui*), listed in the Historical Set. *Oedura marmorata* is presently considered to have its range to the south-west of Cape York Peninsula (Cogger 1992).

Birds Thirty three birds are restricted to the Wet Tropics region and two, the Pacific Swallow and Pale White-eye, are recorded from the Torres Strait islands only.

Ten are oceanic birds (storm-petrels, boobies, tropicbirds, jaeger, noddies, most terns) and although the QDEH data set includes a few oceanic species, they are incidental records of a group not incorporated into any QDEH systematic sampling procedures.

The Mangrove Fantail is treated as a distinct species in the Historical set but is treated as a subspecies of the Grey Fantail in the QDEH data set.

The Grey Butcherbird is given in the Historical data set as occurring to the northern extremity of the Peninsula with all records sourced to the RAOU Bird Atlas Scheme - the Black-backed Butcherbird was once regarded as a sub-species of the Grey Butcherbird. However, in the RAOU Bird Atlas (Blakers *et al.* 1984) the Grey Butcherbird is shown as restricted to south of 16° latitude in north-eastern Australia, reflecting the present taxonomic state of the birds. This demonstrates that the RAOU data set contributing to the historical list was one lacking the validation process undertaken prior to publication of the Bird Atlas.

Nine birds, recorded as present on Cape York Peninsula are potentially doubtful records as their sources generally lacked strict validation processes (Table 5). One source known to require validation is the RAOU Bird Atlas Scheme (McFarland source no. 7) because several species given as occurring within the CYPLUS project area within the Atlas Scheme's database are not shown as occurring in the area in the published atlas (Blakers *et al.* 1984). Other sources considered not to have strict validation procedures are the Queensland Ornithological Newsletters (McFarland source no. 238), the Queensland Ornithological Society bird reports (McFarland source no's 97, 98, 99) and North Queensland Naturalist reports (McFarland source no. 93). Species recorded outside their accepted range and sourced to these publications are discounted from further examination of the data.

Table 5. Bird species requiring confirmation on mainland

No. of 10' cells	Species	Status	Source code
3	Little Bittern	R	7
2	Chestnut Teal		7 238
2	Gurney's Eagle		97 98
1	Stubble Quail		7
1	Banded Lapwing		138
1	Kelp Gull		98
1	Zoe Imperial-Pigeon		96
3	Red-rumped Swallow		93 97 98
3	Ground Cuckoo-shrike		7
Total		9	

See McFarland 1993 for status and source codes

SOURCE NO	SOURCE
7	RAOU Bird Atlas Scheme
93	Crowhurst (1983, 1989); Magarry et al. (1983)
96	Beruldsen (1990)
97	Britton (1990a, b, 1991, 1992)
98	Redhead (1988, 1990)
138	Standfast (1965)
238	Bird Notes and Members Sightings - QOS Newsletter (1972 - 1992)

Mammals Fifteen mammals are restricted to the Wet Tropics region.

Both *Bos indicus* and *Bos taurus* are listed in the Historical set, but in the QDEH data set all cattle are classified as *B.taurus*. One species of small mammal must be treated as a wrong identification. The Long-tailed Planigale (*Planigale ingrami*) is listed as collected from Coen and the Port Stewart area, but a Coen specimen was subsequently shown to have been a juvenile Common Planigale (*Planigale maculata*) (Archer 1976). This may also apply to the other specimens.

5.3.2 Omissions from the QDEH list

We then compared the QDEH data set with the Historical data set and assessed possible reasons for any absences in the former data set.

Frogs Two frogs not represented by the QDEH set are in the modified Historical list.

One, *Cophixalus saxatilis*, is known only from the boulder masses of the Black Trevethan Range south of Cooktown which is outside the focal area of the QDEH data set (subsequently added to QDEH data set).

The other, *Pseudophryne major*, is known from specimens collected from the Portland Roads crossing of the Wenlock River in 1951. The validity of this information has recently been reviewed and accepted by Ingram and Corben (1994) and it remains for the species to be relocated on Cape York Peninsula.

Reptiles Thirty three reptiles in the revised Historical list are not represented in the QDEH data set (Table 6).

Nine occur in only one 10' cell indicating either extremely localised distributions, sparse populations or cryptic habits.

A further 10 are restricted to the south-east occurring outside the focal area of the QDEH surveys. Of these, four are rock-dwelling species of which three have extremely localised distributions - *Nactus galgajuga*, *Carlia scirtetis*, and *Cryptoblepharus fuhni*.

Three are aquatic, from either fresh or estuarine waters, a habitat that was not systematically sampled in the QDEH surveys.

Of the remaining 11 species, 10 are snakes and the eleventh a legless lizard. These are cryptic groups and difficult to sample, a trait reflected by the opportunistic nature of their collection.

Table 6. Reptiles not recorded in the QDEH data set but recorded in the modified Historical set.

No. of 10' grids	Species name	Habitat aquatic burrowing boulders	CYP distr Regions
1	<i>Diporiphora magna</i>	a dragon	SW
1	<i>Diplodactylus williamsi</i>	a gecko	E
1	<i>Rhynchoedura ornata</i>	Beaked Gecko	S
1	<i>Carlia amax</i>	a skink	E
1	<i>Ctenotus inornatus</i>	a skink	E
1	<i>Lerista ingrami</i>	a skink	SE
1	<i>Menetia greyii</i>	a skink	SW
1	<i>Demansia olivacea</i>	a whip snake	C
1	<i>Ramphotyphlops grypus</i>	a blind snake	W
2	<i>Emydura subglobosa</i>	a freshwater turtle	W
2	<i>Gemmatophora nobbi</i>	Hobby Dragon	SE
2	<i>Nactus galgajuga</i>	a gecko	SE
2	<i>Carlia scirtetis</i>	a skink	SE
2	<i>Cryptoblepharus fuhni</i>	a skink	SE
2	<i>Lygisaurus timlowi</i>	a skink	SE
2	<i>Menetia koshtandae</i>	a skink	SE
2	<i>Cerberus rhynchops</i>	Bockadem	widespread
2	<i>Rhinoplocephalus nigrescens</i>	Eastern Small-eyed Snake	E
2	<i>Suta suta</i>	Curl Snake	widespread
3	<i>Gedura coggeri</i>	Northern Spotted Velvet Gecko	SE
3	<i>Pygopus nigriceps</i>	Black-headed Scaly-foot	widespread
3	<i>Morelia stimsoni</i>	a python	SW,E
3	<i>Pseudonaga textilis</i>	Eastern Brown Snake	widespread
3	<i>Ramphotyphlops affinis</i>	a blind snake	widespread
3	<i>Ramphotyphlops broomi</i>	a blind snake	widespread
4	<i>Rhinoplocephalus boschmai</i>	Carpentaria Whip Snake	widespread
5	<i>Ctenotus quinkan</i>	a skink	SE
5	<i>Lygisaurus tanneri</i>	a skink	SE
5	<i>Vermicella annulata</i>	Bandy-bandy	widespread
5	<i>Ramphotyphlops leucoproctus</i>	a blind snake	E
6	<i>Ctenotus nullum</i>	a skink	SE
8	<i>Emydura krefftii</i>	Krefft's River Turtle	widespread
9	<i>Demansia torquata</i>	Collared Whip Snake	widespread
33			

* species subsequently added to the QDEH data set

Birds Thirty seven species of birds on the modified Historical list are not included in the QDEH list (Table 7).

Eleven are waders concentrated along coastal mudflats, a high proportion of which are non-breeding summer migrants. This is a group which was under-represented in the QDEH data set as the sampling effort for mudflat habitats was known to be low .

Five of the 11 wetland birds were either vagrants or cryptic, but the widespread recording of two easily identified species, the Great Cormorant and the Purple Swamphen, suggest that wetland habitats were under-sampled by the QDEH surveys.

Quail and button-quail were undersampled due to their cryptic behaviour and the difficulties experienced when identifying animals only momentarily on the wing.

The Gouldian Finch has undergone a known contraction of range and is regarded as endangered and may no longer occur on Cape York Peninsula (Blakers *et al.* 1984).

Another species which may have undergone a contraction of range on the Peninsula is the Crested Pigeon. Recent records of the species within the CYPLUS area are restricted to the west coast as far north as Aurukun and immediately to the south of the area. There are records of the species in the vicinity of Port Stewart from 1933 but it was not seen in this area during the intensive McIlwraith fauna survey in the late 1970's.

The Singing Bushlark is shown as widely distributed on the Peninsula but most records, except some on the extreme west coast, need confirmation. During the CYPLUS fauna surveys, unconfirmed sightings of the bird were made on the open grasslands at Coastal Springs on Rutland Plains Holding in the extreme south-west of the Peninsula.

Likewise, records of the Yellow White-eye are concentrated on the west coast of the Peninsula, the records from the east coast near Portland Roads requiring confirmation.

The recorded distribution of the Restless Flycatcher is concentrated on the west coast, Torres Strait and to the south of the CYPLUS area. It is recorded from one 10' cell in the Cooktown area and a RAOU atlas record from the vicinity of Laura.

Seven of the 13 Spotted Harrier records are from the RAOU atlas scheme so may need confirmation. The remaining records suggest the bird is an occasional visitor to the Peninsula or sparsely distributed.

Table 7. Birds not recorded in the QDEH data set but recorded in the modified Historical set.

No. of cells	Species	Habitat		Sampling difficulties		Status	Range in CYP
		Shore Wetlands	Woodland other	Cryptic	Identif- Migratory Vagrant fication		
1	Garganey	#			*		Wetpa
1	Black Swan	#			*		L.B.
1	Long-toed Stint	#					
1	Wood Sandpiper	#					
2	Little Button-quail		#	#			T.S.,SW I.R.,SE
†	2 Common Starling	#			#		
2	Ruff	#					
2	Budgerlger		*				SW
2	Painted Honeyeater		*				C
3	Black-breasted Button-quail		*	#			E
3	Spotless Crake	#		#			T.S.,SW
3	Oriental Plover	#					
3	Red-necked Avocet	#					
3	Swinhoe's Snipe	#					
3	Rock Pigeon		urban	#			T.S.,SE C,NE
†	4 Painted Button-quail	#		#			
4	Sanderling	#					
6	Red-kneed Dotterel	#					
6	Crested Pigeon	#					
7	Uniform Swiftlet	#					
8	Black-tailed Godwit	#	arial	#			W.E,S widespread
8	Singing Bushlark	#	grassland				widespread
8	Yellow White-eye	#	cultivation				T.S.,SE reduced range widespread
†	8 Common Mynah	#					
9	Gouldian Finch	#		#			
10	White-browed Crake	#					
10	Red Knot	#					
12	Wandering Tattler	#					
13	Spotted Warbler	#					
13	King Quail	#		#			
15	Golden-backed Honeyeater	#					
19	Star Finch	#	*				widespread
19	Restless Flycatcher	#	*				widespread
19	Crimson Finch	#	*				SI
22	Little Curlew	#	*				R
24	Purple Swamphen	#	*				widespread
29	Great Cormorant	#	*				widespread
	Totals	11	14	7	10		

Status: EW - Endangered, V - Vulnerable, R - Rare, PV - Potentially Vulnerable, IK - Insufficiently Known, SI - Special Interest (McFarland (1993))
 † introduced

The Golden-backed Honeyeater is similar to the White-throated Honeyeater, a common bird on the Peninsula. However, it is sufficiently distinct in size and call for it not to have been accidentally overlooked during the QDEH surveys. A more localised distribution than the White-throated Honeyeater may account for its absence from the QDEH data set.

The Star Finch is considered rare and the Crimson Finch is thought to be widely scattered in very localised populations and therefore easily missed.

The Painted Honeyeater is classified as rare and the records are either just to the south of the CYPLUS area or need confirmation.

Both the Common Mynah and Rock Pigeon are recorded from Torres Strait and the extreme south-east of the CYPLUS area and therefore outside the QDEH focal area.

Mammals Twelve mammals fall within this category.

Two species may be incorrectly recorded as occurring on Cape York Peninsula. Both are single records from the late 1800s, the Kultarr and Northern Hopping-mouse, and have known distributions well removed from the Peninsula (Winter and Allison 1980, Strahan 1983). However, the hopping-mouse may occur on the Peninsula because there are persistent unconfirmed reports of a hopping mouse seen, particularly from the Shelburne Bay area.

Five are insectivorous bats, the Northern Sheath-tail-bat, *Eptesicus darlingtoni*, Little Cave Bat, Lesser Long-eared Bat and Greater Long-eared Bat. This reflects inadequate sampling as specialised techniques required were often not used.

Three are known only from the south-eastern corner of the CYPLUS area - the Rufous Bettong, Whiptail Wallaby, and Common Rock Rat. This reflects the lack of systematic sampling by QDEH within the south-eastern part of the CYPLUS project area.

One is the Rusa Deer, an introduced species with a viable population on Prince of Wales Island. On the mainland, however, it is known from only a few isolated records from the extreme north.

Confirmation is needed of a Brush-tailed Phascogale sighting reported to Luke Leung in the course of the NRCP project. It was by Wayne Butcher on 01/06/1992, 0.5km west of Bobardt Point, (13°10.58'S 143°30.84'E ± 1km; Grid Ref. YL725420)

5.3.3 Additions to the Cape York Peninsula list

Two undescribed species, a frog and a skink, were discovered in the course of the 1993/94 surveys and range extensions into the CYPLUS project area were made for several other species.

Frogs A new species of frog was collected in early 1994 from the Melville Range by QDEH officers, but will not be included in the QDEH data set until the species is formally described.

Reptiles Three new reptiles are added to the Cape York Peninsula list as a result of the CYPLUS field surveys.

One is the newly described skink, *Carlia parrhasius* (Couper *et al.* 1994), collected from the sandstone cliff habitat of the Glennie Tableland on Bromley Holding.

The other two are range extensions into the Peninsula. The most extensive of these is for a flap-footed lizard, the Common Scaly-foot (*Pygopus lepidopodus*), collected from Heathlands during an NRCP survey, and subsequently by P.J. Lethbridge and T. Hawks, from the same general locality during a private visit to the Peninsula. The previously known most northerly record for the species was from Shiptons Flat, over 600 km to the south (Lethbridge and Hawkes in prep). A minor northern known range extension was made for Gilbert's Water dragon (*Lophognathus gilberti*) to bring it into the extreme south-east of the CYPLUS area.

Birds Two species of bird were added to the list of species recorded from CYPLUS area as a result of the QDEH surveys, but neither can be considered significant additions. One was of a wide ranging oceanic bird, the Fluttering Shearwater from off Somerset in the extreme north-east of the Peninsula, the other a vagrant to the Lockerbie area from the New Guinea region, the Yellow Wagtail. A third species not recorded in the Historical list is the result of taxonomic splitting, in which the Lovely Fairywren is treated as a single species in the Historical data set, but is treated as two species - the Variegated and Lovely Fairywren in CAVS and the QDEH data set.

Mammals One mammal has been added to the known fauna of Cape York Peninsula as a result of the CYPLUS program. It is the Squirrel Glider (*Petaurus norfolcensis*), recorded for the first time on Cape York Peninsula from Mosquito Waterhole, Oriners Holding, during the February 1993 survey. It was subsequently recorded on the Kimba Plateau during a CYPLUS survey and on Dixie by D. Storch (in prep) in the course of a feral cat dietary study. Previous to these records the known northern extent of the gliders' range was Mareeba and Bullaringa, 320 km and 280 km south-east and south of Mosquito Waterhole respectively.

5.4 Conclusions

The frogs are well represented in the QDEH data set with only two species (6%, Table 4) overlooked, of which one was restricted to the boulder piles of the Trevethan Range in the south-east outside the focal area of the surveys.

In the other three classes of vertebrates, certain groups were under represented in the QDEH set owing to under-sampling. They include the insectivorous bats within the mammals, waders, waterbirds and quail within the birds and snakes within the reptiles. The highest percentage (26%) of species overlooked in the QDEH surveys were the reptiles, the result of many species being cryptic and difficult to sample.

The one subregion of the Peninsula which was under-sampled by the QDEH surveys within the focal area of the surveys was the west coast south of Aurukun. This was a result of the western ends of the sampling gradsects being unavailable for sampling during the 1993 field season.

6.0 POTENTIAL USE OF DATA

Since the primary aims of the field survey sub-project were to gather information from areas of the Peninsula lacking terrestrial vertebrate data and to provide a validated database for use in other CYPLUS projects, comprehensive analysis of the data is outside the parameters of this project. The purpose of this section is to indicate the types of analysis capable on the data and the limitations of the data sets.

6.1 Data sets available within NR03

Two data sets are available within NR03, emanating from the two sub-projects.

1. The Historical data set prepared by McFarland (1993) extracted information from all available sources for the CYPLUS study area.

Data were assigned to a 10' latitude and longitude grid to capture the maximum amount of data at a reasonable resolution. A species was recorded once only for a grid cell, usually the most recent observation.

2. The QDEH data set consists of data from the CYPLUS and NRAP field survey programs of 1993, and from other sources within the Queensland Department of Environment and Heritage.

No degradation of data, through selective inclusion of records or reduction of locality precision, was made. All records are present in the database in their original form.

Other data sets on the terrestrial vertebrate fauna of the CYPLUS area are available in the CYPLUS central GIS, retrieved by ERIN in the course of NRAP project NR19 on fauna distribution modelling.

6.2 Advantages and limitations of data sets

All the data sets differ from each other and the end user needs to be aware of these differences to make the maximum legitimate use of the sets, particularly when combining the sets.

6.2.1 Historical data set

Advantages of the data set are that it:

- . covers the entire CYPLUS area,
- . has extracted information from the literature,
- . has extracted information from museum collections of major Australian institutions,
- . includes a search effort index for each 10' grid and
- . covers the entire period of scientific collection on Cape York Peninsula.

Limitations of the data set are that:

- . records are accompanied by a limited set of core attributes - species name, date, source, 10' grid cell number, latitude and longitude of the centre of the 10' grid;
- . it degrades all record precisions to a 10' latitude and longitude grid;
- . it includes only one observation per 10' grid, usually the most recent record;
- . critical evaluation of records is restricted to taxonomic name changes of species;
- . nomenclature pre-dates the latest national standard (CAVS May 1994) used in the CYPLUS central GIS and
- . the data is not in point form suitable for GIS analysis.

6.2.2 QDEH data set

Advantages of the data set are that:

- . records are accompanied by a substantial set of core and other attributes;
- . all records are present with no selection undertaken;
- . locality precision is given and no degradation undertaken;
- . nomenclature is consistent with the most up-to-date national standard (CAVS May 1994);
- . stringent validation procedures were undertaken to ensure high quality data and
- . much of the data is at a precision suitable for use in GIS analysis.

Limitations of the data set are that:

- . systematic sampling is restricted to a portion only of the CYPLUS area - the focal area (Fig. 3) - and outside this focal area records are incidental only;
- . systematic sampling within the focal area differs according to the data source, with a tendency for sites to become progressively more general in the older sources and
- . systematic sampling designs differ according to the data source, as they were designed for limited areas of surveys at the time rather than for the regions' full complement of landscapes.

6.2.3 Other data sets

Other data sets obtained by ERIN will contain core attributes such as date, latitude, longitude and source. In addition they will comply with the latest national standard of nomenclature (CAVS May 1994). However, before use in any analysis a critical appraisal is essential to examine the quality of the data.

6.2.4 General limitations

The use of data from all sets is restricted to the use of the lowest common denominator of core attributes - presence and absence data on taxonomic (genus, species), spatial (latitude, longitude) and temporal (date) attributes.

Awareness of the limitations within each data set is essential because:

- . taxonomic up-dating is variable for data sets;
- . validation procedures are variable for data sets reliant on observations not supported by specimens and
- . precision ratings on spatial data are often not provided and where they are, they can range from 100 m to one or more degrees of latitude and longitude.

6.3 Overlap of data sets

Overlap of varying degrees exists between data sources and data sets because:

- . the Historical data set extracted data from the pre-1993 QDEH fauna surveys and the original data from these surveys is stored in the QDEH data set;
 - . information on specimens collected during QDEH fauna surveys and lodged with museums, mostly the Queensland Museum, will appear in both the QDEH data set and the museum data set, in addition the information will be incorporated into the Historical set;
- these duplications can be identified by specimen field collection numbers and/or museum registration numbers which accompany the record in both data sets.

6.4 Types of analysis

6.4.1 Analysis by grid cell

Analyses based on species lists within a stipulated area or cell size, is the most generally applicable use of all the data for two reasons:

- . original data may be entered as occurring within a cell rather than at a point, for example the RAOU Bird Atlas Scheme used the 10' latitude and longitude block as their finest unit of resolution, and much of the McIlwraith and Weipa Fauna Survey data are stipulated as being within a 5' latitude and longitude block.
- . a grid system captures both block and point data thus maximising the use of the data

Two examples of this type of analysis are:

- . McFarland's (1993) preliminary analysis of the Cape York vertebrate fauna using the Historical Data Set and
- . nature conservation strategies using the Bolton and Specht method which analyses landform, vegetation and faunal diversity within a grid (see Purdie 1986 for example)

A limitation of analysis by grid is an inability to extrapolate beyond the limits of a cell.

6.4.2 Analysis of point data using GIS methods

Point data is related to a point rather than a cell and is generally assumed to be superior to cell data in that a point can be directly related to a particular attribute within a GIS coverage.

However, functionally there may be little difference between point data and cell data when location precision is incorporated. A point locality has an error rating and the larger this becomes the more similar it becomes to cell data. Conversely, the smaller a cell becomes, the closer it approaches true point data. In both types, the crucial parameter is the size of the cell or the margin of error for a point. In many of the non-QDEH data sets, an error rating is not provided.

The advantage of precise point and cell data, is the ability to confidently relate to a polygon within a GIS coverage. This is particularly useful when using coverages derived from small scale mapping, or where points coincide with polygon boundaries.

Use of GIS Extrapolation beyond the limits of a cell becomes possible once species are related to environmental information. Storage of this information in a GIS as coverages - soils, geology, climate, topography, vegetation etc - is the most powerful way of relating species with environmental attributes.

For data recorded as being within a defined cell size, a record can not usually be associated with a particular environmental attribute unless this association has been made in the field at the time of collection. However, a record can be associated with the diversity of attributes within a particular GIS coverage for a stipulated cell size, for example, the number of soil types within a 10' cell. This enables the relationship between species diversity and environmental attributes to be examined using appropriate statistical analyses.

6.4.3 Limitations on analysis

Limitations of the databases prevent, or severely curtail, certain types of analyses.

Historical changes to populations Coarse analysis is possible but is limited by the Historical database including only one record per grid cell. For a proper analysis consultation of the original sources listed in the Historical database is essential.

Migratory movements The analysis of migration patterns is restricted to the presence of species to specific areas at certain times of the year. The tracking of individually marked animals is beyond the scope of the data sets incorporated within the CYPLUS central GIS.

Seasonal changes Using the entire data set, broad seasonal comparisons can be made by grouping data by months and comparing species diversity. Data collected during the McIlwraith, Weipa, CYPLUS and NRCP surveys are particularly suited to this type of comparison due to seasonal spread of survey visits. When making such broad comparisons, it is important to consider variations in search effort.

The best seasonal comparisons are restricted to sites sampled at different times of the year. Only the Lockerbie and Iron Range NRCP surveys provide this strict level of sampling.

Population densities and movements A coarse assessment of animal numbers was obtained with census transects and trapping undertaken during the CYPLUS and NRCP projects. Comparisons of relative densities between primary sites can be made within these two projects, as sampling methods were standardised, but absolute densities can not be estimated from the data.

The lack of mark-recapture methods and single visit sampling prevents even the most rudimentary analysis of animal movements other than the broad scale movements associated with migration.

7.0 SUMMARY DESCRIPTION OF FAUNA

Cape York Peninsula is the bridge with New Guinea and its rich rainforest fauna. Torres Strait is presently a relatively narrow water barrier between the two major land masses but during times of lowered sea level a land bridge has connected the two. The most recent land bridge is estimated to be approximately 8000 years ago (Nix and Kalma 1972). New Guinea and Cape York Peninsula is also a route through which south-east Asian species have reached Australia, the rodents being an example (Kikkawa *et al.* 1981). In more recent geological times the transfer of fauna between the two land masses has been primarily of rainforest species from New Guinea to Australia and of a smaller group of woodland species from Australia to New Guinea.

In addition to acting as a conduit for faunal exchanges, Cape York Peninsula has an endemic fauna reflecting its size and diversity of habitats within the Peninsula.

7.1 Faunal assemblages in relation to habitats

We examined the faunal assemblages of Cape York Peninsula by relating the number of species attributed to broad habitat classes - woodland, heath, grassland, mangroves, rainforest, wetlands - in two ways.

First, by listing all species recorded for a broad habitat type in the QDEH data base, using the classes which did not contain a complex of different habitat codes (see Appendix II.1). Woodland was a combination of five classes (OL,OD,OC,OE,OP) and rainforest a combination of three classes (R,RP,D). Wetlands and Generalists species were not extracted from the QDEH set of data.

Secondly, by using the unique core habitat category assigned to species (see Appendix II.3) as a measure of species specialisation or preference for a particular habitat.

7.1.1 Habitat types and faunal relationships

The most extensive habitat on Cape York Peninsula is eucalypt and paperbark woodland, covering 80.1% of the Peninsula north of 16° S (Table 8). Other broad habitats cover relatively small areas of the Peninsula and generally as scattered enclaves in the all-pervasive woodland. Grasslands are the second most extensive habitat, but cover only 6.1% of the Peninsula and include grasslands with isolated trees in Neldner and Clarkson's classification and therefore grade into woodlands. Rainforest is the third most extensive habitat, covering 5.6% of the Peninsula. However, it includes gallery forest (3357 Km²) on alluvia (2.5% of the Peninsula), about half of which is well developed semi-deciduous mesophyll vine forest or evergreen notophyll vine forests such as those along the Claudie, Normanby and Endeavour rivers but the other half (1785 Km²) is tall paperbark woodland with only a sparse representation of rainforest species in the understorey (Neldner and Clarkson in preparation) and not expected to support a typical rainforest fauna.

On comparing species assemblages by the number of species found in a particular habitat (Fig. 4) two relationships are evident.

Table 8. Area of main habitats on Cape York Peninsula and number of terrestrial vertebrate species a). as the number of species recorded in each habitat in the QDEH database and b). as the number of species according to their assigned core habitat category (see Appendix II.3).

HABITAT*				SPECIES			
Category	Area*			Frogs	Reptiles	Birds	Mammals
	Km ²	%		No./%	No./%	No./%	No./%
Woodlands	107952	80.1	a	28/84.9	74/59.7	216/74.7	47/55.3
			b	25/75.8	99/79.8	127/44.0	43/50.9
Heathlands	4461	3.3	a	17/51.5	31/25.0	79/27.3	21/24.7
			b	0/0	5/4.0	1/0.4	1/1.2
Grasslands	8111	6.1	a	15/45.5	16/12.9	62/21.5	21/24.7
			b	1/3.0	0/0	12/4.2	2/2.4
Rainforest	7481	5.6	a	20/60.6	44/35.5	139/48.1	38/44.7
			b	6/18.2	17/13.7	63/21.8	25/29.4
Mangroves	1593	1.2	a	2/6.1	11/8.9	111/38.4	13/15.3
			b	0/0	2/1.6	12/4.2	0/0
Wetlands	1359	2.6	a	-/-	-/-	-/-	-/-
			b	-/-	15/12.1	53/18.3	2/2.4
General			a	-/-	-/-	-/-	-/-
			b	0/0	0/0	23/8.0	7/8.2
Total**				33/100	124/100	289/100	85/100

* After Neldner, V.J. and Clarkson, J.R. (in preparation). Vegetation Survey - Far North Queensland. Woodland includes their eucalypt, melaleuca and low woodland types and Rainforest includes six of their types

** Not included in the total are species with a distribution restricted to Wet Tropics within the CYPLUS area (WT), introduced species, vagrants and strand species.

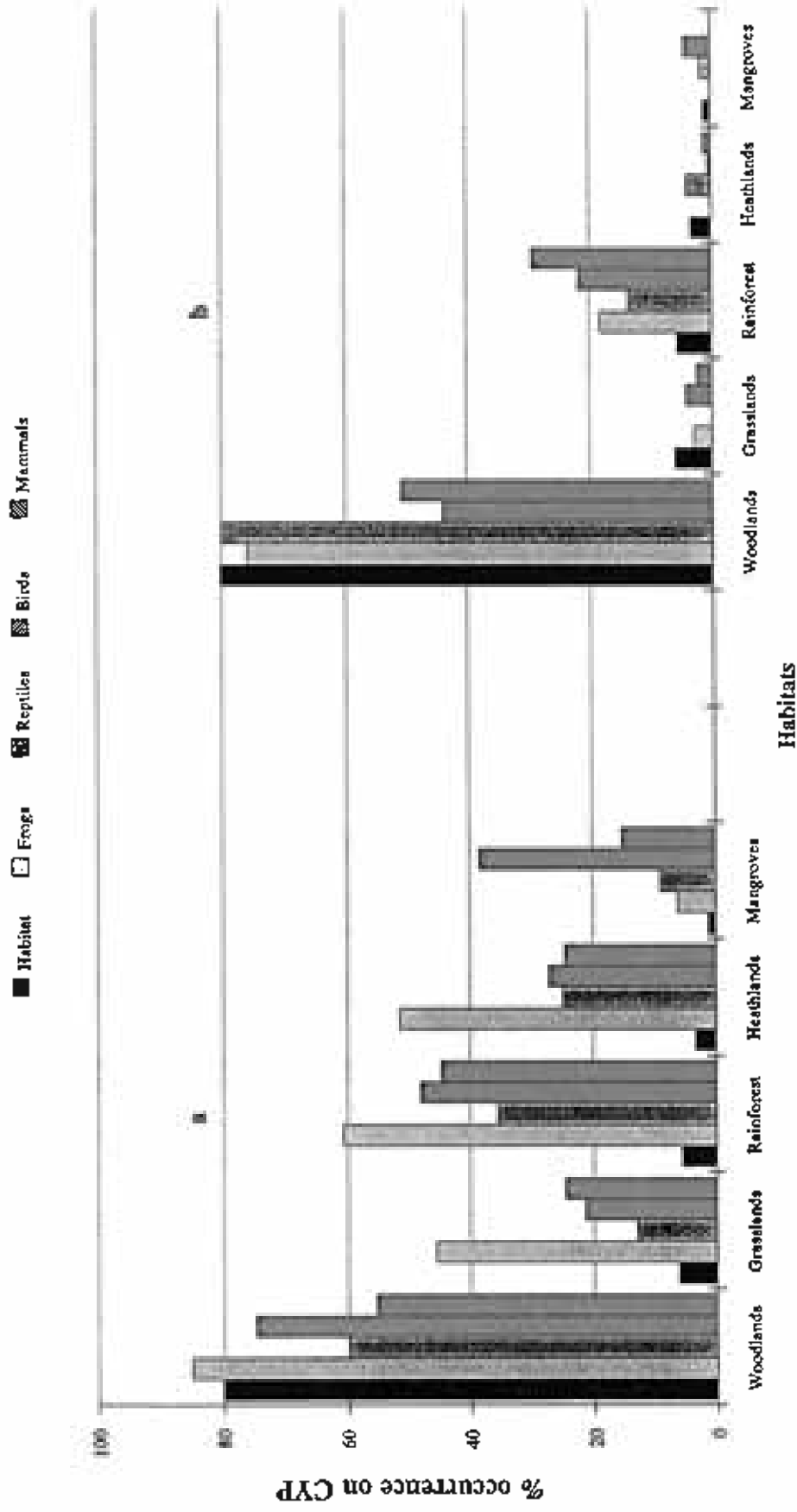


Fig. 4. Species, grouped by class, in relation to main habitat types on Cape York Peninsula; a). as the percentage of species recorded in each habitat in the QDEH database (e.g. 60% of all reptiles occur in woodlands - which accounts for 80% of the Peninsula's habitats) and b). as the percentage of species according to their assigned core habitat category (see Appendix III).

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Overlap effect. When comparing the proportion of species actually recorded in a particular habitat with the proportion total area of the habitat they equate for woodland (Fig. 4a). However, for other habitats, all of which are minor in terms of area on the Peninsula, the number of species recorded is generally much higher than expected from the area of the habitat.

This relatively high proportion of species found in the minor habitats is attributed to the habitats tending to be scattered as relatively small patches within the woodland. Thus species from woodland and other neighbouring habitats overflow into these small areas. In addition, sampling in earlier surveys often was not sufficiently habitat specific to strictly separate minor habitats from woodland.

Core habitat. When comparing the proportion of species by their core habitat category with the proportion of the habitat on the Peninsula, the proportion equates with the proportional area of the habitat for woodland, grassland, heathland and mangroves. The exception is rainforest in which the number of species considered to be rainforest centered is higher than expected for all four classes of vertebrates (Fig. 4b).

One, this emphasises rainforest as a habitat of concentrated biodiversity warranting special conservation attention.

Two, the inference for the low number of core species in other minor habitats is that the small size and scattered distribution of the habitats is not conducive to supporting many specialist species.

Nevertheless, the existence of specialist species in these minor habitats identifies them as requiring particular attention in any conservation assessment because of the scattered and limited distribution of their habitat. A list of these species is given in Table 9.

Table 9. Species with a minor habitat, other than rainforest, as a core habitat.

Habitat	Species
Grasslands	Frogs
	<i>Cyclorana manya</i> (Little-collared Frog)
	Birds
	<i>(Circus approximans)</i> Swamp Harrier
	<i>(Circus assimilis)</i> Spotted Harrier
	<i>(Coturnix chinensis)</i> King Quail
	<i>(Coturnix pectoralis)</i> Stubble Quail
	<i>(Ardeotis australis)</i> Australian Bustard
	<i>(Stiltia isabella)</i> Australian Pratincole
	<i>(Tyto capensis)</i> Grass Owl
	<i>(Mirafra javanica)</i> Singing Bushlark
	<i>(Anthus novaeseelandiae)</i> Richard's Pipit
	<i>(Acrocephalus stentoreus)</i> Clamorous Reed-Warbler
	<i>(Cisticola exilis)</i> Golden-headed Cisticola
	<i>(Cisticola juncidis)</i> Zitting Cisticola
	<i>(Megalurus timoriensis)</i> Tawny Grassbird
	<i>(Lonchura punctulata)</i> Nutmeg Mannikin
Mammals	
<i>(Onychogalea unguifera)</i> Northern Nailtail Wallaby	
<i>(Rattus sordidus)</i> Canefield Rat	
Heathlands	Reptiles
	<i>(Pygopus lepidopus)</i> Common Scaly-foot
	<i>(Anomalopus pluto)</i>
	<i>(Carlia dogare)</i>
	<i>(Ctenotus rawlinsoni)</i>
	<i>(Lerista ingrami)</i>
	Birds
	<i>(Trichodere cockerelli)</i> White-streaked Honeyeater
	Mammals
	<i>(Isodon obesulus)</i> Southern Brown Bandicoot

Mangroves	Reptiles	(<i>Acrochordus granulatus</i>) Little File Snake
		(<i>Cerberus rhynchops</i>) Bockadam
	Birds	(<i>Ardea sumatrana</i>) Great-billed Heron
		(<i>Butorides striatus</i>) Striated Heron
		(<i>Todirhamphus chloris</i>) Collared Kingfisher
		(<i>Gerygone laevigaster</i>) Mangrove Warbler
		(<i>Myiagra ruficollis</i>) Broad-billed Flycatcher
		(<i>Rhipidura phasiana</i>) Mangrove Fantail
		(<i>Eopsaltria pulverulenta</i>) Mangrove Robin
		(<i>Pachycephala lanioides</i>) White-breasted Whistler
		(<i>Pachycephala melanura</i>) Mangrove Golden Whistler
		(<i>Zosterops lutea</i>) Yellow White-eye
		(<i>Lichenostomus versicolor</i>) Varied Honeyeater
		(<i>Myzomela erythrocephala</i>) Red-headed Honeyeater

7.2 Key habitats

Key habitats are those which either support high species diversity or are crucial to the continued existence of a species in a landscape. They are often minor occurrences such as rocky outcrops or wetlands embedded within more extensive habitats. On Cape York Peninsula several key habitats are readily distinguished.

7.2.1 Rainforest

Rainforest is a key habitat because of its concentrated biodiversity and small area on the Peninsula. The core area on the Peninsula is the relatively large occurrence of rainforest in the McIlwraith Range and Iron Range localities (see Section 8 for discussion on faunal zones). Its importance extends beyond this core because even small areas of a few hectares surrounded by woodland provide spots of concentrated biodiversity.

7.2.2 Riparian forests

The riparian strips of forest along rivers provide a lush environment than the dry woodlands away from the watercourses. Typically, the forest contains both rainforest and sclerophyll trees of the open forests and woodlands. As a result the faunal assemblage of the riparian strips are more diverse than the woodland of the ridges because the forest contains elements of both rainforest and woodland faunas. Not all rainforest species penetrate far down the riparian strips away from the large continuous core areas of rainforest. The Grey Cuscus, for example, extends only a few kilometres from continuous rainforest whereas the Spotted Cuscus is capable of using the riparian forests to extend its distribution across much of the northern part of the Peninsula. There is a distinct group of rainforest species that is found in the riparian forest away from the core areas and together with woodland species they form a distinct riparian faunal assemblage.

Riparian forests act as corridors of dispersal for many species and provide refuge areas for woodland species during particularly harsh climatic conditions when a combination of heat and drought may decimate populations. Gordon *et al.* (1988) give an example of

survival of a Koala population along a watercourse during extremes of temperature and aridity in south-western Queensland.

Important riparian forests on the Peninsula are those along the major rivers. The Archer/Coen and Wenlock Rivers provide faunal corridors for rainforest species between the extensive rainforest areas of the east coast across the Peninsula to the west coast.

7.2.3 Permanent water holes and swamps

These are important refuge areas for aquatic and semiaquatic species, particularly during the dry season. Apart from the often spectacular numbers of waterbirds seen on these permanent waters, general species diversity is higher in their vicinity.

7.2.4 Boulder mountains and cliffs

A number of species are restricted to boulder and/or cliff habitats and consequently have localised or fragmented distributions. The two species of rock-wallaby are tied to cliff and boulder habitats for day-time shelter from predators. Their fragmented distribution and separation of the eastern Australian rock-wallabies into numerous species reflects the discontinuous nature of their habitat and their complete dependence upon it. There are several frogs and reptiles closely associated with this habitat type in which species have extremely restricted ranges confined to one mountain range or cliff complex. Examples are the frogs *Cophixalus saxatilis* and possibly the newly discovered frog from the Melville Range, the gecko *Nactus galgajuga* and the skinks *Carlia parrhasius*, *Carlia scirtetis*, *Cryptoblepharus fuhni* and *Ctenotus quinkarn*.

Rocky hills and cliff complexes act as focal points of biodiversity in the northern Australian landscape. In the seasonally dry tropics they function as moisture sinks during the dry season and, therefore, are higher in species richness and plant productivity than the surrounding forested habitat. They also function as refuge areas from fire and predators. Escarpments and rocky ranges are likely to have been instrumental in the evolution of the often regionally endemic rock faunas of Australia's dry tropics (Freeland *et al.* 1988).

Their linear shape or small size increase their vulnerability to either direct or indirect human interference and therefore have special management requirements.

7.3 Key Species

Key species are those which deserve particular attention because of restricted distributions, vulnerability to changing environmental conditions particularly those caused by humans or because they are indicative of change.

7.3.1 Endemic and restricted species

Forty terrestrial vertebrates are endemic to Cape York Peninsula and 39 have an Australian distribution restricted to the Peninsula (Table 10). Reptiles have the greatest number of endemics, most of which are geckos and skinks, and birds the greatest number of restricted species.

Half are rainforest species with the greatest concentration occurring for the birds. Rocky areas also have a high number of species in relation to the extent of this habitat, further emphasising the importance of both habitats in the overall biodiversity of the Peninsula. These habitats occur in discrete patches leading to geographical isolation of populations, often a necessary requisite for the evolutionary divergence of populations resulting in species with restricted distributions.

Woodland restricted and endemic species reflect to extent of this habitat on the Peninsula and most are geckos and skinks.

Table 10. Species endemic to Cape York Peninsula or with an Australian distribution restricted to the Peninsula (see Table II.3 for species details).

	Class				Total
	Frogs	Reptiles	Birds*	Mammals	
Endemic	8	26	2	4	40
Restricted	4	10	18	7	39
Rainforest	6	13	16	6	41
Woodland	4	12	3	2	21
Heathland	0	4	1	1	6
Grassland	1	0	0	0	1
Rocky	1	6	0	2	9
Wetlands	0	1	0	0	1

*Vagrants not included

7.3.2 Susceptible conservation status

Conservation status followed in this report is that allocated in An Atlas of Queensland's frogs, reptiles, birds and mammals (Ingram and Raven 1991) unless otherwise stated. Oceanic species are not included in the following discussion.

Presumed extinct. No species on Cape York Peninsula presently comes within this category.

Endangered. Four species within the CYPLUS area are classified as endangered. Two are restricted to the Wet Tropics region in the extreme south-eastern corner of the Peninsula. One, the Sharp-snouted Dayfrog, is restricted to the upland rainforests and the Northern Bettong to upland woodlands. The remaining two are woodland birds - the Golden-shouldered Parrot and Gouldian Finch (Appendix II.3), although the Gouldian Finch's range is now confined to the south-west of the area. The parrot is currently the subject of an intensive study within the national Species Recovery Program.

Vulnerable. Five species are listed as vulnerable; the Southern Cassowary and Cinnamon Antechinus, both restricted to rainforest; the Red Goshawk, a woodland bird with extremely sparse populations; the Black-breasted Button-Quail in drier vine thickets and which is possibly a vagrant on Cape York Peninsula; and the Northern Hopping-mouse with a doubtful record from the Peninsula.

Rare. Restricted distribution or sparse populations are the criteria for assessing rarity. Restricted distribution is the criterion on which most Peninsula species are allocated as rare and are consequently mainly rainforest or rocky dwelling because of the restricted nature of these habitats. Only the Square-tailed Kite and Eastern Curlew are considered rare on sparse populations.

Classification of rarity is sometimes the result of poor information. One species possibly in this category is the skink *Ctenotus rawlinsoni* which is known from only one collecting locality in heath of the dunefields near Cape Bedford. This is a habitat that has not been extensively surveyed so the skink may be common, though possibly restricted to the Flattery dunefield.

7.3.3 Changes to distributions

Contraction of geographical ranges Both the Gouldian Finch and Golden-shouldered Parrot have ranges that are known to have contracted. They are now known from localised populations in greatly restricted ranges and are the subject of Recovery Plans under the Commonwealth Endangered Species legislation.

Another bird with an apparent contraction of range is the Crested Pigeon. Recent records indicate a distribution in the CYPLUS area along the southern boundary and up the west coast as far north as Aurukun. In the 1930s it was also recorded from Port Stewart on the east coast. The area comes within the country covered by McIlwraith Range fauna survey, but none were observed at Port Stewart or elsewhere within the survey limits. However, birds are very mobile animals and during particularly favourable environmental circumstances they may undergo population explosions and considerable range expansions which then retract as marginal conditions no longer favour the species.

The Red-legged Pademelon occurs on the east coast of the Peninsula in the margins of rainforest where populations are sparse and patchy. It is also recorded as occurring in two interfluvial patches of rainforest in the central and western parts of the Peninsula. In one of these patches, the 11 Mile Scrub north of Moreton, it was numerous in the late 1970s and early 1980s but in a 1993 CYPLUS survey of the scrub the wallaby could no longer be found and it is presumed to be locally extinct. Return of the species to the 11 Mile Scrub is unlikely because of its isolation. If this trend of local extinctions from isolated patches continues, the wallaby will suffer a contraction of its geographical range towards the east coast.

Northern Quolls are known to have suffered a 75% recent range reduction, from being widespread over much of northern Australia to six smaller rocky regions, one of which is northern Cape York Peninsula (Braithwaite and Griffiths 1994). Possible causes of decline cited by Braithwaite and Griffiths, op. cit., are cattle, cane toads and exotic diseases. On the Peninsula there is anecdotal evidence that the quoll has declined in the Weipa area over the past decade. During the Weipa fauna survey (Winter and Atherton

1985) the Northern Quoll was recorded several times but it is now several years since one has been seen by local naturalists.

Both the Red-legged Pademelon and Northern Quoll come within the critical weight range (CWR) for mammals, from about 35 to 5500 g, which are most vulnerable to extinction (Burbidge and McKenzie 1989).

Expansion of geographical ranges The only known range expansions are those of introduced species whether feral or domestic. Expansions of ranges for domestic species have had deliberate human assistance - cattle, horses. House cats have accompanied people into the Peninsula as house pets and then become feral.

The best documented invasion of an introduced species without deliberate human assistance is for the Cane Toad. It was south of the Rocky River during the McIlwraith fauna survey in 1977-79 and south of Weipa during the fauna survey of the area in 1980-1. The toads are now present throughout the Peninsula to Cape York itself.

Feral pigs are also widespread on the Peninsula but their range expansion is less certain.

The introduced Black Rat is known from towns and human habitations with only one record, from Oswald Crossing on the King River, in the surrounding native habitats. Likewise the Rock Pigeon, House Sparrow and Common Mynah appear to be restricted to towns in the CYPLUS area.

Surprising is the complete lack of records of the introduced House Mouse *Mus musculus* from both the Historical and QDEH data sets. Surprising, because the House Mouse ranges over most Australian woodland and semi-arid habitats (Strahan 1983).

Rusa Deer were introduced to Prince of Wales Island in the Torres Strait and occasionally are sighted on the adjacent mainland. But these stray individuals appear not to have established a breeding population on the mainland. Similarly, occasional sightings are made of old bull Water Buffalos in the south-west.

7.3.4 Changes in population densities

Three native species exhibit population declines on Cape York Peninsula.

The Black tree-creeper is a bird that has declined in numbers since the early 1900s and retracted its range to the coastal strip of the Peninsula. This is attributed by Garnett and Crowley (1994) to changes in burning practices over the past decades.

The Common Ringtail Possum has declined in numbers and is no longer found in places for which pre-1970s records exist - Coen and Cooktown (Winter and Allison 1980). Post 1960s records are confined to Vrilya Point and the vicinity of the Jardine River ford at the northern extremity of the CYPLUS area, with the possible exception of a sighting near Coen that requires confirmation.

More recently there is evidence of population declines leading to local extinction for the Common Brushtail Possum (Winter pers. obs). The Darwin Stringybark Forest on laterite appears to be one habitat where this has occurred. However, good populations

still exist in some areas, notably in the vicinity of Coen, suggesting the presence of refuge areas possibly on relatively high fertility soils.

Like the Red-legged Pademelon and Northern Quoll, the two possums come within the critical weight range (CWR) for mammals which are most vulnerable to extinction (Burbidge and McKenzie 1989).

We suggest a possible explanation for the decline of both possum species is a simplification of the forest shrub and understorey layers as a result of changes in fire management since the arrival of Europeans. However, this requires further investigation.

7.4 Conservation issues

Conservation issues are raised in this section as a result of the authors' experiences in undertaking the present fauna project. No attempt is made to resolve these, as that is the function of the subsequent Conservation Assessment Project in the next stage of CYPLUS.

The issues relate either to the conservation and management of habitat and its faunal assemblage or to individual species or groups of species.

7.4.1 Rainforest

Rainforest is characterised by containing concentrated biodiversity, clear separation from the predominant woodland habitat and relatively small occurrences on the Peninsula.

Because of its high biodiversity in relation to area and its limited extent there is a strong case for conserving all existing rainforest on Cape York Peninsula. Not just the large areas such as the McIlwraith Range, Iron Range, Jardine River scrubs and the Lockerbie Scrub, but also the small pockets of interfluvial rainforest across the northern-central Peninsula and the coastal vine thickets. These smaller patches scattered across the Peninsula contribute significantly to the biodiversity of the Peninsula.

Clearfelling and fragmentation are the main threats to rainforest. The former because it converts rainforest to a radically different habitat such as grassland with the loss of all rainforest species from the area cleared. The latter because smaller fragments of rainforest support fewer rainforest species than larger areas. Any clearing causing a break in the continuous canopy is a cause of fragmentation. This can include clearings for roads, powerlines and buildings.

7.4.2 Riparian forest

Riparian forests function as important wildlife corridors and in times of drought as refuge areas, particularly along major watercourses.

Riparian strips suffer degradation as a result of direct clearing, encroachment by fire, extraction of water from the watercourse or over-use by stock.

We suggest that special management zones be established along watercourses to emphasise the need to conserve and husband these important features of the landscape.

Along major watercourses such as the Jardine, Wenlock and Archer-Coen rivers these management zones would need to be in the order of one kilometre each side of the river.

7.4.3 Rocky outcrops

Cliffs, rocky hills and boulder ranges harbour a special fauna and function as hotspots of biodiversity in woodland. Some species are confined to rocky areas but others such as the rock-wallabies use them as shelters from which they disperse into surrounding habitat on foraging excursions.

Larger species such as the rock-wallabies on isolated rocky hills are extremely vulnerable to hunting pressures which may cause local extinctions with little chance of recolonisation.

As with the riparian strips, rocky outcrops need special attention if their biodiversity is to be conserved.

7.4.4 Wetlands

Like rocky outcrops, wetlands are often embedded in other habitats as relatively small areas of high biodiversity. Consequently they are vulnerable to constant attrition by degrading agents such as exotic waterplants, pigs and management practices involving drainage, water extraction and ponded pastures.

Again special attention needs to be placed on the management of these often small areas that are scattered throughout the landscape to conserve their role as wetlands within the landscape.

7.4.5 Woodlands

Because woodlands is the predominant habitat on Cape York Peninsula it, like most common habitats or species, tends to be ignored on the assumption that there is no urgency to conserve such a widespread habitat. However, there is growing evidence that subtle changes to woodlands resulting from existing management practices are resulting in degradation of the habitat. For the fauna this is expressed in the contraction of species ranges or their decline in numbers.

Because most woodland on the Peninsula is in land tenures designed for primary activities other than conservation, land owners must become involved in multi-purpose management which includes conservation if the biodiversity of the Peninsula's woodlands is to be sustained. This would also include conservation management of special features within the woodland landscape such as riparian strips, isolated scrubs, rocky outcrops and wetlands.

7.4.6 Conclusions

Conservation management on Cape York Peninsula is at a distinct advantage over most other areas of Australia because to date management practices have retained the structure of the original biological communities. Large-scale clearing of woodlands and rainforest is uncommon on the Peninsula, rivers are relatively unaffected by modern human pressures, no known extinctions of species have occurred although range contractions and population declines of some species have occurred.

However, the Peninsula is at the conservation crossroads because development pressures are beginning to have significant impacts on the natural values of the Peninsula. The residents and people of Australia have a chance to retain the natural beauty and biodiversity of the Peninsula or to allow it to proceed down the route of exploitation followed over much of Australia.

8.0 FAUNAL ZONES OF CAPE YORK PENINSULA

Faunal zones for Cape York Peninsula are proposed on the basis of distribution of key species of terrestrial vertebrates in relation to the geomorphology of the region.

Based on the clear dichotomy of faunal assemblages between closed forest and open forest/woodland habitats discussed in Section 7.1, two series of independent faunal zones are proposed (Figs 5 and 6).

8.1 Closed forest fauna

A clear distinction exists between the rainforest fauna of the two biogeographical regions, Cape York Peninsula and Wet Tropics, containing extensive areas of this habitat within the CYPLUS study area. The rainforest of the two regions is separated by the extensive woodland country of the Laura Basin (Fig. 5). The Laura Basin is not totally devoid of rainforest which is represented in narrow strips of riparian forest or in fire refuge areas such as rocky hills. However, these are too small and lacking in plant species diversity to support rainforest vertebrates although they may provide temporary refuges for migrating birds.

Mangrove fauna contains elements of the rainforest fauna of the region, but for species restricted to mangroves their distributions extend across and beyond the two rainforest regions.

8.1.1 Rainforest: Wet Tropics biogeographical region.

Within this region of the CYPLUS study area extensive rainforest is restricted to the coastal ranges south of Trevethan Creek. North of this its occurrence becomes progressively more fragmented, culminating in substantial areas of semi-deciduous vine thicket on the Melville Range (Department of Forestry 1988).

Indicator species: Bennett's Tree-kangaroo (*Dendrolagus bennettianus*), Musky Rat-kangaroo (*Hypsiprymnodon moschatus*), Fawn-footed Melomys (*Melomys cervinipes*), Common Striped Possum (*Dactylopsila trivirgata*)*, Cape York Rat (*Rattus leucopus*)* and White-tailed Rat (*Uromys caudimaculatus*)*
(* shared with Cape York Peninsula region and New Guinea).

Both the Musky Rat-kangaroo and Bennett's Tree Kangaroo are endemic to the Wet Tropics region as are a number of birds, reptiles and frogs. However, many of these endemics such as the Daintree River Ringtail Possum have distributions extending northwards into the CYPLUS study area (see Nix and Switzer, 1991 for distribution maps).

Of the indicator species listed, the Musky Rat-kangaroo is the most restricted to rainforest with a known distribution extending north to Helenvale and probably to Mt Amos. Bennett's Tree-kangaroo ranges short distances beyond the margins of the rainforest and there are unconfirmed reports of it occurring in the Dowling Range north of Trevethan Creek. The Striped Possum and rodents extend further out from the core rainforest areas

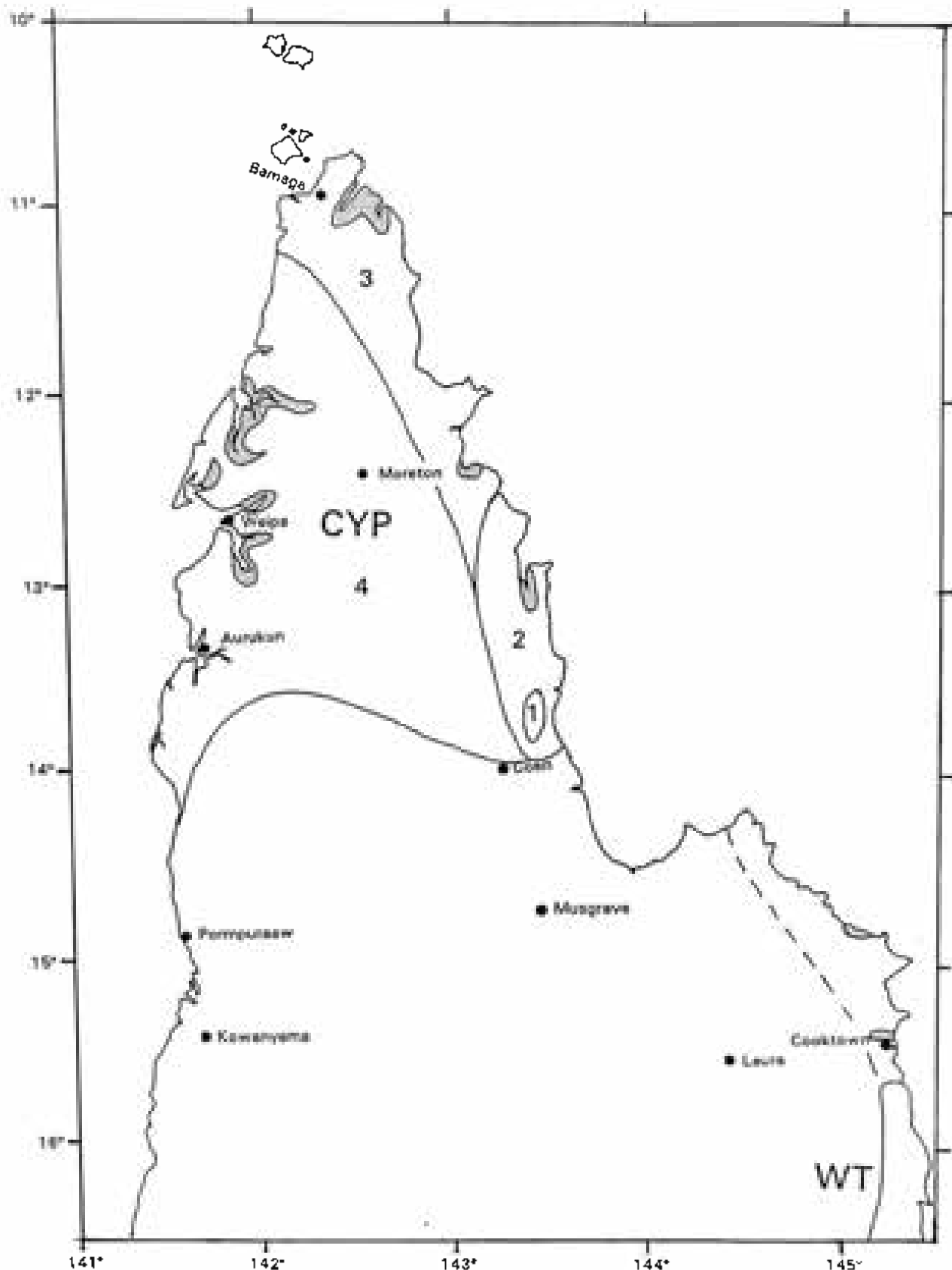


Fig. 5. Closed forest faunal regions and zones on Cape York Peninsula.

WT = Wet Tropics biogeographical region (dashed line extension of region as small pockets of rainforest), CYP = Cape York Peninsula biogeographical region, 1 = Summit Zone, 2 = McIlwraith Range/Iron Range Core Zone, 3 = Northern & East Coast Zone, 4 = Western Zone, stippled area = main occurrences of mangroves.

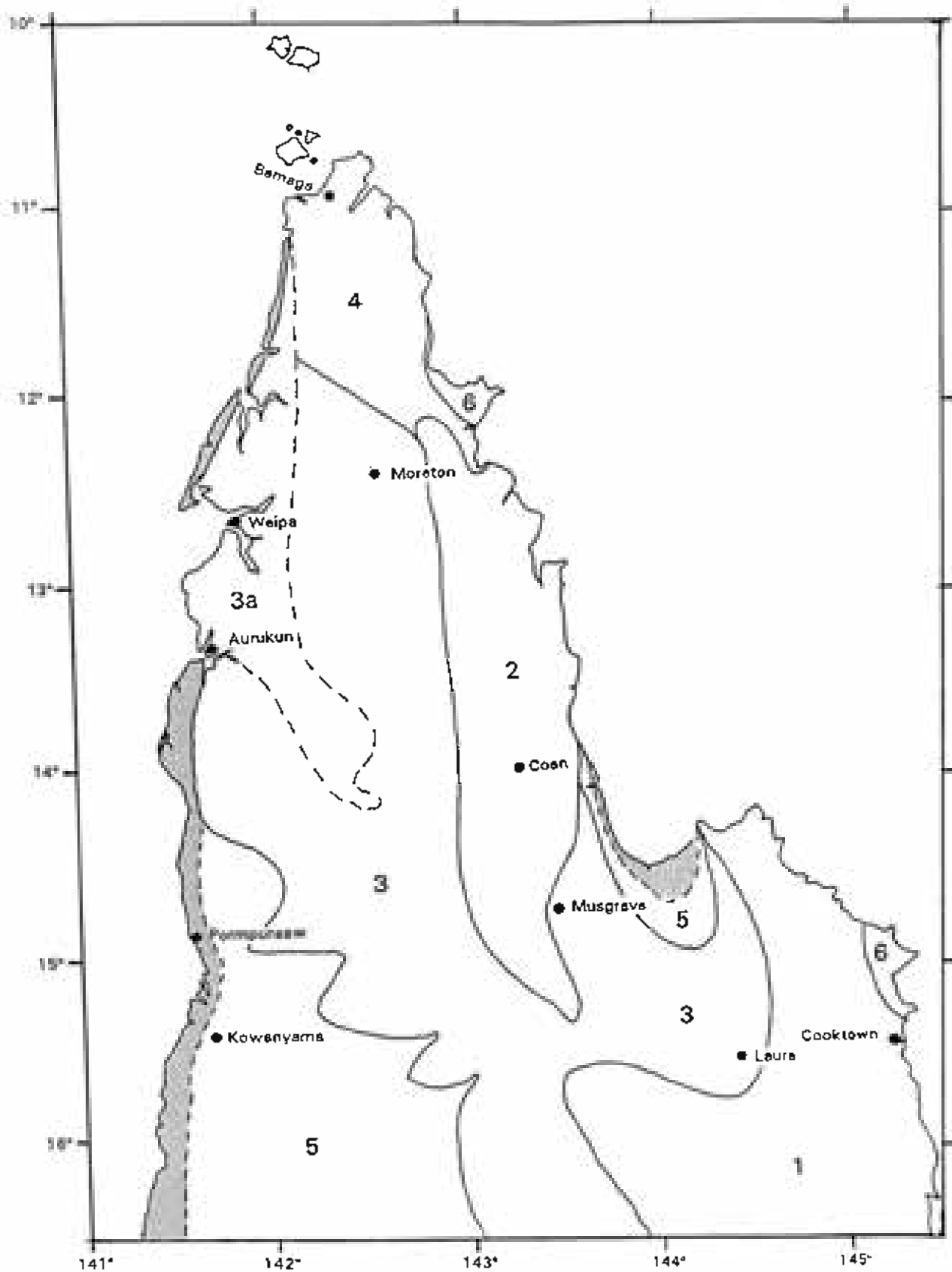


Fig. 6. Woodland faunal zones on Cape York Peninsula.

1 = South-eastern Uplands, 2 = Central-eastern Uplands, 3 = Undulating Plains, 3a = Weipa Plateau, 4 = Northern Heathlands, 5 = Alluvial Plains (stippled = coastal plains), 6 = Dunefields.

into small isolated patches and down gallery forests. The most northerly known distribution of any of the indicator species within the region is the White-tailed Rat to Mt Webb on Starcke Holding.

The rainforests of Cape Melville may or may not belong within this region. Purely on distribution they represent the northerly extenuated limit of the Wet Tropics region. However, floristically (P. Stanton pers. comm.) they are distinct and the presence of the Tropical Scrubwren as far south as approximately the Endeavour River (L. Joseph pers. comm.) suggest that they may at least represent a separate sub-region. Insufficient faunal information is currently available to resolve this.

8.1.2 Rainforest: Cape York Peninsula biogeographical region.

Rainforest on the Peninsula is concentrated on the ranges of the eastern side and at the northern extremity. The most extensive area occurs in the McIlwraith Range to Iron Range with the Lockerbie Scrub and the concentration of smaller patches in the headwaters of the Jardine River forming substantial occurrences.

The greatest concentration of rainforest species is in the extensive rainforest tracts on the McIlwraith and Iron Ranges. Species diversity decreases out from this main occurrence of rainforest in a series of recognisable faunal zones (Fig. 5).

McIlwraith and Iron Ranges Core Zone. The rainforests on the coastal ranges between the Stewart River in the south and about the Pascoe River in the north extending from sea level to 850 m on the summit of the McIlwraith Range.

Indicator species: Cinnamon Antechinus (*Antechinus leo*), Grey Cuscus (*Phalanger intercastellanus*), Green Python (*Chondropython viridis*) and the monitor *Varanus teriae*.

The four indicator species are restricted to this zone. The Cinnamon Antechinus is an endemic species whereas the Grey Cuscus is shared with New Guinea. The Grey Cuscus's apparent need for large tracts of rainforest may explain its absence from other tracts of rainforest further north on the Peninsula. In addition to the two indicator species, the zone contains all the other rainforest mammals found within the Cape York Peninsula biogeographical region. While the Green Python is extralimital in New Guinea, the monitor *Varanus teriae* has only been recorded from this tract of the Peninsula's rainforest.

Summit Zone. Within this core zone there is small summit zone above about 500 m on the McIlwraith Range defined, not by mammals but by several species from the other vertebrate groups.

Indicator species: Cape York Leaf-tailed Gecko (*Saltuarius occultus*), Scrub Rocketfrog (*Litoria longirostris*), Cape York Nursery-Frog (*Cophixalus peninsularis*), Northern Nursery-Frog (*Cophixalus crepitans*) and the Lewin Honeyeater (*Meliphaga lewinii*).

The gecko and three frogs are all endemic to this upland zone, whereas the Lewin Honeyeater has a distribution extending south to Victoria. In the south it occurs at all elevations but it is progressively restricted to higher elevations closer to the equator with

the McIlwraith summit population the most northerly and confined to the highest elevations.

Northern & East Coast Zone. This encompasses the rainforest areas from Temple Bay north to the Lockerbie Scrub. Although true rainforest is mapped as discontinuous, intervening habitat is often a mixture of sclerophyll and rainforest elements.

Indicator species: Rufous Spiny Bandicoot (*Echymipera rufescens*).

All rainforest species which extend beyond the core zone are recorded within the North-east Coast Zone and some are restricted to this and the core zone. Species restricted to the two zones include the Rufous Spiny Bandicoot and the Green Python. This bandicoot is known from rainforest proper and the mixed forest mosaics of this zone (Gordon and Lawrie 1978) and also in New Guinea.

Western Zone. This zone encompasses the fragments of rainforest which extend across the Peninsula to the west coast either as riverine vine forest along the major watercourses, as remnants of interfluvial evergreen vine forest or as patches of semi-deciduous vine thickets in sand dunes along the west coast (Department of Forestry 1988).

Indicator species: Red-legged Pademelon (*Thylogale stigmatica*), Cape York Melomys (*Melomys capensis*), Cape York Rat (*Rattus leucopus*), Spotted Cuscus (*Spilocuscus maculatus*), Striped Possum (*Dactylopsila trivirgata*)* and White-tailed Rat (*Uromys caudimaculatus*)* (* also in the Wet Tropics region).

The group of indicator mammals listed occur in the previous two zones but extend beyond them into central and western Cape York Peninsula.

The distance of penetration varies for each species and is least for the Red-legged Pademelon which is known from only a few interfluvial evergreen vine forest patches, of which the most south-westerly recorded lies between the North Alice and Ducie Rivers. The other indicator species follow the riverine vine forests along the major watercourses. All are found along the Wenlock River and to the north.

Three of the indicator species are found further south in this zone. The Spotted Cuscus extends south and west to the lower reaches of the Archer River and both the Striped Possum and White-tailed Rat have records down the west coast of the Peninsula as far south as the Holroyd River.

8.1.3 Mangrove fauna

Mangroves occur along the coast of northern Australia, particularly in estuaries. On Cape York Peninsula the greatest concentrations are from the Hay Estuary at Weipa along the north-west coast round to Newcastle Bay with extensive occurrences in Temple Bay and Lloyd Bay on the east coast. Elsewhere on the Peninsula mangroves are restricted to relatively narrow bands in estuaries and sections of the coast.

Indicator species: Mangrove Golden Whistler, Mangrove Robin, Mangrove Gerygone (*Gerygone levigaster*)

The three bird indicator species have coastal distributions extending from north-western Australia across the north and down the east coast well south of Cape York Peninsula. They are therefore indicators of mangroves in Australia rather than of any regionalisation of the mangroves within Australia.

8.2 Open forest/woodland fauna

Unlike the rainforest regions and concentric zones around a core area of the Cape York Peninsula region, open forest/woodland faunal zones are a patchwork of zones dependent mainly on topography and variations in habitat (Fig. 6). Whilst many species are common to more than one zone, one or more indicator species are typical of each zone.

8.2.1 Peninsula Effect

One phenomenon influencing species diversity of open forest/woodland faunal communities on Cape York Peninsula is the 'Peninsula Effect' in which species diversity decreases towards the apex of a peninsula (Ricklefs 1973). This is a well known phenomenon of peninsulas and is related to decreasing area, decreasing habitat diversity or increasing distance from the source of speciation.

The macropods illustrate this phenomenon on Cape York Peninsula in that the number of species decreases from the base to the apex of the Peninsula (Table 11).

Table 11. The decline of woodland macropods towards the apex of Cape York Peninsula.

Species	Distribution (degrees latitude)							
	17	16	15	14	13	12	11	10
Agile Wallaby	=====							
Swamp Wallaby	=====							
Antilopine Wallaroo	=====							
Common Wallaroo	=====							
Rock-wallabies*	=====							
Grey Kangaroo	=====							
Spectacled Hare-wallaby	=====							
N. Nail-tailed Wallaby	=====							
Pretty-faced Wallaby	=====							
Rufous Bettong	=====							

* One species is considered to replace a closely related species (vicariant species)

8.2.2 South-eastern Uplands

It is predominantly eucalypt woodland on hilly country interspersed with cliffs and rocky outcrops. The main physiographic units are the Deighton Tableland and the Palmer-Hodgkinson Uplands.

Indicator species: Godmans Rock-wallaby (*Petrogale godmani*) and Common Wallaroo (*Macropus robustus*)

The distribution of Godman's Rock-wallaby most closely reflects the extent of the zone because the wallaby is confined to rock piles and cliffs of this upland area. The most north-westerly record of the rock-wallaby is on the Pinnacle and in the north-east it extends to Cape Melville and Bathurst Head. Its southern limit is near Mt Carbine and the Mitchell River, just to the south of the CYPLUS study area (Eldridge and Close 1992). The Common Wallaroo has a wide Australian distribution and prefers steep and rocky country. It is a scarce species on Cape York Peninsula but its distribution reflects the extent of the two upland zones.

8.2.3 Central-eastern Uplands

It is predominantly eucalypt woodland on hilly country with steep hillsides and the occasional cliff or rocky outcrop. This rocky habitat is less common than in the South-eastern Uplands. The main physiographic units of this zone are the Coleman Plateau, Glennie Tableland and McIlwraith Uplands.

Indicator species: Cape York Rock-wallaby (*Petrogale coenensis*) and Common Wallaroo (*Macropus robustus*)

The Cape York Rock-wallaby, like its counterpart in the South-eastern Uplands, is confined to cliffs and rocky hills. It is an endemic species to the Peninsula with a distribution restricted to the hilly country of this zone. Its known distribution extends from the ranges west of Musgrave to the William Thompson Range in the Pascoe River area (Eldridge and Close 1992). Records of the Common Wallaroo from northern Cape York Peninsula are few but sightings come from the ranges west of Musgrave and the Coen area with a skull collected on the southern end of the Glennie Tableland.

8.2.4 Undulating Plains

It is predominantly eucalypt woodlands on well drained low ridges of undulating plains country composed of older sediments with paperbark woodlands common in the poorly drained shallow valleys. The Holroyd Plain and Jack Plain physiographic units are typical of the southern end of the zone and the Merluna Plain at the northern end.

The Kimba Plateau 'cross-over' in the headwaters of the Alice and Hann Rivers provides continuity of the undulating plains country from west to east through the central band of upland country. Distributions of the three indicator species appear to be continuous from east to west through this cross-over. In addition it is a geographical barrier separating the Cape York Rock-wallaby of the Central-eastern Uplands from Godman's rock-wallaby of the South-eastern Uplands.

The clearly defined and extensive Weipa Plateau in the north-western part of the zone is currently included within the Undulating Plains but examination of all groups of fauna may reveal it as a zone in its own right.

Indicator species: Spectacled Hare-wallaby (*Lagorchestes conspicillatus*), Antilopine Wallaroo (*Macropus antilopinus*) and Squirrel Glider (*Petaurus norfolcensis*).

The Antilopine Wallaroo may be the species which best defines the area in its entirety. Its preference seems to be for the extensive areas of moderate relief but well drained

country between steeper hillslopes of the upland zones and the flat poorly drained country of the coastal zone.

The few existing Squirrel Glider records are from the southern end of the zone, the most northerly confirmed record from Artemis. However, during a CYPLUS survey an unconfirmed sighting was made at Eric Yard on the Rokeby Road 200 km further north.

Most records of the Spectacled Hare-wallaby are from the ridge country of this zone. None are from the hilly country of the adjacent uplands but the wallaby is known from the plains of the south-west.

8.2.5 Northern Heathlands

Similar to the undulating plains but with a greater preponderance of heathlands. The boundary between the two is provisionally placed at the junction between the sandstones of the Bamaga-Shelburne Lowlands and mudstones of the Merluna Plain (Powell and Smart 1977). The McHenry Uplands, Jardine Swamp, Kennedy Swamp and Carnegie Tablelands are the other physiographic units within the zone. As with the undulating plains zone, the Weipa Plateau may be a distinct zone on the western side.

Indicator species: Southern Brown Bandicoot (*Isodon obesulus peninsulae*)

The Cape York Peninsula population is currently recognised as a subspecies of the Southern Brown Bandicoot of southern Australia. On the Peninsula the few records are from the eastern side of the Peninsula north of Iron Range in eucalypt woodland and heath.

The zone is perhaps more precisely defined by the absence of the Antilopine Wallaroo with the northern limit of this large macropod representing the boundary between the undulating plains and heathland zones.

8.2.6 Alluvial Plains

Extensive alluvial plains occur in the south-west of the Peninsula bordering the Gulf of Carpentaria and on the eastern side in the Laura basin to the south of Princess Charlotte Bay.

Two distinct divisions of the plains are evident. Immediately backing the coast is a relatively narrow band of coastal plain deposits of beach ridges, salt pans and fine silts represented by the Karumba Plain and Mapoon Plain physiographic units on the west coast and the Charlotte Plain on the east side. Major elements of the vegetation include dunefield woodland, open grassy plains, salt pans and mangroves.

Extending inland from the coastal plain are the flood plains of the major watercourses characterised by braided streams and alluvial deposits. Physiographic units on the western side include the Fans of the Mitchell, Coleman, Edward and Holroyd Rivers and the Alice Plain. On the eastern side the Kalpowar plain grades into Normanby Plain of the Lakefield area. Vegetation is characteristically eucalypt woodland and open woodland on better drained areas with paperbark woodland on the poorly drained soils.

Indicator species: Northern Nailtail Wallaby (*Orychogalea unguifera*).

On Cape York Peninsula the Northern Nailtail Wallaby is characteristic of the alluvial plains. On the east coast it is known from the plains at the northern end of Lakefield National Park with a 1930s record as far north as Port Stewart (Tate 1952, Ingleby 1991). On the western side the wallaby is widespread on the plains to the south of the Gulf of Carpentaria and extends into the Peninsula on the western side north to the Kowanyama area (Ingleby 1991).

The zone is also characterised by higher population densities of a number of species on the coastal plains compared with the flood plains, possibly because of higher soil fertility levels of these alluvia. Most visible of these species and providing a good example of this change in density is the Agile Wallaby. During the CYPLUS field surveys the wallaby was abundant on the Karumba Plain of Rutland Plains Holding. However, on the adjacent plains of the Mitchell Fan the wallaby was rarely seen. Species with a similar density differential are the Delicate Mouse and Sordid Rat. Large populations of waterbirds also occur on the coastal plains, concentrated at the shallow saline lagoons.

8.2.7 Dunefields

Beach dunes are a feature of the coastal plain but in two places the dunes extend well inland to form major dunefields. The more northerly is the Olive River-Shelburne Bay dunefield and to the south is the Cape Flattery dunefield. Vegetation of the dunefields is a mosaic of heaths and shrublands.

Indicator species: none known

No mammalian indicator species is known for either dunefield. However, if the Northern Hopping-mouse does occur on Cape York Peninsula, it is in the dunefields where it is expected to be found. Also one skink, *Ctenotus rawlinsoni*, is known to be endemic to the Cape Flattery dunefield.

9.0 CONCLUSIONS

The purpose of this section is to identify remaining gaps in our knowledge of the terrestrial fauna of Cape York Peninsula and to indicate some avenues for future studies.

9.1 Fauna surveys

The Queensland Department of Environment and Heritage has undertaken systematic fauna surveys, using a wide range of search techniques, over much of Cape York Peninsula. The current CYPLUS project concentrated on major areas of little to no faunal information but substantial gaps in coverage of the Peninsula still exist both within the QDEH focal area and for that part of the Peninsula lying outside the focal area.

9.1.1 Gaps within QDEH focal area

The west coast of the Peninsula, south of Weipa, remains an area of little scientific faunal information on terrestrial vertebrates. Whilst the CYPLUS fauna survey project concentrated on south-western Cape York Peninsula, the west coast end of the gradsects across the south-west plains were not sampled because of access restrictions.

Dunefields of the Olive River and Shelburne Bay area were visited during the CYPLUS surveys but one locality within the extensive dunefield west of Cape Grenville is inadequate to sample the fauna of this large area.

9.1.2 Gaps outside the QDEH focal area

CYPLUS fauna surveys were not undertaken in south-eastern Cape York Peninsula as sufficient information was available from other sources, mainly museum collections, for CYPLUS purposes.

However, systematic fauna surveys need to be done in this area east of and including Lakefield National Park. This will enable more rigorous comparisons of fauna over the region as a whole.

Major gaps of faunal information within this south-east region exist for the Starcke to Cape Melville area. This area of Peninsula is identified as possibly distinct from the Wet Tropics region immediately to the south. The plains of Lakefield National Park and the sandstone landscape of the Deighton Plateau also require systematic sampling.

9.2 Fauna assemblages

Least well known of the faunas of major habitats is that of mangroves. Some sampling was undertaken during the Temple Bay NRCP 1993 survey but the extensive mangrove areas in the Escape River and Port Musgrave need to be targeted as potential localities for species such as the False Water-rat (*Xeromys myoides*), known to be present in mangroves of northern Australia.

Wetlands were undersampled in the fauna surveys comprising the QDEH data set, but they are the subject of a separate CYPLUS project NR09.

Within the present project faunas of the numerous types of woodland tended to be grouped into very broad categories. Because woodlands are the predominant habitat type of the Peninsula, surveys of a more precise ecological design are needed to examine the differences between woodland types.

9.3 Faunal zones

Faunal zones are identified in the present project, based on the distribution of a few indicator species and major extrapolations using vegetation and physiographic regions. Their value as predictors of faunal assemblages throughout the Peninsula require testing and refinement.

9.4 Target species

Rare and threatened species are obvious contenders for detailed assessments of their conservation management. Likewise, the endemic species and those with an Australian distribution restricted to Cape York Peninsula.

Also requiring special attention are common or wide-spread species in Australia but which on Cape York Peninsula have:

1. declining populations and/or contracting home ranges e.g. Brown Treecreeper, Common Ringtail Possum and Common Brushtail Possum;
2. isolated sub-populations on the Peninsula e.g. the Southern Brown Bandicoot or
3. are restricted to the minor habitats on the Peninsula e.g. Northern Nail-tailed Wallaby and Grass Owl in the grasslands and the variety of mangrove species.

9.5 Conservation

Cape York Peninsula is in the fortunate position of possessing most of its landscapes, habitats and fauna relatively undisturbed by modern human impacts. However, vertebrate populations on the Peninsula are characteristically low, possibly a reflection of low soil fertility, and are therefore susceptible to disturbances. Also important habitats such as rainforest are not extensive, consequently clearing and fragmentation may seriously affect their ability to sustain their present biodiversity. The success of the CYPLUS program will eventually be judged on its record in sustaining the biodiversity of the region.

10.0 ACKNOWLEDGMENTS

This report would have been impossible without the willing cooperation and help of residents of the Peninsula, too numerous to mention. They accompanied us on field trips, directed us to suitable sites and showed a keen interest in the fauna surveys. For this help and enthusiasm we are deeply indebted.

John Clarkson and John Neldner supplied vegetation mapping information and plants were identified by Peter Stanton, Dave Fell and Mick Godwin. Peter Stanton and Dave Fell also collected the first specimen of the new species of frog from Cape Melville. Keith McDonald accompanied us on our wet season trip to the lower Mitchell area and taught us much about the frogs and reptiles of the area.

Rangers of QDEH willingly gave assistance when we worked in their districts, including a rescue operation resulting from a radio communication misunderstanding. We also wish to thank Helen Myles and Sarah Strawbridge for their able assistance in the field and two volunteers, Carolina Bock and Frank Seebacher for their help during the central rainforest patches survey.

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11.0 REFERENCES

- Archer, M. (1976). Revision of the marsupial genus *Planigale* Troughton (Dasyuridae). *Memoirs of the Queensland Museum* 17, 341-65.
- Austin, M., and Heyligers, P.C. (1991). New approach to vegetation survey design: gradsect sampling. In 'Nature conservation: cost effective biological surveys and data analysis'. (Ed. C.R. Margules and M.P. Austin.) pp. 31-6. (CSIRO: Australia.)
- Australian Biological Resources Study (1994): Census of Australian Vertebrate Species (CAVS). Version 8.1, May 1994.
- Beruldsen, G.R. (1990). Cape York in the wet. *Australian Bird Watcher* 13, 209-17.
- Biological Environmental Research Services (BERS) (1982): Pre-feasibility environmental assessment. Lease SBML9, North Queensland: Fauna. Unpublished report to the Shell Company of Australia.
- Blakers, M., Davies, S.J.J.F. and Reilly, P.N. (1984). 'The atlas of Australian birds.' (Melbourne University Press: Melbourne)
- Bolton, M.P. (1992): Core attributes for terrestrial biological survey data in Australia, version 3.0, October 1992. Environmental Resources Information Network: Canberra.
- Braithwaite, R.W., and Griffiths, A.D. (1994). Demographic variation and range contraction in the Northern Quoll, *Dasyurus hallucatus* (Marsupialia: Dasyuridae). *Wildlife Research* 21, 203-17.
- Britton, P.L. (1990a). The Queensland Ornithological Society bird report, 1988. *Sunbird* 20, 18-32.
- Britton, P.L. (1990b). The Queensland Ornithological Society bird report, 1989. *Sunbird* 20, 64-82.
- Britton, P.L. (1991). The Queensland Ornithological Society bird report, 1990. *Sunbird* 21, 65-89.
- Britton, P.L. (1992). The Queensland Ornithological Society bird report, 1991. *Sunbird* 22, 51-83.
- Burbidge, A.A., and McKenzie, N.L. (1989). Patterns in the modern decline of Western Australia's vertebrate fauna: causes and conservation implications. *Biological Conservation* 50, 143-98.
- Bustard, H.R. (1970). *Oedura marmorata* a complex of Australian geckos (Reptilia: Gekkonidae). *Senck. biol.* 51, 21-40.
- Cameron, E.E., and Cogger, H.G. (1992): The herpetofauna of the Weipa region, Cape York Peninsula. Technical Report No. 7. Australian Museum: Sydney.

- Cogger, H.G. (1992). 'Reptiles and amphibians of Australia.' (Reed Books: Sydney)
- Couper, P.J., Covacevich, J.A. and Lethbridge, P.J. (1994). *Carlia parrhasius*, a new Queensland skink. *Memoirs of the Queensland Museum* 35, 31-3.
- Crowhurst, J. (1983). A new swallow for Australia. *North Queensland Naturalist* 182, 9-10.
- Crowhurst, J. (1989). In search of parrots. *Bird Observer* 688, 70.
- Department of Forestry (1988): Far North Queensland. Government Printing Office: Brisbane. Edition 1. Scale 1:500 000. (map)
- Eldridge, M.D.B., and Close, R.L. (1992). Taxonomy of rock wallabies, *Petrogale* (Marsupialia: Macropodidae). 1. A revision of the eastern *Petrogale* with the description of three new species. *Australian Journal of Zoology* 40, 605-25.
- Freeland, W.J., Winter, J.W. and Raskin, S. (1988). Australian rock-mammals: a phenomenon of the seasonally dry tropics. *Biotropica* 20, 70-9.
- Garnett, S., and Crowley, G. (in press). The decline of the Black Treecreeper *Climacteris Picumnus* (Climacteridae) on Cape York Peninsula.
- Gillison, A.N., and Brewer, K.R.W. (1985). The use of gradient directed transects or gradsects in natural resource survey. *Journal of Environmental Management* 20, 103-27.
- Gordon, G., Brown, A.S. and Pulsford, T. (1988). A koala (*Phascolarctos cinereus* Goldfuss) population crash during drought and heatwave conditions in south-wester Queensland. *Australian Journal of Ecology* 13, 451-61.
- Gordon, G., and Lawrie, B.C. (1978). The Rufescent Bandicoot, *Echymipera rufescens* (Peters & Doria) on Cape York Peninsula. *Australian Wildlife Research* 5, 41-5.
- Ingleby, S. (1991). Distribution and status of the Northern Nailtail Wallaby, *Oncychogalea unguifera* (Gould, 1841). *Wildlife Research* 18, 655-76.
- Ingram, G.J. (1977). The occurrence of *Lamprolepis smaragdina* (Lesson) in Australia? *Herpetofauna* 9, 2-3.
- Ingram, G.J. and Corben C.J. (1994). Two new species of broodfrog (*Pseudophryne*) from Queensland. *Memoirs of the Queensland Museum* In press.
- Ingram, G.J., Nattrass, A.E.O. and Czechura, G.V. (1993). Common names for Queensland frogs. *Memoirs of the Queensland Museum* 33, 221-4.
- Ingram, G.J., and Raven, R.J. (1991). 'An atlas of Queensland's frogs, reptiles, birds and mammals.' (Board of Trustees of the Queensland Museum: Brisbane)

- Kikkawa, J., Monteith, G.B. and Ingram, G. (1981). Cape York Peninsula: Major region of faunal interchange. In 'Ecological biogeography of Australia'. (Ed. A. Keast.) pp. 1695-742. (W.Junk: The Hague.)
- Magarry, D., Magarry, A. and Crowhurst, J. (1983). Highlights of a trip to Laura. *Queensland Ornithological Society Newsletter* 14, 9-10.
- McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. (1990). 'Australian Soil and Land Survey: Field Handbook.' (Inkata Press: Melbourne)
- McFarland, D. (1993): Fauna of the Cape York Peninsula biogeographic region. Unpublished Report, Queensland Department of Environment and Heritage: Brisbane.
- Nix, H.A., and Kalma, J.D. (1972). Climate as a dominant control in the biogeography of northern Australia and New Guinea. In 'Bridge and Barrier: the Natural and Cultural History of Torres Strait'. (Ed. D. Walker.) pp. 61-91. (Australian National University: Canberra.)
- Nix, H.A., and Switzer, M.A. (1991). 'Rainforest Animals: Atlas of Vertebrates Endemic to Australia's wet Tropics. Kowari 1.' (Australian National Parks and Wildlife Service: Canberra)
- Pedley, L., and Isbell, R.F. (1971). Plant communities of Cape York Peninsula. *Proceedings of the Royal Society of Queensland* 82, 51-74.
- Powell, B.S., and Smart, J. (1977). Jardine River-Orford Bay, Queensland - 1:250 000 geological series. *Bureau of Mineral Resources Australia, explanatory Notes SC/54-15, SC/54-16, 1-24.*
- Purdie, R. (1986): Nature conservation strategy - Mulga Lands: Assessment of the Bolton and Specht method. Unpublished report, Queensland National Parks and Wildlife Service: Brisbane.
- Redhead, D.I. (1988). The Queensland Ornithological Society bird report, 1986. *Sunbird* 18, 28-51.
- Redhead, D.I. (1990). The Queensland Ornithological Society bird report, 1987. *Sunbird* 20, 1-15.
- Ricklefs, R.E. (1973). 'Ecology.' (Nelson: London)
- Richards, S.J., McDonald, K.R., and Ingram, G.J. Recognition of *Litoria eucnemis* (Lönnerberg) in Australia. *Memoirs of the Queensland Museum* 34, 94-5
- Standfast, H.A. (1965). Notes on the birds of Mitchell River. *Queensland Naturalist* 17, 91-4.
- Stanton, J.P., and Morgan, M.G. (1977): The rapid selection and appraisal of key and endangered sites: The Queensland case study. School of Natural Resources, University of New England: Armidale.

Strahan, R. (1983). 'The Australian Museum Complete Book of Australian Mammals.' (Angus & Robertson: Sydney)

Tate, G.H.H. (1952). Results of the Archbold Expeditions. No. 66. Mammals of Cape York Peninsula, with notes on the occurrence of rainforest in Queensland. *Bulletin of the American Museum of Natural History* 98, 563-616.

Walker, D. (1972). 'Bridge and barrier: the natural and cultural history of Torres Strait.' (Australian National University: Canberra)

Winter, J.W., and Allison, F.R. (1980). The native mammals of Cape York Peninsula - changes in status since the 1948 Archbold Expedition. In 'Contemporary Cape York Peninsula'. (Ed. N.C. Stevens and A. Bailey.) pp. 31-44. (Royal Society of Queensland: Brisbane.)

Winter, J.W., and Atherton, R.G. (1985). 'Survey of the mammals and other vertebrates of the Weipa region, Cape York Peninsula.' (Queensland National Parks and Wildlife Service: Townsville)

APPENDICES

APPENDIX I. QDEH DATABASE STRUCTURE

The Relational Database software, Foxpro was employed to store, manipulate and retrieve data. An interactive data management module, FAUNA, was developed to facilitate the entry, validation and storage of observations. The CYPVERTS database consisted of the following related tables which are represented diagrammatically in Figure I.1.

■ OBS	-	Observation details
■ CSITE	-	Detailed site descriptions
■ OSITE	-	Less detailed site descriptions for opportunistic observations
■ SP_LIST	-	Dictionary of taxa
■ SPECIMEN	-	Details of specimens numbers and museum registrations
■ OBSR	-	Lookup table of observers and codes
■ BREED	-	Table of breeding details

The OBS table acted as the controlling "parent" table - the relations between OBS and other tables were made on ID_NUM, TAXAB, SITE or the OBSR code.

I.1 Obs Table

This table contained the basic faunal observations and therefore served as the parent table in the database. All positional information was stored in one of the related tables (CSITE or OSITE) which contained Census site details and Opportunistic details respectively.

TAXAB Observed species were recorded using an eight letter code. This code was formed by capitalising and concatenating the first four letters of the genus name and the first four letters of the species name. Duplicates resulting from this system are listed in TAXAB in the SP_LIST table (see below).

ID_NUM A record identifier used to link related tables. Id_Num was the primary key for the OBS table and was auto-assigned as new data was entered. The numbering system was not continuous as it contained breaks between discrete blocks of data. Gaps also existed where invalid records have been purged from the database.

The blocks can be summarised by the following:-

This page has been left unused.

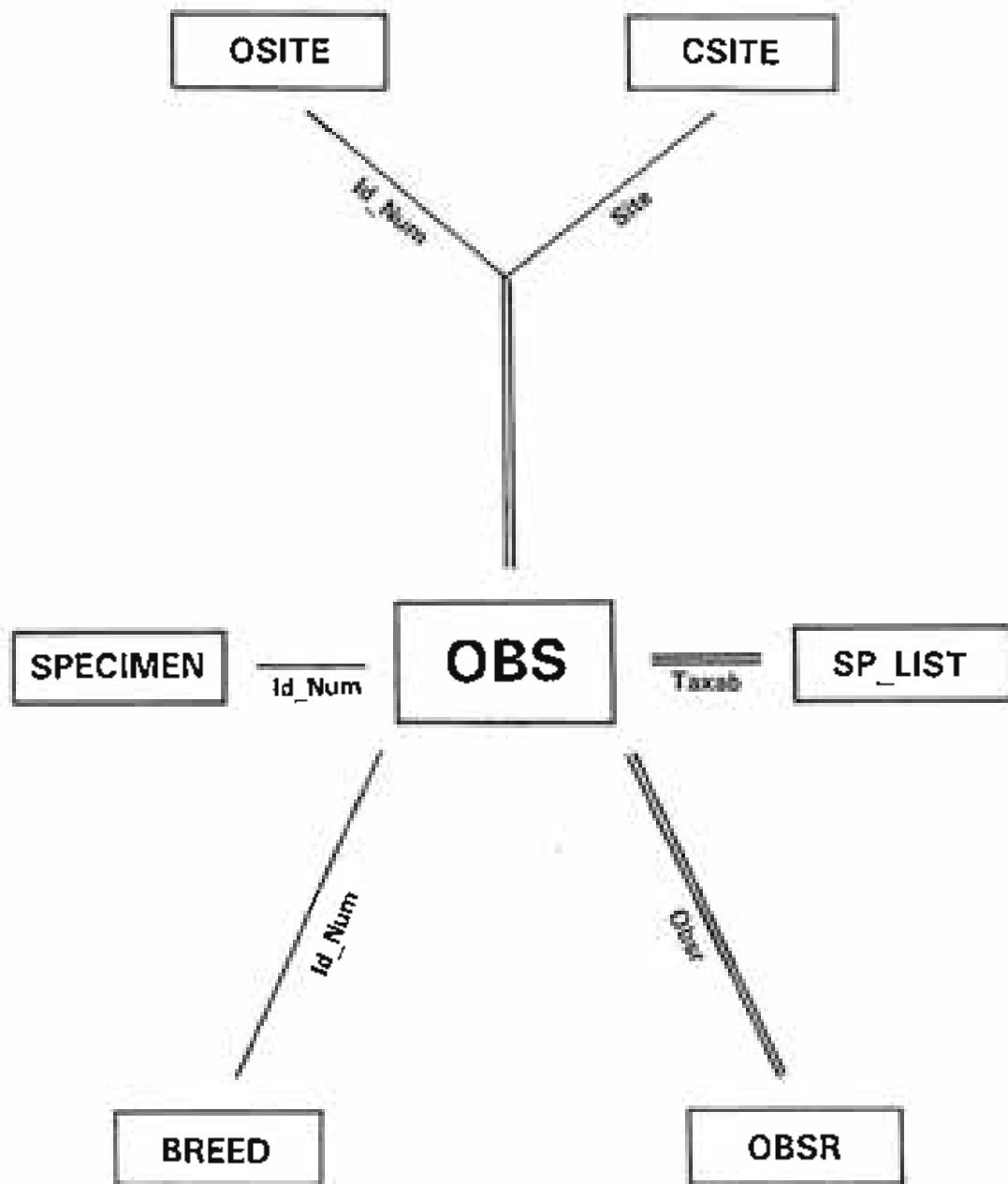


Figure 1.1 Diagrammatic representation of CYPVERTS database structure
 Double lines indicate mandatory link between tables for all records
 Single lines represent optional link between tables where applicable

Id_Num's 00001 - c. 11500 included data collected under CYPLUS, NRCP and incidental observations not covered by the following two categories.

Id_Nums' 20000 - c. 28500 included data collected as part of QDEH's McIlwraith Range fauna survey.

Id_Num's 30000 - c. 33600 included data collected as part of QDEH's Weipa fauna survey.

- SITE** The site number indicated on which site an observation was made. It was used to link the OBS and CSITE tables for all site based observations. Where observations were made offsite, a site number of 0 is given. Like the Id_Num, site number is not continuous, but divided into discrete blocks each belonging to a particular unit of field work. The site numbers do not reflect any chronological order.
- DATE** Is stored as a date type field in the British format (dd/mm/yyyy). When using a date type field a restriction was encountered whereby any observations with a "vague" date (i.e. 'sometime in June 1992') had to be assigned a valid date. In these instances, some indication of true date is given in the comments fields.
- TIME** is the time in 24 hr format an observation was made. This information is confined to more recent data.
- REC_TYPE** There can be one of three record types. Observations are divided up into those systematically searched for at a site (Census observations Rec_type='C'), opportunistic observations made on a described site (Rec_Type='S') and opportunistic observations made off site (Rec_Type='O'). When the Rec_Type is 'C' or 'S' the associated site information is found in the CSITE table which is linked by the site number. If the Rec_Type is 'O' then the observation was not made on a site, but at a point elsewhere and a reduced site description is found in the OSITE table, the OBS-OSITE link being made on Id_Num.
- NUM** Num indicates the number of individuals comprising the observation. Where possible, numbers are given, though in cases where numbers are estimated the following broad categories are used.

S -- several (5-10)
 C -- common (10-20)
 A -- abundant (20+)

- OBS_TYPE** This indicates the fashion in which an observation was made. Collection of voucher specimens is not indicated here (see OBS.Specimen). The codes are as follows:-

Held

HE -- caught in elliot trap
 HC -- caught in cage trap

HN -- caught in mist net
 HP -- caught in pit trap
 HS -- shot
 HR -- roadkill
 HO -- other

Seen and/or Held

SS -- signs (scats)
 ST -- signs (tracks)
 H -- heard
 S -- seen

OBSR This field contains a series of up to five, two letter abbreviation (last and first initials) of those individuals who recorded the observation. The full names are given in the related table OBSR (linking field being OBS.Obsr) for all observer combinations.

SPECIMEN A logical type field which indicates whether or not further specimen information exists in the SPECIMEN table.

COMMENTS1

This and the next field allow up to 66 characters of comments each. They contain additional information about an observation:-

who donated a specimen
 noteworthy behaviour
 more information on the type of observation etc

COMMENTS2 As above

HABITAT This field contains a broad habitat code used to indicate the general habitat type in which a species was observed. The full list of codes are given in Table II.2. It can be used instead of the Veg_Form recorded with the CYPLUS/NRCP data.

SOURCE A six letter code identifies the data source. A full description of the source is given in Section 4.0 and in abbreviated form below:-

CYPLUS NR03 NRAP project
NRCP National Rainforest Conservation Program
WEIPA QDEH Weipa Fauna Survey
MCILWR QDEH McIlwraith Fauna Survey
FLATT QDEH Cape Flattery Fauna Survey
JWWDEH QDEH miscellaneous records

JWWMIS	Incidental observations
LFS	QDEH Lakefield National Park incidental fauna survey
DM_MIS	QDEH ranger M. Delaney's incidental observations
STORCH	QDEH ranger D. Storch's incidental observations
GSP	Golden-shouldered Parrot Project
CYHS	Cape York Herpetological Society

I.2 Csite Table

SITE	The number of the site being described. This was used to link the OBS and CSITE tables.
LEVEL	Sites were given a level depending on 1) the project under which data was recorded and 2) whether all census methods were undertaken. <ul style="list-style-type: none"> 1 - Primary Site 2 - Secondary Site 3 - Other Sites <p>Levels one and two relate to CYPLUS and NRCP data only.</p>
DATE	The date on which the site was described. This was not recorded for "historic" data.
LAT_DEG	The (positive) degrees of latitude of the site location.
LAT_MIN	The minutes and decimal minutes of latitude of the site location. e.g 12.34'
LONG_DEG	The degrees of longitude of the site location.
LONG_MIN	The minutes and decimal minutes of longitude of the site location.
AMG	Where a Global Positional System (GPS) was not used, the position was recorded as an (AMG) Australian Map Grid reference. e.g. <u>XL</u> 123456. These were later converted to Latitude and Longitude. Although three 'grid zone designations' cover Cape York Peninsula, the 100,000 square two letter prefix to the six digit number (e.g. <u>XL</u>) resulted in a position unique for the Peninsula.
POS_ERR	An error or precision was recorded whether the position was derived from a GPS or an AMG. In those cases where an AMG was converted to latitude and longitude the original error was maintained. All GPS readings were assigned the error of 0.1km. Calibration or standardisation tests of GPS units was not carried out.

POS_DER This refers to the method of position derivation. If an AMG was recorded then 'M' was entered for Map, whereas if a GPS was used then a 'G' was entered. If both were used then a 'B' was entered.

ALT This is the altitude in metres above sea level.

ALT_DER The altitude was always derived from a map due to the error involved in the vertical plane when using a GPS.

ALT_ERR The altitude error represented a measure of confidence and was usually derived from the map contour lines. Units were in metres.

LOCALITY A general locality name or reference to 1:250,000 gazetted place name. Distances to named features are direct line distances in kilometres.

TENURE Used to record the tenure of the land where the survey was being undertaken e.g. N.P. for National Park.

VEG_FORM

The vegetation formation was recorded using the classification scheme in 'The Yellow Book' (McDonald *et al.* 1990). Both Non-rainforest and rainforest schemes were used (pp 64-67 and p 79 respectively). A maximum of three strata were recorded for non rainforest vegetation - strata were separated with a '/'.

PAR_MAT The parent material classifications were derived from those established by the Queensland Herbarium under the CORVEG classification. The codes are as follows:-

- B - Coll/Alluvial
- C - Laterite
- H - Sedimentary
- I - Calcareous
- O - Metamorphic
- P - Acid Volcanic
- S - Basic Volcanic
- U - Acid Plutonic
- X - Basic Plutonic

LAND_PAT The Land Pattern abbreviations were taken from McDonald *et al.* (1990, pp 48-57).

LAND_ELEM1 ... LAND_ELEM4

Up to four Landform Elements were recorded. Abbreviations were taken from McDonald *et al.* (1990, pp 24-34).

PHYS_UNIT The Physiographic Unit was derived from the 1:250,000 Geological Survey Maps and accompanying explanatory notes.

- SLOPE** The slope was recorded in degrees from 0 to 90. Where the sites were flat the slope was recorded as 0 and the ASPECT left blank.
- ASPECT** The aspect was recorded as points of the compass. eg. ENE
- RELIEF** Relief was defined according to McDonald *et al.* (1990, pp 35). It was derived from the map as well as by eye.
- IMP_FIRE** The impacts of FIRE, FLOOD, CATTLE, PIG, WIND and HUMANS were recorded on a scale from 0 to 3, 0 being no impact, 1 low impact, 2 medium impact and 3 being high impact.
- WATER_DIST**
The distance to the nearest known fresh water was recorded in kilometres.

1.3 Table Osite

Those attributes recorded for opportunistic sightings are a subset of those recorded in the more rigorous CSITE table. The OSITE table is related to the OBS table by ID_NUM as opposed to a site number. Apart from the reduced data set, this constitutes the only difference between the two tables.

Those fields recorded are as follows:-

Id_Num
 Lat_Deg
 Lat_Min
 Long_Deg
 Long_Min
 AMG
 Pos_Err
 Pos_Der
 Alt
 Alt_Err
 Alt_Der
 Locality
 Veg_Form
 Par_Mat
 Land_Pat
 Land_Elem1...Land_elem4
 Phys_Unit

1.4 SP_LIST Table

Scientific and common names of species used in the construction of the QDEH Database were initially those given in the Queensland Museum's "An Atlas of Queensland's Frogs, Reptiles, Birds & Mammals" (Ingram and Raven 1991).

The nationally recognised standard list, the Australian Biological Resources Study's (ABRS) "Census of Australian Vertebrate Species (CAVS) Version 8.1", was adopted when the revised version became available in May 1994.

Departures from this list are:

1. the use of common names for Queensland frogs, published by Ingram *et al.* (1993) and
2. the inclusion of a new reptile species, the skink *Carlia parrhasius*, collected during a CYPLUS field survey (Couper *et al.* 1994).
3. the recognition of *Litoria eucnemis* as distinct from *Litoria genimaculata*, the later being restricted to the Wet Tropics biogeographic region.

The SP_LIST table in the QDEH database contains both the Queensland Museum and CAVS species names and all reports produced from the database for the current report use the CAVS names.

TAXAB Taxab is a code constructed by concatenating and capitalising the first four letters of a genus name with the first four letters of a species name. This system resulted in duplicate pairs which were overcome by replacing the eighth letter with a unique number. These duplicates are:

MACRGIG1 *Macropus giganteus* - Eastern Grey Kangaroo

MACRGIG2 *Macroderma gigas* - Ghost Bat

LICHFLA1 *Lichenostomus flavus* - Yellow Honeyeater

LICHFLA2 *Lichenostomus flavescens* - Yellow-tinted Honeyeater

PTILMAG1 *Ptilinopus magnificus* - Wompoo Pigeon

PTILMAG2 *Ptiloris magnificus* - Magnificent Riflebird

RHIPRUF1 *Rhipidura rufifrons* - Rufous Fantail

RHIPRUF2 *Rhipidura rufiventris* - Northern Fantail

PSEUAUS1 *Pseudohemidactylus australis* - Giant Tree-gecko

PSEUAUS2 *Pseudechis australis* - King Brown Snake

RHINNIG1 *Rhinoplocephalus nigrescens* - Eastern Small-eyed Snake

RHINNIG2 *Rhinoplocephalus nigrostriatus* - Black-striped Snake

CLASS The taxonomic class name i.e. Amphibia, Reptilia, Aves and Mammalia.

ORDER The taxonomic order name.

FAMILY The taxonomic family name.

GENUS The taxonomic genus name.

- SPECIES** The taxonomic species name in lower case.
- COMMON** Common names are given for all birds, mammals, frogs and the more common reptiles.
- TAX_EXCEP** A logical variable indicating the presence of a TAXAB which, together with one or more other species, forms a duplicate. The 12 species which form duplicate TAXABs are given above.
- TAX_ORD** A nine digit character variable which controls the order in which species appear in reports etc. according to their taxonomic order.
- e.g. The Cape York Rock-wallaby (*Petrogale coenensis*) has the **TAX_ORD** number 403060502.

The number encodes nomenclature at five hierarchical levels.

- 4 Class (Mammalia)
- 03 Order (Diprotodonta)
- 06 Family (Macropodidae)
- 05 Genus (Petrogale)
- 02 coenensis (coenensis)

By using **TAX_ORD** taxa can be listed taxonomically rather than alphabetically.

I.5 Specimen Table

The Specimen table has the following structure.

ID_NUM The link between the main OBS table and the SPECIMEN table.

PREFIX The single letter prefixing all QDEH field numbers. For earlier surveys this was 'N' and for recent surveys the prefix 'Q' was used. Some field numbers are without a prefix.

COLL_NUM Field number

INSTIT An abbreviation representing the institution where the specimen lodged.

QM - Queensland Museum
 SAM - South Australian Museum
 AM - Australian Museum

REG_PREF The registration prefix assigned to a specimen by the museum in question.

Queensland Museum
 JM - Mammals (J for early records)
 O - Birds
 J - Frogs and Reptiles
 Australian Museum
 M - Mammals
 O - Birds
 R - Frogs and Reptiles

REG_NUM The museums' registration number.

COMMENTS

Any additional information regarding the specimen.

I.6 Breed Table

This table contains breeding information and comments. It is related to the parent table (OBS) on the Id_Num. This information was placed in this table only for the more recent data - any breeding information associated with historic data is more likely to be found in the OBS.Comments fields. Codes used are as follows:

ID_NUM Used to link the OBS and BREED tables.

REP_STAT Where sexual status and maturity were observed, a two digit "Reproductive Status" code was recorded. The first digit represents the animals sex while the second digit indicates its sexual maturity. The codes are as follows.

- 12 Adult Male
- 21 Juvenile Female
- 22 Adult Female
- 23 Pregnant Female
- 24 Lactating Female

COMMENTS

Any additional information regarding the breeding status of the animal observed is recorded in this field.

APPENDIX II. HABITAT CODES AND CATEGORIES

Table II.1 Habitat codes used in the QDEH database.

Aquatic

F Freshwater, type not specified

S3 Ocean

W Water, type not specified

Grasslands and sedge/rushlands

G Open Grasslands, includes open sedgeland and open rushlands

Heathlands and shrublands

H Low heath

H2 Tall to very tall Heath

H3 Shrubland,

Mangroves

M Mangroves

Woodlands

O? Open forest/woodland with no qualifiers

OE Eucalypt open forest/woodland

OD Dune field woodland - layered shrubby woodland on sand

OL Paperbark woodland, with almost pure stands of *Melaleuca*, particularly *M. viridiflora*

OC Woodland, with roughly equal proportions of eucalypt and melaleuca species

OP Sclerophyll riparian forest, with little or no vineforest elements

Vine forest

R Mesophyll or notophyll vine forest

D Deciduous vine thicket

Mixed or intermediateRP Riverine vineforest with sclerophyll elements (e.g. *Melaleuca* sp)

OR Closed forest with an approximately equal mixture of sclerophyll and non-sclerophyll species

Mudflats and beaches

S1 Saline mud flats (Pedley and Isbell 1971 - Type 10)

S2 Saline beaches (Pedley and Isbell 1971 - Type 11)

Miscellaneous

U Urban

V Cave

Z no code specified

Table II.2 Distinct habitat codes used in the QDEH data set. Where a code is a combination of more than one code - those containing + - it is the result of historical data in which two habitat types were searched but records were not allocated to any one habitat type. They should not be confused with the complex codes e.g. OR in which the mixture constitutes a distinct type. The number of records associated with each code are also given.

blank	283	O?+H	7	OP+OE	118
-	31	O?+M	17	OR	1109
D	306	O?+M+S?	121	OR+F	137
D+O?	396	O?+S1	16	OR+H2	53
F	166	O?+V	24	R	4992
G	313	OC	422	R+F	21
G+F	116	OD	462	R+H+O?	28
G+OD	14	OD+F	5	R+M	8
H	258	OD+M	4	R+OE	55
H+O?	35	OD+S1	6	R+OL	132
H+OR	27	OE	3017	R+S2	3
H+R+O?	2	OE+D	31	RP	564
H+S2	12	OE+F	167	RP+D	23
H2	274	OE+G	13	RP+D+O?	32
H3	39	OE+G+S2	59	RP+F	231
M	536	OE+M	2	RP+M	31
M+D	1	OE+OL	22	RP+O?	2578
M+O?	2	OE+R	14	RP+OE	131
M+OD	5	OE+RP	67	S1	204
M+OE	3	OE+U	3	S2	382
M+OE+R	31	OL	682	S3	15
M+R	74	OL+F	83	U	16
M+S1	47	OL+H2	28	V	7
O	1	OL+M	11	W	7
O?	2982	OP	673	Z	26
O?+F	236	OP+F	342		

II.2 Habitat categorisation of terrestrial vertebrate species.

II.2.1 Aim

The aim of this section is to assign each species to a unique habitat category for use in analysis of faunal diversity in relation to habitat use.

II.2.2 Habitat coding

To do this we prepared a matrix of species and habitat types recorded in the QDEH database within the Habitat field of the OBS table.

A problem with habitat coding from earlier data was either generalised codes e.g. O? which included all types of open forest and woodland or complex codes e.g. R+O?. The code complexes applied particularly to the McIlwraith and Weipa fauna surveys because of the relatively large size of sites which could include more than one habitat type. Thus R+O? indicates both rainforest and woodland were sampled in any one sampling period, usually because they were adjacent to each other, not that the habitat was a true mixed rainforest/sclerophyll forest which is coded as OR.

II.2.3 Habitat clusters

The 75 unique habitat codes in the QDEH database (Table II.2) were assembled into 22 habitat clusters (Table II.1).

Thirteen of the clusters are of simple codes or of a code complex which was considered representative of a simple code e.g. RP+D (riparian forest + deciduous vine thicket) was considered to be essential the same as RP. Three were clustered on the basis of containing the code, V (cave) and U (urban) because it was considered to be the important part of the code e.g. O?+V indicated a cave in woodland and OE+U an urban area within remnant eucalypt woodland, or because (S) clustered strand type habitats. Two clusters were indicative of standing freshwater in rainforest habitats (Rf) or woodland (Of). The remaining four clusters were complexes in which one habitat was considered to be definitive Hm, O?m, Rm and Mm. These complexes provide the least information but are included for completion of the matrix.

II.2.4 Species by habitat matrix

The matrix of species by habitat clusters is given in Table II.3. The column on the right is the number of clusters in which a species is recorded. The higher the number the more generalised the habitat use by a species. The row along the bottom is the number of species per habitat cluster for the class recorded. Comparisons of species numbers between habitats on the basis of the matrix alone should be restricted to the simple clusters.

Interpretation of record numbers within each habitat cluster and the number of habitats used by a species should be viewed with caution because of uneven sampling across the region. Nevertheless, the matrix is a useful aid to interpretation of a species habitat use. For example *Antechinus leo* was recorded from riparian and vine forest only whereas both species of *Sminthopsis* were from open habitats except for one record of *S. virginiae* from a vine forest complex cluster which contains woodland habitat codes. This supports the

notion that the antechinus is a rainforest specialist species whereas the other two are woodland species.

II.2.5 Allocation of core habitat category

With the aid of the species by habitat matrix, published literature and personal experience of the authors, each species is allocated a single habitat category. The category is an expression of the species' core habitat without which it would cease to exist in an area. By inference, species with a narrower habitat range are specialist species more vulnerable to habitat disturbance than those using a wider habitat range.

Assigned habitat categories include:

Rainforest specialist	=	species which are confined to evergreen vineforest, except perhaps for exploratory excursion beyond its margins;
Rainforest generalist	-	species with apparently viable populations within rainforest and other habitat types often containing rainforest elements e.g. mangroves, riparian forest, deciduous vine thicket, mixed sclerophyll and vine forest and shrubland ;
Woodland species	=	species confined to open forest, woodland and open woodland;
Heathland species	-	species primarily confined to heathlands;
Grassland species	-	species whose primary habitat is open grassland - many species use grasslands within a woodland but this category is reserved for those species centred on extensive treeless plains;
Mangrove species	-	species whose primary habitat is mangroves;
Wetlands species	-	species closely associated with open water;
Strand species	-	species of the beaches, salt pans and oceans;
Generalist species	-	species with very broad habitat use.

Within each of the habitat categories special habitat requirements of a species are flagged, these include caves (*) and cliffs or boulder piles (*).

Habitat categories for all species recorded within the CYPLUS area are given in the species list in Appendix III and a preliminary analysis of them in Section 7 .

Table II.3 Number of Records for each species against habitat type

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	Ofm	OF	OR	RP	R	D	RI	Rm	M	Nm	S	T	U	Total
Class Amphibia																							
<i>Crinia deserticola</i>	1	3	-	-	3	-	1	2	-	5	24	-	-	-	-	4	3	-	-	-	-	-	9
<i>Crinia renata</i>	-	5	2	-	-	-	-	2	-	-	10	-	-	-	-	-	1	-	-	-	-	-	5
<i>Limnodynastes convexicaulus</i>	-	1	1	-	2	-	-	5	-	6	5	7	-	10	-	2	1	-	-	-	-	-	10
<i>Limnodynastes ornatus</i>	-	-	16	-	1	6	4	15	7	20	12	10	1	7	-	6	6	-	-	1	-	-	14
<i>Limnodynastes terraereginae</i>	-	1	17	-	-	-	-	3	-	2	1	8	-	3	-	-	-	-	-	-	-	-	7
<i>Notaden melanoscaphus</i>	-	1	-	-	3	-	1	4	-	1	9	-	-	-	-	-	-	-	-	-	-	-	6
<i>Uperoleia lithomoda</i>	-	2	1	-	4	-	1	2	-	-	14	1	-	-	-	-	-	-	-	-	-	-	7
<i>Uperoleia mimula</i>	-	-	3	-	2	-	-	2	-	3	5	-	-	-	-	-	1	-	-	-	-	-	7
<i>Cyclorana brevipes</i>	-	-	-	-	-	-	-	2	-	3	6	-	-	-	-	-	-	-	-	-	-	-	3
<i>Cyclorana masoni</i>	-	-	-	-	-	-	2	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	2
<i>Cyclorana novaehollandiae</i>	-	-	-	-	1	2	3	5	1	12	9	-	-	-	-	-	2	-	-	1	-	-	9
<i>Litoria alboguttata</i>	-	-	-	-	3	-	-	-	-	10	3	-	-	-	-	-	-	-	-	-	-	-	3
<i>Litoria bicolor</i>	-	7	1	-	1	1	-	4	-	6	33	-	-	1	-	-	2	-	-	-	-	2	10
<i>Litoria caerulea</i>	-	2	2	-	2	1	-	15	7	10	8	1	1	13	-	1	6	-	-	-	-	1	14
<i>Litoria dahlii</i>	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	3
<i>Litoria dorsalis</i>	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2
<i>Litoria eucrenata</i>	1	-	-	-	1	-	-	-	-	-	1	-	-	14	-	4	2	-	-	-	-	-	6
<i>Litoria gracilenta</i>	1	1	-	-	-	-	-	1	-	3	9	1	1	-	-	4	-	-	-	-	-	1	9
<i>Litoria inermis</i>	1	-	1	-	3	-	-	2	5	4	18	-	6	2	1	9	15	-	-	-	-	-	12
<i>Litoria infrafenestrata</i>	-	-	1	-	-	-	-	4	-	7	7	6	1	21	-	1	1	3	2	-	-	-	11
<i>Litoria longirostris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	6	-	-	-	-	-	-	2
<i>Litoria nasuta</i>	3	4	3	2	1	1	-	11	3	12	8	2	3	7	-	2	7	-	-	2	-	1	17
<i>Litoria nigrofrenata</i>	-	-	10	2	-	-	-	6	1	10	13	3	3	6	-	4	10	-	-	-	-	-	11
<i>Litoria pallida</i>	2	3	1	-	-	-	1	3	6	9	28	2	3	-	-	4	-	-	-	-	-	-	11
<i>Litoria rubli</i>	-	3	1	-	-	-	-	5	3	12	10	1	3	1	-	1	5	-	1	-	-	1	13
<i>Litoria rubella</i>	-	1	2	1	1	-	1	6	-	12	11	-	1	2	-	-	1	-	-	-	-	1	12
<i>Cophirallus crepitans</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	3	1	-	-	-	-	-	3
<i>Cophirallus peninsularis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1
<i>Cophirallus saxatilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>Sphenophryne gracilipes</i>	-	-	3	-	-	-	-	6	-	1	4	3	1	3	-	-	4	-	-	-	-	-	8
<i>Rana daemeli</i>	4	-	-	-	-	-	-	6	6	2	6	5	8	50	-	24	18	-	1	-	-	-	11
<i>Bufo marinus</i>	1	4	22	2	4	-	1	25	17	41	23	31	4	43	7	7	22	2	-	5	-	1	19
# of Species/Habitat for class Amphibia (n=10)	8	15	17	4	15	5	9	13	10	13	18	15	13	17	2	17	19	1	3	5	0	7	157

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O'm	Of	OR	RP	R	D	Rf	Rm	M	Mm	S	V	U	Total
Class Reptilia																							
<i>Crocodylus johnstoni</i>	1				3			1	5				1			5							6
<i>Crocodylus porosus</i>	1			1								1		1			4			10			6
<i>Chelodina novaeguineae</i>											1				1								3
<i>Chelodina rugosa</i>		1									1	1	1	1		1							7
<i>Elseyia latisternum</i>	2										1	1	1	6		9							9
<i>Emydura krefftii</i>								3															1
<i>Cyrtodactylus lousiadensis</i>								3						5	2								4
<i>Diplodactylus conspicillatus</i>					1																		1
<i>Diplodactylus steindachneri</i>					1			1															2
<i>Gehyra dubia</i>		2				8	3	22	11	11	8	3	2	6			7	6	1			1	14
<i>Gehyra nana</i>																							1
<i>Hemidactylus frenatus</i>										1													1
<i>Heteronotia binoei</i>		1	3		1		6	12	11	16	5						1						9
<i>Lepidodactylus lugubris</i>										3				3									3
<i>Nactus galgajuga</i>																							0
<i>Nactus pelagicus</i>			7			3		21	1	17	2	4		10	2					9	1		12
<i>Nephrurus asper</i>			2																				1
<i>Oedura castelnaui</i>			1				2	18		8	1			2									8
<i>Oedura coggeri</i>					1			2															1
<i>Oedura rhombifer</i>			3		2		1	14	2	13	1	2		7			6						10
<i>Saluarius occultus</i>														6									1
<i>Pseudohemidactylus australis</i>				4	1			5		3	1	7		23	1	1	2						10
<i>Delfia rhinca</i>								1			1												2
<i>Lialis burtonis</i>		1				4		2	2	4				1			2						8
<i>Pygopus lepidopodus</i>			2																				1
<i>Chilamydonsaurus Kingii</i>			1					8		12				1									5
<i>Diporiphora australis</i>					1				1														2
<i>Diporiphora bilineata</i>		2	13		1	1	1	13	6	25	1	1		2						1			13
<i>Lophognathus gilberti</i>									1														1
<i>Lophognathus temporalis</i>						1			4		2			1	2								6
<i>Varanus gouldii</i>			1		1	1		5		6	1	1	1	4		2				3			11
<i>Varanus indicus</i>	1							1	1	1	2						2						9
<i>Varanus mertensi</i>								1			2												2
<i>Varanus panoptes</i>				2	1		1	1			5	1											6
<i>Varanus semiremex</i>											3						1	1					3
<i>Varanus terriei</i>										1					1								2
<i>Varanus timorensis</i>					1	2		14		6									3				6
<i>Varanus tristis</i>								4		2													3
<i>Anomalopus pluto</i>								1	1	1		4		5									5
<i>Carlia coenosis</i>										3				4									5
<i>Carlia dogare</i>			4							3							4						3
<i>Carlia jamaikae</i>			11	1				11	6	7	3	2		7			1						9
<i>Carlia longipes</i>		2	16	1	1	6		50	8	39	9	27	4	57	6		26	1	3	4			18
<i>Carlia mutata</i>		1			4		7	9	4	6	3												7

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O ^m	Of	OR	RP	R	D	RF	Rm	M	Mm	S	V	U	Total
<i>Carlta parthasius</i>								3		1													2
<i>Carlta pectoralis</i>								2	1														2
<i>Carlta himala</i>										1				1			1						3
<i>Carlta rostralis</i>								3	1														2
<i>Carlta schmelzli</i>								2	2								1						4
<i>Carlta scirens</i>																							0
<i>Carlta storni</i>		1	4	1	4	1		3	1	7				2			4		1				11
<i>Carlta vivax</i>							1	4	1	5													6
<i>Cryptoblepharus carnabyi</i>							2	7	4														6
<i>Cryptoblepharus fitoratis</i>										1													4
<i>Cryptoblepharus plogiocephalus</i>									6														7
<i>Cryptoblepharus virgatus</i>		1				1		12	1	2													13
<i>Ctenotus essingtonii</i>		1	2			2	1	16	1	11	1		5	1			8	1		3			2
<i>Ctenotus nulliam</i>								4		2													1
<i>Ctenotus quinlan</i>								2															1
<i>Ctenotus ravidisconi</i>								3															1
<i>Ctenotus ravidisconi</i>																							2
<i>Ctenotus robustus</i>			3																				1
<i>Ctenotus spaldingi</i>		1						1															2
<i>Egernia frerei</i>		2	23			6	2	14	3	14	1	9		2			3	1		7			13
<i>Egernia rugosa</i>								4		5	8	7		12	1		5			1			8
<i>Emoia airocostata</i>																							1
<i>Emoia longicauda</i>																							1
<i>Eugongylus rufescens</i>																							1
<i>Eugongylus rufescens</i>																							1
<i>Eulamprus kerrii</i>																							1
<i>Glaphyromorphus crossicaudatus</i>								1															1
<i>Glaphyromorphus fuscicaudis</i>								2	1														6
<i>Glaphyromorphus fuscicaudis</i>																							1
<i>Glaphyromorphus nigricaudis</i>						1		2		4	5	7		1	1	2	7		2				11
<i>Glaphyromorphus partalis</i>			6					2		7		2					1			3			6
<i>Glaphyromorphus pumilus</i>			1					2		2					3		3						3
<i>Lygisaurus aeratus</i>								2	3	1							1						6
<i>Lygisaurus foliorum</i>								6		2													2
<i>Lygisaurus macfarlandi</i>								3	1	1	1			3									7
<i>Lygisaurus sesbrauna</i>								3		3	2	5	2	39			7	2	1				9
<i>Menenia greyii</i>								1															1
<i>Morethia taeniopleura</i>								4	1														4
<i>Tiliqua scincoides</i>			2			1		3		4		2											5
<i>Ramphophilops braminus</i>																							1
<i>Ramphophilops polygrammicus</i>								1															2
<i>Ramphophilops prosimus</i>																							0
<i>Ramphophilops unguirostris</i>								1															1
<i>Ramphophilops waleii</i>																							0
<i>Aspidites metaocephalus</i>								1		5										1			3
<i>Chondropython viridis</i>										2													1
<i>Liasis childreii</i>										1					1								3
<i>Liasis fuscus</i>		1								3	1												3
<i>Liasis maculosa</i>		1					1	2		1													6

Table II.3 (cont.)

HABITAT CODE

	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	OF	OR	RP	R	D	RF	Rm	M	Mm	S	V	U	Total
<i>Morelia amethistina</i>	-	-	-	-	-	-	-	4	1	4	1	1	1	13	1	-	3	1	-	-	-	-	10
<i>Morelia spilota</i>	-	-	1	-	-	1	-	2	-	4	-	-	-	-	-	-	1	-	-	-	-	-	5
<i>Acrochordus arafurac</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Boiga irregularis</i>	-	-	1	1	-	-	-	3	1	8	-	2	-	5	-	-	-	-	-	1	-	1	10
<i>Dendrelaphis callisera</i>	-	-	1	-	-	-	-	4	1	4	-	3	-	4	-	-	1	1	-	-	-	-	8
<i>Dendrelaphis punctulata</i>	-	-	-	-	-	-	-	1	1	10	-	2	1	3	-	-	-	1	-	-	-	-	7
<i>Enhydris polytepis</i>	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	3
<i>Siagonotus cucullatus</i>	-	-	1	-	-	-	-	5	-	5	1	2	-	6	1	1	2	-	-	-	-	-	9
<i>Tropidonophis mairii</i>	-	-	-	-	-	-	-	3	3	17	3	1	-	3	-	-	5	-	-	-	-	-	9
<i>Acanthophis antarcticus</i>	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	1	-	-	-	-	-	2
<i>Acanthophis proctorius</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Demansia alba</i>	-	1	-	-	-	-	-	4	-	6	1	-	-	1	-	-	5	-	-	-	-	-	6
<i>Demansia papuensis</i>	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
<i>Demansia psammophis</i>	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Demansia torquata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Furina ornata</i>	-	-	-	-	-	-	1	3	-	4	1	-	-	-	-	-	3	-	-	-	-	-	5
<i>Furina irisita</i>	-	-	-	-	-	-	-	1	1	6	-	3	1	7	-	1	2	-	-	2	-	-	8
<i>Oxyuranus scutellatus</i>	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3
<i>Pseudochis australis</i>	-	-	1	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	3
<i>Pseudonaja nuchalis</i>	-	-	2	-	-	-	-	1	-	3	-	-	-	-	-	-	1	-	-	-	-	-	4
<i>Pseudonaja textilis</i>	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Rhinoplocephalus nigrosiratus</i>	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-	1	-	-	-	-	-	3
<i>Simonsiaps semifasciatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
<i>Simonsiaps warro</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
# of Species/Habitat for class Reptilia (n=114)	6	16	32	9	20	16	16	73	35	64	36	34	13	44	14	10	47	11	4	16	1	4	521

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	Of	OR	RP	R	D	Rf	Rm	M	Mm	S	V	U	Total
Class Aves																							
<i>Casuarus casuarus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	2	-	-	-	-	-	2
<i>Dromaius novaehollandiae</i>	-	-	1	-	-	-	-	7	1	5	-	-	-	-	-	-	-	-	-	-	-	-	4
<i>Tachybaptus novaehollandiae</i>	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	2	1	-	-	-	-	-	5
<i>Poliiocephalus poliocephalus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
<i>Puffinus gavia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
<i>Puffinus pacificus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<i>Pelecanus conspicillatus</i>	6	1	-	-	-	-	-	-	2	3	6	-	1	-	-	2	2	4	4	36	-	-	11
<i>Sula leucogaster</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<i>Phalacrocorax melanoleucus</i>	5	-	-	-	-	-	-	3	1	1	12	-	-	1	2	3	15	7	3	14	-	-	12
<i>Phalacrocorax sulcirostris</i>	-	1	-	1	-	-	-	-	1	-	3	-	-	1	-	2	7	1	-	3	-	-	9
<i>Phalacrocorax varius</i>	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2
<i>Anhinga melanogaster</i>	7	1	-	-	1	-	-	1	7	1	7	-	-	-	-	3	4	2	2	12	-	-	12
<i>Fregata ariel</i>	-	-	-	-	-	-	-	-	-	1	-	4	-	2	-	-	-	1	-	7	-	-	5
<i>Fregata minor</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	2
<i>Ephippiorhynchus asiaticus</i>	8	2	-	-	1	1	1	1	-	3	4	-	1	-	1	1	3	1	2	12	-	-	15
<i>Ardea alba</i>	4	4	1	-	1	1	-	1	4	5	6	1	-	1	1	-	9	6	2	15	-	-	16
<i>Ardea ibis</i>	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
<i>Ardea intermedia</i>	2	-	-	-	2	-	-	2	2	1	5	-	-	-	-	3	1	1	1	4	-	-	11
<i>Ardea pacifica</i>	4	3	-	-	3	-	-	3	-	2	4	-	-	-	-	-	2	-	-	1	-	-	8
<i>Ardea picata</i>	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-	1	1	1	-	5	-	-	8
<i>Ardea sumatrana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	1
<i>Butorides striatus</i>	-	-	-	-	-	-	-	1	-	1	-	1	1	-	-	-	-	9	1	7	-	-	7
<i>Egretta garzetta</i>	4	1	-	-	1	1	-	1	1	1	3	-	1	-	-	3	2	8	3	22	-	-	14
<i>Egretta novaehollandiae</i>	6	2	1	-	1	-	-	5	1	2	4	2	-	-	-	3	4	2	4	15	-	-	14
<i>Egretta sacra</i>	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	3	-	-	3
<i>Icthyophaga flavicollis</i>	1	-	-	-	3	1	-	1	1	4	2	1	-	-	-	3	-	1	-	-	-	-	10
<i>Nycticorax caledonicus</i>	2	-	-	-	3	-	1	4	6	1	8	3	3	2	-	2	13	3	-	-	-	-	13
<i>Plasalea flavipes</i>	2	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3
<i>Plasalea regia</i>	5	-	-	-	1	-	-	1	1	3	4	2	-	-	-	5	4	-	1	2	-	-	11
<i>Plegadis falcinellus</i>	5	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	4
<i>Threskiornis motacca</i>	9	-	-	-	1	1	-	4	1	3	15	2	1	-	-	4	8	10	4	13	-	-	14
<i>Threskiornis spinicollis</i>	5	4	-	-	3	1	-	11	3	18	9	1	2	1	-	-	10	-	2	2	-	-	14
<i>Anseranas semipalmata</i>	7	-	-	-	-	1	-	-	-	1	3	2	-	-	-	-	3	-	1	-	-	-	7
<i>Anas gracilis</i>	3	1	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	5
<i>Anas superciliosa</i>	10	2	-	-	1	-	-	3	-	1	17	-	-	-	-	5	8	1	-	3	-	-	10
<i>Acthyya australis</i>	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	2
<i>Dendrocygna arauaca</i>	-	1	-	-	1	-	-	1	-	1	1	-	-	1	-	-	-	-	-	-	-	-	6
<i>Dendrocygna eytoni</i>	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	2
<i>Nettion pulchellus</i>	3	1	-	-	-	-	1	1	-	1	9	-	-	-	-	2	-	-	-	-	-	-	7
<i>Nettion coromandelianus</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
<i>Tadorna radjah</i>	3	1	-	-	1	3	-	2	4	2	7	-	1	-	-	-	1	-	1	8	-	-	12
<i>Accipiter cirrhocephalus</i>	-	-	-	-	-	-	1	2	-	13	-	1	-	-	-	-	1	1	-	-	-	-	6
<i>Accipiter fasciatus</i>	-	-	1	-	2	1	-	2	-	3	1	3	1	-	-	-	3	-	-	1	-	-	10
<i>Accipiter novaehollandiae</i>	-	-	-	-	-	-	-	1	-	2	-	3	-	6	-	-	6	-	-	-	-	-	5

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	Of	OR	RP	R	D	RF	Rm	M	Mm	S	V	U	Total
<i>Agelaius</i>	-	-	-	-	2	-	1	5	-	3	1	-	-	2	-	-	3	1	-	-	-	-	8
<i>Aniceda subcrinita</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	3	-	-	1	-	-	4
<i>Circus appuraticans</i>	-	2	-	-	-	1	-	-	-	-	1	-	-	-	-	-	3	-	-	1	-	-	5
<i>Elanus axillaris</i>	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Erythrocorchis radiatus</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2
<i>Haliaeetus leucogaster</i>	2	-	1	2	-	1	-	6	5	4	5	2	4	3	-	3	1	8	5	17	-	1	17
<i>Haliaeetus sphurax</i>	-	6	-	-	7	8	4	12	10	20	8	1	7	8	-	-	18	6	6	11	-	-	15
<i>Haliaeetus indus</i>	-	-	-	-	1	2	-	3	1	3	1	2	-	-	-	2	-	6	5	11	-	-	11
<i>Hartrobra melanocephala</i>	-	1	-	-	1	-	-	1	1	2	-	-	-	-	-	-	-	-	1	-	-	-	6
<i>Pterocarya morphnoides</i>	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Lophocitta trita</i>	-	-	-	-	2	-	-	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	4
<i>Nibhus migrans</i>	-	3	1	-	5	1	1	10	7	14	2	-	3	-	-	-	21	-	-	1	-	-	12
<i>Pandion haliaeetus</i>	-	-	-	-	-	1	-	2	1	4	-	-	-	-	-	-	-	5	1	19	-	-	7
<i>Falco berigora</i>	-	6	1	-	2	2	2	6	3	8	-	-	-	-	2	-	2	-	-	1	-	-	11
<i>Falco cenchroides</i>	-	6	-	-	2	1	-	4	2	14	-	3	-	-	-	-	3	-	-	2	-	-	9
<i>Falco longipennis</i>	-	-	-	-	-	-	-	-	-	6	-	1	-	-	-	-	-	-	-	1	-	-	4
<i>Falco peregrinus</i>	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	3
<i>Falco subniger</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>Alectura lachani</i>	-	-	1	1	-	-	1	2	2	4	-	11	8	55	3	2	24	4	1	-	-	-	14
<i>Megapodius reitwardi</i>	-	-	-	1	-	1	-	6	2	6	1	4	8	113	1	1	37	2	5	-	-	-	14
<i>Coturnix pygmaea</i>	-	1	-	-	3	-	2	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	6
<i>Turnix maculosa</i>	-	1	-	-	1	-	-	2	-	3	-	-	-	-	-	-	5	-	-	-	-	-	5
<i>Turnix oliveri</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Turnix pyrrhodactyla</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Grus antigone</i>	1	2	2	-	5	-	-	1	2	-	4	-	-	1	-	-	-	-	-	-	-	-	8
<i>Grus rubicunda</i>	5	8	-	-	2	1	2	1	-	4	11	1	-	-	-	-	-	-	9	-	-	-	10
<i>Anaerona olivacea</i>	-	-	1	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-	4
<i>Falco sara</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
<i>Gallinulus philippensis</i>	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Rallina tricolor</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	1
<i>Ardeotis australis</i>	-	3	1	-	3	-	-	3	-	9	-	-	-	-	-	-	-	-	-	1	-	-	6
<i>Irediparra gallinacea</i>	5	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3
<i>Haematopus fuigiosus</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Haematopus longirostris</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	21	-	-	3
<i>Himantopus himantopus</i>	5	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	9	-	-	6
<i>Burhinus grallarius</i>	-	3	-	-	2	-	3	4	1	16	2	-	1	-	-	1	5	-	-	-	-	-	10
<i>Esacus magnirostris</i>	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	3	2	17	-	-	6
<i>Saltis isabella</i>	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
<i>Charadrius leschenaultii</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	-	-	2
<i>Charadrius mongolus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	7	-	-	2
<i>Charadrius ruficapillus</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	2	15	-	-	4
<i>Euseyornis melanops</i>	-	1	-	-	1	-	-	-	3	-	1	1	-	-	-	-	-	-	-	-	-	-	5
<i>Ploveria fulva</i>	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	-	-	3
<i>Ploveria squatarola</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<i>Varellus miles</i>	1	6	-	-	3	2	-	6	1	11	9	3	-	-	-	-	12	2	-	15	-	-	12
<i>Actitis hypoleucos</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	10	-	-	3

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	Of	OR	RP	R	D	Rf	Rm	M	Mm	S	V	U	Total
<i>Arenaria interpres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	1
<i>Calidris acuminata</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
<i>Calidris ferruginea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	1
<i>Calidris rubicollis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	1
<i>Calidris tenuirostris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<i>Gallinago bairdii</i>	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Heteroscelus brevipes</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	2	-	-	3
<i>Limosa lapponica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	6	-	-	2
<i>Nansenia madagascariensis</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	10	-	-	3
<i>Nansenia phaeopus</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	12	1	11	-	-	4
<i>Tringa nebularia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	-	-	2
<i>Tringa stagnanitis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-	-	2
<i>Xenus cinereus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<i>Chlidonias hybridus</i>	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Chlidonias leucopneus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1
<i>Larus new-hollandiae</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	4	4	24	-	-	4
<i>Sterna albifrons</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	2
<i>Sterna anaethetus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
<i>Sterna bergii</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2	-	7	-	-	3
<i>Sterna bengalensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	1
<i>Sterna caspia</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	2	11	-	-	4
<i>Sterna nilotica</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	13	-	-	3
<i>Sterna sumatrana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1
<i>Chalcophaps indica</i>	-	-	-	-	-	-	-	2	2	3	-	2	-	30	1	1	7	3	1	-	-	-	10
<i>Discala bicolor</i>	-	-	2	-	2	2	-	10	2	4	1	6	10	49	4	-	19	8	1	6	-	-	15
<i>Geopelia cuneata</i>	-	-	-	-	5	-	2	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
<i>Geopelia humeralis</i>	-	2	5	3	11	20	7	47	17	66	10	18	11	38	6	1	71	15	5	8	-	-	19
<i>Geopelia striata</i>	-	-	1	-	15	10	7	42	14	50	16	4	4	7	-	-	30	-	1	4	-	-	14
<i>Geophaps scripta</i>	-	-	-	-	3	-	6	4	1	4	3	-	-	-	-	-	1	-	-	-	-	-	7
<i>Macropygia amboinensis</i>	-	-	-	-	-	-	-	1	-	-	1	8	3	64	4	1	12	1	1	-	-	-	10
<i>Phaps chalcoptera</i>	-	-	-	-	2	-	2	4	2	-	2	-	-	-	-	-	-	-	-	-	-	-	5
<i>Phalopus magnificus</i>	-	-	-	1	-	-	-	12	2	3	7	10	6	125	5	1	29	3	2	-	-	-	13
<i>Phalopus regina</i>	-	-	-	-	-	2	-	3	-	2	1	13	1	72	1	-	1	2	2	-	-	-	11
<i>Phalopus superbus</i>	-	-	-	-	-	-	-	6	-	2	1	-	3	33	2	-	4	-	1	1	-	-	9
<i>Cacatua galerita</i>	-	-	10	1	12	6	8	34	12	43	9	14	13	84	3	3	83	3	3	4	-	-	18
<i>Cacatua roseicapilla</i>	-	1	-	-	11	-	6	24	6	40	6	-	1	-	-	-	23	-	-	-	-	-	9
<i>Cacatua sanguinea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>Calyptrornis hantzii</i>	-	1	-	-	2	1	1	14	2	-	2	1	1	-	-	-	2	-	1	-	-	-	11
<i>Nymphicus hollandicus</i>	-	-	-	-	-	-	1	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-	4
<i>Protonotus aterrimus</i>	-	-	8	2	-	1	-	12	9	18	2	9	7	54	3	2	29	-	6	-	-	-	14
<i>Aprosmictus erythropterus</i>	-	-	2	-	7	6	7	26	9	52	11	2	4	14	-	-	37	4	-	1	-	-	14
<i>Cyclopsitta diaphanata</i>	-	-	-	-	-	-	-	4	-	-	-	4	1	28	4	-	10	-	-	-	-	-	6
<i>Eccelenus poratus</i>	-	-	1	-	-	-	-	4	-	1	-	-	1	31	-	-	12	-	-	-	-	-	6
<i>Geoffroyus geoffroyi</i>	-	-	-	-	-	-	-	4	-	4	-	2	-	40	-	-	10	-	-	-	-	-	5
<i>Ptilycercus adscitus</i>	-	-	-	-	11	-	8	29	13	31	7	1	3	1	1	-	30	-	-	-	-	-	11
<i>Psephodes chrysopterygius</i>	-	-	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	Of	OR	RP	R	D	Rf	Rm	M	Mm	S	V	U	Total
<i>Psittacula versicolor</i>	-	-	-	-	1	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Trichoglossus chlorolepidotis</i>	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2
<i>Trichoglossus haematodus</i>	-	-	11	1	15	11	9	58	12	55	10	8	11	50	4	-	74	9	4	4	-	1	18
<i>Certhopus phasianus</i>	-	2	4	1	3	1	5	22	4	23	6	3	4	10	5	-	27	1	1	3	-	-	18
<i>Cacomantis castaneiventris</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	7	-	1	-	-	-	-	-	-	3
<i>Cacomantis flabelliformis</i>	-	-	1	-	3	1	1	2	2	2	-	-	-	4	1	-	7	-	-	-	-	-	10
<i>Cacomantis variolosus</i>	-	-	-	-	6	-	3	13	1	14	1	6	1	9	-	1	20	1	-	1	-	-	13
<i>Chrysococcyx basalis</i>	-	-	-	-	2	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	4
<i>Chrysococcyx lucidis</i>	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	2
<i>Chrysococcyx minutillus</i>	-	-	-	-	-	-	1	4	1	6	1	8	5	12	-	-	2	1	-	-	-	-	10
<i>Chrysococcyx osculans</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
<i>Chrysococcyx russatus</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2
<i>Cuculus semiratus</i>	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
<i>Cuculus pallidus</i>	-	-	-	-	1	-	1	1	1	-	-	2	-	-	-	-	-	-	-	-	-	-	5
<i>Eudynamis scolopacea</i>	-	-	1	-	-	-	1	7	5	6	4	5	6	17	7	-	18	-	1	1	-	-	13
<i>Scythrops novaehollandiae</i>	-	1	1	-	-	2	-	2	1	1	-	3	1	3	-	-	12	-	-	-	-	-	10
<i>Tyto alba</i>	-	3	1	-	1	-	-	5	1	3	1	-	-	-	-	-	-	-	-	-	-	-	8
<i>Tyto capensis</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Tyto novaehollandiae</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Minor convivens</i>	-	-	-	-	-	-	-	2	-	8	-	3	-	-	-	-	3	-	-	-	-	-	4
<i>Minor novaezeelandiae</i>	-	1	3	-	3	1	5	46	2	22	3	1	3	4	-	-	14	1	-	-	-	-	14
<i>Minor naja</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	1	-	-	-	-	-	3
<i>Podargus ocellatus</i>	-	-	-	-	-	-	-	-	-	1	-	3	-	9	-	-	-	-	-	-	-	-	3
<i>Podargus papuaensis</i>	-	1	3	1	1	5	-	27	-	29	2	14	5	22	3	-	26	2	2	3	-	-	16
<i>Podargus strigoides</i>	-	-	-	-	5	1	9	79	4	38	4	-	2	3	-	1	7	-	-	1	-	-	12
<i>Aegathes cristatus</i>	-	-	1	-	1	1	1	1	-	8	-	-	-	3	2	-	2	-	1	-	-	-	10
<i>Caprimulgus macrurus</i>	-	2	4	1	-	3	-	11	1	11	2	6	3	18	4	-	22	6	4	3	-	-	16
<i>Eurostopodus argus</i>	-	4	-	-	-	-	3	7	-	7	-	-	-	-	-	-	-	-	-	-	-	-	4
<i>Eurostopodus myiocalis</i>	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Apus pacificus</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	1	-	-	3
<i>Collocalia esculenta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<i>Collocalia podicipinus</i>	-	-	-	-	-	-	-	-	1	2	1	-	-	7	-	-	4	-	-	-	-	-	5
<i>Hirundapus caudacutus</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Alcedo azurea</i>	1	-	-	1	-	1	-	4	4	3	3	4	4	15	-	6	18	11	1	3	-	-	15
<i>Alcedo pusilla</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	3	2	-	-	-	5
<i>Dacelo leachii</i>	-	-	2	1	17	5	9	55	12	71	18	1	9	9	2	-	59	1	1	3	-	-	17
<i>Dacelo novaezeelandiae</i>	-	1	-	-	9	3	6	36	8	34	4	1	2	7	1	-	30	-	-	1	-	-	14
<i>Syma torotoro</i>	-	-	1	2	-	-	-	4	1	3	2	15	5	72	5	2	35	3	4	-	-	-	14
<i>Tanysiptera tylvia</i>	-	-	-	-	-	-	-	3	-	3	1	7	-	35	4	-	14	-	-	-	-	-	7
<i>Todirhamphus maculoyii</i>	-	-	1	-	6	5	3	19	7	34	10	3	2	6	1	-	25	-	-	1	-	-	14
<i>Todirhamphus sanctus</i>	-	1	1	2	-	5	1	5	1	6	3	6	2	2	1	1	10	15	4	10	-	-	18
<i>Todirhamphus chloris</i>	-	-	-	1	-	-	-	-	-	-	-	8	-	-	-	-	-	3	-	1	-	-	4
<i>Todirhamphus pyrrhopygia</i>	-	1	-	-	2	-	-	4	-	1	-	-	-	-	-	-	-	-	-	1	-	1	6
<i>Merops ornatus</i>	-	1	6	3	8	18	5	30	11	54	13	20	6	26	1	-	47	11	6	9	-	-	18
<i>Eurystomus orientalis</i>	-	-	1	-	4	-	1	8	-	14	3	3	2	3	2	-	13	1	-	-	-	-	12
<i>Ptilinopus erythrogastrus</i>	-	-	-	-	-	-	-	-	-	1	-	3	-	14	-	-	-	-	-	-	-	-	3

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	OHm	OF	OR	RP	R	D	RI	Rm	N	Mm	S	V	U	Total
<i>Picus versicolor</i>	-	-	-	-	-	-	-	4	-	2	1	4	2	40	6	-	7	2	-	-	-	-	9
<i>Hirundo ariel</i>	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	2	-	-	5
<i>Hirundo neoxena</i>	3	1	-	-	-	-	-	1	1	5	-	3	-	-	-	-	-	1	3	7	-	-	9
<i>Hirundo nigricans</i>	-	1	1	-	-	-	-	2	-	3	-	2	-	1	-	-	1	-	1	3	-	-	9
<i>Anthus novaeseelandiae</i>	-	3	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1	1	-	-	4
<i>Motacilla flava</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>Coracina lineata</i>	-	-	-	-	-	-	-	-	-	2	-	-	-	2	1	-	1	-	-	-	-	-	4
<i>Coracina novaehollandiae</i>	-	-	1	1	15	12	9	26	5	32	2	3	4	6	1	-	23	1	2	3	-	-	17
<i>Coracina papuensis</i>	-	-	5	1	15	6	11	43	8	51	8	10	8	4	-	-	34	-	2	5	-	-	15
<i>Coracina tenuirostris</i>	-	-	-	-	1	2	-	5	1	10	-	2	-	1	3	-	16	-	-	-	-	-	9
<i>Lalage leucostola</i>	-	-	5	-	-	7	-	21	1	6	2	23	9	11	2	1	26	9	7	3	-	-	15
<i>Lalage suevii</i>	-	-	-	-	4	-	2	5	2	3	3	-	-	1	-	-	-	-	-	2	-	-	8
<i>Poreciostomus temporalis</i>	-	-	-	1	11	-	8	16	7	35	5	-	-	-	-	1	19	-	-	-	-	-	9
<i>Acrocephalus stentoreus</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Cincloramphus cruralis</i>	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
<i>Cincloramphus mathewsi</i>	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Cisticola exilis</i>	-	11	1	-	2	3	-	1	-	9	-	1	1	1	-	-	2	-	-	1	-	-	11
<i>Cisticola juscidus</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Megalurus alberti</i>	-	2	-	-	1	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	5
<i>Malurus amabilis</i>	-	-	1	-	-	-	-	-	2	1	2	7	1	37	2	-	-	-	-	-	-	-	8
<i>Malurus melanoccephalus</i>	-	2	6	1	6	3	4	19	6	19	3	1	-	2	1	-	17	1	-	-	-	-	15
<i>Malurus lamberti</i>	-	-	3	1	-	1	-	-	-	3	-	-	2	15	1	1	15	1	1	1	-	-	12
<i>Gerygone laevigaster</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	2
<i>Gerygone magnirostris</i>	-	-	-	1	-	-	-	1	5	4	-	9	9	17	1	2	57	9	2	3	-	-	13
<i>Gerygone olivacea</i>	-	-	1	-	8	-	10	18	10	9	2	-	-	-	-	-	2	-	-	-	-	-	8
<i>Gerygone palpebrata</i>	-	-	2	1	1	2	-	12	2	5	2	19	6	87	6	-	37	6	3	2	-	-	16
<i>Pardalopus rubricapax</i>	-	-	-	-	13	1	8	16	2	8	4	1	-	-	-	3	-	-	-	-	-	-	9
<i>Pardalopus striatus</i>	-	-	1	-	9	-	7	22	10	40	5	-	2	2	1	-	35	-	-	1	-	-	12
<i>Sericornis beccarii</i>	-	-	-	-	-	-	-	-	-	1	-	5	2	80	4	1	17	3	1	-	-	-	9
<i>Smicromis brevirostris</i>	-	-	2	-	9	-	8	15	2	4	1	-	-	2	1	-	4	-	-	-	-	-	10
<i>Arser telescopthalmus</i>	-	-	-	-	-	-	-	4	1	-	3	3	2	40	2	2	18	-	-	-	-	-	9
<i>Dicurus bracteatus</i>	-	-	7	1	-	3	-	25	12	39	5	15	7	29	6	1	59	10	4	6	-	-	16
<i>Grallina cyanoleuca</i>	1	8	-	-	13	1	6	12	8	37	7	1	2	-	-	-	14	-	2	6	-	-	14
<i>Machaeritryachus flandruer</i>	-	-	-	-	-	-	-	3	-	-	-	-	1	86	2	-	4	2	-	-	-	-	6
<i>Manarcha frater</i>	-	-	-	-	-	-	-	1	-	2	-	-	-	9	4	-	7	-	-	1	-	-	6
<i>Manarcha leucotis</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	9	-	-	-	-	-	-	-	-	2
<i>Manarcha melanopsis</i>	-	-	-	-	-	-	-	1	-	1	1	1	-	6	1	-	1	-	-	-	-	-	7
<i>Manarcha trivirgatus</i>	-	-	-	1	-	-	-	3	1	3	-	9	4	102	2	1	20	1	2	-	-	-	12
<i>Myiagra cyanoleuca</i>	-	-	-	-	-	-	-	1	-	1	3	1	1	-	-	-	-	-	-	-	-	-	5
<i>Myiagra rubecula</i>	-	-	6	1	5	6	6	26	10	38	1	11	5	17	3	-	44	7	2	4	-	-	17
<i>Myiagra ruficollis</i>	-	-	-	-	-	-	-	2	-	2	-	5	-	-	-	-	-	-	1	-	-	-	4
<i>Myiagra alecto</i>	-	-	-	-	-	-	-	-	-	3	-	14	6	37	-	5	9	12	2	2	-	-	9
<i>Rhipidura fuliginosa</i>	-	-	-	-	5	-	3	15	10	7	-	2	2	6	-	1	19	-	-	-	-	-	10
<i>Rhipidura leucophrys</i>	-	2	-	-	7	3	4	5	7	6	5	1	-	-	-	-	4	-	1	2	-	-	12
<i>Rhipidura rufifrons</i>	-	-	2	1	-	-	-	1	2	5	-	7	8	92	2	1	13	3	3	1	-	-	14
<i>Rhipidura rufiventris</i>	-	-	-	-	-	-	-	3	-	4	-	1	-	2	1	-	7	-	-	-	-	-	6

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O?m	Of	OR	RP	R	D	RF	Rm	M	Mm	S	V	U	Total
<i>Drymulus asperillan</i>	-	-	-	-	-	-	-	-	-	-	-	2	1	31	6	-	4	-	-	-	-	-	5
<i>Eopsaltria pulvensis</i>	-	-	-	-	-	-	-	-	-	1	-	6	-	1	-	-	-	4	-	3	-	-	5
<i>Microeca flavigaster</i>	-	-	-	-	8	1	1	25	2	21	2	1	-	5	1	-	14	1	1	-	-	-	13
<i>Microeca griseiceps</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	12	-	-	1	-	-	-	-	-	3
<i>Microeca leucophaea</i>	-	-	-	-	8	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	3
<i>Poecilodryas superciliosa</i>	-	-	2	-	-	-	-	7	-	4	-	8	5	7	7	-	20	-	-	-	-	-	8
<i>Tregellasia leucops</i>	-	-	-	-	-	-	-	-	-	1	1	-	3	61	2	-	6	-	-	-	-	-	6
<i>Colluricincla harmonica</i>	-	-	2	-	5	1	-	14	3	17	-	2	-	2	1	-	10	-	-	-	-	-	10
<i>Colluricincla megarrhyncha</i>	-	-	5	1	-	1	-	10	4	1	4	22	7	173	6	3	38	8	6	2	-	-	16
<i>Pachycephala melanura</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Pachycephala pectoralis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
<i>Pachycephala rufiventris</i>	-	-	4	-	17	1	7	40	6	44	2	4	3	4	1	-	24	-	-	1	-	-	14
<i>Pachycephala simplex</i>	-	-	-	-	-	-	-	5	2	1	-	1	4	102	1	2	16	1	2	-	-	-	11
<i>Daphoenositta chrysoptera</i>	-	-	-	-	3	-	-	8	1	4	-	-	-	-	-	-	5	-	-	-	-	-	5
<i>Climacteris picinnus</i>	-	-	-	-	1	-	-	7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
<i>Dicaeum hirundinaceum</i>	-	-	10	-	9	10	6	39	7	28	5	23	4	82	2	-	50	7	5	5	-	-	16
<i>Nectarinia jugularis</i>	-	-	10	2	1	11	-	13	2	10	-	25	2	21	-	1	14	15	4	6	-	-	15
<i>Zosterops lateralis</i>	-	-	-	-	-	-	-	7	-	3	-	1	1	28	3	-	16	-	-	-	-	-	7
<i>Certhionyx pectoralis</i>	-	-	-	-	5	1	2	19	3	5	-	4	4	2	2	-	8	-	-	-	-	-	11
<i>Canopophila albagularis</i>	-	-	-	-	-	3	-	1	1	-	1	1	-	-	2	-	-	-	-	-	-	-	6
<i>Canopophila rufogularis</i>	-	-	-	-	-	-	1	2	3	1	1	1	-	-	-	-	-	-	-	-	-	-	6
<i>Enomyza cyanotis</i>	-	-	-	-	15	6	8	29	15	62	11	1	8	1	1	-	39	-	2	3	-	-	14
<i>Glyciphaga fallax</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	1
<i>Lichenosomus flavescens</i>	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Lichenosomus flavus</i>	-	-	-	-	13	10	8	33	17	39	14	1	11	3	-	-	51	1	4	3	-	-	14
<i>Lichenosomus versicolor</i>	-	-	-	-	-	-	-	-	-	1	-	10	-	1	-	-	-	6	-	2	-	-	5
<i>Lichenosomus uidecolor</i>	-	-	1	-	-	-	-	-	1	-	-	1	1	2	-	-	-	-	-	-	-	-	5
<i>Lichmera indistincta</i>	-	-	1	-	9	3	7	10	10	10	5	1	4	1	-	-	4	8	2	2	-	-	15
<i>Manarina melanotocephala</i>	-	-	-	-	-	-	-	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
<i>Meliphaga gracilis</i>	-	-	13	1	3	13	-	32	6	17	7	23	14	152	12	2	89	13	9	5	-	-	17
<i>Meliphaga lewinii</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	13	-	-	6	-	-	-	-	-	3
<i>Meliphaga notata</i>	-	-	10	3	-	11	-	18	5	5	5	37	7	193	10	5	69	11	7	4	-	-	16
<i>Meliphaga nitescens</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Meliphrephus albigularis</i>	-	-	6	1	14	9	7	75	19	64	11	19	6	16	4	-	84	2	2	3	-	-	17
<i>Myzomela erythrocephala</i>	-	-	-	-	-	1	-	-	-	2	-	4	-	1	-	-	-	9	3	4	-	-	7
<i>Myzomela obscura</i>	-	-	10	2	1	1	-	17	4	22	5	22	13	97	2	1	45	8	5	5	-	-	17
<i>Myzomela sanguinolenta</i>	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	3	-	-	-	-	-	4
<i>Philemon argenteiceps</i>	-	-	2	-	6	2	4	10	-	19	1	3	2	-	3	-	18	2	-	1	-	-	13
<i>Philemon circumularis</i>	-	1	3	-	17	3	10	37	13	29	10	1	2	3	-	-	27	-	-	2	-	-	14
<i>Philemon buceroides</i>	-	-	7	1	1	1	-	14	2	13	-	16	2	11	2	1	27	2	2	1	-	-	16
<i>Philemon corniculatus</i>	-	-	1	1	3	-	4	9	2	5	-	2	-	2	-	-	2	-	-	-	-	-	10
<i>Ramsayornis fasciatus</i>	-	-	-	1	-	-	1	7	3	5	2	-	-	-	-	-	3	-	-	-	-	-	7
<i>Ramsayornis modestus</i>	-	-	3	-	1	2	2	6	1	13	2	9	1	2	-	-	10	4	1	1	-	-	15
<i>Trichodere cockerelli</i>	-	-	11	1	1	-	-	5	2	8	-	8	-	1	-	-	3	-	-	1	-	-	10
<i>Xanthotis chrysotis</i>	-	-	3	1	-	2	-	11	2	3	2	9	8	129	5	1	33	7	4	1	-	-	16
<i>Lonchura castaneothorax</i>	-	-	-	-	-	1	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	4

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Im	OL	OD	OC	OE	OP	OCm	OF	OR	RF	R	D	RT	Rm	M	Mm	S	V	U	Total
<i>Neochmia temporalis</i>	-	-	-	-	-	-	-	5	1	7	1	3	3	15	-	-	15	1	1	1	-	-	11
<i>Passer domesticus</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Poephila cincta</i>	-	-	-	-	5	-	1	7	2	14	4	-	-	-	-	-	3	-	-	-	-	-	7
<i>Poephila personata</i>	-	-	-	-	8	-	6	3	3	8	4	-	-	-	-	-	1	-	-	-	-	-	7
<i>Taeniopygia bichenovii</i>	-	-	-	-	4	3	5	2	10	5	6	-	4	-	-	-	15	-	-	-	-	-	9
<i>Aplonis metallica</i>	-	-	-	-	-	-	-	6	-	-	-	8	-	29	-	-	3	1	-	-	-	-	5
<i>Oriolus flavocinctus</i>	-	-	-	-	-	14	-	13	5	11	2	14	19	101	6	1	62	8	7	3	-	-	14
<i>Oriolus sagittatus</i>	-	-	-	1	3	3	5	7	5	17	1	7	4	11	4	-	22	1	1	2	-	-	16
<i>Sphecotheres viridis</i>	-	-	1	1	-	4	-	11	1	15	-	11	9	33	6	-	37	2	-	-	-	-	12
<i>Struthidea cinerea</i>	-	-	-	-	2	-	1	5	4	-	4	-	-	-	-	-	-	-	-	-	-	-	5
<i>Artamus cinereus</i>	-	1	1	-	-	-	-	1	1	-	3	-	-	-	-	-	-	-	-	-	-	-	5
<i>Artamus cyanopterus</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Artamus leucorhynchus</i>	-	-	-	1	1	-	-	4	3	10	1	9	1	-	-	1	3	2	1	2	-	-	13
<i>Artamus minor</i>	-	-	1	-	-	-	-	1	4	4	2	-	-	-	-	-	1	-	-	-	-	-	6
<i>Artamus personatus</i>	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
<i>Artamus superciliosus</i>	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
<i>Cracticus mentalis</i>	-	-	2	-	10	2	8	27	4	20	4	-	-	1	1	-	15	-	-	-	-	-	11
<i>Cracticus nigrogularis</i>	-	-	1	1	13	-	10	22	7	26	1	2	-	-	-	-	7	-	-	-	-	-	10
<i>Cracticus quoyi</i>	-	-	8	1	-	1	-	13	6	12	-	11	11	99	7	3	58	13	8	6	-	-	15
<i>Gymnorhina tibicen</i>	-	1	-	-	10	-	6	11	1	21	1	-	1	-	-	-	14	-	-	-	-	-	9
<i>Strepera graculina</i>	-	-	1	-	-	-	1	3	5	25	1	1	4	5	4	2	46	-	-	-	-	-	12
<i>Ailuroedus melanotis</i>	-	-	-	-	-	-	-	1	-	-	-	-	1	30	-	-	4	-	-	-	-	-	4
<i>Chlamydera cerviniventris</i>	-	-	6	1	-	-	-	5	2	15	-	11	2	9	3	-	13	1	1	1	-	-	13
<i>Chlamydera nuchalis</i>	-	-	1	-	7	3	6	11	11	8	6	3	3	20	3	-	22	-	3	4	-	-	15
<i>Manucodia keraudrenii</i>	-	-	-	-	-	-	-	4	-	1	2	4	5	83	3	-	11	1	5	-	-	-	10
<i>Ptiloris magnificus</i>	-	-	1	-	-	-	-	11	1	2	4	14	12	115	4	1	22	6	6	1	-	-	14
<i>Corvus orru</i>	-	4	-	-	8	8	7	32	14	44	6	3	4	10	-	-	37	1	2	7	-	-	15
Total	34	62	79	49	120	90	85	191	134	188	140	156	115	139	84	41	347	111	98	138	8	4	2348

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	O7m	Of	OR	RP	R	D	Rf	Rm	M	Mm	S	V	U	Total
Class Mammalia																							
<i>Tachyglossus aculeatus</i>	-	1	1	-	-	-	-	5	-	7	-	2	-	3	-	-	-	-	-	-	-	-	6
<i>Antechinus leo</i>	-	-	-	-	-	-	-	13	-	1	-	1	1	25	-	-	-	-	-	-	-	-	2
<i>Dasyurus hallucatus</i>	-	-	-	-	1	2	-	-	-	1	-	1	-	-	-	-	5	-	-	1	-	-	7
<i>Peromyscus maculatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
<i>Smithomys archeri</i>	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Smithomys virginiae</i>	-	6	7	-	1	-	-	5	-	2	-	1	-	-	-	-	2	-	-	1	-	-	8
<i>Echymipera rufescens</i>	-	-	1	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	2
<i>Isodon macrourus</i>	-	-	1	-	1	-	-	-	-	2	-	2	-	1	-	-	-	-	-	-	-	-	5
<i>Isodon obesulus</i>	-	-	5	-	-	-	-	5	-	1	-	2	-	-	-	-	-	-	-	-	-	-	4
<i>Peromyscus nasutus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<i>Dasylopsila trivirgata</i>	-	-	-	-	-	-	-	-	-	6	-	-	-	3	-	-	6	-	-	-	-	-	3
<i>Petaurus brevicaeps</i>	-	-	1	-	-	5	-	29	1	12	-	2	1	2	-	7	-	-	-	-	-	-	9
<i>Petaurus norfolcensis</i>	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Pseudochelonus peregrinus</i>	-	-	-	-	-	-	-	9	-	4	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Spilocuscus maculatus</i>	-	-	-	-	-	-	-	-	-	4	1	3	8	22	5	-	6	-	-	-	-	-	7
<i>Phalanger intercastellanus</i>	-	-	-	-	-	-	-	-	-	4	1	1	-	7	-	1	-	-	-	-	-	-	3
<i>Trichosurus vulpecula</i>	-	-	-	-	-	-	-	26	-	20	-	-	-	-	-	7	-	-	-	-	-	-	3
<i>Acrobates pygmaeus</i>	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Lagorchestes conspicillatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Macropus agilis</i>	-	13	2	-	1	11	11	94	2	73	13	5	3	19	1	-	16	1	2	1	-	-	17
<i>Macropus amitephus</i>	-	-	-	-	2	1	-	44	1	11	1	-	-	-	-	1	-	-	-	-	-	-	7
<i>Macropus giganteus</i>	-	-	-	-	1	-	1	-	-	12	-	-	-	-	-	5	-	-	-	-	-	-	4
<i>Macropus robustus</i>	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-	3
<i>Onychogalea unguifera</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Petrogale godmani</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Petrogale coenensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
<i>Thylagale stigmatica</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	7	-	-	2	-	-	1	-	-	5
<i>Wallabia bicolor</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	2
<i>Dobsonia moluccensis</i>	-	-	-	-	-	-	-	1	-	2	1	-	2	20	-	7	-	-	-	-	-	-	7
<i>Macroglossus minimus</i>	-	-	1	-	1	-	-	-	-	-	-	1	-	4	-	4	2	5	-	-	-	-	7
<i>Nyctimene robinsoni</i>	-	-	5	-	2	-	-	9	-	-	-	2	-	20	-	1	3	1	-	-	-	-	8
<i>Pteropus alecto</i>	-	1	-	-	8	-	-	13	1	6	1	4	3	8	-	6	3	1	-	-	-	-	12
<i>Pteropus conspicillatus</i>	-	-	-	-	-	-	-	-	-	2	-	-	-	5	-	2	-	-	-	-	-	-	2
<i>Pteropus scapulatus</i>	-	-	1	-	6	-	-	17	1	13	1	1	1	2	1	6	3	-	-	-	-	-	13
<i>Sycomycter australis</i>	-	1	1	-	-	-	-	-	-	2	-	-	-	20	1	2	13	-	-	-	-	-	7
<i>Macroderma gigas</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
<i>Saccolaimus flaviventris</i>	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2
<i>Saccolaimus saccolaimus</i>	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1
<i>Saccolaimus milkus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Taphozous australis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Chaerophon joberti</i>	-	2	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3
<i>Mormopterus beccarii</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
<i>Rhinolophus megaphyllus</i>	-	1	2	-	-	-	-	-	-	-	-	-	-	2	1	-	3	-	-	-	-	-	6
<i>Rhinolophus philippinensis</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	4	-	2	-	-	-	-	-	-	4

Table II.3 (cont.)

HABITAT CODE

SPECIES	F	G	H	Hm	OL	OD	OC	OE	OP	OCm	OF	OR	RP	R	D	RI	Rm	M	Mm	S	V	U	Total
<i>Hippoides ater</i>	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Hippoides cervinus</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	11	-	3
<i>Hippoides diadema</i>	-	-	-	-	-	-	-	1	-	4	-	1	-	8	-	-	6	-	-	-	-	-	5
<i>Hippoides semoni</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Chalinolobus nigrogriseus</i>	-	-	-	-	-	-	-	10	-	2	5	-	-	1	-	-	1	-	4	5	-	1	8
<i>Vespadelus troughtoni</i>	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Misiopsurus australis</i>	-	1	-	-	-	-	-	1	-	-	-	-	-	3	-	-	1	-	-	-	-	-	4
<i>Misiopsurus schreibersii</i>	-	-	-	-	-	3	-	2	-	1	-	1	-	-	-	-	-	-	-	1	5	-	6
<i>Myotis adversus</i>	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	1	-	4	-	-	-	-	5
<i>Nyctophilus bifax</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<i>Pipistrellus adamsi</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	1
<i>Pipistrellus westralis</i>	-	-	-	-	-	2	-	4	-	-	3	-	-	-	-	-	11	-	-	-	-	-	4
<i>Scotorepens sanborni</i>	-	-	-	-	-	1	-	4	-	-	1	-	-	-	-	-	2	-	-	-	-	-	4
<i>Hydromys chrysogaster</i>	-	1	-	-	-	-	-	1	1	1	2	-	1	5	-	5	5	1	1	-	-	-	11
<i>Leggadina lakedoniensis</i>	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
<i>Melomys burtoni</i>	-	5	13	-	5	14	-	26	12	55	1	4	1	54	2	-	28	8	12	5	-	-	16
<i>Melomys capensis</i>	-	2	12	9	-	-	-	8	-	-	9	45	1	106	-	-	6	4	-	3	-	-	11
<i>Merembarionys gouldii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>Pogonomys loriae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1
<i>Pseudomys delicatulus</i>	-	-	1	-	-	7	-	7	-	-	-	2	-	-	-	-	-	-	-	25	-	-	5
<i>Rattus leucopus</i>	-	1	2	-	-	-	-	-	-	2	-	14	-	89	-	-	12	-	3	-	-	-	7
<i>Rattus rattus</i>	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	1	-	-	3
<i>Rattus sordidus</i>	-	17	5	-	2	10	-	17	-	7	-	-	-	4	-	-	5	-	-	10	-	-	9
<i>Rattus tunneyi</i>	-	1	-	-	-	3	-	3	2	2	1	1	-	-	-	-	-	-	-	-	-	-	7
<i>Uromys caudimaculatus</i>	-	-	-	-	-	3	-	11	-	5	4	3	2	31	3	-	13	3	2	-	-	-	11
<i>Conis familiaris</i>	-	2	4	-	3	-	-	22	2	9	3	3	1	5	1	-	8	2	2	3	-	-	15
<i>Felis canis</i>	-	1	1	-	1	-	3	27	8	6	4	2	-	1	-	-	3	-	1	-	-	-	12
<i>Equus caballus</i>	-	6	-	-	-	4	2	2	1	-	3	-	1	1	1	-	1	-	-	-	-	-	10
<i>Sus scrofa</i>	1	6	5	2	3	2	-	15	3	18	9	2	6	24	-	-	17	1	2	8	-	-	17
<i>Bos taurus</i>	-	8	-	-	2	7	1	19	1	-	4	1	4	2	-	-	1	1	1	-	-	-	13
# of Species/Habitat for class Mammalia (n=74)	1	23	21	3	14	21	6	41	14	35	23	26	15	38	8	6	42	13	12	15	4	2	383

APPENDIX III. SUMMARY SPECIES LIST OF TERRESTRIAL VERTEBRATES RECORDED FROM THE CYPLUS AREA

III.1 Codes used in the summary species list

Data set

- Q QDEH database
H Historical database (McFarland 1993)

Distribution classes

- E *Endemic to CYP
R *Australian distribution restricted to CYP, also in New Guinea (NG) or associated islands other than the Torres Strait Islands (T.S.I.)
T Endemic to Torres Strait Islands (T.S.I.)
TNG Australian distribution restricted to T.S.I., also in NG
WT Distribution in CYPLUS area restricted to Wet Tropics region
blank > 10% of its Australian distribution outside CYP

* up to 10% of a species distribution may occur south of the CYPLUS area.

Habitat categories

- RS Rainforest specialist
RG Rainforest generalist
O Woodland species
H Heathland specialists
GR Grassland specialists
M Mangrove specialists
WL Wetlands species
ST Strand species
GN Generalist species
SF Special features (* caves, + cliffs or boulder piles and U urban)

Status

- CN Level of concern (after Ingram and Raven 1991)
CH Changing distribution: E - expanding, C- contracting
I I - introduced, V - vagrant or rare visitor

Note: The Cape York Peninsula population of the Southern brown Bandicoot (*Isoodon obesulus peninsulae*) is treated as an endemic species because of the distance to the main population in southern NSW and Victoria.

Appendix III

Species	Data Set		Distribution					Habitat Categories										Status			
	CI	II	E	R	T	TNG	WT	RS	RG	Q	W	GR	M	ST	WL	GN	U	SF	CN	CH	I
MYOBATRACHIDAE																					
<i>Crinia deserticola</i> (Chirping Froglet)	*	*									*										
<i>Crinia remota</i> (Torrid Froglet)	*	*		■							*										
<i>Limnodynastes convexiusculus</i> (Marbled Frog)	*	*									*										
<i>Limnodynastes ornatus</i> (Ornate Burrowing Frog)	*	*									*										
<i>Limnodynastes peronii</i> (Striped Marshfrog)		*									*										
<i>Limnodynastes tasmaniensis</i> (Striped Marshfrog)		*									*										
<i>Limnodynastes terraereginae</i> (Scarlet-sided Pobblebonk)	■	■									*										
<i>Mixophyes schevilli</i> (Northern Barrad-Frog)		■					■		■												
<i>Notaden melanoscaphus</i> (Brown Orbfrog)	■	■									*										
<i>Pseudophryne major</i> (Great Brown Broodfrog)		■																			
<i>Taudactylus acutirostris</i> (Sharp-nouted Dayfrog)		■					■		■												■
<i>Uperoleia lithomoda</i> (Stonemason Gungan)	■	■									*										
<i>Uperoleia mimula</i> (Torres Gungan)	■	■		■							*										
HYLIDAE																					
<i>Cyclorana brevipes</i> (Superb Collared-Frog)	■	■									*										
<i>Cyclorana manya</i> (Little Collared-Frog)	■	■		■																	■
<i>Cyclorana novaehollandiae</i> (Eastern Snapping-Frog)	■	■									*										
<i>Litoria alboguttata</i> (Greenstripe Frog)	■	■									*										

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CM	CH	1	
<i>Litoria bicolor</i> (Northern Sedgefrog)	*	*									*											
<i>Litoria caerulea</i> (Green Treefrog)	*	*																				
<i>Litoria dahlii</i> (Northern Waterfrog)	*	*									*											
<i>Litoria dorsalis</i> (Pygmy Rocketfrog)	*	*									*											
<i>Litoria eucnemis</i>	*	*		#					*													
<i>Litoria fallax</i> (Eastern Sedgefrog)		*									*											
<i>Litoria genimaculata</i> (Green Eyed Treefrog)		*							*													
<i>Litoria gracilentia</i> (Graceful Treefrog)	*	*									*											
<i>Litoria inermis</i> (Bumpy Rocketfrog)	*	*									*											
<i>Litoria infrafrenata</i> (White-tipped Treefrog)	*	*	#								*											
<i>Litoria lesueuri</i> (Stony-creek Frog)		*									#											
<i>Litoria longirostris</i> (Scrub Rocketfrog)	*	*	#						*													R
<i>Litoria lorica</i> (Armoured Mistfrog)		*							*													R
<i>Litoria nannotis</i> (Waterfall Frog)		*							*													
<i>Litoria nasuta</i> (Striped Rocketfrog)	*	*									*											
<i>Litoria nigrofrenata</i> (Tawny Rocketfrog)	*	*		#							*											
<i>Litoria pallida</i> (Peach-sided Rocketfrog)	*	*									*											
<i>Litoria rheocola</i> (Common Mist-frog)		*							#													
<i>Litoria rothii</i> (Red-eyed Treefrog)	*	*									*											

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Litoria rubella</i> (Naked Treefrog)	*	*								■												
<i>Litoria xanthomera</i> (Northern Orange-eyed Treefrog)		*					■	*														
<i>Nyctimystes dayi</i> (Australian Lace-lid)		*					■	*														
MICROHYLIDAE																						
<i>Cophixalus bombiens</i> (Windsor Nursery-Frog)		*					■	*														R
<i>Cophixalus concinnus</i> (Tapping Nursery-Frog)		*					■	*														R
<i>Cophixalus crepitans</i> (Northern Nursery-Frog)	*	*	■					*														R
<i>Cophixalus exiguus</i> (Bloomfield Nursery-Frog)		*						*														K
<i>Cophixalus peninsularis</i> (Cape York Nursery-Frog)	*	*	■					*														K
<i>Cophixalus saxatilis</i> (Boulder Nursery-Frog)	*	*	■							■								+				R
<i>Sphenophryne fryi</i> (Cricket Chirper)		*						*														
<i>Sphenophryne gracilipes</i> (Shill Chirper)	*	*		■				*														
<i>Sphenophryne pluvialis</i> (White-browed Chirper)		*						*														
RANIDAE																						
<i>Rana daemeli</i> (Australian Bullfrog)	*	*		■						■												
BUFONIDAE																						
<i>Bufo marinus</i> (Cane Toad)	*	*														■						E I

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status																							
	Q	W	E	R	T	TNG	WT	BS	BS	O	W	GR	M	ST	WL	GN	U	SF	CR	CH	I																				
CROCODYLIDAE																																									
<i>Crocodylus johnstoni</i> (Freshwater Crocodile)	■	■													■																										
<i>Crocodylus porosus</i> (Salt-water Crocodile)	■	■													■																										
CHELONIIDAE																																									
<i>Caretta caretta</i>		*													*						V																				
<i>Chelonia mydas</i>		*													*						IC																				
<i>Eretmochelys imbricata</i>		*													*						IC																				
<i>Lepidochelys olivacea</i>		*													*																										
<i>Natator depressus</i>		*													*																										
CHELIDAE																																									
<i>Chelodina novaeguineae</i>	■	■													*																										
<i>Chelodina rugosa</i> (Northern Snake-necked Turtle)	■	■													*																										
<i>Eiseya latisternum</i> (Saw-shelled Turtle)	■	■													*																										
<i>Emydura krefftii</i> (Krefft's River Turtle)	■	■													*																										
<i>Emydura subglobosa</i>		■			■										*						IC																				
GEKKONIDAE																																									
<i>Carphodactylus laevis</i> (Chameleon Gecko)		■						■		■																															
<i>Cyrtodactylus louisianensis</i> (Ring Tailed Gecko)	■	■		■						*											IC																				
<i>Diplodactylus conspicillatus</i>	■	*								*																															
<i>Diplodactylus steindachneri</i>	■	*								*																															
<i>Diplodactylus williamsi</i>		*								*																															
<i>Gehyra baliola</i>		*								*																															
<i>Gehyra dubia</i>	■	*								*																															
<i>Gehyra nana</i>	■	*								*																															
<i>Gehyra sp. cf. variegata</i> (Tree Delfia)	■									*																															
<i>Hemidactylus frenatus</i> (House Gecko)	■	■			■												■	■																							
<i>Heteronotia binoei</i> (Bynoe's Gecko)	■	■								*																															

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status					
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U		SF	CN	CH	I	
<i>Leptodactylus lugubris</i> (Mourning Gecko)	*	*	■							*													
<i>Lepidodactylus pumilus</i>	*	*	■		■					*													R
<i>Nactus galgajuga</i>	*	*	■							*													R
<i>Nactus pelagicus</i> (Palagic Gecko)	*	*	■							*													
<i>Nephrurus asper</i>	*	*								*													
<i>Oedura castelnaui</i> (Northern Velvet Gecko)	*	*	■							*													
<i>Oedura coggeri</i> (Northern Spotted Velvet Gecko)	■									*													
<i>Oedura marmorata</i> (Marbled Velvet Gecko)	■									*													
<i>Oedura rhombifer</i>	◄	*								*													
<i>Rhynchoedura ornata</i> (Beaked Gecko)	*	*								*													
<i>Saltuarius cornutus</i> (Northern Leaf-tailed Gecko)	■									*													
<i>Saltuarius occultus</i>	*	*	■							*													
<i>Pseudotothecadactylus australis</i> (Giant Tree-gecko)	*	*	■							*													R
PYGOPODIDAE																							
<i>Delma inornata</i>	*	*								*													
<i>Delma tincta</i>	*	*								*													
<i>Lialis burtonis</i> (Burton's Snake-lizard)	*	*								*													
<i>Pygopus lepidopodus</i> (Common Scaly-foot)	■									*													
<i>Pygopus nigriceps</i> (Hooded Scaly-foot)	■									*													
AGAMIDAE																							
<i>Chlamydosaurus kingii</i> (Filled Lizard)	■									*													
<i>Diporiphora australis</i>	*	*								*													
<i>Diporiphora bilineata</i> (Two-lined Dragon)	*	*								*													

Appendix III (cont.)

Species	Date Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Diporiphora magna</i>		■								*												
<i>Lophognathus gilberti</i>	■									*												
<i>Amphibolurus nobbi</i>		*								*												
<i>Lophognathus temporalis</i>	*	*								*												
<i>Hypsilurus boydii</i> (Boyd's Forest Dragon)		*					*	■														
<i>Physignathus lesueurii</i> (Eastern Water Dragon)		■					*							■								
VARANIDAE																						
<i>Varanus gouldii</i> (Gould's Goanna)	■	■								■												
<i>Varanus indicus</i> (Mangrove Monitor)	■	■												*								
<i>Varanus mertensi</i> (Mertens' Water Monitor)	■	■												*								
<i>Varanus panoptes</i>	*	*								*												
<i>Varanus semiremex</i> (Rusty Monitor)	*	*												*								
<i>Varanus teriae</i>	*	*	■						■													R
<i>Varanus timorensis</i>	*	*								*												
<i>Varanus tristis</i>	*	*								*												
<i>Varanus varius</i> (Lace Monitor)		*						■		*												
SCINCIDAE																						
<i>Anomalopus pluto</i>	■	*	*								*											K
<i>Carlia amax</i>		*								*												
<i>Carlia coensis</i>	*	*	*						■										*			R
<i>Carlia dogare</i>	*	*	*								*											
<i>Carlia jarnoldae</i>	*	*								*												
<i>Carlia longipes</i>	*	*	*							*												
<i>Carlia munda</i>	*	*								*												
<i>Carlia mundivensis</i>		*								*												
<i>Carlia parrhasius</i>	*		*							*									*			
<i>Carlia pectoralis</i>	*	*								*												
<i>Carlia rimula</i>	*	*	*						■													R
<i>Carlia rostralis</i>	*	*								*												

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	CI	II	E	R	T	TNG	WT	BP	BG	O	W	GR	M	ST	WL	GN	U	SF	CR	CH	I	
<i>Carlia rubiginosa</i>		*					*		*													
<i>Carlia schmeltzii</i>	*	*								*												
<i>Carlia scirtetis</i>	*	*	*							*								+				
<i>Carlia storri</i>	*	*								*												
<i>Carlia vivax</i>	*	*								*												
<i>Coeranoscincus frontalis</i>		*					*		*													
<i>Cryptoblepharus carnabyi</i>	*	*								*												
<i>Cryptoblepharus fuhni</i>		*	*							*									+			
<i>Cryptoblepharus litoralis</i>	*	*								*				*					+			
<i>Cryptoblepharus plagiocephalus</i>	*	*								*												
<i>Cryptoblepharus virgatus</i>	*	*								*												
<i>Ctenotus essingtonii</i>	*	*								*												
<i>Ctenotus inornatus</i>		*								*												
<i>Ctenotus nullum</i>	*	*	*							*												X
<i>Ctenotus quinlan</i>	*	*	*							*												K
<i>Ctenotus rawlinsoni</i>	*	*	*							*												R
<i>Ctenotus robustus</i>	*	*								*												
<i>Ctenotus spaldingi</i>	*	*								*												
<i>Egernia frerei</i> (Major Skink)	*	*								*												
<i>Egernia rugosa</i> (Yakka Skink)	*	*								*												R
<i>Emoia atrocostata</i>	*	*		*										*					+			R
<i>Emoia longicauda</i>	*	*	*								*											
<i>Eugongylus rufescens</i>	*	*		*						*												
<i>Eulamprus tenuis</i>	*	*								*												
<i>Eulamprus tigrinus</i>		*						*		*												
<i>Glaphyromorphus cracens</i>		*		*						*												
<i>Glaphyromorphus crassicaudus</i>	*	*		*						*												
<i>Glaphyromorphus fuscicaudis</i>	*	*						*		*												
<i>Glaphyromorphus mjobergi</i>		*						*		*												
<i>Glaphyromorphus nigricaudis</i>	*	*		*						*												
<i>Glaphyromorphus pardalis</i>	*	*		*																		
<i>Glaphyromorphus pumilus</i>	*	*		*																		
<i>Gnypetoscincus queenslandiae</i>		*						*		*												
<i>Lamprolepis smaragdina</i>		*																				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	M	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Lampropholis bascuriscus</i>		*					*		■													
<i>Lampropholis coggeri</i>		*					*		■													
<i>Lampropholis delicata</i>		*					*			*												
<i>Lerista ingrami</i>		*	■								*										R	
<i>Lerista zonulata</i>		*					*			*												K
<i>Lygisaurus aeratus</i>	*	*								*												
<i>Lygisaurus foliorum</i>	*	*								*												
<i>Lygisaurus laevis</i>		*					*			*												
<i>Lygisaurus macfarlanei</i>	*	*	*							*												
<i>Lygisaurus sesbrauna</i>	*	*	■						■													
<i>Lygisaurus timlowi</i>		*								*												
<i>Lygisaurus tanneri</i>		*	*							*												K
<i>Menetia greyii</i>	■	*								*												
<i>Menetia koschlandae</i>		*								*												
<i>Morethia taeniopleura</i> (Fire-tailed Skink)	■	*								*												
<i>Saproscincus czechurai</i>		*					■		■													
<i>Tiliqua scincoides</i> (Eastern Blue-tongue Lizard)	*	*								*												
TYPHLOPIIDAE																						
<i>Ramphotyphlops affinis</i>		*																				
<i>Ramphotyphlops braminus</i>	■	*								*												
<i>Ramphotyphlops broomi</i>		*								*												
<i>Ramphotyphlops diversus</i>		*								*												
<i>Ramphotyphlops grypus</i>		*								*												
<i>Ramphotyphlops leucoproctus</i>		*			■					*												
<i>Ramphotyphlops polygrammicus</i>	*	*								*												
<i>Ramphotyphlops proximus</i>	*	*								*												
<i>Ramphotyphlops unguirostris</i>	*	*								*												
<i>Ramphotyphlops wiedii</i>	*	*								*												
BOLIDAE																						
<i>Aspidites melanocephalus</i> (Black-headed Python)	■	■								*												
<i>Candoia bibroni</i>		*																				I
<i>Chondropython viridis</i> (Green Python)	*	*			■				■												R	

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Liasis Childreni</i> (Childrens Python)	*	*							*													
<i>Liasis fuscus</i> (Water Python)	*	*							*						■							
<i>Liasis maculosa</i> (Childrens Python)	*	*							*													
<i>Liasis stimsoni</i>		*							*													
<i>Morelia amethistina</i> (Amethystine Python)	*	*							*													
<i>Morelia spilota</i> (Carpet Python)	*	*							*													
ACROCHORDIDAE																						
<i>Acrochordus arafurae</i> (Arafura File Snake)	*	*							*						■							
<i>Acrochordus granulatus</i> (Little File Snake)		*							*													
COLUBRIDAE																						
<i>Bolga irregularis</i> (Brown Tree Snake)	*	*							*													
<i>Cerberus rhynchops</i> (Bockedam)		*							*													
<i>Dendrelaphis calligastra</i> (Northern Tree Snake)	*	*							*													
<i>Dendrelaphis punctulata</i> (Common Tree Snake)	*	*							*													
<i>Enhydryis polylepis</i> (Macleay's Water Snake)	*	*							*													
<i>Stegonotus cucullatus</i> (Slatey-grey Snake)	*	*							*													
<i>Stegonotus parva</i>	*	*							*													
<i>Tropidonophis mairii</i> (Freshwater Snake)	*	*							*													
ELAPIDAE																						
<i>Acanthophis antarcticus</i> (Common Death Adder)	*	*							*													
<i>Acanthophis praelongus</i> (Northern Death Adder)	*	*							*													

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U		SF	CN	CH	I
<i>Demansia atra</i>	*	*								*												
<i>Demansia papuensis</i>	*	*								*												
<i>Demansia psammophis</i> (Yellow-faced Whip Snake)	*	*								*												
<i>Demansia olivacea</i>		*								*												
<i>Demansia torquata</i> (Collared Whip Snake)	*	*								*												
<i>Furina ornata</i> (Orange-naped Snake)	*	*								*												
<i>Furina tristis</i> (Brown-headed Snake)	*	*								*												
<i>Hemiaspis signata</i> (Black-bellied Swamp Snake)		*								*												
<i>Oxyuranus scutellatus</i> (Taipan)	*	*								*												
<i>Pseudechis australis</i> (King Brown Snake)	*	*								*												
<i>Pseudechis porphyriacus</i> (Red-bellied Black Snake)		*								*												
<i>Pseudonaja nuchalis</i> (Western Brown Snake)	*	*								*												
<i>Pseudonaja textilis</i> (Eastern Brown Snake)	*	*								*												
<i>Rhinoplocephalus boschmai</i> (Carpentaria Whip Snake)		*								*												
<i>Rhinoplocephalus nigrescens</i> (Eastern Small-eyed Snake)	+	*								*												
<i>Rhinoplocephalus nigrostriatus</i> (Black-striped Snake)	*	*								*												
<i>Simoseps semifasciatus</i> (Half-girdled Snake)	+	*								*												
<i>Simoseps warra</i>	+	*								*												
<i>Suta suta</i> (Curl Snake)		*								*												
<i>Vermiceila annulata</i> (Bandy Bandy)		*								*												
HYDROPHIIDAE																						
<i>Alpysurus eydouxii</i>		*																				

Appendix III (cont.)

Species	Data Set		Distribution						Habitat Categories										Status CN CH I
	G	H	E	R	T	TNG	WT	RS	BG	O	IH	GR	M	ST	WL	GN	U	BF	
<i>Alphaceros leavis</i>	*														*				
<i>Astratia stokesii</i>	*														*				
<i>Disteira kingii</i>	*														*				
<i>Disteira major</i>	*														*				
<i>Enhydrina schistosa</i>	*														*				
<i>Hydrelaps darwiniensis</i>	*														*				
<i>Hydrophis elegans</i>	*														*				
<i>Hydrophis mcdowelli</i>	*														*				
<i>Hydrophis ornatus</i>	*														*				
<i>Acalyptophis peronii</i>	*														*				
<i>Lepemis curtus</i>	*														*				
<i>Pelamis platurus</i>	*														*				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GM	U	SF	CN	CH	I	
CASUARIIDAE																						
<i>Casuarus casuarus</i> (Southern Cassowary)	*	*							■													V
<i>Dromaius novaehollandiae</i> (Emu)	*	*								■												
PODICIPEDIDAE																						
<i>Tachybaptus novaehollandiae</i> (Australasian Grebe)	*	*													*							
<i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)	*	*													*							
PROCELLARIIDAE																						
<i>Puffinus gavia</i> (Fluttering Shearwater)	*	*																				*
<i>Puffinus pacificus</i> (Wedge-tailed Shearwater)	*	*																				*
HYDROBATIDAE																						
<i>Oceanites oceanicus</i> (Wilson's Storm-Petrel)		*																				*
PHAETHONTIDAE																						
<i>Phaethon rubricauda</i> (Red-tailed Tropicbird)		*																				*
PELECANIDAE																						
<i>Pelecanus conspicillatus</i> (Australian Pelican)	*	*																				■
SULIDAE																						
<i>Sula dactylatra</i> (Masked Booby)		*																				*
<i>Sula leucogaster</i> (Brown Booby)	*	*																				*
PHALACROCORACIDAE																						
<i>Phalacrocorax carbo</i> (Great Cormorant)		*																				*
<i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)	*	*																				*
<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)	*	*																				*

Appendix III (cont.)

Species	Data Set		Distribution						Habitat Categories										Status CN CH I
	G	H	I	R	T	TNG	WT	RS	RS	D	H	GR	M	ST	WL	GN	U	SF	
<i>Phalacrocorax varius</i> (Pied Cormorant)	*	*													*				
ANHINGIDAE <i>Anhinga melanogaster</i> (Darter)	*	*													*				
FREGATIDAE <i>Fregata ariel</i> (Lesser Frigatebird)	*	*												*					
<i>Fregata minor</i> (Great Frigatebird)	*	*												*					
CICONIIDAE <i>Ephippiorhynchus asiaticus</i> (Black-necked Stork)	*	*													*				
ARDEIDAE <i>Ardea alba</i> (Great Egret)	*	*													*				
<i>Ardea ibis</i> (Cattle Egret)	*	*													*				
<i>Ardea intermedia</i> (Intermediate Egret)	*	*													*				
<i>Ardea pacifica</i> (Pacific Heron)	*	*													*				
<i>Ardea picata</i> (Pied Heron)	*	*													*				
<i>Ardea sumatrana</i> (Great-billed Heron)	*	*													*				
<i>Butorides striatus</i> (Striped Heron)	*	*													*				
<i>Egretta garzetta</i> (Little Egret)	*	*													*				
<i>Egretta novaeollandiae</i> (White-faced Heron)	*	*													*				
<i>Egretta sacra</i> (Eastern Reef Egret)	*	*													*				
<i>Ixobrychus flavicollis</i> (Black Bittern)	*	*													*				

Appendix III (cont.)

Species	Data Set		Distribution							Habitat Categories										Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN		CH	I	
<i>Ixobrychus minutus</i> (Little Bittern)	■	■													*								
<i>Nycticorax caledonicus</i> (Nankeen Night Heron)	■	■													*								
THRESKIORNITHIDAE																							
<i>Platalea flavipes</i> (Yellow-billed Spoonbill)	*	*													*								
<i>Platalea regia</i> (Royal Spoonbill)	*	*													*								
<i>Plegadis falcinellus</i> (Glossy Ibis)	■	■													*								
<i>Threskiornis molucca</i> (Australian White Ibis)	*	*							*														
<i>Threskiornis spinicollis</i> (Straw-necked Ibis)	*	*							*														
ANSERANATIDAE																							
<i>Anseranas semipalmata</i> (Magpie Goose)	■	■													*								
ANATIDAE																							
<i>Anas castanea</i> (Chestnut Teal)	■	■													*								V
<i>Anas gracilis</i> (Grey Teal)	■	■													*								
<i>Anas rhynchotis</i> (Australasian Shoveler)	■	■													*								V
<i>Anas querquedula</i> ? (Garganey)	■	■													*								
<i>Anas superciliosa</i> (Pacific Black Duck)	■	■													*								
<i>Aythya australis</i> (Hardhead)	■	■													*								
<i>Chenonetta jubata</i> (Mand Duck)	■	■													*								
<i>Cygnus atratus</i> (Black Swan)	■	■													*								V
<i>Dendrocygna arcuata</i> (Wandering Whistling-Duck)	■	■													*								

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Dendrocygna eytoni</i> (Plumed Whistling-Duck)	*	*													*							
<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)		*													*							
<i>Nettapus pulchellus</i> (Green Pygmy-Goose)	*	*													*							
<i>Nettapus coromandelianus</i> (Cotton Pygmy-Goose)	*	*													*							
<i>Tadorna radjah</i> (Radjah Shelduck)	*	*													*							
ACCIPITRIDAE																						
<i>Accipiter cirrhocephalus</i> (Collared Sparrowhawk)	*	*														*						
<i>Accipiter fasciatus</i> (Brown Goshawk)	*	*														*						
<i>Accipiter novaehollandiae</i> (Grey Goshawk)	*	*																				
<i>Aquila audax</i> (Wedge-tailed Eagle)	*	*														*						
<i>Aquila gurney</i> (Gurney's Eagle)		*																				V
<i>Aviceda subcristata</i> (Pacific Baza)	*	*																				
<i>Circus approximans</i> (Swamp Harrier)	*	*														*						
<i>Circus assimilis</i> (Spotted Harrier)		*														*						
<i>Elanus axillaris</i> (Black-shouldered Kite)	*	*														*						
<i>Erythrotriorchis radiatus</i> (Red Goshawk)	*	*														*						V
<i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)	*	*													*							
<i>Haliastur sphenurus</i> (Whistling Kite)	*	*															*					
<i>Haliastur indus</i> (Brahminy Kite)	*	*													*							

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Hamirostra melanosternon</i> (Black-breasted Buzzard)	■	■								*												
<i>Hieraaetus morphnoides</i> (Little Eagle)	*	*								*												
<i>Lophoictinia isura</i> (Square-tailed Kite)	*	*								*											R	
<i>Milvus migrans</i> (Black Kite)	*	*								*												
<i>Pandion haliaetus</i> (Osprey)	■	■													■							
FALCONIDAE																						
<i>Falco berigora</i> (Brown Falcon)	*	*								*												
<i>Falco cenchroides</i> (Australian Kestrel)	*	*								*												
<i>Falco longipennis</i> (Australian Hobby)	*	*								*												
<i>Falco peregrinus</i> (Peregrine Falcon)	*	*								*												
<i>Falco subniger</i> (Black Falcon)	■	■								*												
MEGAPODIIDAE																						
<i>Alectura lathamii</i> (Australian Brush-turkey)	■	■								■												
<i>Megapodius reinwardt</i> (Orange-footed Scrubfowl)	■	■							■													
PHASIANIDAE																						
<i>Coturnix chinensis</i> (King Quail)		■										*										
<i>Coturnix pectoralis</i> (Stubble Quail)		■										*										V
<i>Coturnix ypsilophora</i> (Brown Quail)	■	■								*												
TURNICIDAE																						
<i>Turnix maculosa</i> (Red-backed Button-quail)	■	■								*												

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status					
	Q	H	E	R	T	TNG	WT	ES	RG	O	W	GR	M	ST	WL	GN	U	SF	CN	CH	I		
<i>Turnix melanogaster</i> (Black-breasted Button-quail)		*							*													V	W
<i>Turnix olivae</i> (Buff-breasted Button-quail)	*	*								*												E	
<i>Turnix pyrrhоторax</i> (Red-chested Button-quail)	*	*								*													
<i>Turnix varia</i> (Painted Button-quail)		*								*													
<i>Turnix velox</i> (Little Button-quail)		*								*													W
GRUIDAE																							
<i>Grus antigone</i> (Sarus Crane)	*	*													*								
<i>Grus rubicunda</i> (Brolga)	*	*													*								
RALLIDAE																							
<i>Amaurornis olivaceus</i> (Bush-hen)	*	*								*													
<i>Fulica atra</i> (Eurasian Coot)	*	*													*								
<i>Gallinula tenebrosa</i> (Dusky Moorhen)		*													*								
<i>Gallirallus philippensis</i> (Buff-banded Rail)	*	*													*								
<i>Porphyrio porphyrio</i> (Purple Swamphen)		*													*								
<i>Porzana cinereus</i> (White-browed Crake)		*													*								
<i>Porzana tabuensis</i> (Spotless Crake)		*													*								
<i>Rallina tricolor</i> (Red-necked Crake)	*	*								*													
OTIDIDAE																							
<i>Ardeotis australis</i> (Australian Bustard)	*	*											*										
JACANIDAE																							
<i>Irediparra gallinacea</i> (Comb-crested Jacana)	*	*													*								

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
HAEMATOPODIDAE																						
<i>Haematopus fuliginosus</i> (Sooty Oystercatcher)	■	■												+								
<i>Haematopus longirostris</i> (Pied Oystercatcher)	■	■												+								
RECURVIROSTRIDAE																						
<i>Himantopus himantopus</i> (Black-winged Stilt)	■	■												+								
<i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)		■													■							
BURHINIDAE																						
<i>Burhinus grallarius</i> (Bush Stone-curlew)	■	■																				
<i>Esacus magnirostris</i> (Beach Stone-curlew)	■	■																				
GLAREOLIDAE																						
<i>Stiltia isabella</i> (Australian Pratincole)	■	■																				
CHARADRIIDAE																						
<i>Charadrius leschenaultii</i> (Greater Sand Plover)	■	■												+								
<i>Charadrius mongolus</i> (Lesser Sand Plover)	■	■												+								
<i>Erythrogonys cinctus</i> (Red-kneed Dotterel)		+												+								
<i>Charadrius ruficapillus</i> (Red-capped Plover)	+	+												+								
<i>Charadrius veredus</i> (Oriental Plover)		+												+								
<i>Eisyaornis melanops</i> (Black-fronted Plover)	■	■													+							
<i>Pluvialis fulva</i> (Pacific Golden Plover)	■	■												+								
<i>Pluvialis squatarola</i> (Grey Plover)	■	■												+								
<i>Vanellus miles</i> (Masked Lapwing)	■	■																				

Appendix III (cont.)

Species	Data Set		Distribution						Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF		CN	CH	I	
<i>Vanelius tricolor</i> (Banded Lapwing)																							V
SCOLOPACIDAE																							
<i>Actitis hypoleucos</i> (Common Sandpiper)	*													*									
<i>Arenaria interpres</i> (Ruddy Turnstone)	*													*									
<i>Calidris acuminata</i> (Sharp-tailed Sandpiper)	*													*									
<i>Calidris alba</i> (Sanderling)	*													*									
<i>Calidris canutus</i> (Red Knot)	*													*									
<i>Calidris ferruginea</i> (Curlew Sandpiper)	*													*									
<i>Calidris ruficollis</i> (Red-necked Stint)	*													*									
<i>Calidris subminuta</i> (Long-toed Stint)	*													*									
<i>Calidris tenuirostris</i> (Great Knot)	*													*									
<i>Gallinago hardwickii</i> (Latham's Snipe)	*													*									
<i>Gallinago megala</i> (Swinhoe's Snipe)	*													*									
<i>Heteroscelus brevipes</i> (Grey-tailed Tattler)	*													*									
<i>Heteroscelus incana</i> (Wandering Tattler)	*													*									
<i>Limosa lapponica</i> (Bar-tailed Godwit)	*													*									
<i>Limosa limosa</i> (Black-tailed Godwit)	*													*									
<i>Limicola falcinellus</i> (Broad-billed Sandpiper)	*													*									
<i>Numenius madagascariensis</i> (Eastern Curlew)	*													*									R

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status								
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I						
<i>Numenius minutus</i> (Little Curlew)		*																				*					
<i>Numenius phaeopus</i> (Whimbrel)	+	*																					+				
<i>Philomachus pugnax</i> (Ruff)		*																					+				
<i>Tringa glareola</i> (Wood Sandpiper)		*																					+				
<i>Tringa hypoleucos</i> (Common Sandpiper)		+																					+				
<i>Tringa nebularia</i> (Common Greenshank)	*	+																					*				
<i>Tringa stagnatilis</i> (Marsh Sandpiper)	*	+																					*				
<i>Xenus cinereus</i> (Terek Sandpiper)	*	+																					*				
LARIDAE																											
<i>Anous minutus</i> (Black Noddy)		*																					*				
<i>Anous stolidus</i> (Common Noddy)		*																					*				
<i>Chlidonias hybridus</i> (Whiskered Tern)	+	*																					*				
<i>Chlidonias leucopterus</i> (White-winged Tern)	+	*																					*				
<i>Gygis alba</i> (White Tern)		*																					*				
<i>Larus dominicanus</i> (Kelp Gull)		*																					*				
<i>Larus novaehollandiae</i> (Silver Gull)	+	*																					*				
<i>Stercorarius pomarinus</i> (Pomarine Jaeger)		*																					*				
<i>Sterna albifrons</i> (Little Tern)	*	+																					*				
<i>Sterna anaethetus</i> (Bridled Tern)	*	+																					*				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status							
	CI	II	E	R	T	TNG	WT	BS	BS	O	H	GR	M	ST	WL	GN	U	SF	CI	CH	I				
<i>Sterna bergii</i> (Crested Tern)	*	*												*											
<i>Sterna bengalensis</i> (Lesser Crested Tern)	*	*												*											
<i>Sterna caspia</i> (Caspian Tern)	*	*												*											
<i>Sterna dougallii</i> (Rosate Tern)		*												*											
<i>Sterna fuscata</i> (Sooty Tern)		*												*											
<i>Sterna hirundo</i> (Common Tern)		*												*											
<i>Sterna nilotica</i> (Gull-billed Tern)	*	*												*											
<i>Sterna sumatrana</i> (Black-naped Tern)	*	*												*											
COLUMBIDAE																									
<i>Chalcophaps indica</i> (Emerald Dove)	*	*																							
<i>Columba leucomeles</i> (White-headed Pigeon)		*					*																		
<i>Columba livia</i> (Rock Pigeon)		*																							
<i>Ducula bicolor</i> (Pied Imperial Pigeon)	*	*																							
<i>Geopelia cuneata</i> (Diamond Dove)	*	*																							
<i>Geopelia humeralis</i> (Bar-shouldered Dove)	*	*																							
<i>Geopelia striata</i> (Peacocks Dove)	*	*																							
<i>Geophaps scripta</i> (Squatter Pigeon)	*	*																							
<i>Lopholaimus antarcticus</i> (Topknot Pigeon)		*						*																	
<i>Macropygia amboinensis</i> (Brown Cuckoo-Dove)	*	*																							

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Ocyphaps lophotes</i> (Crested Pigeon)		*																				C
<i>Phaps chalcoptera</i> (Common Bronzewing)	*	*																				
<i>Ptilinopus magnificus</i> (Wompoo Fruit-Dove)	*	*						*														
<i>Ptilinopus regina</i> (Rose-crowned Fruit-Dove)	*	*						*														
<i>Ptilinopus superbus</i> (Superb Fruit-Dove)	*	*						*														
CACATUIDAE																						
<i>Cacatua galerita</i> (Sulphur-crested Cockatoo)	*	*																				
<i>Cacatua roseicapilla</i> (Galah)	*	*																				
<i>Cacatua sanguinea</i> (Little Corella)	*	*																				
<i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)	*	*																				
<i>Nymphicus hollandicus</i> (Cockatiel)	*	*																				
<i>Probosciger aterrimus</i> (Palm Cockatoo)	*	*																				
PSITTACIDAE																						
<i>Alisterus scapularis</i> (Australian King-Parrot)		*																				
<i>Aprosmictus erythropterus</i> (Red-winged Parrot)	*	*																				
<i>Cyclopsitta diophthalma</i> (Double-eyed Fig-Parrot)	*	*																				
<i>Ecliptus roratus</i> (Ecliptus Parrot)	*	*																				
<i>Geoffroyus geoffroyi</i> (Red-cheeked Parrot)	*	*																				
<i>Glossopsitta pusilla</i> (Little Lorikeet)		*																				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	D	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Platycercus adscitus</i> (Pale-headed Rosella)	■	■								*												
<i>Platycercus elegans</i> (Crimson Rosella)		■					■		*													
<i>Melopsittacus undulatus</i> (Budgerigar)		■								*												V
<i>Psephotus chrysopterygius</i> (Golden-shouldered Parrot)	■	■	■							*											E	
<i>Psitteuteles versicolor</i> (Veiled Lorikeet)	■	■								*												
<i>Trichoglossus chlorolepidotis</i> (Scaly-breasted Lorikeet)	■	■								*												
<i>Trichoglossus haematodus</i> (Rainbow Lorikeet)	■	■														■						
CENTROPODIDAE																						
<i>Centropus phasianinus</i> (Pheasant Coucal)	■	■								■												
CUCULIDAE																						
<i>Cacomantis castaneiventris</i> (Chestnut-breasted Cuckoo)	■	■		■				■														
<i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)	■	■														■						
<i>Cacomantis variolosus</i> (Brush Cuckoo)	■	■								*												
<i>Chrysococcyx basalis</i> (Horsfield's Bronze-Cuckoo)	■	■								*												
<i>Chrysococcyx lucidus</i> (Shining Bronze-Cuckoo)	*	*								*												
<i>Chrysococcyx minutillus</i> (Little Bronze-Cuckoo)	■	■								*												
<i>Chrysococcyx osculans</i> (Black-bared Cuckoo)	*	*								*												
<i>Chrysococcyx russatus</i> (Gould's Bronze-Cuckoo)	*	*								*												
<i>Cuculus saturatus</i> (Oriental Cuckoo)	■	■														■						

Appendix III (cont.)

Species	Data Set		Distribution							Habitat Categories										Status			
	O	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN		CH	I	
<i>Cuculus pallidus</i> (Pallid Cuckoo)	■	■														■							
<i>Eudynamys scolopacea</i> (Common Koel)	■	■								*													
<i>Scythrops novaehollandiae</i> (Channel-billed Cuckoo)	■	■								*													
TYTONIDAE																							
<i>Tyto alba</i> (Barn Owl)	■	■																					
<i>Tyto capensis</i> (Green Owl)	■	■														■							
<i>Tyto multipunctata</i> (Lesser Sooty Owl)	■	■	*							■													
<i>Tyto novaehollandiae</i> (Masked Owl)	■	■	*																				
STRIGIDAE																							
<i>Ninox connivens</i> (Barking Owl)	■	■	*																				
<i>Ninox novaeseelandiae</i> (Southern Boobook)	■	■	■													■							
<i>Ninox rufa</i> (Rufous Owl)	■	■	*																				
PODARGIDAE																							
<i>Podargus ocellatus</i> (Marbled Frogmouth)	■	■	*																				
<i>Podargus papuensis</i> (Papuan Frogmouth)	■	■	■																				
<i>Podargus strigoides</i> (Towmy Frogmouth)	■	■	■																				
AEGOTHELIDAE																							
<i>Aegotheles cristatus</i> (Australian Owlet-nightjar)	■	■	■																				
CAPRIMULGIDAE																							
<i>Caprimulgus macrurus</i> (Large-tailed Nightjar)	■	■	■																				
<i>Eurostopodus argus</i> (Spotted Nightjar)	■	■	■																				

Appendix III (cont.)

Species	Date Set		Distribution					Habitat Categories										Status						
	Q	H	E	R	T	TNG	WT	RS	RC	O	H	GR	M	ST	WL	GN	U		SF	CN	CH	I		
<i>Eurostopodus mystacalis</i> (White-throated Nightjar)	*	*																						
APOIDIDAE																								
<i>Apus pacificus</i> (Fork-tailed Swift)	*	*														*								
<i>Collocalia esculenta</i> (Glossy Swiftlet)	*	*														*								
<i>Collocalia spodiopygius</i> (White-rumped Swiftlet)	*	*														*								
<i>Collocalia vanikorensis</i> (Uniform Swiftlet)	*	*														*								
<i>Hirundapus caudacutus</i> (White-throated Needletail)	*	*														*								
ALCEDINIDAE																								
<i>Alcedo azureus</i> (Azure Kingfisher)	*	*														*								
<i>Alcedo pusilla</i> (Little Kingfisher)	*	*														*								
HALCYONIDAE																								
<i>Dacelo leachii</i> (Blue-winged Kookaburra)	*	*																						
<i>Dacelo novaeguineae</i> (Laughing Kookaburra)	*	*																						
<i>Syme torotoro</i> (Yellow-billed Kingfisher)	*	*																						
<i>Tenysiptera sylvia</i> (Buff-breasted Paradise Kingfisher)	*	*																						
<i>Todiramphus macleayii</i> (Forest Kingfisher)	*	*																						
<i>Todiramphus sanctus</i> (Sacred Kingfisher)	*	*																						
<i>Todiramphus chloris</i> (Collared Kingfisher)	*	*																						
<i>Todiramphus pyrrhopygia</i> (Red-backed Kingfisher)	*	*																						
MEROPIIDAE																								
<i>Merops ornatus</i> (Rainbow Bee-eater)	*	*																						

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	D	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
CORACIIDAE																						
<i>Eurystomus orientalis</i> (Dollerbird)	■	■																				
PITTIDAE																						
<i>Pitta erythrogaster</i> (Red-bellied Pitta)	■	■		■				■														
<i>Pitta versicolor</i> (Noisy Pitta)	■	■							■													
ALAUDIDAE																						
<i>Mirafra javanica</i> (Singing Bushfink)		*										■										
HIRUNINIDAE																						
<i>Hirundo ariel</i> (Fairy Martin)	*	*															*					
<i>Hirundo daurica</i> (Red-rumped Swallow)		*															*					
<i>Hirundo neoxena</i> (Welcome Swallow)	*	*															*					
<i>Hirundo nigricans</i> (Tree Martin)	■	■															*					
<i>Hirundo tahitica</i> (Pacific Swallow)		■															*					V
MOTACILLIDAE																						
<i>Anthus novaeseelandiae</i> (Richard's Pipit)	■	■											■									
<i>Motacilla flava</i> (Yellow Wagtail)	■																					V
CAMPEPHAGIDAE																						
<i>Coracina lineata</i> (Yellow-eyed Cuckoo-shrike)	■	■								■												
<i>Coracina maxima</i> (Ground Cuckoo-shrike)		■																				
<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)	■	■																				
<i>Coracina pepuensis</i> (White-bellied Cuckoo-shrike)	■	■																				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Coracina tenuirostris</i> (Cicadabird)	+	*							*													
<i>Lalage leucomela</i> (Varied Triller)	+	*							*													
<i>Lalage sueurii</i> (White-winged Triller)	+	*								■												
ORTHONYCHIDAE																						
<i>Orthonyx spaldingii</i> (Chowchile)		*					■	■														
POMATOSTOMIDAE																						
<i>Pomatostomus temporalis</i> (Grey-crowned Babbler)	+	*								■												
CINCLOSOMATIDAE																						
<i>Psophodes olivaceus</i> (Eastern Whipbird)		*					■	■														
SYLVIIDAE																						
<i>Acrocephalus stentoreus</i> (Clamorous Reed-Warbler)	*	*										■										
<i>Cincloramphus cruralis</i> (Brown Songlark)	*	*								*												
<i>Cincloramphus methuensi</i> (Rufous Songlark)	*	*								*												
<i>Cisticola exilis</i> (Golden-headed Cisticola)	*	*										*										
<i>Cisticola juncidis</i> (Zitting Cisticola)	*	*										*										
<i>Megalurus timoriensis</i> (Tawny Grassbird)	*	*										*										
MALURIDAE																						
<i>Malurus amabilis</i> (Lovely Wren)	*	*							*													
<i>Malurus melanocephalus</i> (Red-backed Fairy-wren)	*	*								*												
<i>Malurus lamberti</i> (Vegetated Fairy-wren)	*								*													
PARDALOTIDAE																						
<i>Acanthiza katherina</i> (Mount's Thornbill)		*					■	■														

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	D	H	GR	M	ST	WL	GM	U	SF	CN	CH	I	
<i>Acanthiza reguloides</i> (Buff-rumped Thornbill)		*					■			■												
<i>Gerygone laevigaster</i> (Mangrove Warbler)	*	*											■									
<i>Gerygone magnirostris</i> (Large-billed Gerygone)	*	*							■													
<i>Gerygone mouki</i> (Brown Gerygone)		*					■	■														
<i>Gerygone olivacea</i> (White-throated Gerygone)	*	*								■												
<i>Gerygone palpebrosa</i> (Fairy Gerygone)	*	*								■												
<i>Oreoscopus gutturalis</i> (Crested Bellbird)		*					*	■														
<i>Pardalotus punctatus</i> (Spotted Pardalote)		*					*			*												
<i>Pardalotus rubricatus</i> (Red-browed Pardalote)	*	*								*												
<i>Pardalotus striatus</i> (Striated Pardalote)	*	*								*												
<i>Sericornis beccarii</i> (Tropical Scrubwren)	*	*			■			*														
<i>Smicronis brevirostris</i> (Weebill)	*	*								*												
<i>Sericornis citreogularis</i> (Yellow-throated Scrubwren)		*					*	*														
<i>Sericornis kerri</i> (Atherton Scrubwren)		*					*	*														
<i>Sericornis magnirostris</i> (Large-billed Scrubwren)		*					*	*														
DICRURIDAE																						
<i>Arses kaupi</i> (Pied Monarch)		*					*	*														
<i>Arses telescopthalmus</i> (Fruited Monarch)	*	*			■			*														
<i>Dicrurus bracteatus</i> (Spangled Drongot)	*	*														■						

Appendix III (cont.)

Species	Date Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	1	
<i>Grallina cyanoleuca</i> (Maggie Lark)	*	*																				
<i>Machaerirhynchus flaviventer</i> (Yellow-breasted Boatbill)	*	*						*														
<i>Monarcha frater</i> (Black-winged Monarch)	*	*			■				*													
<i>Monarcha leucotis</i> (White-eared Monarch)	*	*						*														
<i>Monarcha melanopsis</i> (Black-faced Monarch)	*	*							*													
<i>Monarcha trivirgatus</i> (Spectacled Monarch)	*	*							*													
<i>Myiagra cyanoleuca</i> (Satin Flycatcher)	*	*																				
<i>Myiagra rubecula</i> (Laden Flycatcher)	*	*																				
<i>Myiagra ruficollis</i> (Broad-billed Flycatcher)	*	*																				
<i>Myiagra alecto</i> (Shining Flycatcher)	*	*																				
<i>Rhipidura fuliginosa</i> (Grey Fantail)	*	*																				
<i>Rhipidura leucophrys</i> (Willie Wagtail)	*	*																				
<i>Rhipidura phasian</i> (Mangrove Fantail)		*																				
<i>Rhipidura rufifrons</i> (Rufous Fantail)	*	*																				
<i>Rhipidura rufiventris</i> (Northern Fantail)	*	*																				
<i>Myiagra inquieta</i> (Restless Flycatcher)		*																				
PETROICIDAE																						
<i>Drymodes superciliaris</i> (Northern Scrub-robin)	*	*			■																	
<i>Eopsaltria australis</i> (Eastern Yellow Robin)		*																				

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Eopsaltria pulverulenta</i> (Mangrove Robin)	+	*											■									
<i>Heteromyias albispecularis</i> (Grey-headed Robin)		*					■	*														
<i>Microeca flavigaster</i> (Lemon-bellied Flycatcher)	+	*								+												
<i>Microeca griseiceps</i> (Yellow-legged Flycatcher)	+	*		■				*														
<i>Microeca leucophaea</i> (Jacky Winter)	■	■								+												
<i>Poecilodryas superciliosa</i> (White-browed Robin)	+	*							*													
<i>Tregellasia capito</i> (Pale-yellow Robin)		*					■	*														
<i>Tregellasia leucops</i> (White-faced Robin)	+	*		■				*														
PACHYCEPHALIDAE																						
<i>Colluricincla boweri</i> (Bower's Shrike-thrush)		*					■	*														
<i>Colluricincla harmonica</i> (Grey Shrike-thrush)	■	■								■												
<i>Colluricincla megarrhyncha</i> (Little Shrike-thrush)	■	■							■													
<i>Pachycephala lanioides</i> (White-breasted Whistler)		■											+									
<i>Pachycephala melanura</i> (Mangrove Golden Whistler)	■	■											*									
<i>Pachycephala pectoralis</i> (Golden Whistler)	■	■						■														
<i>Pachycephala rufiventris</i> (Rufous Whistler)	■	■								■												
<i>Pachycephala simplex</i> (Grey Whistler)	■	■							■													
NEOSITTIDAE																						
<i>Daphoenositta chrysoptera</i> (Varied Sittelle)	■	■								■												

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status		
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SP	CH	II
CLIMACTERIDAE																				
<i>Climacteris leucophaea</i> (White-throated Treecreeper)		•					•	•												
<i>Climacteris picumnus</i> (Brown Treecreeper)	•	•								•										C
DICAETIDAE																				
<i>Dicaeum hirundinaceum</i> (Mistletoebird)	•	•														•				
NECTARINIIDAE																				
<i>Nectarinia jugularis</i> (Yellow-bellied Sunbird)	•	•														•				
ZOSTEROPIDAE																				
<i>Zosterops citrinella</i> (Pale White-eye)		•				•				•										
<i>Zosterops lateralis</i> (Silver-eye)	•	•								•										
<i>Zosterops lutea</i> (Yellow White-eye)		•											•							
MELIPHAGIDAE																				
<i>Acanthorhynchus tenuirostris</i> (Eastern Spinebill)		•					•		•											
<i>Certhionyx pectoralis</i> (Banded Honeyeater)	•	•								•										
<i>Conopophila albogularis</i> (Rufous-banded Honeyeater)	•	•								•										
<i>Conopophila rufogularis</i> (Rufous-throated Honeyeater)	•	•								•										
<i>Entomyzon cyanotis</i> (Blue-faced Honeyeater)	•	•								•										
<i>Glycichaera fallax</i> (Green-backed Honeyeater)	•	•			•			•												
<i>Grantiella picta</i> (Painted Honeyeater)		•								•										
<i>Lichenostomus chrysops</i> (Yellow-faced Honeyeater)		•								•										
<i>Lichenostomus flavescens</i> (Yellow-tinted Honeyeater)	•	•								•										

Appendix III (cont.)

Species	Data List		Distribution						Habitat Categories										Status
	C	H	E	R	T	TNG	WT	BB	EG	O	H	GR	M	ST	WL	GN	U	SF	
<i>Lichenostomus xanthus</i> (Yellow Honeyeater)	■	■							■										
<i>Lichenostomus frenatus</i> (Bridled Honeyeater)	■	■					■												
<i>Lichenostomus versicolor</i> (Varied Honeyeater)	■	■										■							
<i>Lichenostomus unicolor</i> (White-gaped Honeyeater)	■	■								■									
<i>Lichmera indistincta</i> (Brown Honeyeater)	■	■								■									
<i>Manorina melanoccephala</i> (Noddy Miner)	■	■								■									
<i>Meliphaga gracilis</i> (Graceful Honeyeater)	■	■							■										
<i>Meliphaga lewinii</i> (Lewin's Honeyeater)	■	■							■										
<i>Meliphaga notata</i> (Yellow-spotted Honeyeater)	■	■								■									
<i>Meliphaga virescens</i> (Singing Honeyeater)	■	■								■									
<i>Melithreptus albogularis</i> (White-throated Honeyeater)	■	■								■									
<i>Melithreptus laevis</i> (Golden-backed Honeyeater)	■	■								■									
<i>Melithreptus lunatus</i> (White-naped Honeyeater)	■	■								■									
<i>Myzomela erythrocephala</i> (Red-headed Honeyeater)	■	■								■									
<i>Myzomela obscura</i> (Dusky Honeyeater)	■	■								■									
<i>Myzomela sanguinolenta</i> (Scarlet Honeyeater)	■	■								■									
<i>Philemon argenticeps</i> (Silver-crowned Flybird)	■	■								■									
<i>Philemon citreogularis</i> (Little Flybird)	■	■								■									
<i>Philemon buceroides</i> (Helmeted Flybird)	■	■								■									

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I
<i>Philemon corniculatus</i> (Noddy Friarbird)	*	*								*											
<i>Ramsayornis fasciatus</i> (Bar-breasted Honeyeater)	*	*								*											
<i>Ramsayornis modestus</i> (Brown-backed Honeyeater)	*	*								*											
<i>Phylidonyris nigra</i> (White-cheeked Honeyeater)		*					*			*											
<i>Trichodere cockerelli</i> (White-streaked Honeyeater)	*	*	■								■										
<i>Xanthotis chrysotis</i> (Tawny-breasted Honeyeater)	*	*		■						■											
<i>Xanthotis macleayana</i> (Macleay's Honeyeater)		*					*	■													
PASSERIDAE																					
<i>Erythrura gouldiae</i> (Gouldian Finch)		*								*											E
<i>Erythrura trichroa</i> (Blue-faced Parrot-finch)		*					*		*												R
<i>Lonchura castaneothorax</i> (Chestnut-breasted Mannikin)	*	*								*											
<i>Lonchura pectoralis</i> (Pictorial Mannikin)		*								*											
<i>Lonchura punctulata</i> (Nutmeg Mannikin)		*					*				■										
<i>Neochmia phaeton</i> (Crimson Finch)		*								*											
<i>Neochmia ruficauda</i> (Star Finch)		*								*											
<i>Neochmia temporalis</i> (Red-browed Finch)	*	*							■												
<i>Passer domesticus</i> (House Sparrow)	*	*															■		U		I
<i>Poephila cincta</i> (Black-throated Finch)	*	*								*											
<i>Poephila personata</i> (Masked Finch)	*	*								*											

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status				
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CM	CH	I	
<i>Taeniopygia bichenovii</i> (Double-banded Finch)	■	■								■												
STURNIDAE																						
<i>Acridotheres tristis</i> (Common Myna)		■																				I
<i>Aplonis metallica</i> (Metallic Starling)	■	■								*												
<i>Sturnus vulgaris</i> (Common Starling)		■																				I
ORIOLIDAE																						
<i>Oriolus flavocinctus</i> (Yellow Oriole)	■	■								*												
<i>Oriolus sagittatus</i> (Olive-backed Oriole)	■	■									*											
<i>Sphecotheres viridis</i> (Figbird)	■	■								*												
CORCORACIDAE																						
<i>Struthidea cinerea</i> (Apostlebird)	■	■									*											
ARTAMIDAE																						
<i>Artamus cinereus</i> (Black-faced Woodswallow)	■	■									*											
<i>Artamus cyanopterus</i> (Dusky Woodswallow)	■	■									*											
<i>Artamus leucorhynchus</i> (White-breasted Woodswallow)	■	■									*											
<i>Artamus minor</i> (Little Woodswallow)	■	■									*											
<i>Artamus personatus</i> (Masked Woodswallow)	■	■									*											
<i>Artamus superciliosus</i> (White-browed Woodswallow)	■	■									*											
<i>Cracticus mentalis</i> (Black-becked Butcherbird)	■	■			■						*											
<i>Cracticus nigrogularis</i> (Pied Butcherbird)	■	■									*											

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories										Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I
<i>Cracticus quoyi</i> (Black Butcherbird)	*	*							*												
<i>Gymnorhina tibicen</i> (Australian Magpie)	*	*								*											
<i>Strepera graculina</i> (Pied Currawong)	*	*							*												
PTILONORHYNCHIDAE																					
<i>Ailuroedus melanotis</i> (Spotted Catbird)	*	*						■													
<i>Chlamydera cerviniventris</i> (Fawn-breasted Bowerbird)	*	*		■						*											
<i>Chlamydera nuchalis</i> (Great Bowerbird)	*	*								*											
<i>Prionodura newtoniana</i> (Golden Bowerbird)		*					■	*													
<i>Ptilonorhynchus violaceus</i> (Satin Bowerbird)		*					■	*													
<i>Scenopoeetes dentirostris</i> (Tooth-billed Bowerbird)		*					■	*													
PARADISAEIDAE																					
<i>Manucodia keraudrenii</i> (Trumpet Manucodid)	*	*		■					*												
<i>Ptiloris magnificus</i> (Magnificent Riflebird)	*	*		■					*												
<i>Ptiloris victoriae</i> (Victoria's Riflebird)		*					■	*													
CORVIDAE																					
<i>Corvus coronoides</i> (Australian Raven)		*								*											
<i>Corvus orru</i> (Tasmanian Crow)	*	*								*											

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
ORNITHORHYNCHIDAE																						
<i>Ornithorhynchus anatinus</i> (Platypus)		*					*								*							
TACHYGLOSSIDAE																						
<i>Tachyglossus aculeatus</i> (Short-beaked Echidna)	*	*														*						
DASYURIDAE																						
<i>Antechinomys laniger</i> (Kulart)		*																				
<i>Antechinus flavipes</i> (Yellow-footed Antechinus)		*					*		*													
<i>Antechinus leo</i> (Cinnamon Antechinus)	*	*	*					*														V
<i>Antechinus stuartii</i> (Brown Antechinus)		*						*														R
<i>Dasyurus hallucatus</i> (Northern Quoll)	*	*								*												
<i>Dasyurus maculatus</i> (Spotted-tailed Quoll)		*					*	*														R
<i>Phascogale tapostafa</i> (Brush-tailed Phascogale)		*								*												C
<i>Planigale maculata</i> (Common Planigale)	*	*								*												
<i>Planigale ingrami</i> (Long-tailed Planigale)		*								*												
<i>Sminthopsis archeri</i> (Chestnut Dunnart)	*	*		*						*												K
<i>Sminthopsis murina</i> (Common Dunnart)		*					*			*												
<i>Sminthopsis virginiae</i> (Red-cheeked Dunnart)	*	*								*												
PERAMELIDAE																						
<i>Echymipera rufescens</i> (Rufous Spiny Bandicoot)	*	*		*						*												
<i>Isodon macrourus</i> (Northern Brown Bandicoot)	*	*								*												

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF	CN	CH	I	
<i>Isodon obesulus</i> (Southern Brown Bandicoot)	*	*	#								#											K
<i>Perameles nasuta</i> (Long-nosed Bandicoot)	*	*						#														
PETAURIDAE																						
<i>Dactylopsila trivirgata</i> (Striped Possum)	*	*						#														
<i>Petaurus breviceps</i> (Sugar Glider)	*	*								*												
<i>Petaurus norfolcensis</i> (Squirrel Glider)	*									*												
<i>Pseudocheirops archeri</i> (Green Ringtail Possum)		*					*	*														
<i>Pseudocheirus cinereus</i> (Daintree River Ringtail Possum)		*					*	*														R
<i>Pseudocheirus peregrinus</i> (Common Ringtail Possum)	*	*								#												C
PHALANGERIDAE																						
<i>Spilocuscus maculatus</i> (Spotted Quocua)	*	*		*				#														
<i>Phalanger intercastellanus</i> (Grey Quocua)	*	*		*				#														
<i>Trichosurus vulpecula</i> (Common Brushtail Possum)	*	*								*												C
BURRAMYIDAE																						
<i>Acrobates pygmaeus</i> (Feathertailed Glider)	*	*								*												
<i>Cercartetus caudatus</i> (Long-tailed Pygmy Possum)		*					#	#														
POTOROIDAE																						
<i>Aepyprymnus rufescens</i> (Rufous Bettong)		*								*												
<i>Bettongia tropica</i> (Northern Bettong)		*					*			*												E
<i>Hypsiprymnodon moschatus</i> (Musky Rat-kangaroo)		*					*	#														R

Appendix III (cont.)

Species	Data list		Distribution							Habitat Categories										Status				
	C	H	E	R	T	TNG	WT	RS	INJ	D	H	GR	M	ST	WL	GN	U	SF	CH		OH	I		
MAGNIFOLIIDAE																								
<i>Dendrolagus bennettianus</i> (Bennet's Tree-kangaroo)	■	■					■	■																R
<i>Lagorchestes conspicillatus</i> (Spectacled Hare-wallaby)	■	■							*															
<i>Macropus agilis</i> (Agile Wallaby)	■	■							*															
<i>Macropus antilopinus</i> (Antilopine Kangaroo)	■	■							*															
<i>Macropus giganteus</i> (Eastern Grey Kangaroo)	■	■							*															
<i>Macropus parryi</i> (Whiptail Wallaby)	■	■							*															
<i>Macropus robustus</i> (Common Wallaroo)	■	■							*															
<i>Onychogalea unguifera</i> (Northern Nailtail Wallaby)	■	■										■												
<i>Petrogale godmani</i> (Godman's Rock-wallaby)	■	■																						
<i>Petrogale coenensis</i> (Cape York Rock-wallaby)	■	■																						
<i>Thylogale stigmatica</i> (Red-legged Pademelon)	■	■																						
<i>Wallabia bicolor</i> (Swamp Wallaby)	■	■																						
PTEROPODIDAE																								
<i>Dobsonia moluccensis</i> (Bare-backed Fruit-bat)	■	■																						
<i>Macroglossus minimus</i> (Northern Blossom Bat)	■	■																						
<i>Nyctimene robinsoni</i> (Queensland Tube-nosed Bat)	■	■																						
<i>Pteropus alecto</i> (Black Flying Fox)	■	■																						
<i>Pteropus conspicillatus</i> (Spectacled Flying-fox)	■	■																						

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GM	U	SF	CN	CH	I	
<i>Pteropus scapulatus</i> (Little Red Flying-fox)	*	*									■											
<i>Syconycteris australis</i> (Queensland Blossum Bat)	*	*							■													
MEGADERMATIDAE																						
<i>Macroderma gigas</i> (Ghoat Bat)	*	*								*										■		
EMBALLONURIDAE																						
<i>Saccolaimus flaviventris</i> (Yellow-bellied Sheath-tail-bat)	*	*								*												
<i>Saccolaimus saccolaimus</i> (Naked-rumped Sheath-tail-bat)	*	*								*												
<i>Saccolaimus mixtus</i> (Papuan Sheath-tail-bat)	*	*			■					*												
<i>Taphozous australis</i> (Northern Sheath-tail-bat)	*	*								*												
MOLOSSIDAE																						
<i>Chaerophon jobensis</i> (Northern Mastiff-bat)	*	*								*												
<i>Mormopterus beccarii</i> (Beccari's Mastiff-bat)	*	*														■						
<i>Mormopterus toriae</i> (Little Northern Mastiff-bat)		*								*												
RHINOLOPHIDAE																						
<i>Rhinolophus megaphyllus</i> (Eastern Horseshoe-bat)	*	*								*											*	
<i>Rhinolophus philippinensis</i> (Large-eared Horseshoe-bat)	*	*								*											*	
HIPPOSIDERIDAE																						
<i>Hipposideros ater</i> (Dark Horseshoe-bat)	*	*								*											*	
<i>Hipposideros cervinus</i> (Fawn Horseshoe-bat)	*	*			■					*											*	
<i>Hipposideros diadema</i> (Diadem Horseshoe-bat)	*	*								*											*	
<i>Hipposideros semoni</i> (Grey Wart-nosed Horseshoe-bat)	*	*								*											*	

Appendix III (cont.)

Species	Data Set		Distribution							Habitat Categories										Status	
	G	H	E	R	T	TNG	WT	BB	BO	Q	H	GR	M	ST	WL	GN	U	IF	CH	CH I	
VESPERTILIONIDAE																					
<i>Chalinolobus nigrogriseus</i> (Hoary Bat)	•	•								•											
<i>Vespertelus darlingtoni</i>	•	•														•					•
<i>Vespertelus pumilus</i> (Little Cave Bat)	•	•														•					•
<i>Vespertelus troughtoni</i> (Eastern Cave Bat)	•	•														•					•
<i>Kerivoula papuensis</i> (Golden-tipped Bat)	•	•																			
<i>Miniopterus australis</i> (Little Bent-wing Bat)	•	•														•					•
<i>Miniopterus schreibersii</i> (Common Bent-wing Bat)	•	•														•					•
<i>Murina florium</i> (Flute-nosed Bat)	•	•																			
<i>Myotis adversus</i> (Pond Bat)	•	•																			•
<i>Nyctophilus biflex</i> (North Old Long-eared Bat)	•	•																			
<i>Nyctophilus timoriensis</i> (Greater Long-eared Bat)	•	•																			
<i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)	•	•																			
<i>Pipistrellus adamsi</i> (Adams's Pipistrelle)	•	•																			
<i>Pipistrellus westralis</i> (Western Pipistrelle)	•	•																			
<i>Scotorepens sanborni</i> (Little Northern Broad-nosed Bat)	•	•																			
MURIDAE																					
<i>Hydromys chrysogaster</i> (Water Rat)	•	•																			
<i>Leggadina lakedownsensis</i> (Lakeland Downy Mouse)	•	•																			
<i>Melomys burtoni</i> (Grassland Melomys)	•	•																			

Appendix III (cont.)

Species	Data Set		Distribution					Habitat Categories											Status			
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GM	U	SF	EN	CH	I	
<i>Melomys capensis</i> (Cape York Melomys)	*	*	*						*													
<i>Melomys cervinipes</i> (Fawn-footed Melomys)		*					*		*													
<i>Mesembriomys gouldii</i> (Black-footed Tree-rat)	*	*								*												
<i>Notomys aquilo</i> (Northern Hopping-mouse)		*																				V
<i>Pogonomys loriae</i> (Prehensile-tailed Rat)	*	*						*														
<i>Pseudomys delicatulus</i> (Delicate Mouse)	*	*								*												
<i>Rattus fuscipes</i> (Bush Rat)		*					*		*													
<i>Rattus leucopus</i> (Cape York Rat)	*	*							*													
<i>Rattus rattus</i> (Black Rat)	*	*															*	*				I
<i>Rattus sordidus</i> (Canefield Rat)	*	*									*											
<i>Rattus tunneyi</i> (Pale Field Rat)	*	*								*												
<i>Uromys caudimaculatus</i> (White-tailed Rat)	*	*							*													
<i>Zyomys argurus</i> (Common Rock Rat)		*								*												+
CANIDAE																						
<i>Canis familiaris</i> (Dingo)	*	*														*						
FELIDAE																						
<i>Felis catus</i> (Feral Cat)	*	*														*						E I
EQUIDAE																						
<i>Equus caballus</i> (Horse)	*	*														*						E I
SUIDAE																						
<i>Sus scrofa</i> (Feral Pig)	*	*														*						E I

Appendix III (cont.)

Species	Data Set		Distribution							Habitat Categories										Status CN CH I
	Q	H	E	R	T	TNG	WT	RS	RG	O	H	GR	M	ST	WL	GN	U	SF		
BOVIDAE <i>Bos taurus</i> (European Cattle)	*	*														■				
CERVIDAE <i>Cervus timorensis</i> (Rusa Deer)	*	*			■					■										

APPENDIX IV

**FAUNA OF THE CAPE YORK PENINSULA
BIOGEOGRAPHIC REGION**

**Dr David McFarland
August 1993**

Queensland Department of Environment and Heritage

CONTENTS

	Page No.
SUMMARY	i.
ACKNOWLEDGEMENTS	iii.
1. INTRODUCTION	1.
1.1 Aims	1.
1.2 Study Area	1.
2. METHODS	5.
2.1 Taxonomic Scope	5.
2.2 Sources	6.
2.3 Database	7.
3. RESULTS	9.
3.1 General	9.
3.2 Vertebrate Classes	15.
3.3 Key Areas	23.
4. DISCUSSION	28.
4.1 General	28.
4.2 Gap and Key Areas	31.
4.3 Fauna and Land Use Issues on Cape York Peninsula	34.
4.4 Recommendations	38.
5. REFERENCES AND BIBLIOGRAPHY	41.
6. APPENDICES	75.
6.1 Map of Region	76.
6.2 Source List	77.
6.3 Database Structure	82.
6.4 Problem Species and Genera	83.
6.5 Species List	84.
6.6 Distribution Maps	109.

SUMMARY

This document presents a review and some analysis of the distribution information available on the fauna of Cape York Peninsula. The primary aim of the study is to provide faunal data that can be used in the future planning and management of the Cape. Such information includes a) a compilation of all accessible distribution data for freshwater and terrestrial vertebrates of the region, b) identification of areas within the region requiring further survey work, and c) assessment of areas within the region in terms of their faunal significance, i.e. species diversity, representativeness and species at risk.

Literature and museum searches revealed 18,290 unique records involving 817 species from 62% of the 514 ten minute grid cells within the designated CYPLUS region. Of the native animals identified to species level there were 56 freshwater fish, 48 amphibians (all frogs), 177 reptiles, 395 birds and 97 mammals. The greatest gap in faunal information was for an area covering most of the south-west plains, the southern part of the central uplands and the south-east uplands south of Laura. Secondary sites requiring further work include the Cape Flattery - Bathurst Head and Temple Bay - Cape Grenville areas.

Based on overlaying the cell indices for diversity, representativeness, threatened and vertebrate classes, 13 areas were considered to have high faunal significance. Of those not covered, in part or full, by current National Parks, the major locations were Coen-McIlwraith Range, Shelburne Bay, Wenlock River - Tentpole Creek and Lockerbie-Somerset. The lack of data precludes any meaningful assessment of the south-west plains and the sandstone country of the south-east uplands and coastal ranges.

Cape York Peninsula is a region of faunal interchange between the savannah communities of Australia and the montane and lowland rainforest communities of New Guinea, as well as a centre of endemism within the region's rainforest, rocky and heathland habitats. While National Parks cover a large area in the region, they are not fully representative of the faunal diversity present. The results of this study support the extension of National Park estate to increase the number of conserved animal communities. The three main additions - McIlwraith Range, Shelburne Bay and Wenlock R. - Tentpole Creek - have all been previously proposed as National Parks. Recommendations are made to a) increase the area protected either as National Parks or

under conservation agreements; b) increase the information on fauna, via systematic surveys, already present in National Parks and in previously under-sampled areas of interest; c) develop and implement management plans for all conserved areas to ensure habitat and fauna protection, and d) encourage and educate Cape York land users in management techniques that might reduce any detrimental effects of the current land use on native species.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the individuals and institutions which assisted in this study by providing valuable information on the fauna of Cape York. The following individuals submitted much unpublished and/or difficult to obtain records: Stephen Debus, Dr John Winter, Dr Mark Eldridge, Prof. Jiro Kikkawa, Dr Andrew Smith and Dr Roger Coles. Kath Berg of the Royal Geographical Society of Queensland kindly permitted access to the unpublished papers relating to the 1992 Heathlands Expedition.

Institutional sources included the Queensland Museum, Australian Museum, Museum of Victoria, South Australian Museum, Western Australian Museum and Northern Territory Museum of Arts and Sciences. The Royal Australian Ornithologists Union (RAOU) provided data from the Bird Atlas Scheme while Environmental Resources Information Network (ERIN) arranged for the compilation of records from the CSIRO Australian National Wildlife Collection and the hand sorting of records from the Museum of Victoria.

My deepest thanks to Jill Elsdon for typing this report, especially the mammoth reference list.

1. INTRODUCTION

1.1 Aims

As part of the Cape York Peninsula Land Use Strategy (CYPLUS), a project was initiated within the Natural Resources Analysis Program to investigate the vertebrate fauna of the region (Project NRO3). The primary aim of this study was to supply current and historical data on the distribution of freshwater and terrestrial vertebrate species. This data could then be incorporated into a geographical information system for the future planning and management of Cape York Peninsula. This involved:

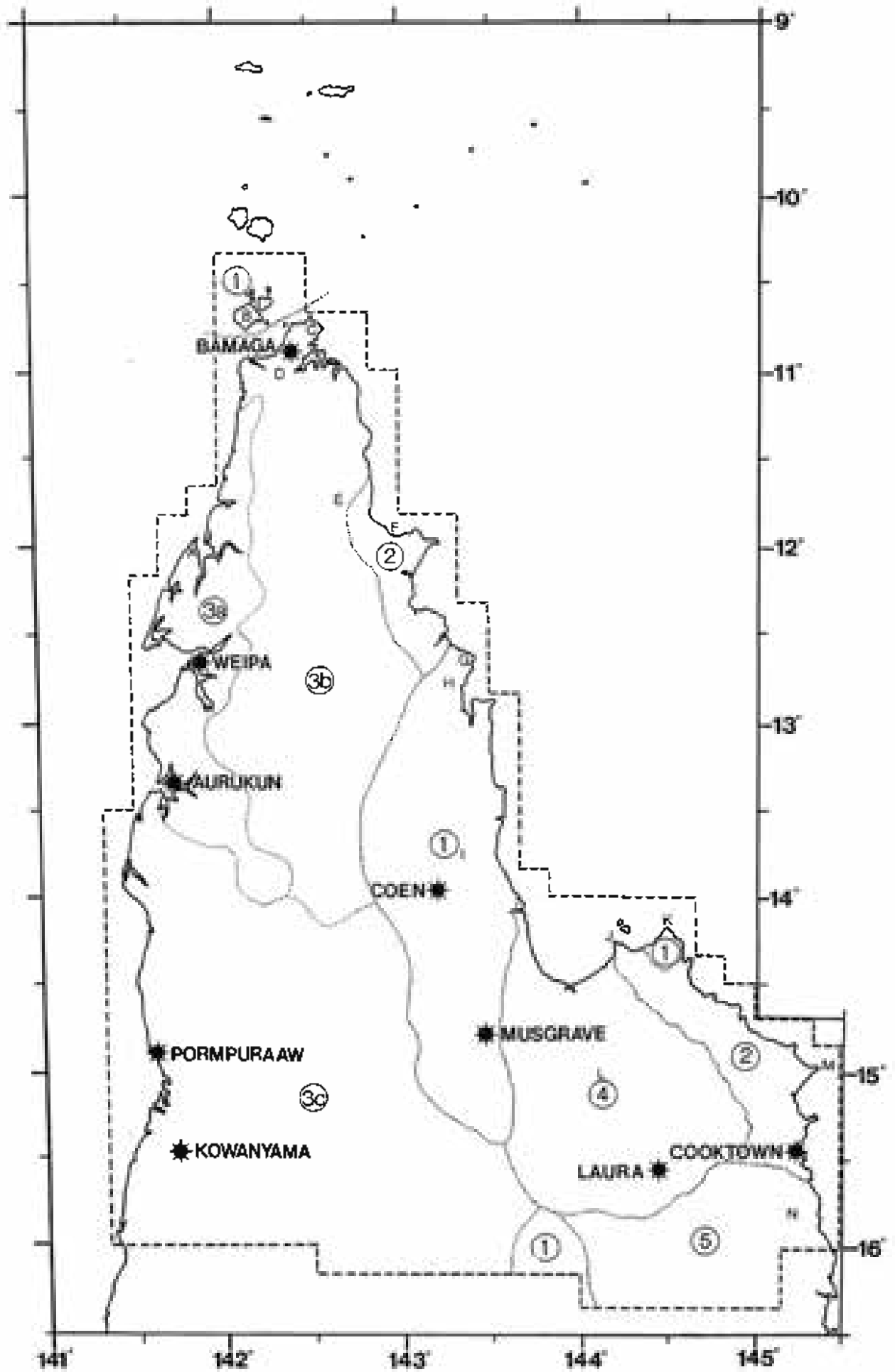
- a) compiling all accessible data, of minimum locality precision, relating to the distribution of vertebrates,
- b) identifying gaps within the region that require initial or additional surveying (these gaps may be spatial, e.g. certain locations or habitat types, or taxonomic, e.g. specific classes or families), and
- c) evaluating those areas within the region, for which reasonable data are available, in terms of their faunal significance - species diversity (total numbers), representativeness (number of endemics and species with restricted Australian distributions) and species at risk (number of species currently considered threatened, i.e. endangered, vulnerable or rare).

(Concurrent with this project were fauna surveys, supervised by Dr John Winter as part of NRO3, of known gap locations. The early results from this work were not included in this report.)

1.2 Study Area

For this study, the area under consideration is all of mainland Queensland north of a line roughly described by the Nassau and Mitchell Rivers and the southern boundary of the Cook Shire, as well as the Torres Strait Islands of Thursday, Horn and Prince of Wales (Fig. 1). Excluded are most other islands of Torres Strait and those islands of the Great Barrier Reef lying further off the mainland than about 10'. [While this CYPLUS area will be all that is examined, information in the database was compiled

Figure 1. Map of the Cape York Peninsula Biogeographic Region. The dashed line outlines the CYPLUS area. The dotted lines denote the regional boundaries: 1 - central uplands; 2 - coastal ranges and dunes; 3a - north-west plains, 3b - central plains, 3c - south-west plains; 4 - Laura basin; 5 - south-east uplands. Letters refer to the following localities: A - Mapoon, B - Prince of Wales Island, C - Somerset, D - Jardine River, E - Heathlands, F - Sheburne Bay, G - Portland Roads, H - Iron Range, I - McIlwraith Range, J - Bathurst Head, K - Cape Melville, L - Lakefield, M - Cape Flattery, N - Helenvale.



for all mainland areas down to 16°30'S. and all Torres Strait Islands north of 11°S (see section 6.1).)

Cape York Peninsula experiences a monsoonal climate with pronounced wet and dry seasons. Variability in annual rainfall is relatively low (29-46%) with most falling between November and April. Annual rainfall increases as one moves from the south west corner to the north and to the east. Flooding occurs each year and can result in extensive wetlands on the alluvial plains west of the Great Dividing Range. Occasional failure of the wet season rains can lead to drought conditions. Temperatures are generally high with little seasonal variation. Latitude, distance from the sea and elevation all influence the climate and subsequently the length of the growing season in any given locality.

The following five broadly recognised regions of Cape York (Fig. 1) are based on descriptions of geology, landform and vegetation from Pedley & Isbell (1971), Stanton (1975, 1976), Stanton & Morgan (1977), Lavarack & Godwin (1987) and Connell Wagner (1989).

1) Central Uplands: Basalt or granite dominates the spinal region containing the Great Dividing Range, that stretches from the Palmer River north through Musgrave and Coen up to Portland Roads with isolated outcrops at Cape Melville and among the Torres Strait Islands. In the north, the rugged mountains have dense rainforest which changes to woodland in the less rugged south.

2) Coastal Ranges and Dunes: Sandstone, clays and wind-blown sands form the basis of the east coast plateaux, ranges and the extensive dunes of Cape Flattery to Bathurst Head and the Shelburne Bay area. The vegetation ranges between forests, woodlands and heaths depending on edaphic features.

3) Plains: The region, west of the ranges, contains the vast alluvial plains of the major rivers that flow into the Gulf of Carpentaria, i.e. Wenlock, Archer, Holroyd, Edward, Coleman and Mitchell. Substrates include extensive deposits of aluminous and ferruginous laterites north of Archer Bend along the west coast and subcoastal part of the Cape (north-west plains), a mixture of sandstone, siltstone and shale inland of the north-west plains (central plains) and alluvial or weathered clays, sands and gravels south of the Archer River (south-west plains). Dominant plant communities are open

forest and woodland, grassland, saltpan and patchy riparian tall and/or closed forest.

4) Laura basin: The sedimentary plains of the Laura region, through which flow the Normanby and North Kennedy Rivers, has a vegetation composition similar to that of 3.

5) South-east Uplands: The remaining region comprises uplands of greywacke and other sediments covered with eucalypt woodlands and some rainforest confined to the south-east coastal area around Helenvale.

For more detailed descriptions of specific areas within Cape York Peninsula see Lavarack (1977, 1980, 1984, 1986), Lavarack & Stanton (1977), Specht *et al.* (1977), Hynes & Tracey (1980), Pye & Jackes (1981), Winter & Atherton (1985).

2. METHODS

2.1 Taxonomic Scope

In this study only native and introduced vertebrates were considered. These included: freshwater fish, amphibians, reptiles (including Estuarine Crocodile, sea turtles and sea snakes), birds (including seabirds) and mammals (including Dugong and cetaceans). A more comprehensive study of the Cape's freshwater and estuarine fish was undertaken by Dr Peter Jackson (CYPLUS NRAP Project No. NR10) while the wetland fauna was specifically addressed by Dr Peter Driscoll (NRAP NRO9).

Species were considered endemic to the biogeographic region where a) greater than 75% of the animals' known range was within the region (assessment based on maps in current field guides for each class: fish - Allen 1989; herptiles - Wilson & Knowles 1988, Cogger 1992, Tyler 1992; birds - Blakers *et al.* 1984, Slater *et al.* 1989; mammals - Strahan 1983, 1992), or b) the animals' occurrence in Australia was confined to that region even though they may have an extra-limital distribution of variable extent. Determination of threatened species and their status was based on various lists (Kennedy & Burton 1986; Kennedy 1990; ANPWS 1991; DEH 1991; Garnett 1992). The species listed and/or their rankings may change as a result of a review of Queensland fauna currently being undertaken by the Department of Environment and Heritage (DEH).

2.2 Sources

Information on species' distributions were obtained from an intensive and extensive literature search, specimen records from all major Australian museums, the RAOU Bird Atlas Scheme, and fauna surveys. The last were mostly carried out by the Queensland National Parks and Wildlife Service (now DEH) and the Australian Biological Resources Study Project.

Prior to 1900, most zoological observations from Cape York Peninsula were associated with explorations along the east coast, e.g. voyages of H.M.S. Challenger, Fly, Rattlesnake and Chevert (Jukes 1847; Macleay 1876; Ramsay 1877; Forbes 1878), rather than land based expeditions, (e.g. treks of Kennedy and the Jardine brothers (Macgillivray 1852; Byerley 1867; Norton 1909). With the development of settlements, information and specimens tended to be collected in the vicinity of these localities, e.g. Somerset and Cooktown (Robinson & Laverock 1900; see references in Monteith 1987; numerous museum records).

Between 1909 and 1933, naturalists began extending their collection areas into more remote parts of the Cape. The expeditions of McLennan in search of birds ranged from Coen and the McIlwraith Ranges to Iron Range and Somerset, as well as Thursday Island and the Archer-Watson Rivers near Aurukun (Macgillivray 1914, 1917; White 1917, 1922; McLennan 1922). Wilkins (1928), when collecting for the British Museum of Natural History, travelled through the region between Temple Bay and Coen. By far the most extensive work, in terms of both taxonomic scope and area covered, was that of Thomson who operated between the Stewart and Lockhart Rivers, in the Coen and Aurukun areas, and along the Coleman, lower Edward and Mitchell Rivers (Thomson 1935a, b; Dixon & Huxley 1985).

The next major fauna survey on the peninsula was the 1948 Archbold Expedition for the American Museum of Natural History which visited numerous locations between Helenvale and Thursday Island, especially in the Coen-McIlwraith Range - Portland Roads area (Nichols 1949; Tate 1952; Brass 1953). There followed a considerable gap in interest until 1975-1983 when a series of surveys were conducted throughout the region, including Cape Flattery, Kowanyama, Weipa, Iron and McIlwraith Ranges, Heathlands, Jardine River and Lakefield National Park (ABRS 1975, 1976 a, b, 1977 a, b; Winter 1980, unpublished data; Winter & Atherton 1985; Lyons unpublished data).

Information covering wide areas was also compiled in the course of the RAOU Bird Atlas (Blakers *et al.* 1984) and by Draffan *et al.* (1983). In recent years there have been further site specific surveys involving the Queensland Naturalists Club (Jardine River, Iron Range and Shelburne Bay) and the Royal Geographical Society of Queensland (Heathlands), as well as ongoing collections by the Queensland and Australian Museums (Ingram & Raven 1991; Cameron & Cogger 1992).

A list of the sources used in the database and their code numbers is given in section 6.2. All sources examined that contained faunal information are presented in the References and Bibliography (section 5).

2.3 Database

The database for the Cape York Peninsula region is primarily an historical one with the majority of records collected more than 10 years ago. Established in dBXL (dBASE III PLUS, Word Tech Systems, Inc. 1988), the database (designated CYPFAUNA.DBF) follows the same structure as that used in the fauna study of the Channel Country Biogeographic Region (McFarland 1992). The layout is described in section 6.3.

The Cape was divided into 797 ten minute grid cells of which 514 lie within the study area of this project (see 6.1). The use of a 10' cell system was considered a reasonable spatial scale as most of the available information was either not point data or was point data of unknown accuracy. However, descriptions of locations associated with records enabled most to be ascribed to a particular 10' cell. Data that could not be confidently placed into a cell was omitted. Operating at a scale of less than 10' either meant discarding a significant proportion of the data (minimum 35% of records) or allocating data to specific sites when there was no means of assessing the reliability of the location information attached to those records. The latter was also the case in the similarly remote and sparsely populated Channel Country, where scarcity of landmarks and settlements made location descriptions understandably vague. The database was seen as being intermediate between the geographically restricted but intensive surveys, with data at less than 5' accuracy (e.g. Winter 1980, unpublished data ; Winter & Atherton 1985) and the regionally-based lists and descriptions of Cape York fauna (e.g. Tyler 1972; Winter 1973, 1984a, b; Kikkawa 1976; Covacevich & Ingram 1980; Winter and Allison 1980; Covacevich 1985).

Each record in each grid cell is unique. Wherever possible the most recent observation of a species in a given cell is the one included for that cell.

McFarland (1992) recognises a range of problems associated with the compilation and interpretation of historical databases that are derived using information not collected with aims of a biogeographical or land use study in mind. The main problems readers should be aware of can be summarised as:

- 1) lack of systematic sampling across the biogeographical regions' landscapes, vegetation types, vertebrate classes and climatic conditions, resulting in limited value for predicting animal distributions and assessing both habitat preferences and abundance of species;
- 2) location error, often through map misinterpretation or incorrect or simplified co-ordinate transcriptions, and
- 3) taxonomic confusion arising from revisions of taxa, and cases of mistaken identity (a list of problem species for Cape York is provided in section 6.4).

The last problem can result in numerous difficulties especially where no specimen was collected (i.e. sight record), where specimens have not been rechecked and databases amended following taxonomic revisions, and where some authorities accept revisions but others do not!

In terms of interpreting the results, the major problem is that of variable search effort across the region. When making between-cell comparisons one simple means is an index, e.g. total number of species recorded in a cell divided by the search effort for that cell. However, because of the often non-linear relationship in species accumulation with increasing effort, this can result in a flawed assessment of the cell's faunal diversity and conservation value compared to other cells.

In the Channel Country project a modifier, derived from accumulation curves based on actual survey data, was used to compensate for the curve and consequently make inter-cell comparisons of species diversity and representativeness indices more meaningful (McFarland 1992). For the Cape York study the modifier was determined from curves constructed using fauna survey results for Weipa (Winter & Atherton 1985)

and the McIlwraith Range (Winter 1980, unpublished data). Where search effort indices were greater than 42 there was no appreciable gain in species numbers so the modifier was set at one and effort at 42. At efforts of less than 42 the modifiers were fractions of one, the size of which was dependent on the effort for the individual cell. (For the definition of search effort index see section 6.3.)

Note, this database does not include any additional unpublished and/or unchecked records that may be lodged in the Incidental Fauna Survey database in the Far Northern Region (contact D. Storch), or the results of any recent or ongoing research in the region, e.g. Golden-shouldered Parrot study (S. Garnett), small mammal study at Iron Range (L. Leong) and terrestrial vertebrate surveys across the Cape (J. Winter).

3. RESULTS

As mentioned earlier, this report deals only with the CYPLUS project area which is a subset of the area used in assembling the database (CYPFAUNA.DBF). Consequently, in any examination of the database there will be discrepancies between what is in the database and what is presented and discussed here and in sections 4, 6.5 and 6.6.

3.1 General

For the CYPLUS area 18,290 unique records were obtained involving 790 taxa identified to species level and 27 identified to genus level, from 320 grid cells (62% of all cells). The number of species recorded per cell varied between 1 and 366 and reflected the wide range in search effort across the peninsula (effort index range 1-92, Fig. 2). Of the broadly defined regions in Cape York (Fig. 1), those best sampled in terms of area and effort were the central uplands (Iron Range and Coen-McIlwraith Range), the north-west plains (Mapoon-Weipa) and the Laura basin (Lakefield National Park) (Fig. 3). Secondary areas included the Pormpuraaw - Kowanyama area (south-west plains), Torres Strait Islands (central uplands), Somerset - Jardine River and Heathlands (central plains), McIvor River - Cooktown (coastal ranges and dunes) and Helenvale (south-east uplands). By far the most conspicuous gap in sampling was an area covering most of the south-west plains extending eastwards to include the Great Dividing Range and the south-east uplands south of Laura. Notable lesser gaps were

Figure 2. Distribution of search effort within the CYPLUS region of Cape York Peninsula.

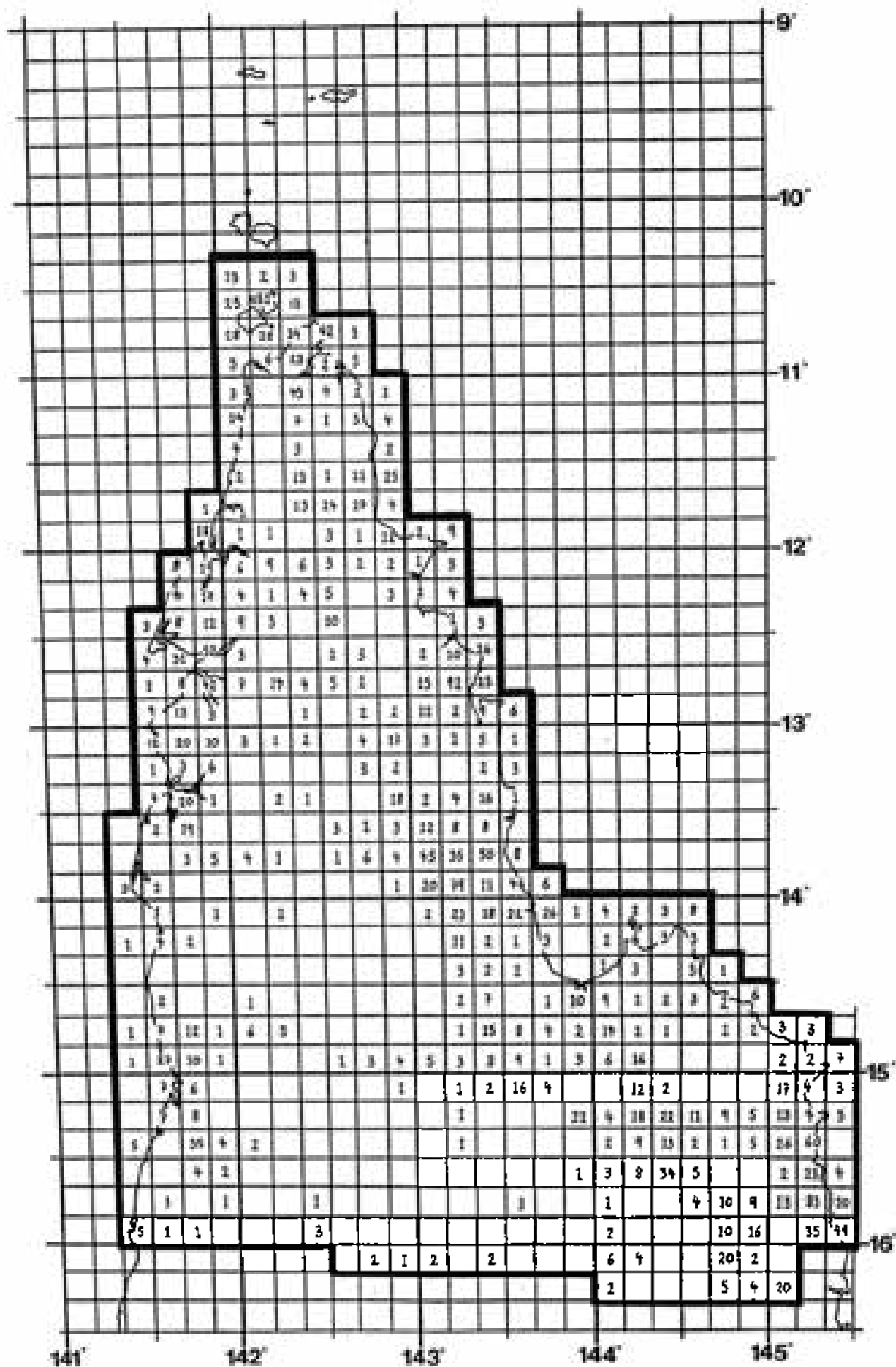
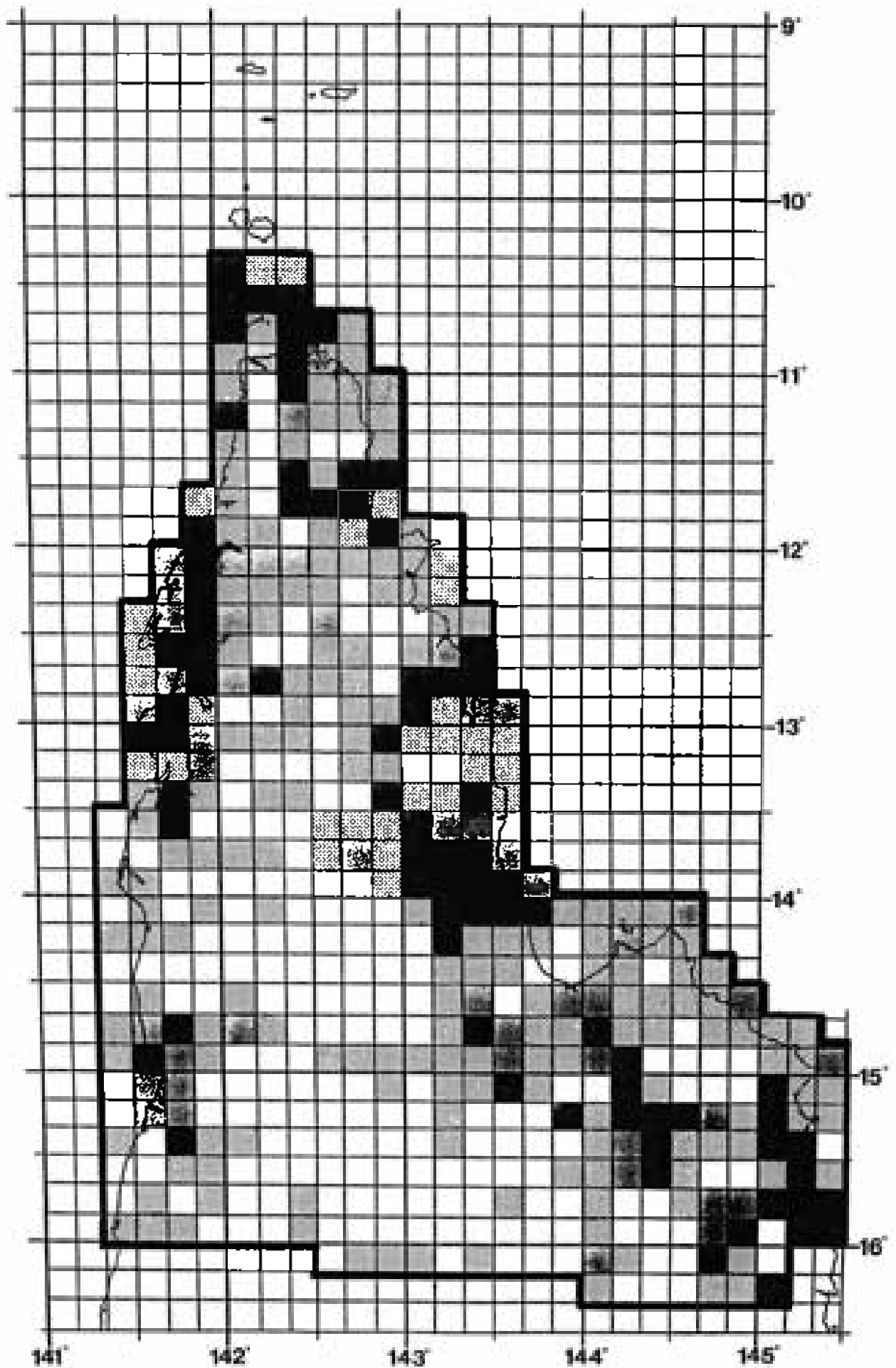


Figure 3. Distribution of search effort across the region using clumped categories (light stippling effort index = 1 - 5, medium stipple = 6 - 10, heavy stipple = 11 - 30, black = ≥ 31).



the coastal and subcoastal areas between Cape Flattery and Bathurst Head, Temple Bay - Cape Grenville, and most of the central plains except Heathlands and north of the Jardine River (Fig. 3).

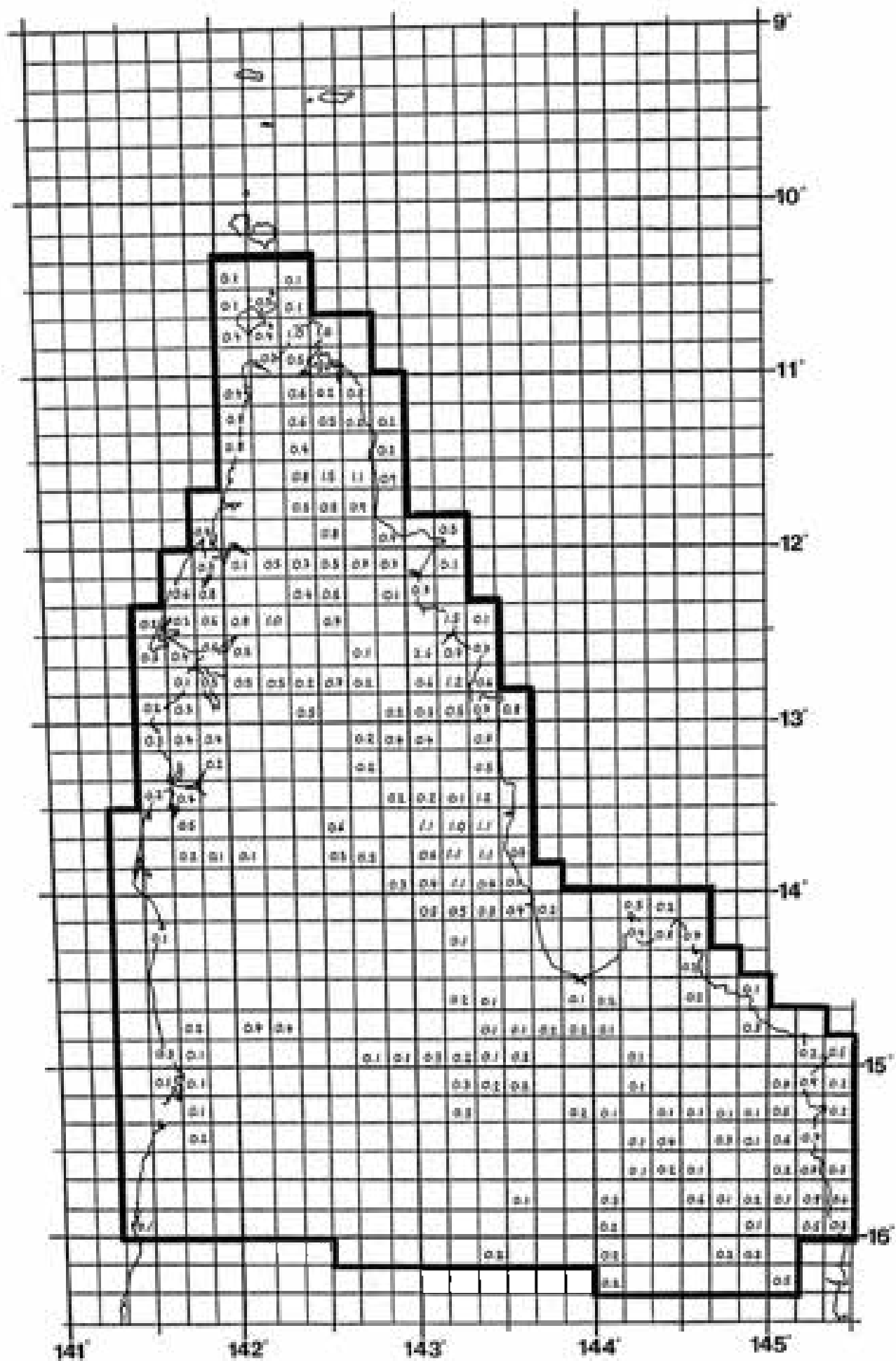
Given the problems associated with sampling biases and consistency in estimating search effort, the indices shown in Figures 4, 5, 7-11 should be used only as a coarse guide to the richness of various localities. Detailed assessment of any specific cell should be made using the original source material and, in conjunction with an examination of the information from surrounding cells.

Despite the use of a modifier in the calculations, indices for total species diversity (Fig. 4) were generally highest in those areas with the highest search efforts. Several isolated cells had high indices, e.g. those in the south-west plains, but all were based on small search efforts (index ≤ 3) and large counts of easily observed birds, hence their richness may be over-stated. The most diverse areas, i.e. containing cells with records of more than 320 species, were Iron Range, Coen-McIlwraith Range and Cooktown south to the CYPLUS boundary. Elsewhere, the maximum species numbers per cell ranged between 159 (Heathlands) and 171 (Laura basin) up to 241 (Pormpuraaw - Kowanyama), 296 (Lockerbie - Somerset) and 319 (Mapoon - Aurukun).

The pattern for endemic diversity (Fig. 5) was one of high indices to the north and east of a line running from around Weipa to the coast near Coen, a clump at Cape Melville and then the coastal region south of Cape Flattery. Below this line the indices were low and scattered. Within the richer part of the Cape there were noticeable peaks at Lockerbie - Somerset (maximum 43 endemic species/cell), Heathlands (35 spp/cell), Iron Range - Portland Roads (52 spp/cell) and Coen - McIlwraith Range (48 spp/cell).

For threatened species, indices were considered inappropriate because in most instances the records were from surveys designed specifically to locate certain uncommon species, e.g. Estuarine Crocodile *Crocodylus porosus* (Messel et al. 1981; Taplin et al. 1988), Golden-shouldered Parrot *Psephotus chrysapterygus* (Weaver 1982; Crowhurst 1989), Spectacled Hare-wallaby *Lagorchestes conspicillatus* (Ingleby 1991a) and Dugong *Dugong dugon* (Marsh et al. 1984). In most cases the threatened species was the only animal reported for a cell which, when combined with low search effort per cell, resulted in highly exaggerated indices for this category. Records of species at risk were concentrated in the Iron Range, Coen - McIlwraith Range and

Figure 5. Distribution of endemic species index within the region (all classes used).



Cooktown - Helenvale areas (Fig. 6). Lesser clusters occurred at the tip of the Cape and in the Pormpuraaw locality. The spread of records through the Laura basin and southern central uplands were scattered reports of a variety of species - Freshwater Crocodile *Crocodylus johnstoni*, Red Goshawk *Erythrotriorchis radiatus*, Square-tailed Kite *Lophoictinia isura*, Golden-shouldered Parrot and Spectacled Hare-wallaby.

3.2 Vertebrate Classes.

Table 1 summarises the species diversity (total number), representativeness (endemic) and species at risk (threatened) of the five vertebrate classes examined in this study. Also provided is an indication of the amount (number of records) and distribution (number of cells) of information collected for each class. The number of records for individual species and the distribution of endemic and threatened species is given in sections 6.5 and 6.6.

Birds were the most abundant in terms of numbers of species, records and cells while difficulties in identification and/or taxonomy (i.e. unidentified species) were prevalent in the fish and reptiles (Table 1). Among the introduced species most were either birds or mammals, the three reptiles were probably accidental introductions via ship cargo from south-east Asia and the Pacific, while the frog originated from deliberate releases further south. Reptiles and birds had the highest numbers of endemic and threatened species but, as percentages of known native species, the frog class was greatest for both categories (Table 1). Frogs and reptiles had the highest percentages of endemics that were also classified as threatened (38.5% and 25.6% respectively).

a) Freshwater Fish.

Data on freshwater fish were the most limited of all the vertebrate classes, being confined to a few studies in the Jardine River - Heathlands area (Allen & Hoese 1980; Leggett 1987; Byron & Blake in press), the Cape Flattery - Annan River region (Hawkins et al. 1988; Hortle & Pearson 1990) and scattered localities between the two (e.g. Nichols 1949; Timms 1986; Leggett 1990). Little information was available for the south-west plains where the major river systems occur (Fig. 7). Of the areas sampled, the most diverse were the mid to upper reaches of rivers in the central plains between the Archer and Jardine Rivers, and the dune lakes of Cape Flattery (Fig. 7). The former

Figure 6. Distribution of endangered, vulnerable and rare species within the region (all classes used). Actual number of species per grid cell are given.

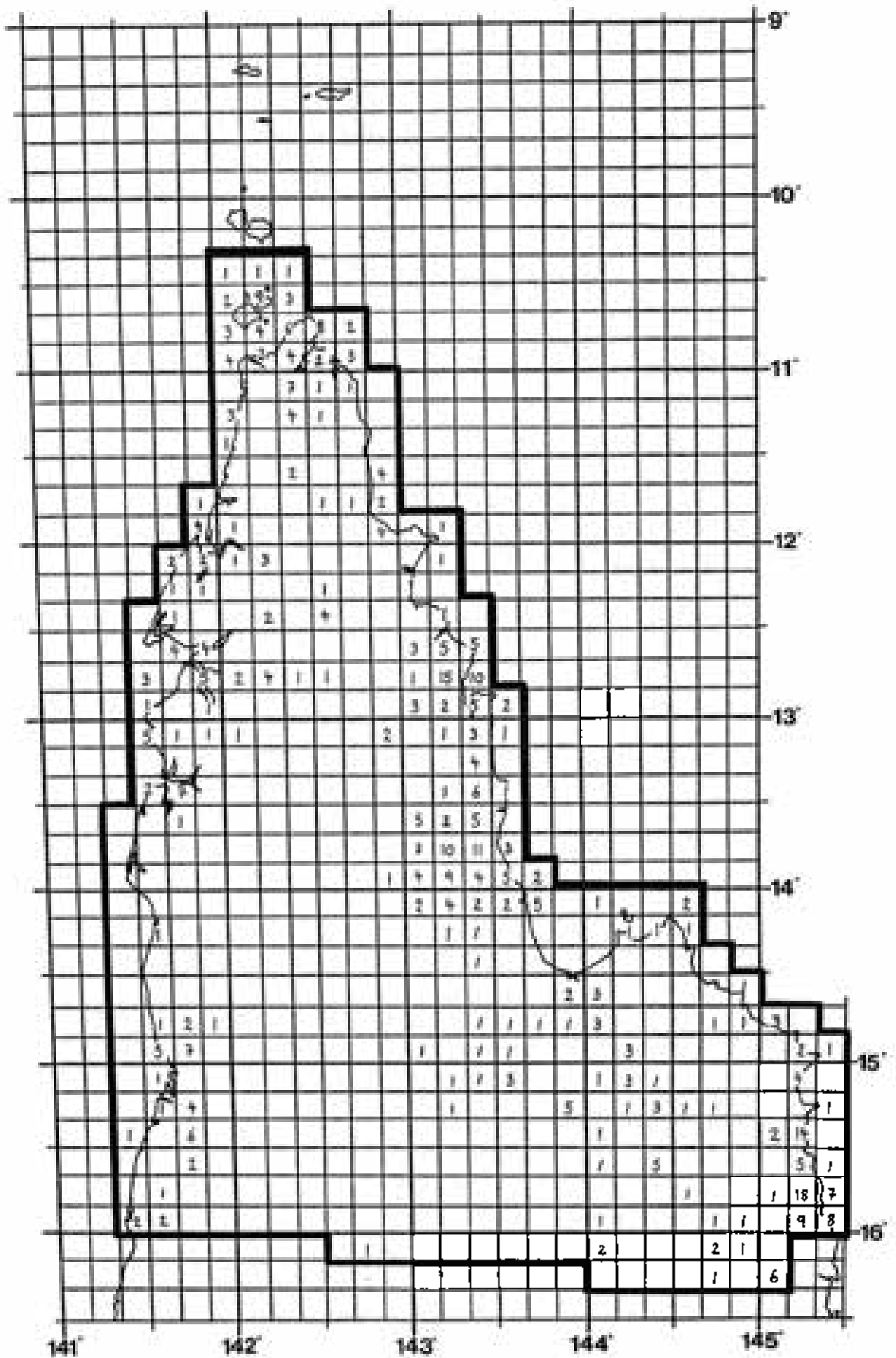


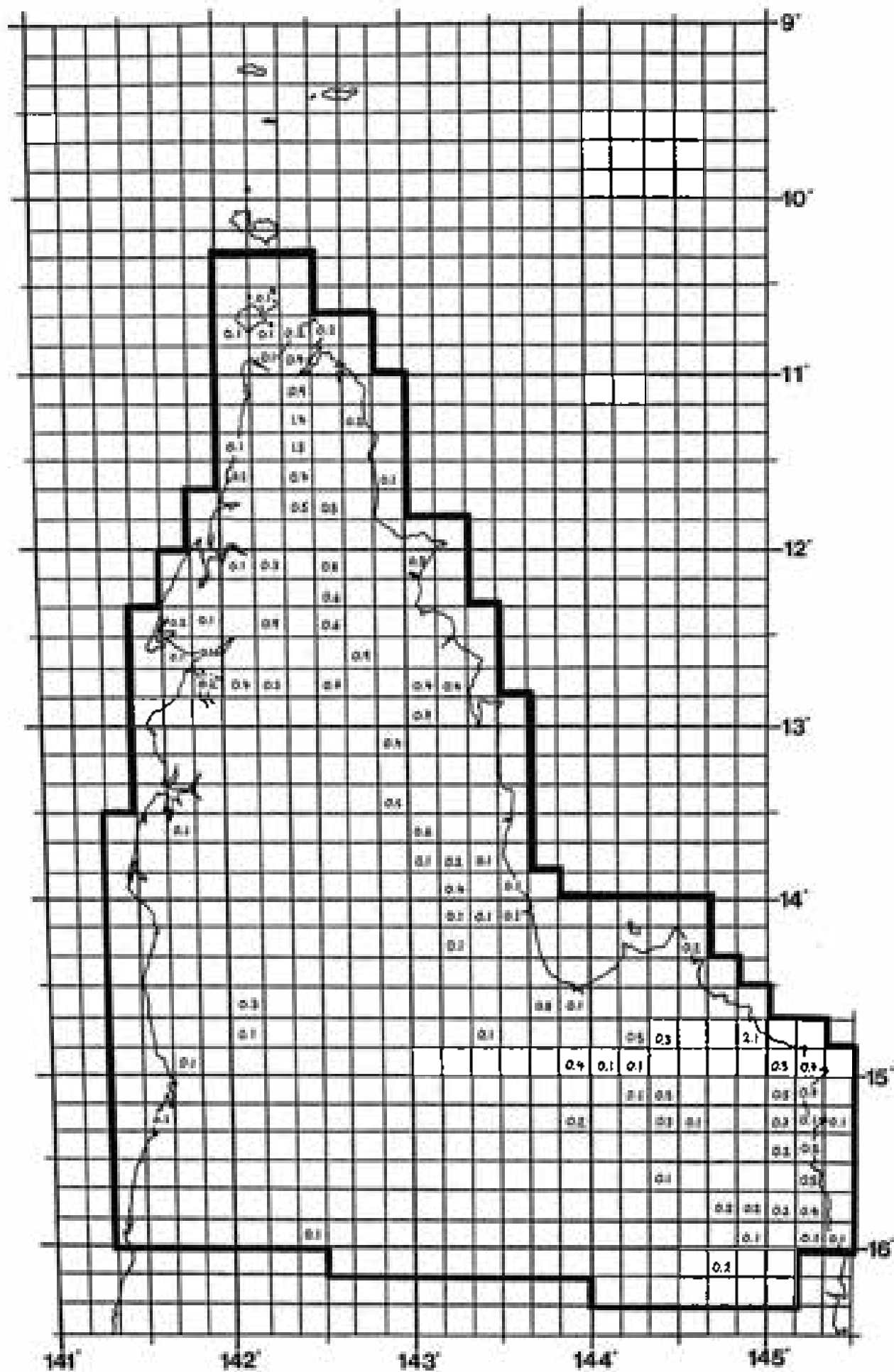
Table 1. Summary of species numbers for each of the vertebrate classes recorded in the CYPLUS study area of Cape York Peninsula.

Species	Vertebrate Class				
	Fresh. Fish	Amphibian	Reptile	Bird	Mammal
Total	68	50	189	401	109
Identified	56	49	180	401	104
Unidentified ^a	12	1	9	0	5
Identified - native	56	48	177	395	97
- introduced	0	1	3	6	7
- endemic ^b	11 (19.6%)	13 (27.0%)	42 (23.7%)	25 (6.3%)	13 (13.4%)
- threatened ^b	4 (7.1%)	7 (14.6%)	18 (10.2%)	18 (4.8%)	10 (10.3%)
Total number records	542	1,140	2,548	12,619	1,441
Total number cells	88	143	229	276	172

^a - species not positively identified or as yet undescribed.

^b - the numbers in parantheses are percentages of the number of identified native species.

Figure 7. Distribution of fish species diversity index within the region (native species only).



contained the highest species numbers, up to 39 species/cell, which included all four threatened species and all but one of the endemic species (see section 6.6).

b) Amphibians

Amphibians (frog) diversity indices were greatest in the north-west plains, Coen-McIlwraith Range area and Cape Flattery - Helenvale area (Fig. 8). These three locations also had the highest species numbers with maximums of 17, 22 and 27 species/cell respectively. The combined areas of Coen - McIlwraith Range and Helenvale - Mr Windsor Tableland accounted for all threatened and endemic frogs currently known for Cape York Peninsula (see 6.6). Several south-west and central plain cells with high indices (Fig. 8) were due to low effort searches that focussed on amphibians but only 4-10 species/cell were recorded.

c) Reptiles

Areas of high reptile diversity included north-west plains, the tip of Cape York and adjacent islands, Heathlands, Iron Range - Lockhart River, Coen - McIlwraith Range, Bathurst Head - Cape Melville and Cape Flattery south to the CYPLUS boundary (Fig. 9). Of these, most had maximum species numbers in excess of 50 per cell with the greatest being Cooktown (66 spp) and Coen (65 spp). Like frogs, some areas (e.g. Cape Melville and Heathlands) had high relative richness even though absolute numbers were not great (17-33 spp/cell). Endemic and threatened terrestrial reptiles were concentrated in the following areas: Cape York tip and Torres Strait Islands, Heathlands, Coen - McIlwraith Range and the coast and hinterland between Cape Flattery and Helenvale (see 6.6).

d) Birds

The pattern of bird species diversity (Fig. 10) reflected sampling effort across the region (Fig. 2 & 3) even after compensating for effort. Being the most easily sampled of all the vertebrate classes, birds could be counted in large numbers for small effort within a cell, particularly if species-rich habitats (e.g. wetlands and rainforest) were visited. This resulted in exaggerated indices for some cells. In terms of maximum species numbers per cell the most diverse areas were Iron Range and north-west plains (both 226 spp.), Cooktown - Helenvale (216 spp.), Cape York tip and Torres Strait

Figure 8. Distribution of amphibian species diversity index within the region (native species only).

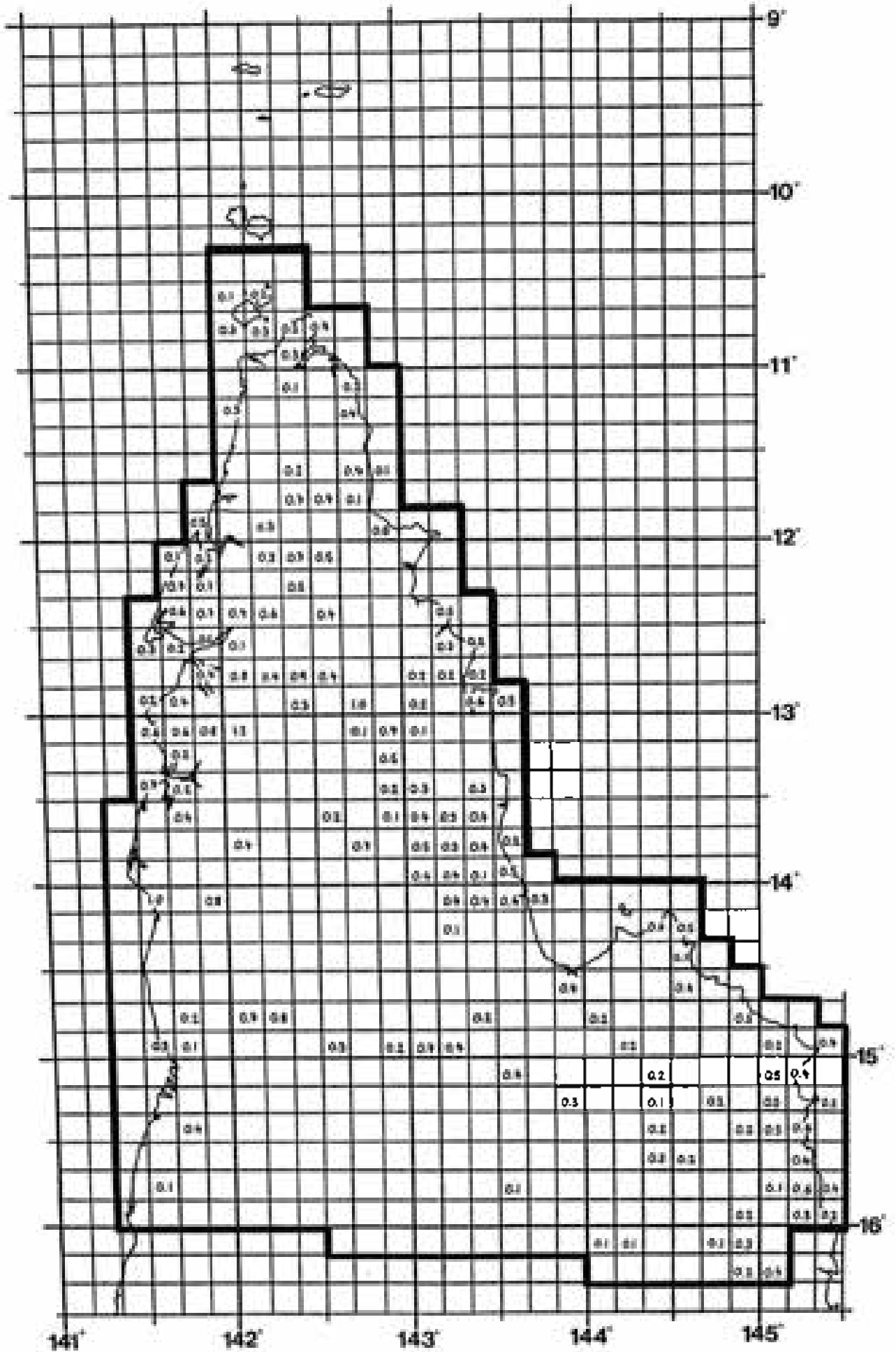


Figure 9. Distribution of reptile species diversity index within the region (native species only).

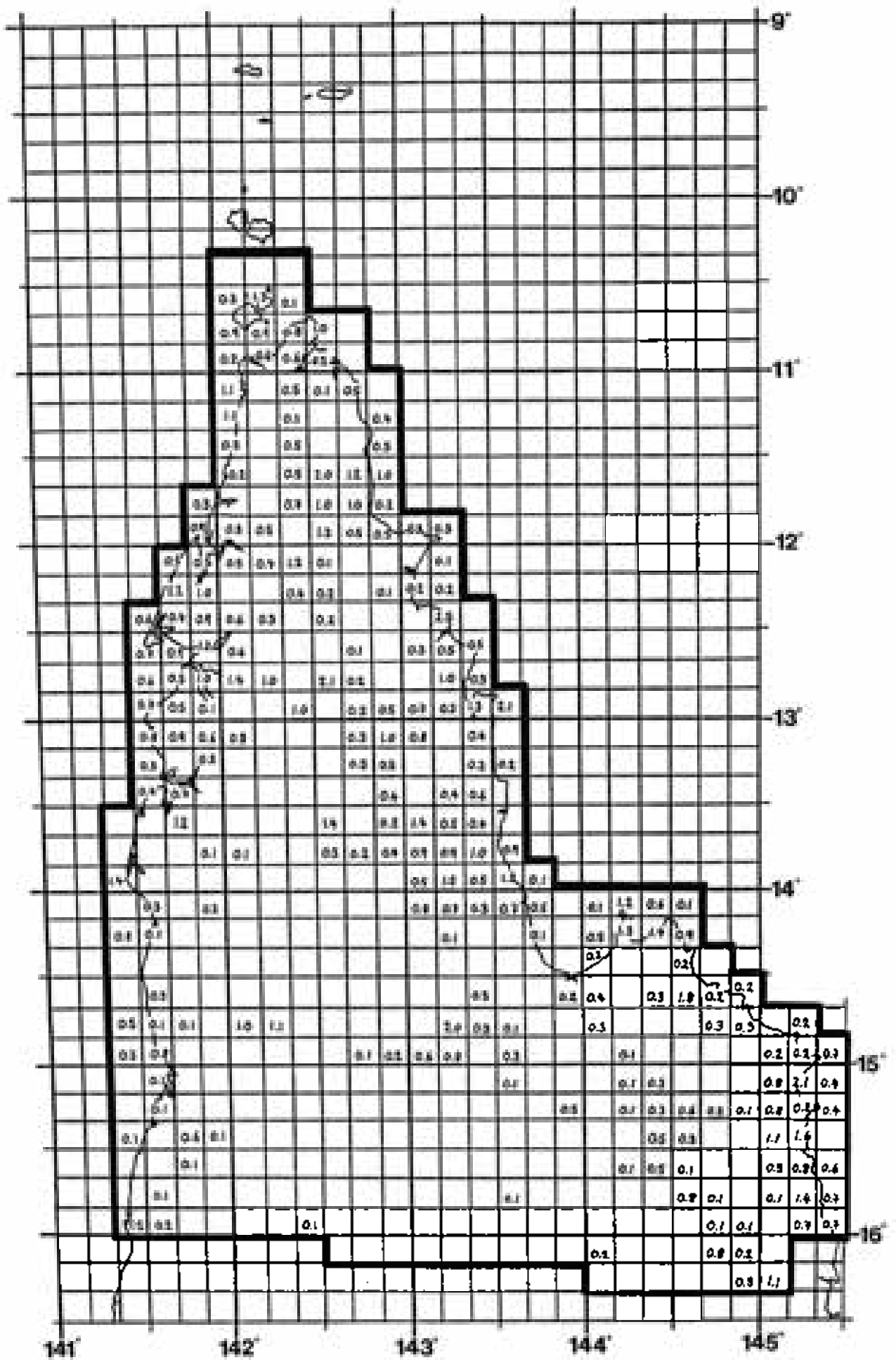
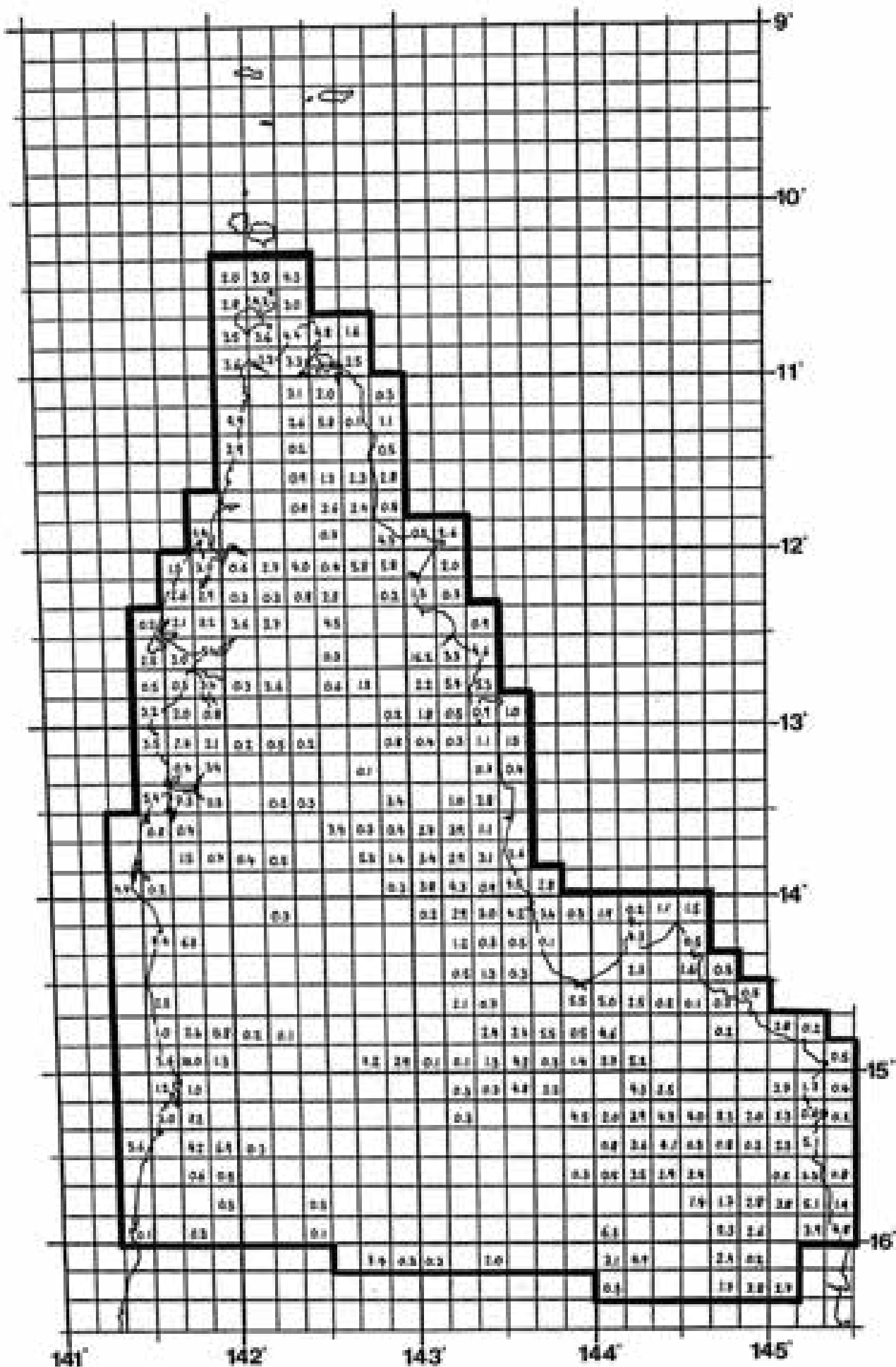


Figure 10. Distribution of bird species diversity index within the region (native species only).



Islands (201 spp.), Kowanyama - Pormpuraaw (197 spp.) and Coen (182 spp.). Of the well sampled areas, only the Laura basin with 134 species/cell was low in absolute numbers, compared to other localities. The majority of endemic and threatened birds were recorded in one or more of the following areas: Lockerbie - Somerset, Heathlands, Iron Range, Coen - McIlwraith Range, Lakefield - Musgrave and Cooktown - Helenvale (see 6.6).

e) Mammals

There were four main sites of high mammal diversity: Cooktown - Helenvale, Coen - McIlwraith Range, Iron Range - Lockhart River and Mapoon - Weipa (Fig. 11). Maximum species numbers ranged from 47 species/cell in the first area down to 24 species/cell in the last. The remaining locations both had values of 41 species/cell. Very few mammal records were found for the south-west plains (Fig. 11) with the highest species number being 11 at Kowanyama. Most endemic and threatened mammal species were present in Lockerbie - Somerset, Iron Range, Coen - McIlwraith Range, Mapoon - Weipa and Cooktown - Helenvale areas (see 6.6). The only species not recorded in any of these locations was the Spectacled Hare-wallaby which had scattered records throughout the Cape (see 6.6).

3.3 Key Areas.

An objective assessment and comparison of the faunal conservation value of various areas in Cape York Peninsula is hampered by the unequal sampling across habitats, vertebrate classes, climatic conditions and even the broadly defined regions. This lack of systematic data collection reduces the rigour of a regional analysis. Given the distribution of available information, it is conspicuous and disappointing that several areas, depauperate in information, contain major National Parks that have not been surveyed systematically for fauna, e.g. Jardine River, Archer Bend, Rokeby, Cape Melville and Mitchell-Alice Rivers (Fig. 12). In contrast, the McIlwraith Range and Weipa areas have been intensively examined but no reserves are present, despite several proposals (Stanton 1976; Krieger 1990). Of the larger National Parks present only Iron Range, Cedar Bay and parts of Lakefield include cells that have been sampled to a reasonable level.

Figure 11. Distribution of mammal species diversity index within the region (native species only)

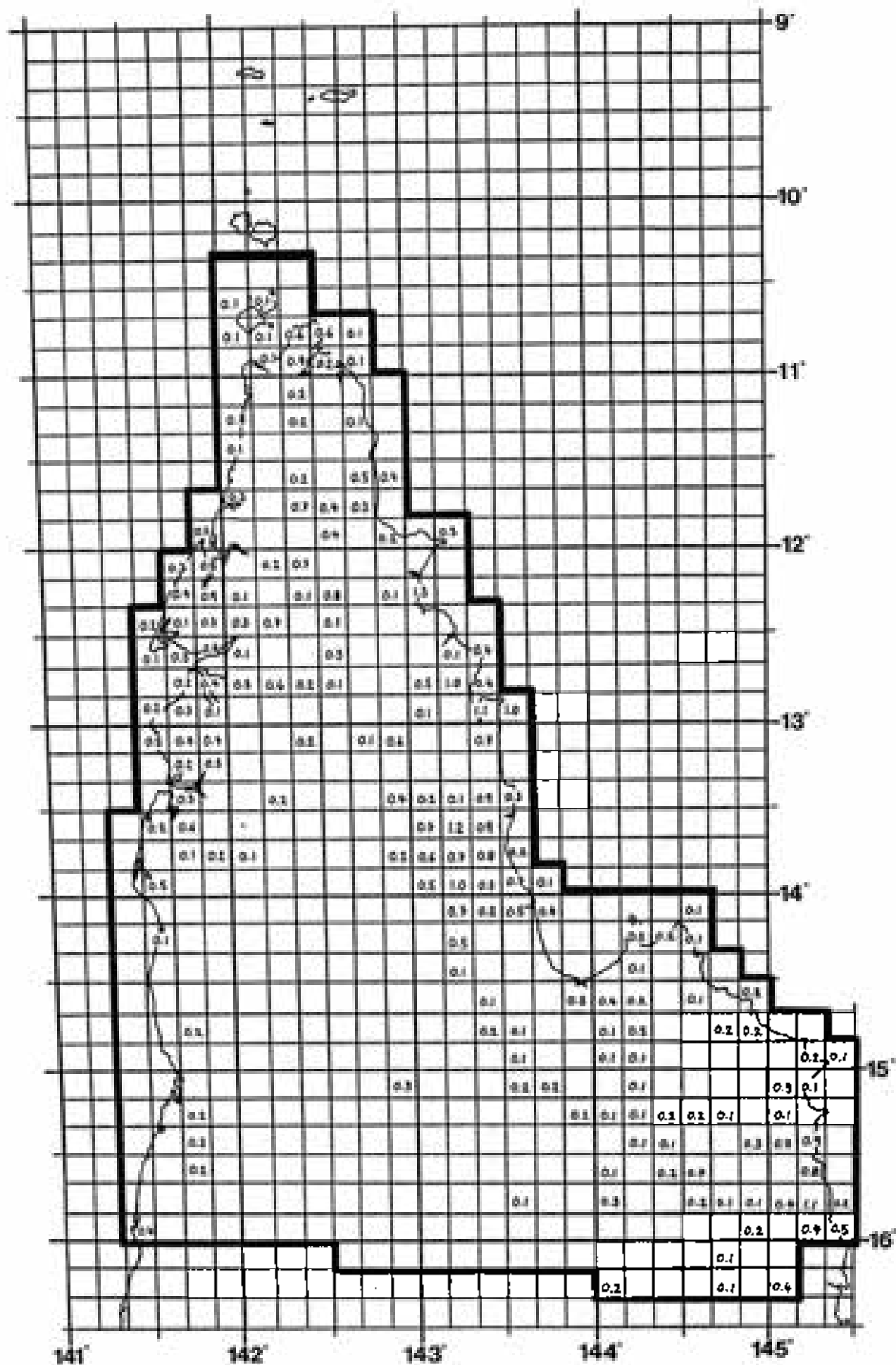
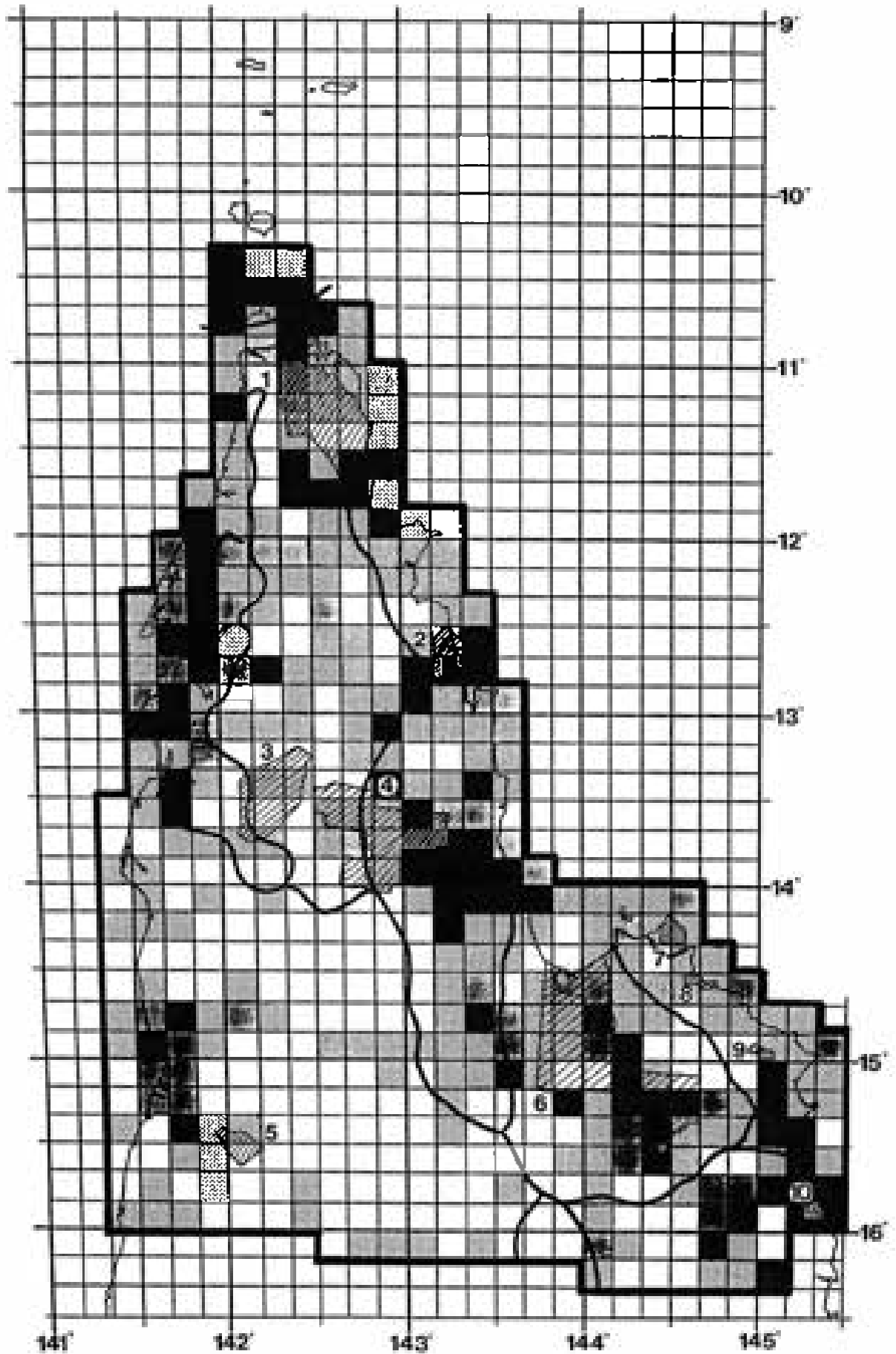


Figure 12. Distribution of National Parks on Cape York Peninsula in relation to the broadly defined regions and sampling effort. Hatched areas denote National Parks and thickened line indicates regional boundaries (see Fig. 1). Explanation of effort as per Fig. 3. Numbers refer to major National Parks: 1 Jardine River, 2 Iron Range, 3 Archer Bend, 4 Rokeby, 5 Mitchell and Alice River, 6 Lakefield, 7 & 8 Cape Melville, 9 Starcke and 10 Cedar Bay.



The following list of key areas was derived by overlaying the faunal information in Figures 4-11 and outlining those cells with the highest indices. (Arbitrary cut-off points were selected for each category depending on the range of values recorded within that category.) Cells were highlighted if they were outlined for three or more of the four categories (total species, endemics, threatened and vertebrate class) (Fig. 13).

Due to the broad differences in the types and diversity of habitats across the Cape, the localities listed are sorted into the recognised regions (1-5, Fig. 1). There is no priority ranking in the list.

1. Central Uplands:

- (a) Iron Range (this area is partially covered by the Iron Range National Park),
- (b) Coen - Mollwraith Range (extensive area east and west of the ranges including Croll, Peach, Leo, Nesbit and Massey Creeks and Rocky River).

2. Coastal Ranges and Dunes:

- (a) upper reaches of Palm Creek - Olive River and Shelburne Bay,
- (b) lower reaches of Pascoe River,
- (c) Cooktown (this area is partially covered by Endeavour River and Mount Cook National Parks).

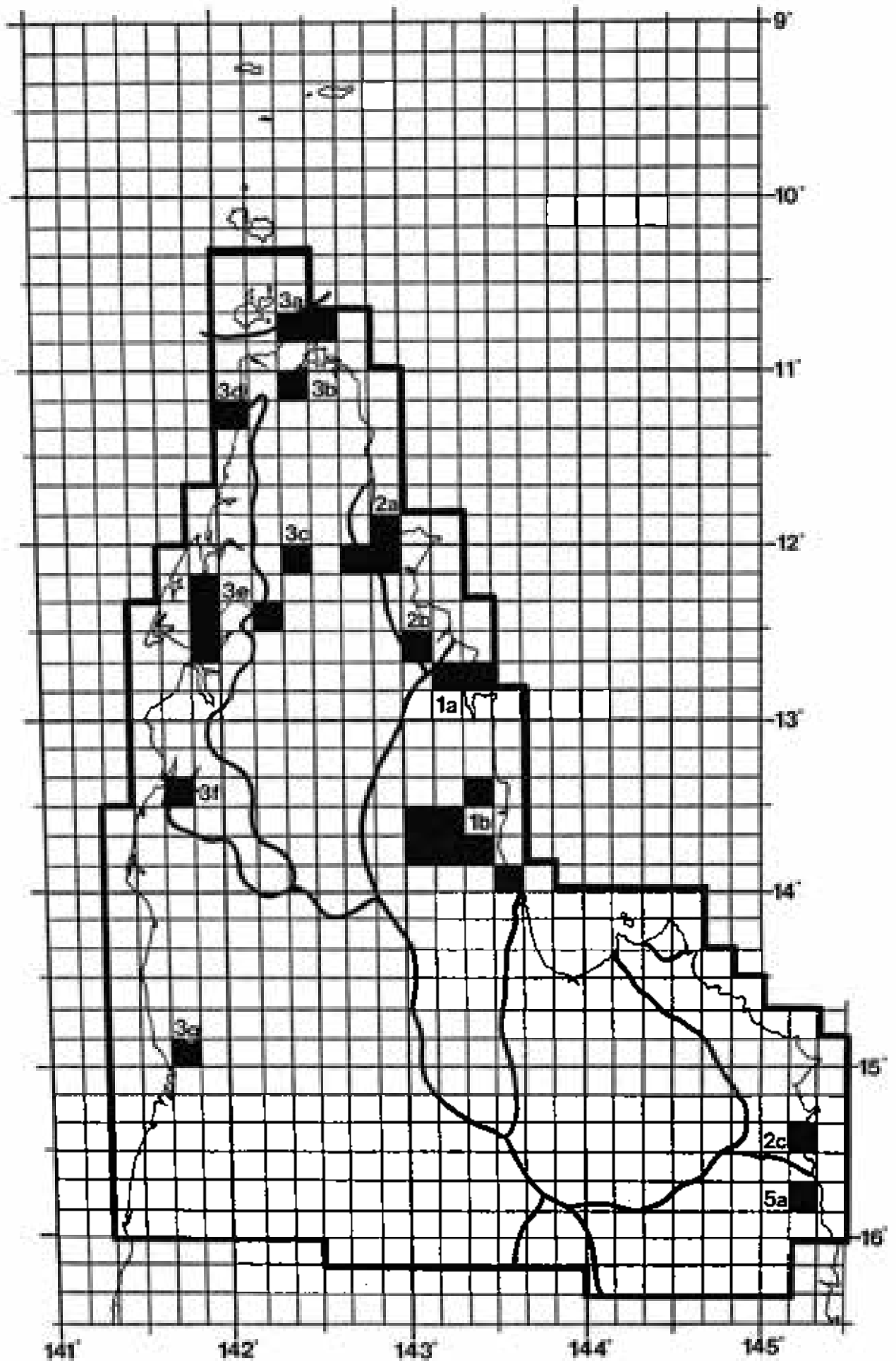
3a. Central Plains:

- (a) Lockerbie - Somerset,
- (b) Jardine River crossing (most of this area covered by Jardine River National Park),
- (c) North Alice and Palm Creeks (tributaries of Ducie River).

3b. North-west Plains:

- (d) Vrilya Point,

Figure 13. Location of key areas on Cape York Peninsula in relation to the broadly defined regions. Labels refer to the areas listed in section 3.3.



- (e) Wenlock River (lower and middle reaches), Tentpole Creek and Weipa,
- (f) Aurukun and lower reaches of Archer River.

3c. South-west Plains:

- (g) Pormpuraaw hinterland.

4. Laura basin: no significant cells.

5. South-east Uplands:

- (a) Helenvale (this area partially covered by Cedar Bay National Park).

NOTE. This list has three important qualifiers attached to it:

1. All analyses were based on fauna information only.
2. The list was based only on those areas which had reasonable data sets. Areas with little or no data, e.g. south-west and southern central plains, the coastal area between Cape Melville and Cape Flattery and the southern south-east uplands, could not be assessed in any detail, especially within a regional context.
3. The data used in the assessment were of variable age and consequently the current conservation value of each area may not be the same as that indicated by the analysis.

4. DISCUSSION

4.1 General

Cape York Peninsula is a region of interchange between the lowland and montane rainforest faunas of New Guinea and the primarily dry-adapted savannah fauna of northern Australia (Ride 1972; Tyler 1972; Schodde & Calaby 1972; Kikkawa *et al.* 1981). Given the prevailing monsoon climate, the latter dominates most of the Cape

with the rainforest community restricted to relatively disjunct patches. The fragments of gallery forest, west of the Great Dividing Range, act as important wet (flood) and dry (drought, fire) refugia for a variety of vertebrates (Kikkawa *et al.* 1981; Covacevich & McDonald 1991; Menkhorst & Woinarski 1992). Within the region there is a strong contrast between rainforest and non-rainforest habitats, particularly in the north and east where the two are highly interspersed. Combining this with the strong associations between certain animals and certain vegetation types, the result is relatively small areas with exceptionally high faunal diversity, e.g. Coen - Mcllwraith Range.

Another feature of the region's fauna is the development of endemism, especially species totally confined to Australia, within certain habitat types (Kikkawa *et al.* 1981). These habitats are generally isolated and small in area and include heathlands (endemics: *Anomalopus pluto*, *Carlia dogare*, *Ctenotus rawlinsoni*, *Trichodere cockerilli*) and rocky outcrops (*Cophixalus saxatilis*, *Nactus galgajuga*, *Carlia scirtetes*, *C. coensis*, *C. rimula*, *Cryptoblepharus fuhni*, *Ctenotus quinkan*, *Petrogale coenensis*, *P. godmani*). Many of the endemic frogs and reptiles are also those species that appear to be threatened.

Within the vertebrate classes, little detailed work has been done on the region's fish, frog and reptile groups. Despite this, Cape York contains one of Australia's richest sites for freshwater fish (Jardine River) which is attributed to the diversity and largely undisturbed nature of the river's habitats (Allen & Hoese 1980). Among the frogs and reptiles the notable feature is the relatively large number of endemic and threatened species found in the region (e.g. frogs: *Litoria longirostris*, *Cophixalus peninsularis*, *C. crepitans*, *Cyclorana manya*; reptiles: see *Anomalopus*, *Carlia*, *Cryptoblepharus* and *Ctenotus* species mentioned before - see 6.5 & 6.6). All of the frogs and most of the skinks occur in the Coen - Mcllwraith Range area. The freshwater fish, frog and reptile faunas all show close affinities with those of lowland New Guinea (Tyler 1972; Allen & Hoese 1980; Covacevich & McDonald 1991).

Much of the literature dealing with the fauna of Cape York has focussed on the birds and mammals, especially those of rainforests and mangroves (Winter 1973, 1984a,b; Ford 1982, 1983; Kikkawa 1991a, b; Richards 1991; Winter *et al.* 1991). Schodde & Calaby (1972) consider the region's avifauna is derived from three sources: northern Australian woodlands (present in Cape savannahs), lowland New Guinean

rainforest (Cape rainforest patches north of Cooktown) and montane New Guinean rainforest (Cape and Wet Tropic rainforests south of Cooktown). The separation, in time and space, of the two Cape rainforest communities has enabled the southern one to become a centre of endemism in its own right for both birds and mammals (Kikkawa *et al.* 1981; Winter *et al.* 1991). Currently, the major barriers to dispersal within the region are Torres Strait and the arid corridor of the Laura basin. The former is a selective barrier with some bird species migrating regularly between Australia and New Guinea, while some 22 shared rainforest species appear unlikely to recolonise from New Guinea should they be lost from Australia (Garnett 1991). Of the 22, seven are listed in Queensland as either threatened (4 spp.) or of special interest (3 spp.) and hence there is the need for appropriate action to conserve these species in this State. The continuing process of interchange in the region is evident in the occasional record of New Guinean species on Torres Strait Islands and the tip of Cape York (e.g. Gurney's Eagle *Aquila gurneyi*, Imperial Fruit-pigeons *Ducula* spp.).

In terms of terrestrial rainforest mammals, Cape York Peninsula has only two of the restricted endemics (Cinnamon Antechinus *Antechinus leo* and Cape York Melomys *Melomys capensis*) but all five species with restricted Australian distributions but are shared with New Guinea (Grey and Spotted Cuscus *Phalanger orientalis* & *P. maculatus*, Rufous Spiny Bandicoot *Echymipera rufescens*, Striped Possum *Dactylopsila trivirgata* and White-tailed Rat *Uromys caudimaculatus*) (Winter *et al.* 1991). All seven species have been recorded in the Iron Range - McIlwraith Range area. Within north Queensland rainforests the same area also boasts a diversity in bat species second only to the Helenvale area (Richards 1991). Of the Cape's terrestrial native mammal species only 19.8% appear to have changed status in recent times (Winter & Allison 1980), most of which is attributed to a change in search activity rather than any actual decline or expansion of ranges. Some of the other contributing factors include natural population fluctuations (e.g. "boom and bust" cycles, seasonal movements), patchy distributions, habitat modification through grazing, mining and altered fire regimes, and the impact of introduced predators and competitors. The phenomenon of species patchiness in the region is real and possibly due to the interaction of habitat size and distribution (interspersed swamps, woodlands and rainforest/gallery forest isolates), and floristics (Braithwaite *et al.* 1985; Winter & Atherton 1985).

As a result of this project the number of terrestrial vertebrate species recorded for Cape York has increased, compared to previous estimates (Kikkawa *et al.* 1981),

with the addition of 4 frogs, 36 reptiles, 29 birds (17 land birds, 12 waterbirds) and 16 mammals. This is not unexpected given the increase in survey and collecting activity, as well as species creation through taxonomic revisions, over the past 13 years. In comparison with the rest of northern Australia, the Cape has identical numbers of terrestrial mammals (94 spp.), slightly more land birds (275 vs. 252 spp) but considerably fewer terrestrial reptiles (152 vs. 269 spp) (Woinarski 1992). The difference in the last class can be attributed partly to the fact that Woinarski's study area reached down to 20° S. and so included the reptile-rich desert habitats.

Within Queensland, only the Channel Country Biogeographic Region has been analysed in a similar fashion to Cape York Peninsula (McFarland 1992). The Cape has a far greater vertebrate diversity with between 1.3 and 4 times the number of species in each class. This is particularly true for frogs not only in total numbers but also in terms of the percentages that are endemic and threatened species. Unlike the Channel Country, the peninsula enjoys a larger range of moist habitats with a higher degree of consistency and/or permanency. Among reptiles and birds the percentage of endemics is similar between the regions but that for threatened species is greater for the Cape. This could be due to species of the latter often being restricted to relatively small and fragmented habitat patches (e.g. rainforest, rocky outcrops). The only major reversal in the inter-regional comparisons occurs among the mammals with the Channel Country having greater percentages of endemic and threatened species. Habitat degradation and predation, primarily through the activities of introduced animals, have been greater in the Channel Country and mammals, especially medium-sized ones, appear to be most susceptible to the impact of these pressures (Morton 1990).

4.2 Gap and Key Areas.

The atlas of Cape York Peninsula freshwater and terrestrial vertebrate fauna, as described by the database, suffers from unequal (but not stratified) sampling across habitats/regions, vertebrate classes and climatic conditions. In particular the data are biased toward coastal and subcoastal areas with high habitat diversity (e.g. north-west plains), and/or extensive tracts of rainforest (e.g. Mellwraith Ranges and Helenvale area) whose internal structural diversity supports a large number of species. While sufficient effort may reveal high diversity across the Cape, the impression is that the inland woodland plains (e.g. Laura basin, central plains) have less diverse faunas. More surveys of the central and south-west plains are needed to test this hypothesis.

The major gap in the Cape York fauna database is the south-west plains extending north into the central plains and east into the south-east uplands. Within this area there are three National Parks (Archer Bend, Rokeyby and Mitchell-Alice River), all of which lack any form of systematic fauna sampling. The same is true for most other National Parks with only Iron Range, Lakefield and Cedar Bay receiving reasonable attention albeit of an ad hoc nature. Other areas considered significant but requiring further assessment include the south-east uplands (e.g. sandstone ranges of upper Normanby, Deighton and Laura Rivers and Quinkan country south of Laura - Stanton 1976; Leslie et al. 1992) and the coast plus hinterland between Cape Melville and Cape Flattery (Leslie et al. 1992).

Stanton (1976) and Connell Wagner (1989) list eight areas, currently not reserved in National Parks, that are considered to have significant conservation value (Table 2). Most of these have been assessed as key or important areas (Stanton & Morgan 1977) and as having high wilderness quality (Leslie et al. 1992). Included in these are some of Queensland's most significant permanent and seasonal non-saline wetlands, e.g. Lockerbie, Shelburne Bay - Olive River, Aurukun - Lower Archer River and the flood plains of the south-west (Stanton 1975). In most instances, areas were selected without detailed fauna information, the exceptions being the Mapoon and Mitchell River locations both noted as containing important Estuarine Crocodile habitat (Taplin et al. 1988; Connell Wagner 1989).

On the fauna information available this report supports, in part or fully, five of the key areas nominated by others (Table 2). The areas of greatest agreement are Lockerbie - Somerset, the Wenlock River, Shelburne Bay and McIlwraith Range (Fig. 13). All of these areas have several grid cells with high diversity indices for total species, endemics, threatened species and/or at least one class (Fig. 4-11). The area most supported by the fauna data is the Coen - McIlwraith Range locality which is considered a major refuge of rainforest species (Kikkawa 1991b; Richards 1991; Winter et al. 1991). The size and location of the area also compliments the existing National Park estate, and if acquired would create an almost complete east-west transect of Cape York Peninsula. While National Parks are extensive on the Cape, covering approximately 10% of the area (Connell Wagner 1989), they are not representative of the region's faunistic diversity. The Laura basin is well conserved but other parts of the Cape are poorly represented, especially the north-west and south-west plains and the coastal ranges and dunes (northern section) (Fig. 12). Specific habitats with restricted

Table 2. List of areas that are considered to have conservation significance but are not currently protected.

Area	Source	Supported by this study
Lockerbie - Somerset	Stanton (1976)	Yes
Shelburne Bay - Cape Grenville - Olive River	Stanton (1976)	Partially
Port Musgrave - Wenlock R. - Ducie River	Connell Wagner (1989)	Partially
McIlwraith Range	Stanton (1976)	Yes
Mouth of Archer River	Connell Wagner (1989)	Yes
Edward R. - Holroyd River ^a	Stanton (1976)	Insufficient data
The Jack Lakes (Laura basin)	Stanton (1976)	Insufficient data
Mitchell River delta	Connell Wagner (1989)	No

^a - Stanton (1976) indicated that a substitute for this area could be one incorporating Princess Charlotte Bay which is now part of Lakefield National Park.

coverage include complex rainforests (limited to Iron Range patchwork and several small areas in northern part of the Wet Tropics World Heritage Area), tall Darwin Stringybark *Eucalyptus tetradonta* forest (small part of Archer Bend), sandstone ranges and plateaux, and coastal dunefields. Although most of the peninsula's endemic and threatened species have been recorded in existing National Parks, World Heritage area and in the key areas listed above, there are several terrestrial species that occur outside these areas and would require specific attention. These species include *Oxyeleotris fimbriatus*, *Glossogobius concavifrons*, *Anomalopus pluto*, *Carlia dogare*, three endemic *Ctenotus* species, Golden-shouldered Parrot, Spectacled Hare-wallaby and Godman's Rock-wallaby *Petrogale godmani*.

4.3 Fauna and Land Use Issues on Cape York Peninsula.

Compared to the rest of Australia, Cape York Peninsula is a relatively undisturbed region (Stanton 1976). Nonetheless there are several factors, most associated with land use on the Cape, that affect the native vertebrate fauna. The aim of this section is to provide an overview of those factors.

a) Cattle grazing.

Grazing leases cover almost 54% of Cape York Peninsula (Connell Wagner 1989) but stocking rates are low because of poor pastures and the nutritional stress associated with the monsoonal dry season (Stanton 1976). Most of the pastures are native grasses which are subject to widespread burning at the end of the wet season (Anning 1980). The introduction of commercially available pasture grasses and legumes is being examined.

Issues associated with grazing that are likely to have a negative impact on native fauna fall into two groups. First, there is habitat degradation (modified vegetation structure and composition) due to selective grazing; altered fire regimes for the promotion of green pick (for a more detailed discussion of fire see h); impact of cattle concentrating in dry season refugia (e.g. trampling and replacement of native grasses - Anning 1980, and soil disturbance - Braithwaite *et al.* 1984); and introduction of exotic pasture grasses and legumes into woodlands and deep ponding grasses into wetlands. The second issue is related to cattle as hosts to and vectors for exotic diseases (Daniel 1983). Given its proximity to New Guinea, Cape York is seen as a likely point of entry

for livestock diseases, e.g. foot and mouth disease and screw-worm fly. Such diseases may pose a threat to native species.

b) Other introduced organisms.

Besides various exotic pasture grasses, e.g. Mission Grass *Pennisetum polystachion*, Para Grass *Brachiaria mutica* and Hymenachne *Hymenachne amplexicaulis*, there are a number of environmental weeds invading wetlands, rainforests and savannah woodlands, e.g. Rubber Vine *Cryptostegia grandiflora* and Blue Thunbergia *Thunbergia grandiflora* (Humphries *et al.* 1991). These plants act directly - aggressive competition and replacement of native species, and indirectly - alter fire regime which affects regeneration of native species, on the flora with flow-on effect on the dependent fauna.

Of the introduced animals, pigs *Sus scrofa* are a major problem affecting fauna directly, e.g. predation of turtle nests, and indirectly, e.g. disturbance of riparian habitat (Winter & Atherton 1985) and as transmitters of disease. Cats *Felis catus* and Marine Toads *Bufo marinus* are direct threats as predators and poisonous prey respectively. All three species have widespread or expanding distributions on the Cape.

c) Mining.

The strip mining of bauxite in the north-west plains is seen as a major environmental disturbance (Winter & Atherton 1985) with Special Bauxite Mining Leases totalling approximately 3% of Cape York Peninsula (Connell Wagner 1989). The potential area that could be mined by Comalco alone ranges between 600 and 1800 square kilometres (Stanton 1976). Mining operations result in an irreversible change in the soil structure and depth, topography and vegetation, as well as the loss of the native plant seed pool and hollow logs both standing and fallen. The shift from a Darwin Stringybark open forest to a different climax vegetation arises through the replanting with non-original native species able to survive in the disturbed environment, e.g. casuarina and acacia species, and the trialing of pasture production and plantations of introduced trees, e.g. pine and mahogany species (Davies & Williams 1979).

Fauna surveys of revegetated areas revealed that such sites were being used by a high proportion of vertebrate species (73%) typical of open forest (Reeders & Morton

1983). While these results are promising several other questions need to be addressed:

- 1) Are the animals resident and establishing breeding populations in the revegetated areas? Reeders and Morton (1983) found only small percentage of native mammal and bird species present were actually breeding in the areas (7.6% and 8.7% respectively).
- 2) How quickly will recolonisation continue to occur and how much of the typical fauna re-establish in revegetated sites as the area mined increases and the area of adjacent undisturbed forest decreases? Unless native species start breeding in the revegetated sites there is the danger of species loss and the creation of an extensive faunistically depauperate landscape. Winter & Atherton (1985) specifically identified the tall Darwin Stringybark community as being at risk because the forest is largely confined to the aluminous laterite soils within the bauxite leases.

Elsewhere on the Cape there is habitat degradation, over smaller areas, associated with silica extraction in the coastal dunes of Cape Flattery and small gold mining operations scattered along the east coast (Stanton 1976; ACF 1979).

d) Conservation.

Although not completely representative of the region's habitat and faunistic diversity, National Parks, along with State Forests and Timber Reserves, account for 11% of Cape York Peninsula (Connell Wagner 1989). As major landholders, the State Government is responsible for the sound management of these areas particularly in relation to a) the implementation of ecologically appropriate fire regimes, b) control of introduced plants and animals, c) control of the impact of recreation, and d) active protection of native species (e.g. prevention of illegal shooting, trapping and unnecessary disturbance). In the absence of further acquisitions on the Cape, there is a need to investigate the potential for conservation agreements with other land users in order to afford some protection to significant but as yet unreserved areas.

e) Recreation.

As one of Australia's last frontiers, the peninsula is attracting an ever increasing number of mobile recreational visitors (ACF 1979). Problems faced by fauna because of this influx include habitat degradation along well-used tourist routes (e.g. fires and refuse especially in favourite camping areas) disturbance (e.g. visiting of active Golden-shouldered Parrot nests may cause abandonment - Garnett 1992), and hunting (e.g.

kangaroos, waterfowl and fish).

f) Illegal trapping.

The extent of illegal collecting of native animals on the Cape is not known. The main target groups trapped include frogs, reptiles (python species) and birds (parrot and finch species). Trapping contributes to the threatened status of a number of species, e.g. Golden-shouldered Parrot, Eclectus Parrot *Eclectus roratus* and Gouldian Finch *Erythrura gouldiae*.

g) Development and associated infrastructure.

Localised habitat loss and degradation may result from commercial projects, e.g. proposed rocket launching facility at Portland Roads, and defence installations, e.g. proposed Royal Australian Air Force base east of Weipa. Besides the actual development there are the supporting structures, such as townships, port facilities and an upgrading of road systems to all-weather status, and their associated environmental problems. Increased accessibility to the Cape would also increase the pressures arising from other activities, e.g. recreation and illegal trapping.

h) Fire.

Fire is a major factor affecting the fauna on Cape York Peninsula that can arise through any of the aforementioned activities. The most extensive plant communities on the peninsula, i.e. *Eucalyptus* forests and woodlands, are fire-prone with a history of frequent burns of natural (e.g. lightning) or man-made origins. Most fires are caused by people - graziers promoting green pick and to aid mustering, park rangers managing areas for conservation and fuel reduction reasons, Aborigines carrying out traditional hunting, or tourists who sometimes forget to fully extinguish camp fires.

Fires impact on fauna both directly - mortality in actual burn and as a result of habitat loss (food, cover), and indirectly - change in the structure and composition of the vegetation. The latter arises through a shift in fire regime, especially season (from mid to late Dry season burns to early Dry burns) and extent (from mosaic to broad-acre pattern). While early Dry fires are usually of lower intensity than those later in the Dry, the increase in the area being burnt annually could result in reduced habitat diversity

(Duff & Braithwaite 1989). Changes in habitat include the reduction of monsoonal rainforest when exposed to high fire frequency, and increasing tree density in woodlands with greater sapling survivorship through low intensity burns. Traditional Aboriginal burning in the woodlands and forests of the Northern Territory occur throughout the mid to late Dry but in a mosaic pattern such that by the end of Dry some areas have received intense fires while other areas are unburnt (Haynes 1985). Despite this season of burn being at variance with the requirements of some granivorous birds (Woinarski 1990), the practice appears to be the same used by Aborigines on Cape York Peninsula (Saxon & Rees 1989). The suggested fire regime for fauna conservation is one with a range of different intensities/times of burn, including the greater control but not elimination of intense late Dry fires, and the creation of mosaics that contain areas that remain unburnt for several years.

In Cape York most of the native pastures are subject to early Dry fires while annual burns are excluded from sown pasture (McKeague & Beckett 1989). The implications for fauna of such a fire regime and the possible increase in area of the latter need to be examined. Within the major National Parks (Lakefield, Archer Bend & Rokeby) fire management involves large scale mosaics with one third to half the grass cover burnt in alternate years (Saxon & Rees 1989). Although fuel loads are monitored by remote sensing there is no on-going assessment of the impact of such a burning program on animal distribution and abundance.

4.4 Recommendations.

Given the size and diverse nature of Cape York Peninsula, it would be presumptive of this report to outline explicit recommendations, particularly those relating to the management of the region. The following recommendations are listed in a descending order of priority (from urgent to high), relate specifically to the fauna of Cape York, and should be viewed as starting points for more detailed investigation and, where appropriate, action.

This report recommends:

- a) That steps be taken to establish National Parks in the following areas:
 - (i) McIlwraith Ranges and adjacent coastline: relatively undisturbed and extensive upland and lowland complex rainforest with very high faunal diversity including endemic and threatened species.

- (ii) Shelburne Bay - Cape Grenville area: relatively undisturbed example of dunefield habitats with high faunal diversity.
- (iii) Wenlock River - Ducie River - Tentpole Creek area: significant wetland and tall open forest communities, prime nesting habitat for Estuarine Crocodile.

Justification: Habitats and associated fauna present in these localities not adequately represented in current estate. The first two areas have been previously proposed as National Parks on the basis of non-fauna attributes.

- b) That a program of systematic fauna sampling be developed and undertaken in all existing National Parks in the region.

Justification: The department may find any further acquisitions, or even discussions of conservation agreements, difficult to justify without adequate knowledge of what species are already conserved in current National Park estate. Knowledge of the parks' fauna is also a prerequisite for formulating ecologically sound management plans.

- c) That management plans be drafted for all National Parks, with particular attention given to the issues of fire, introduced weeds and animals, recreation and illegal hunting and trapping. All plans must take into account the requirements of the animals present in each park and identify any information deficiencies that require further survey or specific study. All plans must also detail the on-going monitoring needed to evaluate the success or otherwise of any implemented management actions.

Justification: Need to conserve animal species within protected areas through proper habitat management and, where necessary, direct manipulation of certain species. Also there is the need to be seen as responsible land users within the region.

- d) That, irrespective of whether or not additional areas are acquired for National Park, the department should increase its effort in promoting ecologically sound management among the land users willing to participate in conservation agreements and those adjacent to National Parks.

Justification: A relatively inexpensive means of increasing the protection of fauna in significant areas and reducing the negative impacts of other land uses on native fauna.

- e) That systematic fauna surveys be undertaken in the following areas:
- (i) south-west plains,
 - (ii) coastal dunefields and hinterland between Cape Melville and Cape Flattery,
 - (iii) sandstone ranges of the upper Laura, Normanby and Deighton Rivers, and
 - (iv) the Jack Lakes.

Justification: All or parts of these areas are considered of special interest but all lack sufficient faunal data for an objective assessment of the zoological significance of each locality.



5. REFERENCES AND BIBLIOGRAPHY

- Adams, M., Baverstock, P.R., Watts, C.H.S. & Reardon, T. (1987). Electrophoretic resolution of species boundaries in Australian microchiroptera. II. The *Pipistrellus* group (Chiroptera: Vespertilionidae). *Aust. J. Biol. Sci.* 40, 163-170.
- Adams, M., Reardon, T.R., Baverstock, P.R. & Watts, C.H.S. (1988). Electrophoretic resolution of species boundaries in Australian microchiroptera. IV. The Molossidae (Chiroptera). *Aust. J. Biol. Sci.* 41, 315-326.
- Alexander, W.B. (1922). Observations and records of Australian sea-birds, 1920-21. *Emu* 21, 261-272.
- Allen, G.R. (1989). *Freshwater Fishes of Australia*. T.F.H. Publications: New Jersey.
- Allen, G.R. & Hoese, D.F. (1980). A collection of fishes from the Jardine River, Cape York Peninsula, Australia. *J. R. Soc. West. Aust.* 63, 53-61.
- Andersson, L.G. (1916). Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913, IX. Batrachians from Queensland. *Kungl. Svenska Vetenskap. Handl.* 52(9), 1-20.
- Andrew, D.G. & Eades, D.W. (1992). Twitcher's Corner. *Wingspan* 5, 5 & 21.
- ANPWS (1991). List of endangered vertebrate fauna. April 1991, ANPWS: Canberra.
- Anning, P. (1980). Pastures for Cape York Peninsula. *Qd Agric. Journal* 106, 148-171.
- Anon. (1905). *Oreoscopus (Sericornis) gutturalis*. *Emu* 5, 47.
- Anon. (1986). Report on Iron Range trip. *QOS News*. 17 (1), 2-3.
- Archer, M. (1976). Revision of the marsupial genus *Planigale* Troughton (Dasyuridae). *Mem. Qd Mus.* 17, 341-365.
- Archer, M. (1979). Two new species of *Sminthopsis* Thomas (Dasyuridae: Marsupialia) from northern Australia, *S. butleri* and *S. douglasi*. *Aust. Zool.* 20, 327-345.
- Archer, M. (1981). Results of the Archbold Expeditions. No. 104. Systematic revision of the marsupial dasyurid genus *Sminthopsis* Thomas. *Bull. Amer. Mus. Nat. Hist.* 168 (2), 61-224.
- Arnold, J.M. (1966). A taxonomic study of the lygosomid skinks of Queensland. M.Sc. Thesis, University of Queensland: Brisbane.
- Ashby, E. (1925). A review of the Australian members of the genus *Zosterops*. *Emu* 25, 112-119.
- Atherton, R.G., Mathew, P.A. & Winter, J.W. (1981). Notes on the crop contents and

locality records of the Marbled Frogmouth *Podargus ocellatus marmoratus* Gould from Cape York Peninsula. *Sunbird* 11, 71-72.

Australian Biological Resources Study Project (ABRS). (1975). Ecological Biogeography of Cape York Peninsula: Capelands Expedition, July 1975. Interim Report No. 2.

Australian Biological Resources Study Project (ABRS). (1976a). Ecological Biogeography of Cape York Peninsula: Weipa-Capelands-Iron Range Expedition, February 1976. Interim Report No. 4.

Australian Biological Resources Study Project (ABRS). (1976b). Ecological Biogeography of Cape York Peninsula: Cooktown-McIlwraith Range Expedition, June-July 1976. Interim Report No. 5.

Australian Biological Resources Study Project (ABRS). (1977a). Ecological Biogeography of Cape York Peninsula: Kowanyama Expedition, January 1977. Interim Report No. 6.

Australian Biological Resources Study Project (ABRS). (1977b). Ecological Biogeography of Cape York Peninsula: Iron Range-Torres Strait Expedition, July 1977. Interim Report No. 7.

Australian Conservation Foundation (ACF) (1979). Cape York Peninsula: A National Parks and Land-use Plan. ACF: Melbourne.

Barnard, H.G. (1910). Notes on hawks. *Emu* 10, 247.

Barnard, H.G. (1911). Field notes from Cape York. *Emu* 11, 17-32.

Barnard, H.G. (1928). Birds of the Cape York region, north Queensland. *Qd Nat* 6, 94-101.

Barnard, H.G. (1935). Notes on the Large-tailed Nightjar. *Emu* 34, 176-177.

Barrett, C. (1929). Days on the Daintree - a tropic river. *Aust. Mus. Mag.* 3, 282-288.

Bartram, K. (1988). A Glossy Swiftlet *Collacalia esculenta* at Iron Range, Qd. *Aust. Bird Watcher* 12, 165-166.

Baverstock, P.R., Adams, M., Reardon, T. & Watts, C.H.S. (1987). Electrophoretic resolution of species boundaries in Australian microchiroptera. III. The Nycticeiini - *Scotorepens* and *Scoteanax* (Chiroptera: Vespertilionidae). *Aust. J. Biol. Sci.* 40, 417-433.

Baverstock, P.R., Watts, C.H.S., Adams, M. & Gelder, M. (1980). Chromosomal and electrophoretic studies of Australian *Melomys* (Rodentia: Muridae). *Aust. J. Zool.* 28, 553-574.

Baverstock, P.R., Watts, C.H.S. & Hogarth, J.T. (1977a). Chromosome evolution in Australian rodents. I. The Pseudomyinae, the Hydromyinae and the *Uromys/Melomys* Group. *Chromosoma* 61, 95-125.

- Baverstock, P.R., Watts, C.H.S., Hogarth, J.T., Robinson, A.C. & Robinson, J.F. (1977b). Chromosome evolution in Australian rodents. II. The *Rattus* group. *Chromosoma* **61**, 227-241.
- Bennett, G. (1867). Letter. *Proc. Zool. Soc. Lond.* **1867**, 473-474.
- Bentley, A. (1967). *An Introduction to the Deer of Australia*. Hawthorn Press: Melbourne.
- Beruldsen, G.R. (1979). Ten days at Weipa, Cape York Peninsula. *Aust. Bird Watcher* **8**, 128-132.
- Beruldsen, G. (1990). Cape York in the wet. *Aust. Bird Watcher* **13**, 209-217.
- Beruldsen, G. (1991). Wattle colour on Australian Brush-Turkey at Iron Range, Qld. *Aust. Bird Watcher* **14**, 151.
- Beumer, J.P., Pearson, R.G. & Penridge, L.K. (1981). Pacific Short-finned Eel, *Anguilla obscura* Gunther, 1871 in Australia: recent records of its distribution and maximum size. *Proc. R. Soc. Qd* **92**, 85-90.
- Beveridge, I. (1980). *Uncinaria hydromyidis* sp. n. (Nematoda: Ancylostomatidae) from the Australian Water Rat, *Hydromys chrysogaster*. *J. Parasitol.* **66**, 1027-1031.
- Beveridge, I. (1982). A taxonomic revision of the Pharyngostromylinea Popova (Nematoda: Strongyloidea) from macropodid marsupials. *Aust. J. Zool. Suppl. Ser.* **83**, 1-150.
- Beveridge, I. (1983). The genus *Linstowia* Zschokke, 1899 (Cestoda: Anoplocephalidae) in Australian mammals with description of a new species *L. macrouri*. *Systematic Parasitology* **5**, 291-304.
- Beveridge, I. (1984) *Dasyurotaenia robusta* Beddard, 1912, and *D. dasyuri* sp. nov., from carnivorous Australian marsupials. *Trans. R. Soc. S. Aust.* **108**, 185-195.
- Biological Environmental Research Services (BERS) (1982). Pre-feasibility Environmental Assessment. Lease SBML9, North Queensland: Fauna. Unpublished report the Shell Company of Australia.
- Blackburn, A. (1970). Unusual records of Spine-tailed and Fork-tailed Swifts. *Emu* **70**, 90.
- Blackman, J.G. (1971). Distribution of the Sarus Crane in northern Queensland. *Emu* **71**, 137-138.
- Blair, D. (1986). A revision of the subfamily Microscaphidiinae (Platyhelminthes: Digenea: Microscaphidiidae) parasitic in marine turtles (Reptilia: Chelonia). *Aust. J. Zool.* **34**, 241-277.
- Blakers, M., Davies, S.J.J.F. & Reilly, P.N. (1984). *The Atlas of Australian Birds*. RAOU & Melbourne University Press: Melbourne.
- Boles, W.E. (1979). Comments on *Sericornis beccarii* in southern Cape York Peninsula.

- Sunbird 10, 70-72.
- Boles, W.E. (1984). Southern specimen records of the Broad-billed Flycatcher. Sunbird 14, 80-82.
- Boles, W.E. & Longmore, N.W. (1979). Atherton Scrubwrens at Thornton Peak, Queensland. Sunbird 10, 57-58.
- Boles, W.E. & Longmore, N.W. (1989). Altitudinal distribution of the birds of Thornton Peak, north Queensland. Sunbird 19, 1-15.
- Boughton, W.C. & Sabath, M.D. (1980). The distribution records of the Marine Toad *Bufo marinus*. Part 1. Australia. AES Working Paper 2/80, Griffith University: Brisbane.
- Boulenger, G.A. (1882). Catalogue of the Batrachia Salientia S. Ecaudata in the Collection of the British Museum. British Museum of Natural History: London.
- Boulenger, G.A. (1885). Catalogue of the Lizards in the British Museum. Vol I-III. British Museum: London.
- Boulenger, G.A. (1885). Descriptions of three new species of geckos. Ann. Mag. Nat. Hist. (5)16, 473-475.
- Boulenger, G.A. (1889). Descriptions of new Typhlopidae in the British Museum. Ann. Mag. Nat. Hist. (6) 4, 360-363.
- Bowman, D.M.J.S. (1990). Cape York: Is it the biogeographic key to northern Australia? Nth Territ. Nat. 12, 1-3.
- Boyd, S.H. (1966). Nature notes from the Peninsula. Nth Qd Nat 141, 7.
- Braithwaite, R.W., Dudzinski, M.L., Ridpath, M.G. & Parker, B.S. (1984). The impact of water buffalo on the monsoon forest ecosystem in Kakadu National Park. Aust. J. Ecol. 9, 309-322.
- Braithwaite, R.W., Winter, J.W., Taylor, J.A. & Parker, B.S. (1985). Patterns of diversity and structure of mammalian assemblages in the Australian tropics. Aust. Mammal. 8, 171-186.
- Brass, L.J. (1953). Results of the Archbold Expeditions. No. 68. Summary of the 1948 Cape York (Australia) Expedition. Bull. Amer. Mus. Nat. Hist. 102 (2), 138-205.
- Britton, P.L. (1990a). The Queensland Ornithological Society bird report, 1988. Sunbird 20, 18-32.
- Britton, P.L. (1990b). The Queensland Ornithological Society bird report, 1989. Sunbird 20, 64-82.
- Britton, P.L. (1991). The Queensland Ornithological Society bird report, 1990. Sunbird 21, 65-89.

- Britton, P.L. (1992). The Queensland Ornithological Society bird report, 1991. *Sunbird* 22, 51-83.
- Broadbent, J. & Clark, S. (Eds) (1976). A Faunal Survey of East Australian Rainforests. Interim Report, Australian Museum: Sydney.
- Broadbent, K. (1884). On the migration of birds at the Cape York Peninsula. *Proc. Roy. Soc. Qd* 1, 93-96
- Brown, I. & Benson, J. (1989). To Cape York the hard way. *Australian Geographic* 13, 100-115.
- Brown, W. (1977). Lizards of the genus *Lepidodactylus* (Gekkonidae) from the Indo Australian archipelago and the islands of the Pacific, with descriptions of two new species. *Proc. Calif. Acad. Sci.* 41, 253-265.
- Brown, W.C. (1954). Notes on several lizards of the genus *Emoia*. *Fieldiana* 34, 263-276.
- Bruce, M.D. (1979). Birds of the 1974 National Photographic Index of Australian Birds Expedition to central Cape York Peninsula, Queensland. *Aust. Bird Watcher* 8, 57-59.
- Bustard, H.R. (1970). *Oedura marmorata* a complex of Australian geckos (Reptilia: Gekkonidae). *Senck. biol.* 51, 21-40.
- Byerley, F.J. (1867). Narrative of the overland expedition of the Messers. Jardine from Rockhampton to Cape York, Northern Queensland. J.W. Buxton: Brisbane.
- Byron, G. & Blake, D. (in press). Distribution and abundance of freshwater fish on northern Cape York Peninsula. Report on RGSQ Expedition to Heathlands, February 1992.
- Cameron, E.E. & Cogger, H.G. (1992). The Herpetofauna of the Weipa Region, Cape York Peninsula. Technical Report No. 7. Australian Museum: Sydney.
- Campbell, A.G. (1935). The genus *Sericornis* in Australia, with notes on four monotypic genera. *Emu* 34, 249-274.
- Campbell, A.J. (1901). Nests and Eggs of Australian Birds. Pawson & Brailsford: Sheffield.
- Campbell, A.J. (1911). Annotations. *Emu* 10, 337-339.
- Campbell, A.J. (1920). Notes on additions to the H.L. White Collection. Birds from Torres Strait Islands. *Emu* 20, 49-66.
- Campbell, A.J. (1922). Buff-breasted Quail (*Turnix olivii*). *Emu* 22, 1-2.
- Chimimba, C.T. & Kitchener, D.J. (1991). A systematic revision of Australian Emballonuridae (Mammalia: Chiroptera). *Rec. West. Aust. Mus.* 15, 203-265.
- Chisolm, A.H. (1932). The White-tailed Kingfisher. *Emu* 32, 81-83.

- Chisholm, A. H. (1944). Birds of the Gilbert diary. *Emu* 44, 131-150 & 183-200.
- Churchill, S.K., Hall, L.S. & Helman, P.M. (1984). Observations on Long-eared Bats (Vespertilionidae: *Nyctophilus*) from northern Australia. *Aust. Mammal.* 7, 17-28.
- Churchill, S.K. & Helman, P.M. (1990). Distribution of the Ghost Bat, *Macroderma gigas*, (Chiroptera: Megadermatidae) in central and south Australia. *Aust. Mammal.* 13, 149-156.
- Claridge, G.F. (1989). A range of extension for the Rufous-throated Honeyeater *Conopophila rufogularis* on the Cape York Peninsula. *Sunbird* 19, 19-20.
- Close, D.H. & Teese, D. (1978). Yellow-tinted Honeyeater at Weipa. *Sunbird* 9, 59-60.
- Cochrane, P. (1903). Notes on migration, & c. of birds, Cooktown District, north Queensland, 1902. *Emu* 3, 47-49.
- Cody, M.L. (1991). Distributional notes from southwest and northeast Australia. *Sunbird* 21, 1-9.
- Cogger, H.G. (1961). An expedition to Cape York Peninsula. *Aust. Mus. Mag.* 13, 362-367.
- Cogger, H.G. (1975). Sea snakes of Australia and New Guinea. In: "The Biology of Sea Snakes". (Ed. W.A. Dunson), pp. 59-139. University Park Press: Baltimore.
- Cogger, H.G. (1986, 1992). Reptiles and Amphibians of Australia. Reed: Sydney.
- Cogger, H.G., Cameron, E.E. & Cogger, H.M. (1983). Zoological Catalogue of Australia. Vol.1 Amphibia and Reptilia. Australian Government Printing Service: Brisbane.
- Cohen, M.P. & Williams, S.E. (in press a). General ecology of the Cane Toad, *Bufo marinus*, and examination of their direct effects on native frog choruses at Heathlands, Cape York Peninsula. Report on RGSQ Expedition to Heathlands, February 1992.
- Cohen, M.P. & Williams, S.E. (in press b). Frogs of the Heathlands area, Cape York Peninsula. Report on RGSQ Expedition to Heathlands, February 1992.
- Coles, R.B. & Lumsden, L. (in press). Survey of bats in the Heathlands area of Cape York. Report on RGSQ Expedition to Heathlands, February 1992.
- Condon, H.T. & Amadon, D. (1954). Taxonomic notes on Australian hawks. *Rec. S. Aust. Mus.* 11, 189-246.
- Connell Wagner (1989). Cape York Peninsula Resource Analysis. Connell Wagner: Cairns.
- Copland, S.J. (1945). Catalogue of reptiles in the Macleay Museum. Part I.

Sphenomorphus pardalis pardalis (Macleay) and *Sphenomorphus nigricaudis nigricaudis* (Macleay). Proc. Linn. Soc. N.S.W. (2)70, 291-311.

- Copland, S.J. (1946). Catalogue of reptiles in the Macleay Museum. Part II. *Sphenomorphus spaldingi* (Macleay). Proc. Linn. Soc. N.S.W. (2)71, 136-144.
- Copland, S.J. (1957). Australian tree frogs of the genus *Hyla*. Proc. Linn. Soc. N.S.W. 82, 9-108.
- Coulson-Bartlett, M.E. (1992). The wisdom of birds. Bird Observer 718, 10.
- Couper, P.J. (1992) *Anomalopus pluto* Ingram, a poorly known skink from Cape York Peninsula. Mem. Qd. Mus. 32, 54.
- Couper, P.J., Cohen, M., Williams, S. & Couper, K.L.D. (in press). Reptile records for the Heathlands areas, Cape York Peninsula. Report on RGSQ Expedition to Heathlands, February 1992.
- Covacevich, J. (1975). A review of the genus *Phyllurus* (Lacertilia: Gekkonidae). Mem. Qd. Mus. 17, 293-303.
- Covacevich, J. (1976). A nest constructed by wild pigs. Vict. Nat. 93, 25-27.
- Covacevich, J. (Ed.) (1977). Fauna of Eastern Australian Rainforests II. Queensland Museum: Brisbane.
- Covacevich, J. (1985). Rainforest and reptiles of Cape York Peninsula. Wildlife Aust. 22, (2), 20-25.
- Covacevich, J. (1987). Reptiles of far northern Cape York Peninsula. Qd. Nat. 28, 22-30.
- Covacevich, J. & Archer, M. (1975). The distribution of the Cane Toad, *Bufo marinus*, in Australia and its effect on indigenous vertebrates. Mem. Qd Mus. 17, 305-310.
- Covacevich, J. & Ingram, G.J. (1978). An undescribed species of rock dwelling *Cryptoblepharus* (Lacertilia: Scincidae). Mem. Qd. Mus. 18, 151-154.
- Covacevich, J. & Ingram, G.J. (1980). The endemic frogs and reptiles of Cape York Peninsula. In: "Contemporary Cape York Peninsula". (Eds. A. Bailey & N.C. Stevens), pp. 49-56. Roy. Soc. Qld.: Brisbane.
- Covacevich, J., Ingram, G.J. & Czechura, G.V. (1982). Rare frogs and reptiles of Cape York Peninsula, Australia. Biol. Cons. 22, 283-294.
- Covacevich, J. & McDonald, K.R. (1991). Frogs and reptiles of tropical and sub-tropical eastern Australian rainforests: distribution patterns and conservation. In: "The Rainforest Legacy. Vol 2." (Eds G. Werren & P. Kershaw), pp. 281-309. Australian Government Publishing Service: Canberra.
- Crossland, M.R. (in press). The effects of Cane Toad (*Bufo marinus*) eggs on potential aquatic predators. Report on RGSQ Expedition to Heathlands, February 1992.

- Crowhurst, J. (1982). Birding trip to Iron Range. *Nth Qd Nat* 180, 8-9.
- Crowhurst, J. (1983). A new swallow for Australia. *Nth Qd Nat* 182, 9-10.
- Crowhurst, J. (1989). In search of parrots. *Bird Observer* 688, 70.
- Czechura, G.V. (1980). The Emerald Monitor *Varanus prasinus* (Schlegel): an addition to the Australian mainland herpetofauna. *Mem. Qd. Mus.* 20, 103-109.
- Czechura, G.V. (1981). New records of harriers on Cape York Peninsula, Queensland. *Aust. Bird Watcher* 9, 92-93.
- Czechura, G.V. & Covacevich, J. (1985). Poorly known reptiles in Queensland. In: "Biology of Australasian Frogs and Reptiles". (Eds. G. Grigg, R. Shine & H.Ehmann), pp. 471-476. RZS NSW & Surrey Beatty & Sons: Chipping Norton, N.S.W.
- Czechura, G.V., Ingram, G.J. & Liem, D.S. (1987). The genus *Nyctimystes* (Anura: Hylidae) in Australia. *Rec. Aust. Mus.* 39, 333-338.
- D.E.H. (1991). List of Rare, Threatened or Special Interest Vertebrate Species of Queensland. DEH: Brisbane.
- Daniel, D.J. (1983). A guide to Cape York Peninsula. *Qd Agric. Journal* 109, 139-149.
- Davies, M., Martin, A.A. & Watson, G.F. (1983). Redefinition of the *Litoria latopalmata* species group (Anura: Hylidae). *Trans. R. Soc. S. Aust.* 107, 87-108.
- Davies, M. & McDonald, K.R. (1979a). A new species of stream-dwelling hylid frog from northern Queensland. *Trans. R. Soc. S. Aust.* 103, 169-176.
- Davies, M. & McDonald, K.R. (1979b). A study of intraspecific variation in the green tree frog *Litoria chloris* (Boulenger) (Hylidae). *Aust. Zool.* 20, 347-359.
- Davies, M., McDonald, K.R. & Adams, M. (1986). A new species of green tree frog (Anura: Hylidae) from Queensland, Australia. *Proc. R. Soc. Vict.* 98, 63-71.
- Davies, M., McDonald, K.R. & Corben C. (1986). The genus *Uperoleia* Gray (Anura: Leptodactylidae) in Queensland, Australia. *Proc. R. Soc. Vict.* 98, 147-188.
- Davies, W. & Williams, K. (1979). Bauxite mining on Cape York Peninsula. *Wildlife Aust.* 16, 29-31.
- Davis, T.L.O. (1984). A population of sexually precocious Barramundi, *Lates calcarifer*, in the Gulf of Carpentaria, Australia. *Copeia* 1984, 144-149.
- De Vis, C.W. (1884a). On new species of Australian lizards. *Proc. Roy. Soc. Qd* 1, 97-100.
- De Vis, C.W. (1884b). On new species of *Hyla*. *Proc. R. Soc. Qd.* 1, 128-130.
- De Vis, C.W. (1884c). A conspect of the genus *Heteropus*. *Proc. Roy. Soc. Qd.* 1,

166-173.

- Degabriele, R. (1976). The forest mammals of Cape York Peninsula. *Habitat* 4(4), 3-6.
- Deignan, H.G. (1950). A tentative revision of the Australian races of the Grey-crowned Babbler, *Pomatostomus temporalis* (Vigors & Horsfield), with descriptions of two new subspecies. *Emu* 50, 17-21.
- Delinquier, B.L.J. (1987). Protozoan parasites of the Australian Anura. Ph.D. Thesis, University of Queensland: Brisbane.
- Dixon, J.M. (1970). Catalogue of mammal types (class Mammalia) in the National Museum of Victoria. *Mem. Nat. Mus. Vict.* 31, 105-114.
- Dixon, J.M. & Huxley, L. (1985). Donald Thomsons' Mammals and Fishes of Northern Australia. Nelson: Melbourne.
- Doherty, R.L., Carley, J.G. & Gorman, B.M. (1964). Studies of arthropod-borne virus infections in Queensland. IV. Further serological investigations of antibodies to Group B arboviruses in man and animals. *Aust. J. exp. Biol. Med. Sci.* 42, 149-164.
- Doherty, R.L., Standfast, H.A., Domrow, R., Wetters, E.J., Whitehead, R.H. & Carley, J.G. (1971). Studies of the epidemiology of arthropod-borne virus infections at Mitchell River Mission, Cape York Peninsula, North Queensland. IV. Arbovirus infections of mosquitoes and mammals 1967-1969. *Trans. Roy. Soc. Trop. Med. Hyg.* 65, 504-513.
- Domrow, R. (1957). New and little known Australian Laelaptidae (Acarina). *Proc. Linn. Soc. N.S.W.* 82, 352-366.
- Domrow, R. (1958). Acarina from Australian bats. *Proc. Linn. Soc. N.S.W.* 83, 227-240.
- Domrow, R. (1967). Mite parasites of small mammals from scrub typhus foci in Australia. *Aust. J. Zool.* 15, 759-798.
- Domrow, R. (1967). Rhinonyssine nasal mite infestations in birds at Mitchell River Mission during the wet and dry seasons. *Proc. Linn. Soc. N.S.W.* 91, 211-219.
- Domrow, R. (1969). The nasal mites of Queensland birds (Acari: Dermanyssidae, Ereyneidae and Epidermoptidae). *Proc. Linn. Soc. N.S.W.* 93, 297-423.
- Domrow, R. (1974). Miscellaneous mites from Australian vertebrates. *Proc. Linn. Soc. N.S.W.* 99, 15-35.
- Domrow, R. (1977). New records and species of *Laelaps* and allied genera from Australasia (Acari: Dermanyssidae). Part 2. *Proc. Linn. Soc. N.S.W.* 101, 185-217.
- Domrow, R. (1978a). New records and species of chiggers from Australasia (Acari: Trombiculidae). *J. Aust. ent. Soc.* 17, 75-90.

- Domrow, R. (1978b). Some Dermanyssid mites (Acari), mostly from Australasian rodents. Proc. Linn. Soc. N.S.W. 103, 189-208.
- Draffan, R. (1978). A sight record of the Common Paradise Kingfisher, *Tanysiptera galatea*, at Darnley Island, Queensland. Sunbird, 9, 11.
- Draffan, R.D.W. (1980). The Black-collared Fruit Pigeon *Ducula mullerii* at Boiga Island, Queensland,. Sunbird 11, 46.
- Draffan, R.D.W., Garnett, S.T. & Malone, G.J. (1983). Birds of the Torres Strait: an annotated list and biogeographical analysis. Emu 83, 207-234.
- Drake, V.A. (1979). Birds and bird names from Waraber Island, Torres Strait. Sunbird 10, 10-17.
- Duff, G.A. & Braithwaite, R.W. (1989). Fire and Top End forests - past, present and future research. In: "Fourth Queensland Fire Workshop." (Eds B.R. Roberts & G.L Unwin), pp. 69-84. DDIAE: Toowoomba.
- Dunnet, G.M. & Mardon, D.K. (1974). A monograph of Australian fleas (Siphonaptera). Aust. J. Zool., Suppl. Ser. 30, 1-273.
- Dwyer, P.D. (1968). New records of the False Vampire Bat in Queensland. Helictite 6, 36-40.
- Easteal, S., van Beurden, E.K., Floyd, R.B. & Sabath, M.D. (1985). Continuing geographical spread of *Bufo marinus* in Australia: range expansion between 1974 and 1980. J. Herpetol. 19, 185-188.
- Eldridge, M.D.B. & Close, R.L. (1992). Taxonomy of Rock Wallabies, *Petrogale* (Marsupialia: Macropodidae). I. A revision of the eastern *Petrogale* with the description of three new species. Aust. J. Zool. 40, 605-625.
- Elks, R. (1969). Iron Range report. Qd Bird Notes 5(1), 5-9.
- Elvish, R. & Walker, T.A. (1991). Bramble Cay, Great Barrier Reef, Qld. Corella 15, 109-111.
- Ey, A. (1984). Queensland records of Chinese Snipe (*Gallinago megala*). Sunbird 14, 14-15.
- Favaloro, N. (1943). The Marsh Sandpiper. Emu 42, 141-144.
- Finlayson, H.H. (1961). A re-examination of *Mesembriomys hirsutus* Gould 1842 (Muridae). Trans. Roy. Soc. S. Aust. 84, 149-162.
- Forbes, W.A. (1878). Reports on the collections of birds made during the voyage of H.M.S. "Challenger". - No. VII. On the birds of Cape York and the neighbouring islands. Proc. Zool. Soc. Lond. 1878, 120-128.
- Ford, J. (1977). Taxonomic status of the Spotted Catbird on Cape York Peninsula. Sunbird 8, 61-64.

- Ford, J. (1980a). Hybridization between contiguous subspecies of the Varied Sittella in Queensland. *Emu* 80, 1-12.
- Ford, J. (1980b). Morphological and ecological divergence and convergence in isolated populations of the Red-tailed Black-cockatoo. *Emu* 80, 103-120.
- Ford, J. (1981). Morphological and behavioural evolution in populations of the *Gerygone fusca* complex. *Emu* 81, 57-81.
- Ford, J. (1982). Origin, evolution and speciation of birds specialised to mangroves in Australia. *Emu* 82, 12-23.
- Ford, J. (1983). Taxonomic notes on some mangrove-inhabiting birds of Australia. *Rec. West. Aust. Mus.* 10, 381-415.
- Ford, J. (1985). Species limits and phylogenetic relationships in corellas of the *Cacatua pastinator* complex. *Emu* 85, 163-180.
- Ford, J. (1986). Avian hybridisation and allopatry in the region of the Einasleigh Uplands and Burdekin-Lynd Divide, north-eastern Queensland. *Emu* 86, 87-110.
- Ford, J. (1988). Distributional notes on north Queensland birds. *Emu* 88, 50-53.
- Forshaw, J.M. (1964). Some field observations on the Great Palm Cockatoo. *Emu* 63, 327-331.
- Forshaw, J.M. (1966). Observations and systematic notes on the Red-cheeked Parrot. *Mem. Qd Mus.* 14, 175-180.
- Forshaw, J.M. (1967). The subspecies of the fig parrot, *Opopsitta diophthalma*. *Mem. Qd Mus.* 15, 43-52.
- Forshaw, J.M. (1968). Variation in the lengths of wing and exposed culmen in the Sulphur-crested Cockatoo in Australia. *Emu* 67, 267-282.
- Forshaw, J.M. (1981). *Australian Parrots*. Lansdowne: Melbourne.
- Forshaw, J.M. & Muller, K.A. (1978). Annotated list of birds observed at Iron Range, Cape York Peninsula, Queensland, during October 1974. *Aust. Bird Watcher* 7, 171-194.
- Freedman, L. (1967). Skull and tooth variation in the genus *Perameles*. Part I: Anatomical features. *Rec. Aust. Mus.* 27, 147-165.
- Frith, H.J. (1982). *Pigeons and Doves of Australia*. Rigby: Adelaide.
- Frith, H.J., Crome, F.H.J. & Brown, B.K. (1977). Aspects of the biology of the Japanese Snipe *Gallinago hardwickii*. *Aust. J. Ecol.* 2, 341-368.
- Froggatt, W.W. (1935). A naturalist in the tropical rainforests of north Queensland. *Aust. Nat.* 9, 127-136.
- Fry, D.B. (1913a). On a *Varanus* and a frog from Burnett River, Queensland, and a

- revision of the variations in *Limnodynastes dorsalis*, Gray. Rec. Aust. Mus. 10, 17-34.
- Fry, D.B. (1913b). On the status of *Chelonia depressa*, Garman. Rec. Aust. Mus. 10, 159-185.
- Fry, D.B. (1915). Herpetological notes. Proc. R. Soc. Qd 27, 60-95.
- Gannon, G.R. (1962). Distribution of the Australian honeyeaters. Emu 62, 145-166.
- Garman, S. (1901). Some reptiles and batrachians from Australasia. Bull. Mus. Comp. Zool. 39, 1-14.
- Garnett, S. (1985). Heronies of the Mitchell River delta. Sunbird 15, 1-4.
- Garnett, S.T. (1987). Kusamet Islands, Torres Strait, Qld. Corella, 11, 77-78.
- Garnett, S.T. (1991). Torres Strait as a barrier to rainforest bird movement. In "The Rainforest Legacy. Vol 2." (Eds. G. Werren & P. Kershaw), pp. 251-255. Australian Government Printing Service: Canberra.
- Garnett, S.T. (Ed.) (1992). Threatened and Extinct Birds of Australia. RAOU & ANPWS: Canberra.
- Garnett, S.T. & Bredl, R. (1985). Birds in the vicinity of Edward River settlement. Sunbird 15, 6-23 & 25-40.
- Garnett, S.T., Draffan, R.D.W., Hindmarsh, R.W.H. & Williams, A.C. (1988). Booby Island, Torres Strait, Qld. Corella 12, 69-71.
- Geeves, J. & Horton, H. (1990). Bird observations - Cairns to Iron Range. Qd Nat 30, 6-12.
- Gibson, C.J. (1984). Torresian Imperial Pigeons in flight near Iron Range, north Queensland. Aust. Bird Watcher 10, 173-174.
- Glazebrook, R. (1977). Old man goanna. Nth Qd Nat. 170, 4-6.
- Gordon, G. & Lawrie, B.C. (1977). The Rufescent Bandicoot, *Echymipera rufescens* (Peters & Doria) on Cape York Peninsula. Aust. Wildl. Res. 5, 41-45.
- Gould, J. (1983). The Mammals of Australia incorporating the three original volumes with modern notes by Joan M. Dixon. MacMillan: South Melbourne.
- Gray, J.E. (1862). Notice of new species of dolphin (*Delphinus catalania*), discovered in north Australia by Mr John MacGillivray. Proc. Zool. Soc. Lond. 1862, 143-145.
- Greer A.E. (1975). Notes on the systematics of the genus *Carlia* (Lacertilia: Scincidae). I. *Carlia melanopogon* Gray 1845. Herpetologica 31, 70-75.
- Greer, A.E. (1979). A new *Sphenomorphus* (Lacertilia: Scincidae) from the rainforests of northeastern Queensland. Rec. Aust. Mus. 32, 373-383.

- Greer, A.E. (1980). A new species of *Marethia* (Lacertilia: Scincidae) from northern Australia, with comments on the biology and relationships of the genus. *Rec. Aust. Mus.* 33, 89-122.
- Greer, A.E. (1985). A new species of *Sphenomorphus* from northeastern Queensland. *J. Herp.* 19, 469-473.
- Greer, A.E. (1991). Two new species of *Menetia* from northeastern Queensland, with comments on the generic diagnoses of *Lygisaurus* and *Menetia*. *J. Herp.* 25, 268-272.
- Greer, A.E. (1992). Revision of the species previously associated with the Australian scincid lizard *Eulamprus tenuis*. *Rec. Aust. Mus.* 44, 7-19.
- Greer, A.E. & Cogger, H. G. (1985). Systematics of the reduce-limbed and limbless skinks currently assigned to the genus *Anomalopus* (Lacertilia: Scincidae). *Rec. Aust. Mus.* 37, 11-54.
- Grey, J.E. (1847). Description of a new genus of snakes. In: Narrative of the Surveying Voyage of H.M.S. "Fly" 2 Vol. (Ed. J.B. Jukes,) pp. 332-334. T. & W. Boone: London.
- Grey J.E. (1866). Notes on some Mammalia from Port Albany (Cape York Peninsula), north Australia, with the descriptions of some new species. *Proc. Zool. Soc. Lond.* 1866, 219-221.
- Grigg, G.C. (1974). Frogs ? On Black Mountain ? Koolewong 3(2), 13-14.
- Groves, C.P. (1982). The systematics of tree kangaroos (*Dendrolagus*; Marsupialia, Macropodidae). *Aust. Mammal.* 5, 157-186.
- Gunther, A. (1877). Descriptions of three new species of lizards from islands of Torres Strait. *Ann. Mag. Nat. Hist.* (4)19, 413-415.
- Gunther, A. (1879). Notice of collection of reptiles from islands of Torres Strait. *Ann. Mag. Nat. Hist.* (5)3, 84-87.
- Hall, B.P. (Ed.) (1974). Birds of the Harold Hall Australian Expeditions 1962-70. British Museum of Natural History: London.
- Hawkins, P.R. Taplin, L.E., Duivenvoorden, L.J. & Scott, F. (1988). Limnology of oligotrophic dune lakes at Cape Flattery, north Queensland. *Aust. J. Mar. Freshwater Res.* 39, 535-553.
- Haynes, C.D. (1985). The pattern and ecology of munwag: traditional Aboriginal fire regimes in north-central Arnhemland. *Proc. Ecol. Soc. Aust.* 13, 203-214.
- Heatwole, H. (1975). Sea snakes of the Gulf of Carpentaria. In: *The Biology of Sea Snakes* (Ed. W.A. Dunson). pp 145-149. University Park Press: Baltimore.
- Higgs, M. (1986). Variegated Wren - plumage variation. *QOS Newsletter* 17, (2), 5.
- Hindwood, K.A. (1931). The status of the Spectacled Flycatcher in Australia. *Emu* 31,

1-5.

- Hindwood, K.A. (1944). Notes on the type locality of the Red-winged Parrot. *Emu* 44, 72-73.
- Hindwood, K.A. & McGill, A.R. (1953). The Wood Sandpiper in Australia. *Emu* 53, 1-13.
- Hitchcock, W.B. (1965). Geography and seasonal movements of the Common Tern in Australia. *Emu* 64, 157-171.
- Holland, L.M. (1972). Field notes on the Green-backed Honeyeater. *Aust. Bird Watcher* 4, 226-233.
- Holmes, G. (1986). Notes on the Pale White-eye *Zosterops citrinella*. *Aust. Bird Watcher* 11, 208-209.
- Hooper, N. (1972). Display of the Magnificent Riflebird. *Aust. Bird Watcher* 4, 134-135.
- Hopkins, N. (1972). Some bird observations from the Cooktown District. *Sunbird* 3, 1-5.
- Hopkins, N. (1974). Some observations of the Great Bowerbird. *Sunbird* 5, 10-15.
- Hortle, K.G. & Pearson, R.G. (1990). Fauna of the Annan River system, far north Queensland, with reference to the impact of tin mining. I. Fishes. *Aust. J. Mar. Freshwater Res.* 41, 677-694.
- Horton, D.R. (1981). Faunal remains from the early man shelter. In: "Early Man in North Queensland". (Eds. A. Rosenfeld, D. Horton & J. Winter), pp 35-44. *Terra Australis* No. 6, Department of Prehistory, ANU: Canberra.
- Horton, H.P. (1987). Bird observations - Jardine River excursion. *Qd. Nat* 28, 55-60.
- Horton, H. (1992). Notes on birds observed on the Shelburne Bay excursion June 30 - July 15, 1990. *Qd Nat* 31, 76-80.
- Hoser, R.T. (1989). *Australian Reptiles and Frogs*. Pierson & Co. : Sydney.
- Humphery-Smith, I. (1982). Biology of Trichostrongyloidea (Nematoda) and their *Miniopterus* (Chiroptera) hosts in eastern Australia. Ph.D. Thesis, University of Queensland: Brisbane.
- Humphries, S.E., Groves, R.H. & Mitchell, D.S. (1991). Plant invasions of Australian ecosystems. In: "Plant Invasions: The Incidence of Environmental Weeds in Australia." pp. 1-134. *Kowari* No. 2, Australian National Parks & Wildlife Service: Canberra.
- Hynes, R.A. & Tracey, J.G. (1980). Vegetation of the Iron Range area, Cape York Peninsula. In: "Contemporary Cape York Peninsula". (Eds. A. Bailey & N.C. Stevens) pp 11-30. *Royal Society of Queensland*: Brisbane.

- Ingleby, S. (1991a). Distribution and status of the spectacled hare-wallaby, *Lagorchestes conspicillatus*. Wildl. Res. 18, 501-519.
- Ingleby, S. (1991b). Distribution and status of the northern naitail wallaby, *Onychogalea unguifera* (Gould, 1841). Wildl. Res. 18, 655-676.
- Ingram, G. (1976). Birds from some islands of the Torres Strait. Sunbird 7, 67-76.
- Ingram, G.J. (1977a). The occurrence of *Lamprolepis smaragdina* (Lesson) in Australia ? Herpetofauna 9, 2-3.
- Ingram, G.J. (1977b). A new species of legless skink *Anomalopus pluto* from Cape York Peninsula, Queensland. Vic. Nat. 94, 52-53.
- Ingram, G.J. (1978). A new species of gecko, genus *Cyrtodactylus*, from Cape York Peninsula, Queensland, Australia. Vic. Nat. 95, 142-146.
- Ingram, G.J. (1979a). The occurrence of lizards of the genus *Emoia* (Lacertilia, Scincidae) in Australia. Mem. Qd Mus. 19, 431-437.
- Ingram, G.J. (1979b). Two new species of skinks, genus *Ctenotus* (Reptilia Lacertilia, Scincidae), from Cape York Peninsula, Queensland, Australia. J. Herp. 13, 279-282.
- Ingram, G.J. (1985). Implicit technique in taxonomy: the scincid lizards of Cape York Peninsula. Ph.D. Thesis, University of Queensland: Brisbane.
- Ingram, G.J. (1990). Five new skinks from Queensland rainforests. Mem. Qd Mus. 30, 443-453.
- Ingram, G. (in press). The birds of the Royal Geographic Society Expedition to Cape York Peninsula. Report on RGSQ Expedition to Heathlands, February 1992.
- Ingram, G.J. & Covacevich, J. (1980). Two new lygosomine skinks endemic to Cape York Peninsula. In: "Contemporary Cape York Peninsula". (Eds. A. Bailey & N.C. Stevens) pp. 45-47. Roy. Soc. Qd : Brisbane.
- Ingram, G.J. & Covacevich, J. (1988). Revision of the genus *Lygisaurus* de Vis (Scincidae: Reptilia) in Australia. Mem. Qd Mus. 25, 335-354.
- Ingram, G.J. & Covacevich, J. (1989). Revision of the genus *Carlia* (Reptilia, Scincidae) in Australia with comments on *Carlia bicarinata* of New Guinea. Mem. Qd Mus. 27, 443-490.
- Ingram, G.J. & Czechura, G.V. (1990). Four new species of striped skinks from Queensland. Mem. Qd Mus. 29, 407-410.
- Ingram, G.J., Longmore, N.W. & Vernon, D.P. (1986). Birds from Booby Island. Sunbird 16, 12-24.
- Ingram, G.J. & Raven, R.J. (Eds)(1991). An Atlas of Queensland's Frogs, Reptiles, Birds & Mammals. Queensland Museum: Brisbane.

- Ingram, G.J. & Rawlinson, P. (1981). Five new species of skinks (genus *Lampropholis*) from Queensland and New South Wales. Mem. Qd Mus. 20, 311-317.
- Iredale, T. (1946). A new Australian parrot. Emu 46, 1-2.
- Jahnke, B.R. (1985). Some notes on birds observed at Cape Tribulation, north east Queensland. Qd Nat 26, 32-39.
- James, C. (in press). Call variation in the Northern Dwarf Tree-frog, *Litoria bicolor*. Report on RGSQ Expedition to Heathlands, February 1992.
- Jenkins, P.D. & Hill, J.E. (1981). The status of *Hipposideros galeritus* Cantor, 1846 and *Hipposideros cervinus* (Gould, 1854) (Chiroptera: Hipposideridae). Bull. Br. Mus. Nat. Hist. (Zool.) 41, 279-294.
- Jerrard, C.H.H. (1931). Vocal powers of the Yellow Oriole. Emu 31, 42-43.
- Johnson, C.R. (1973). Behaviour of the Australian crocodiles, *Crocodylus johnstoni* and *C. porosus*. Zool. J. Linn. Soc. 52, 315-336.
- Johnson, H.R. & Hooper, N. (1973). The birds of the Iron Range area of Cape York Peninsula. Aust. Bird Watcher 5, 80-95.
- Johnson, P.M. & Strahan, R. (1982). A further description of the Musky Rat-kangaroo, *Hypsiprymnodon moschatus* Ramsay, 1876 (Marsupialia, Potoroidae), with notes on its biology. Aust. Zool. 21, 27-46.
- Johnstone, R.E. (1982). Distribution, status and variation of the Silver Gull *Larus novaehollandiae* Stephens, with notes on the *Larus cirrocephalus* species-group. Rec. West. Aust. Mus. 10, 133-165.
- Jones, J. (1946). Australian distribution of two pygmy-geese. Emu 46, 128-132.
- Joseph, L. & Drummond, R. (1982). Food item of the Black Butcherbird. Sunbird 12, 49-50.
- Jukes, J.B. (1847). Narrative of the Surveying Voyage of H.M.S. Fly. 2 Vol. T. & W. Boone: London.
- Kailola, P.J. (1983). *Arius graeffei* and *Arius armiger*: valid names for two common species of Australo-Papuan fork-tailed catfishes (Pisces, Ariidae). Trans. R. Soc. S. Aust. 107, 187-196.
- Kailola, P.J. & Pierce, B.E. (1988). A new freshwater catfish (Pisces: Ariidae) from northern Australia. Rec. West. Aust. Mus. 14, 73-89.
- Keast, A. (1958a). Variation and speciation in the Australian flycatchers. Rec. Aust. Mus. 24, 73-108.
- Keast, A. (1958b). Seasonal movements and geographic variations in the Australian woodswallows (Artamidae). Emu 58, 207-218.

- Keast, A. (1958c). Intraspecific variation in the Australian finches. *Emu* 58, 219-246.
- Kennedy, M. (Ed.) (1990). *Australia's Endangered Species*. Simon & Schuster: Sydney.
- Kennedy, M. & Burton, R. (Eds) (1986). *A Threatened Species Conservation Strategy for Australia: Policies for the Future*. Ecofund Australia: Sydney.
- Kennett, R.M., Georges, A., Thomas, K. & Georges, T.C. (1992). Distribution of the Long-necked Freshwater Turtle *Chelodina novaeguineae* and new information on its ecology. *Mem. Qd Mus.* 32, 179-182.
- Kershaw, J.A. (1914). A naturalist in northern Queensland. *Vict. Nat.* 31, 113-124, (1915) 31, 161-172, 31, 179-184.
- Kershaw, J.A. (1918). Australian Green-backed Finch (*Erythrura trichroa macgillivray*). *Emu* 18, 1.
- Kikkawa, J. (1975). Birds of Weipa, Cape York Peninsula. *Sunbird* 6, 43-47.
- Kikkawa, J. (1976). The birds of Cape York Peninsula. *Sunbird* 7, 25-41, & 81-106.
- Kikkawa, J. (1991a). Avifauna of Australian rainforests. In: "The Rainforest Legacy, Vol 2". (Eds. G. Werren & P. Kershaw), pp. 187-196. Australian Government Publishing Service: Canberra.
- Kikkawa, J. (1991b). Research in rainforest ornithology and ecology. In: "The Rainforest Legacy, Vol 2." (Eds. G. Werren & P. Kershaw), pp. 197-208. Australian Government Publishing Service: Canberra.
- Kikkawa, J., Monteith, G.B. & Ingram, G. (1981). Cape York Peninsula: Major region of faunal interchange. In: "Ecological Biogeography of Australia". (Ed. A. Keast), pp. 1695-1742. Junk: The Hague.
- King, B.R. (1990). Distribution and status of the Torresian Imperial Pigeon *Ducula spilorrhoa* in north-eastern Queensland: Cooktown to Cape York. *Emu* 90, 248-253.
- King, M. (1983). Karyotypic evolution in *Gehyra* (Gekkonidae: Reptilia) III. The *Gehyra australis* complex. *Aust. J. Zool.* 31, 723-741.
- King, M. & King, D. (1975). Chromosomal evolution in the lizard genus *Varanus* (Reptilia). *Aust. J. Biol. Sci.* 28, 89-108.
- Kinghorn, J.R. (1923). A new genus of elapine snake from north Australia. *Rec. Aust. Mus.* 14, 42-45.
- Kinghorn, J.R. (1926). A brief review of the family Pygopodidae. *Rec. Aust. Mus.* 15, 40-64.
- Kinghorn, J.R. (1932). Herpetological notes No.4. *Rec. Aust. Mus.* 18, 355-363.
- Kinghorn, J.R. (1935). Reptiles and amphibians from Princess Charlotte Bay, north

Queensland. Rec. S. Aust. Mus. 5, 366.

Kitchener, D.J. & Caputi, N. (1985). Systematic revision of Australian *Scoteanax* and *Scotorepens* (Chiroptera: Vespertilionidae), with remarks on relationships to other Nycticeini. Rec. West. Aust. Mus. 12, 85-146.

Kitchener, D.J., Caputi, N. & Jones, B. (1986). Revision of Australo-Papuan *Pipistrellus* and of *Falsistrellus* (Microchiroptera: Vespertilionidae). Rec. West. Aust. Mus. 12, 435-495.

Kitchener, D.J., Jones, B. & Caputi, N. (1987). Revision of Australian *Eptesicus* (Microchiroptera: Vespertilionidae). Rec. West. Aust. Mus. 13, 427-500.

Kluge, A.G. (1963). The systematic status of certain Australian and New Guinean gekkonid lizards. Mem. Qd. Mus. 14, 77-86.

Kluge, A.G. (1967). Systematics, phylogeny, and zoogeography of the lizard genus *Dipodactylus* Gray (Gekkonidae). Aust. J. Zool. 15, 1007-1108.

Kluge, A.G. (1974). A taxonomic revision of the lizard family Pygopodidae. Miscell. Publ. Mus. Zool. University of Michigan No. 147, 1-205.

Knox, E.J. & Winter, J.W. (unpubl.). Mammal survey - northern Cape York Peninsula, 1975. Unpublished internal report, Q.NPWS: Brisbane.

Koopman, K.F. (1984). Taxonomic and distributional notes on tropical Australian bats. Amer. Mus. Novit. 2778, 1-48.

Krieger, G. (1990). Distribution of Estuarine Crocodile nesting habitat in the Weipa Region - Cape York Peninsula. Internal report to QNPWS, September 1990.

Krieger, G. (1991). The Wenlock River and Tentpole Creek Wetlands National Park Proposal, Cape York Peninsula. Internal QNPWS Report.

Kubler, C. (1965). Torres Strait Pigeons. Qd Nat 17, 114.

Laade, W. (1967). How an aboriginal found an antidote for snake-bite. Wildlife Aust. 4, 40.

Lavarack, P.S. (1977). Orchids of the Iron Range area. QNPWS: Brisbane.

Lavarack, P.S. (1980). Cape York Orchid Project: Orchids of McIlwraith Range. QNPWS: Brisbane.

Lavarack, P.S. (1984). Orchids of the Carron Valley area. Unpublished report to the Australian Orchid Foundation.

Lavarack, P.S. (1986). Orchids of the Cape York and Jardine River areas. B296/14, QNPWS: Brisbane.

Lavarack, P.S. & Godwin, M. (1987). Rainforests of Northern Cape York Peninsula. In: "The Australian Rainforest Legacy Vol. 1." pp 201-222. Australian Government Publishing Service: Canberra.

- Lavarack, P.S. & Stanton, J.P. (1977). Vegetation of the Jardine River catchment and adjacent coastal areas. *Proc. R. Soc. Qd.* 88, 39-48.
- Lavery, H.J. (1966). The movement path of some water-birds in north Queensland. *Qd. J. Agr. Anim. Sci.* 23, 323-327
- Lavery, H.J. & Blackman, J.G. (1969). The cranes of Australia. *Qd Agr. Journal* 95, 156-162.
- Lavery, H.J. & Grimes, R.J. (1971). Sea-birds of the Great Barrier Reef. *Qd Agr. Journal* 97, 106-113.
- Leggett, R. (1987). Freshwater fish of the Cape York area. *Qd Nat.* 28, 13-18.
- Leggett, R. (1990). Freshwater fishes of Iron Range and adjoining areas. *Qd Nat.* 30, 12-14.
- Le Souef, D. (1894). A trip to north Queensland. *Vict. Nat.* 11, 3-31.
- Le Souef, D. (1895). Description of some Australian birds' eggs and nests collected at Bloomfield near Cooktown, Queensland. *Proc. R. Soc. Vic.* 7, 19-26.
- Le Souef, D. (1896). Descriptions of some new eggs from the Bloomfield River district, north Queensland. *Ibis* (7) 2, 312-315.
- Le Souef, D. (1897a). Ascent of Mt Peter Botte, north Queensland. *Vict. Nat.* 13, 151-167.
- Le Souef, D. (1897b). A trip to the Bloomfield River District, north Queensland. *Vict. Nat.* 14, 19-34.
- Le Souef, D. (1897c). Pied Cow-shrike or Butcher Bird *Cracticus picatus*, Gould. *Vict. Nat.* 14, 75-76.
- Le Souef, D. (1897d). Descriptions of some new or little known birds' eggs from Queensland. *Ibis* (7) 3, 392-399.
- Le Souef, D. (1898). On some birds and eggs lately collected at Cape York, Queensland. *Ibis* (7) 4, 51-59.
- Lesslie, R., Abrahams, H. & Maslen, M. (1992). Wilderness Quality on Cape York Peninsula. Australian Government Publishing Service: Canberra.
- Liem, D.S. (1974). A review of the *Litoria nannotis* species group, and a description of a new species of *Litoria* from northern Queensland, Australia (Anura: Hylidae). *Mem. Qd Mus.* 17, 151-168.
- Ligon, S.H. (1976). A survey of dugongs (*Dugong dugon*) in Queensland. *J. Mammalogy* 57, 580-582.
- Limpus, C.J. (1980). Observations on the Hawksbill Turtle (*Eretmochelys imbricata*) nesting along the Great Barrier Reef. *Herpetologica* 36, 265-271.

- Limpus, C.J. (1981). The status of Australian sea turtle populations. In: "Biology and Conservation of Sea Turtles". (Ed. K.A. Bjorndal) pp. 297-303. Smithsonian Institution Press: Washington.
- Limpus, C.J., Miller, J.D., Parmenter, C.J., Reimer, D., McLachlan, N. & Webb, R. (1992). Migration of Green (*Chelonia mydas*) and Loggerhead (*Caretta caretta*) Turtles to and from eastern Australian rookeries. *Wild. Res.* 19, 347-358.
- Limpus, C.J., Parmenter, C.J., Baker, V. & Fleay, A. (1983). The Flatback Turtle, *Chelonia depressa*, in Queensland: post-nesting migration and feeding ground distribution. *Aust. Wildl. Res.* 10, 557-561.
- Limpus, C.J. Parmenter, C.J. & Watts, C.H.S. (1983). *Melomys rubicola*, an endangered murid rodent endemic to the Great Barrier Reef of Queensland. *Aust. Mammal.* 6, 77-79.
- Limpus, C.J., Zeller, D., Kwan, D. & MacFarlane, W. (1989). Sea-turtle rookeries in north-western Torres Strait. *Aust. Wildl. Res.* 16, 517-525.
- Longman, H.A. (1912). Herpetological notes. *Mem. Qd Mus.* 1, 23-25.
- Longman, H.A. (1916). Snakes and lizards from Queensland and the Northern Territory. *Mem. Qd. Mus.* 5, 46-51.
- Longman, H.A. (1926). New records of Cetacea, with a list of Queensland species. *Mem. Qld Mus.* 8, 266-278.
- Longman, H.A. (1930). The marsupials of Queensland. *Mem. Qd Mus.* 10, 55-64.
- Longman, H.A. (1937). Herpetological notes. *Mem. Qd Mus.* 11, 165-168.
- Lonnberg, E. & Anderson, L.G. (1915). Results of Dr E. Mjoberg's Swedish Scientific Expeditions to Australia 1910-13. VII. Reptiles collected in northern Queensland. *Kungl. Svenska. Vetenskap, Handl.* 52(7), 1-9.
- Lonnberg, E. & Mjoberg, E. (1916). Results of Dr E. Mjobergs Swedish Scientific Expeditions to Australia 1910 13. II Mammals from Queensland. *Kungl. Svenska. Vetenskap. Handl.* 52, (2), 1-11.
- Loveridge, A. (1934). Australian reptiles in the Museum of Comparative Zoology Cambridge, Massachusetts. *Bull. Mus. Comp. Zool.* 77, 241-383,
- Loveridge, A. (1935). Australian Amphibia in the Museum of Comparative Zoology, Cambridge, Massachusetts. *Bull. Mus. Comp. Zool.* 78, 1-60.
- Low, T. (1989). Python on the prowl. *Aust. Nat. Hist.* 23, 58-65.
- Lucas, A.H.S. & Frost, C. (1900). Description of a new lizard from northern Queensland. *Proc. R. Soc. Vict.* 12, 145-146.
- Lumsden, L. & Coles, R. (1993). Fast flyers of the night. *Wildlife Australia* 30, (1), 21-23.

- Lyons, B. (unpubl.). Lakefield National Park: Vertebrate Fauna Data Sheets. Unpublished data.
- Macdonald, J.D. (1971). Validity of the Buff-breasted Quail. *Sunbird* 2, 1-5.
- Macfarlane, D.A. & Stager, K.E. (1988). An abbreviated catalogue of the Australian bats in the collection of the Natural History Museum of Los Angeles County, California, U.S.A. *Macroderma* 4, 72-76.
- Macgillivray, J. (1852). Narrative of the Voyage of H.M.S. Rattlesnake, (2 Vol.). T. & W. Boone: London.
- Macgillivray, W. (1912). Descriptions of nests and eggs from Cape York. *Emu* 11, 213-214.
- Macgillivray, W. (1914). Notes on some north Queensland birds. *Emu* 13, 132-186.
- Macgillivray, W. (1915). A new honeyeater: *Macgillivrayornis claudi*. *Emu* 15, 77-78.
- Macgillivray, W. (1917). Ornithologists in north Queensland. *Emu* 17, 63-87, 145-148 & 180-212.
- Mack, G. (1931). The genus *Arses* in Australia. *Emu* 31, 66-70.
- Mack, G. (1953). Birds from Cape York Peninsula, Queensland. *Mem. Qd. Mus.* 13, 1-39.
- Mackay, R.D. (1991). Papuan Harrier *Circus spilonotus spilothonax* in north Queensland with comments on plumages. *Aust. Bird Watcher* 14, 144-146.
- Mackerras, M.J. (1959). The Haematozoa of Australian mammals. *Aust. J. Zool.* 7, 105-134.
- Mackerras, M.J. (1962). Filial parasites (Nematoda: Filarioidea) of Australian animals. *Aust. J. Zool.* 10, 400-457.
- Macleay, J. (1989). Northern Scrub Robin. *QOS Newsl.* 20 (11), 5.
- Macleay, J. (1991). Members notes. *QOS Newsl.* 22 (4), 3.
- Macleay, W. (1876). Zoology of the "Chevert" - Ornithology. Part I. *Proc. Linn. Soc. N.S.W.* (1)1, 44-64.
- Macleay, W. (1876). Notes on a new species of *Dendrophis* from Cleveland Bay. *Proc. Linn. Soc. N.S.W.* (1)1, 15-16.
- Macleay, W. (1877a). The ophidians of the "Chevert" Expedition. *Proc. Linn. Soc. N.S.W.* (1) 2, 33-41.
- Macleay, W. (1877b). The lizards of the "Chevert" Expedition. *Proc. Linn. Soc. N.S.W.* (1)2, 60-69.
- Macleay, W. (1877c). The lizards of the "Chevert" Expedition. *Proc. Linn. Soc.*

- N.S.W. (1)2, 97-104.
- Macleay, W. (1877d). The batrachians of the "Chevert" Expedition. Proc. Linn. Soc. N.S.W. (1)2, 135-138.
- Macleay, W. (1882). The fishes of the Palmer River. Proc. Linn. Soc. N.S.W. (1)7, 69-71.
- Macleay, W. (1884). Census of Australian snakes with descriptions of two new species. Proc. Linn. Soc. N.S.W. (1)9, 548-568.
- Magarry, A. (1980). Cape York trip. Nth Qd Nat. 177, 10-13.
- Magarry, D., Magarry, A. & Crowhurst, J. (1983). Highlights of a trip to Laura. QOS Newsl. 14(6), 9-10.
- Magnusson, W.E., Grigg, G.C. & Taylor, J.A. (1980). An aerial survey of potential nesting areas of *Crocodylus porosus* on the west coast of Cape York Peninsula. Aust. Wildl. Res. 7, 465-478.
- Mansergh, I. (1983). The status, distribution and abundance of *Dasyurus maculatus* (Tiger Quoll) in Australia, with particular reference to Victoria. Aust. Zool. 21, 109-122.
- Marlow, B.J. (1962). On the occurrence of *Antechinus maculatus* Gould and *Planigale ingrami* (Thomas) (Marsupialia, Dasyuridae) in Cape York Peninsula, Queensland. J. Mammal. 43, 433-434.
- Marlow, B.J. & Boles, W.E. (1977). Confirmation of the occurrence of the Ghost Bat *Macroderma gigas*, (Chiroptera: Megadermatidae) in Cape York Peninsula, Queensland. Nth Qd Nat. 170, 3-4.
- Marsh, H., Barker-Hudson, B., Heinsohn, G. & Kinbag, F. (1984). Status of the Dugong in the Torres Strait area: results of an aerial survey in the perspective of information on dugong life history and current catch levels. Report to ANPWS.
- Marshall, A.J. (1933). The Mangrove Robin. Emu 32, 233-235.
- Marshall, A.J. (1948). The breeding and distribution of *Erythrura trichroa* in Australia. Emu 47, 305-310.
- Martin, A.A. (1972). Studies in Australian amphibia. III. The *Limnodynastes dorsalis* complex (Anura: Leptodactylidae). Aust. J. Zool. 20, 165-211.
- Martin, J.H.D. (1976). Karyotypes of native Muridae in Queensland. M.Sc. Thesis, University of Queensland: Brisbane.
- Mason, I.J. & Schodde, R. (1980). Subspeciation in the Rufous Owl *Ninox rufa* (Gould). Emu 80, 141-144.
- Mathew, G.F. (1885). Rough notes on the natural history of the Claremont Islands. Proc. Linn. Soc. N.S.W. (1)10, 251-258.

- Mathews, G.M. (1910-1927). The Birds of Australia. Vol I-XII. Witherby & Co: London.
- Mayr, E. (1940). Notes on Australian birds. I. The genus *Lalage*. *Emu* 40, 111-117.
- Mayr, E. (1943). Notes on Australian birds. (II). *Emu* 43, 3-17.
- Mayr, E. (1947). The most recent Australian record of the Indian Pygmy-goose. *Emu* 46, 311.
- McAllan, I.A.W. (1990a). Observations of the Green-backed Honeyeater *Glycichaera fallax*. *Aust. Bird Watcher* 13, 201-202.
- McAllan, I.A.W. (1990b). An aggressive display of the Yellow-footed Flycatcher *Microeca griseiceps*. *Aust. Bird Watcher* 13, 239.
- McFarland, D.C. (1992). Fauna of the Channel Country Biogeographic Region, south west Queensland. Report to Q.NPWS, Department of Environment and Heritage: Brisbane.
- McGill, A.R. & Keast, J.A. (1945). The Mongolian Sand-Dotterel in Australia. *Emu* 44, 202-216.
- McKeague, P.J. & Beckett, J.H. (1989). Fire - a pasture management tool in Cape York Peninsula. In: "Fourth Queensland Fire Workshop." (Eds. B.R. Roberts & G.L. Urwin), pp 89-92. DDIAE: Toowoomba.
- McKean, J.L. (1967). A sight observation of the Glossy Swiftlet at Cape York, Queensland. *Emu* 67, 98.
- McKean, J.L. & Hall, L.S. (1965). Distribution of the Large-footed Myotis, *Myotis adversus*, in Australia. *Vict. Nat.* 82, 164-168.
- McKean, J.L. & Price, W.J. (1978). *Pipistrellus* (Chiroptera: Vespertilionidae) in northern Australia with some remarks on its systematics. *Mammalia* 42, 343-347.
- McLennan, W. (1922). Diary of a collecting trip to Coen District, Cape York Peninsula on behalf of H.L. White. Copy held in DEH Library: Brisbane.
- Mees, G.F. (1964). A revision of the Australian owls (Strigidae and Tytonidae). *Zool. Verhand. (Leiden)*. 65, 1-62.
- Menkhorst, K.A. & Woinarski, J.C.Z. (1992). Distribution of mammals in monsoon rainforests of the Northern Territory. *Wildl. Res.* 19, 295-316.
- Messel, H. Vorlicek, G.C., Wells, A.G., Green, W.J., Curtis, H.S., Roff, C.R.R., Weaver, C.M. & Johnson, A. (1981). Surveys of tidal waterways on Cape York Peninsula, Queensland, Australia and their crocodile populations. Monograph No. 16. Pergamon Press: Sydney.
- Meston, A. (1894). On the Australian cassowary. *Proc. Roy. Soc. Qd.* 10, 59-64.

- Milton, D. & Harding, S. (1992). Iron Range for Christmas. *OOS Newsl.* 23,(2), 4-5.
- Mitchell, F.J. (1953). A brief revision of the four-fingered members of the genus *Leiopisma* (Lacertilia). *Rec. S. Aust. Mus.* 11, 75-90.
- Mitchell, P. (1990). Unusual sighting reports. *Bird Observer* 700, 76-77.
- Mitchell, P. (1991). Unusual sighting reports. *Bird Observer* 711, 76-77.
- Mitchell, P. (1992). Bird Reports. *Bird Observer* 722, 13.
- Molnar, R.E., Hall, L.S. & Mahoney, J.H. (1984). New fossil localities for *Macroderma* Miller, 1906 (Chiroptera: Megadermatidae) in New South Wales and its past and present distribution in Australia. *Aust. Mammal.* 7, 63-73.
- Monteith, G.B. (1987). History of biological collecting at Cape York, Queensland. *Qd Nat.* 28, 42-51.
- Moore, J.A. (1961). The frogs of eastern New South Wales. *Bull. Am. Mus. Nat. Hist.* 121, 149-386.
- Morton, S.R. (1990). The impact of European settlement on the vertebrate animals of arid Australia: a conceptual model. *Proc. Ecol. Soc. Aust.* 16, 201-213.
- Moseley, H.N. (1879). Notes by a Naturalist on the "Challenger". MacMillen & Co: London.
- Nichols, J.T. (1949). Results of the Archbold expedition. No. 62. Fresh-water fishes from Cape York, Australia. *Am. Mus. Novit.* 1433, 1-8.
- Niland, D.C. (1986). The Queensland Ornithological Society bird report, 1985. *Sunbird* 16, 49-67.
- Nix, H.A. & Switzer, M.A. (1991). Rainforest Animals: Atlas of Vertebrates Endemic to Australia's Wet Tropics. Kowari No. 1. ANPWS: Canberra.
- North, A.J. (1909). Notes on the nesting sites of *Gerygone personata* Gould. *Rec. Aust. Mus.* 7, 186-188.
- Norton, A. (1909). The Jardines' expedition from Rockhampton to Cape York in 1846. *Proc. Roy. Soc. Qd.* 22, 1-22.
- Noske, R.A. & Stricklen, R. (1979). Nest and eggs of the Yellow-legged Flycatcher. *Emu* 79, 148-149.
- Officer, H.R. (1961). Mass-bathing in north Queensland. *Aust. Bird Watcher* 1, 176.
- Officer, H.R. (1962). Australian Pratincole on Cape York Peninsula. *Aust. Bird Watcher* 1, 236.
- Officer, H.R. (1964a). Colonization of Cape York Peninsula by the Noisy Miner. *Emu* 63, 414.

- Officer, H.R. (1964b). Is the Northern Scrub-Robin a quail-thrush? *Emu* 64, 68.
- Officer, H.R. (1967). In the footsteps of McLennan and Barnard at Cape York. *Emu* 66, 279-287.
- Orrell, J. (1964). The Spangled Drongo - clown or killer? *Wildlife Aust.* 1, 14-15.
- Orrell, J. (1969). Climbing snakes. *Wildlife Aust.* 6, 9-10.
- Palliser, T. (1985). The Queensland Ornithological Society bird report, 1984. *Sunbird* 15, 45-70.
- Park, A. (1991). Savannah wilderness. *Australian Geographic* 22, 32-49.
- Parker, F. & Tanner, C. (1971). Some frogs from southern Cape York Peninsula. *Nth Qd Nat.* 155, 4-8.
- Parker, H.W. (1940). The Australasian frogs of the family Leptodactylidae. *Novit. Zool.* 42, 1-106.
- Parker, S.A. (1970). Taxonomy of the populations of *Sericornis beccarii* inhabiting Cape York Peninsula. *Emu* 70, 69-72.
- Parnaby, H.E. (1986). Distribution and taxonomy of the Long-eared Bats, *Nyctophilus gouldi* Tomes, 1858 and *Nyctophilus bifax* Thomas, 1915 (Chiroptera: Vespertilionidae) in eastern Australia. *Proc. Linn. Soc. N.S.W.* 109, 153-174.
- Pavey, C.R. (1991). Comments on range, seasonality and behaviour of some north Queensland birds. *Sunbird* 21, 13-18.
- Pecotic, L. (1983). A Study of the Distribution and Behaviour of the Grey Swiftlets in north-east Queensland. Final report of Project 31 for WWF.
- Pedley, L. & Isbell, R.F. (1971). Plant communities of Cape York Peninsula. *Proc R. Soc. Qd.* 82, 51-74.
- Poiner, I.R., Buckworth, R.C. & Harris, A.N.M. (1990). Incidental capture and mortality of sea turtles in Australia's northern prawn fishery. *Aust. J. Mar. Freshwater Res.* 41, 97-110.
- Pullar, E.M. (1953). The wild (feral) pigs of Australia: their origin, distribution and economic importance. *Mem Nat. Mus. Vict.* 18, 7-23.
- Pye, K. & Jackes, B. (1981). Vegetation of the coastal dunes at Cape Bedford and Cape Flattery, north Queensland. *Proc. R. Soc. Qd.* 92, 32-42.
- Queensland Museum (1976). Fauna of Eastern Australian Rainforest: Preliminary report on sites surveyed by the Queensland Museum in mid-eastern and north eastern Queensland. Queensland Museum: Brisbane.
- Ramsay, E.P. (1877a). Zoology of the "Chevert". Mammals. Part I. *Proc. Linn Soc. N.S.W.* (1) 2, 7-15.

- Ramsay, E.P. (1877b). Description of a supposed new species of *Acanthophis* from north Australia. Proc. Linn. Soc. N.S.W. (1) 2, 72-73.
- Rankin, P. (1978). Notes on the biology of the skink *Sphenomorphus pardalis* (Macleay) including a captive breeding record. Herpetofauna 10, 4-7.
- Reeders, A.P.F. & Morton, A.G. (1983). Vertebrate fauna in the regenerated mines at Weipa. Report to Comalco Ltd: Weipa.
- Reeders, P. & Henry, D. (1985). Shelburne Bay Sand Dunes. Wildlife Australia 22(4), 15-18.
- Redfield, J.A., Holmes, J.C. & Holmes, R.D. (1978). Sea snakes of the eastern Gulf of Carpentaria. Aust. J. Mar. Freshwater Res. 29, 325-334.
- Redhead, D.I. (1988). The Queensland Ornithological Society bird report, 1986. Sunbird 18, 28-51.
- Redhead, D.I. (1990). The Queensland Ornithological Society bird report, 1987. Sunbird 20, 1-15.
- Richards, G. (1983). Regional news. Aust. Bat Res. News. 19, 2-3.
- Richards, G. (1986a). *Dobsonia* flight and ecology: more on lift at low speed Macroderma 2, 21.
- Richards, G. (1986b). Notes on the natural history of the Queensland Tube-nosed Bat, *Nyctimene robinsoni*. Macroderma 2, 64-67.
- Richards, G.C. (1990). The Spectacled Flying-fox, *Pteropus conspicillatus*, (Chiroptera: Pteropidae) in north Queensland. 1. Roost sites and distribution patterns. Aust. Mammal 13, 17-24.
- Richards, G.C. (1991). Conservation status of the rainforest bat fauna of northern Queensland. In: "The Rainforest Legacy. Vol 2." (Eds. G. Werren & P. Kershaw), pp 177-186. Australian Government Publishing Service: Canberra.
- Richards, S.J. (1992). The tadpole of the Australopapuan frog *Rana daemeli*. Mem. Qd Mus. 32, 138.
- Ride, W.D.L. (1972). Discussion on the zoogeography of Torres Strait. In: "Bridge and Barrier: The Natural and Cultural History of Torres Strait". (Ed. D. Walker), pp. 301-306. ANU: Canberra.
- Roberts, G.J. (1975). Additional species from the Iron Range area of Cape York Peninsula. Aust. Bird Watcher 6, 127-128.
- Roberts, G. (1977). Birds of the mangroves on Nurupai (Horn) Island, Torres Strait. Operculum 5, 144-145.
- Robertson, J.S. & Hamilton, F.M. (1968). A possible migration route on Cape York Peninsula. Qd Bird Notes 4 (3), 3-11.

- Robinson, H.C. & Laverock, W.S. (1900). The birds of north Queensland - Part I. On two collections from Cooktown and the neighbourhood of Cairns. *Ibis* (7) 6, 617-653.
- Robinson, J.F., Robinson, A.C., Watts, C.H.S. & Baverstock, P.R. (1978). Notes on rodents and marsupials and their ectoparasites collected in Australia in 1974-75. *Trans R. Soc. S. Aust.* 102, 59-70.
- Robinson, M. (1980a). *Myotis adversus* at Bloomfield. *Nth Qd Nat* 177, 2.
- Robinson, M. (1980b). Field observations on some north Queensland megachiroptera. *Nth Qd Nat* 177, 2-3.
- Roff, C. (1967). Bird sightings on Cape York Peninsula. *Emu* 66, 273-278.
- Ross, A.T. (1985). Twitcher's Corner. *RAOU Newsletter* 65, 3.
- Ross, I. (1990). BOCA Golden-shouldered Parrot tour 1990. *Bird Observer* 701, 93.
- Rowley, I. (1970). The genus *Corvus* (Aves: Corvidae) in Australia. *CSIRO Wildl. Res.* 15, 27-71.
- Sabath, M.D., Boughton, W.C. and Easteal, S. (1981). Expansion of the range introduced toad *Bufo marinus* in Australia from 1935 to 1974. *Copeia* 1981, 676-680.
- Saeed, B., Ivantsoff, W. & Allen, G.R. (1989). Taxonomic revision of the family Pseudomugilidae (Order Atheriniformes). *Aust. J. Mar. Freshwater Res.* 40, 719-787.
- Saxon, E.C. & Rees, G.J. (1989). Ecological fire management in Cape York Peninsula: the remote sensing view and the ground truth. In: "Fourth Queensland Fire Workshop." (Eds B.R. Roberts & G.L. Unwin), pp. 25-31. DDIAE: Toowoomba.
- Schodde, R. & Calaby, J.H. (1972). The biogeography of the Australo-Papuan bird and mammal faunas in relation to Torres Strait. In: "Bridge and Barrier: The Natural and Cultural History of Torres Strait." (Ed. D. Walker), pp. 257-300. ANU: Canberra.
- Sedgwick, E.H. (1984). An Eastern Grass Owl at Coen, Queensland. *Aust. Bird Watcher* 10, 236-237.
- Slater, P., Slater, P. & Slater, R. (1989). *The Slater Field Guide to Australian Birds*. Weldon Publishing: Sydney.
- Smith, A. (1982). Is the Striped Possum (*Dactylopsila trivirgata*; Marsupialia, Petauridae) an arboreal anteater? *Aust. Mammal.* 5, 229-234.
- Smith, A.P., Hoye, G & Taplin, A. (unpubl) Some new records of mammals, reptiles and amphibians in south west Cape York. Unpublished report of Australian Geographic Expedition, June 1990.

- Smith, L.A. (1985). A revision of the *Liasis childreni* species-group (Serpentes: Boidae). Rec. West. Aust. Mus. 12, 257-276.
- Smith, L.E. (1991). Aerial display of the Red Goshawk *Erythrotriorchis radiatus*. Aust. Bird Watcher 14, 147-148.
- Smith, M. (1926). Monograph of the Sea-snakes. British Museum Natural History: London.
- Specht, R.L., Salt, R.B. & Reynolds, S.T. (1977). Vegetation in the vicinity of Weipa, north Queensland. Proc. R. Soc. Qd 88, 17-38.
- Sprackland, R.G. (1991). Taxonomic review of the *Varanus prasinus* group with descriptions of two new species. Mem. Qd Mus. 30, 561-576.
- Squire, J.E. (1990). Some southern records and other observations of the Buff-breasted Button-quail *Turnix olivei*. Aust. Bird Watcher 13, 149-152.
- Standfast, H.A. (1965). Notes on the birds of Mitchell River. Qd Nat 17, 91-94.
- Stanton, J.P. (1975). A preliminary assessment of wetlands in Queensland. Technical Memorandum 75/10, CSIRO Division of Land Use Research : Canberra.
- Stanton, J.P. (1976). National Parks for Cape York Peninsula. ACF Publication: Melbourne.
- Stanton, J.P. & Morgan, M.G. (1977). The Rapid Selection and Appraisal of Key and Endangered Sites: The Queensland Case Study. School of Natural Resources, University fo New England: Armidale.
- Stewart, D. (1984). Queensland bird report, 1983. Sunbird 14, 45-65.
- Stokes, T. (1983). Bird Casualities in 1975-76 at the Booby Island Lightstation, Torres Strait. Sunbird 13, 53-58.
- Storr, G.M. (1953). Birds of the Cooktown and Laura Districts, north Queensland. Emu 53, 225-248.
- Storr, G.M. (1973). List of Queensland Birds. West. Aust. Mus. Special Publication No.5: Perth.
- Storr, G.M. (1984). Revised List of Queensland Birds. Records of W.A. Museum Supplement No. 19: Perth.
- Storr, G.M. (1991). Revision of *Lerista orientalis* (Lacertilia: Scincidae) of northern Australia. Rec. West. Aust. Mus. 15, 413-417.
- Strahan, R. (Ed) (1983). Complete Book of Australian Mammals. Angus & Roberston: Sydney.
- Strahan, R. (1992). Encyclopedia of Australian Animals: Mammals. Angus & Robertson: Sydney.

- Straughan, I.R. (1968). A taxonomic review of the genus *Mixophyes*, (Anura, Leptodactylidae). Proc. Linn. Soc. N.S.W. 93, 52-59.
- Straughan, I.R. (1969a). The *Hyla bicolor* complex (Anura, Hylidae) in north Queensland. Proc. R. Soc. Qd 80, 43-54.
- Straughan, I.R. (1969b). *Hyla inermis* (Peters), a species hitherto erroneously referred to the leptodactylid genus *Cyclorana* (Anura, Hylidae/Leptodactylidae). Zool. Meded. 43, 207-212.
- Taplin, L.E. (1980). Some observations on the reproductive biology of *Sminthopsis virginiae* (Tarragon), (Marsupialia: Dasyuridae). Aust. Zool. 20, 407-418.
- Taplin, L.E., Bayliss, P. & Krieger, G. (1988). Crocodile distribution and abundance - Cape York Peninsula. Internal QNPWS Report.
- Taplin, L.E. & Krieger, G. (1989). Distribution of crocodile nesting habitat on the Lockhart and Escape River systems - Cape York Peninsula. Internal report to Division of Conservation, Parks and Wildlife, Department of Environment and Conservation, April 1989.
- Tate, G.H.H. (1945). Results of the Archbold Expeditions. No.52. The marsupial genus *Phalanger*. Amer. Mus. Novit. 1283, 1-41.
- Tate, G.H.H. (1947). Results of the Archbold Expeditions. No.56. on the anatomy and classification of the Dasyuridae (Marsupialia). Bull. Amer. Mus. Nat. Hist. 88, (3), 97-156.
- Tate, G.H.H. (1948a). Results of the Archbold Expeditions. No.59. Studies in the anatomy and phylogeny of the Macropodidae (Marsupialia). Bull. Amer. Mus. Hist. 91 (2), 233-352.
- Tate, G.H.H. (1948b). Results of the Archbold Expeditions. No.60. Studies in the Peramelidae (Marsupialia). Bull. Amer. Mus. Nat. Hist. 92 (6), 313-346.
- Tate, G.H.H. (1951). Results of the Archbold Expeditions. No.65. The rodents of Australia and New Guinea. Bull. Amer. Mus. Nat. Hist. 97 (4), 183-430.
- Tate, G.H.H. (1952). Results of the Archbold Expeditions. No.66. Mammals of Cape York Peninsula, with notes on the occurrence of rainforest in Queensland. Bull. Amer. Mus. Nat. Hist. 98 (7), 563-616.
- Taylor, J.M. & Horner, E. (1973a). Results of the Archbold Expeditions. No.98. Systematics of native Australian *Rattus* (Rodentia, Muridae). Bull. Amer. Mus. Nat. Hist. 150 (1), 1-130.
- Taylor, J.M. & Horner, B.E. (1973b). Reproductive characteristics of wild native Australian *Rattus* (Rodentia: Muridae). Aust. J. Zool. 21, 437-475.
- Thomas, O. (1924). Some new Australasian Muridae. Ann. Mag. Nat. Hist. (9) 13, 296-299.
- Thomas, O. (1926). The local races of *Dasyurus hallucatus*. Ann. Mag. Nat. Hist. (9)

18, 543-544.

- Thomson, D.F. (1935a). Birds of Cape York Peninsula. Government Printer: Melbourne.
- Thomson, D.F. (1935b). Preliminary notes on a collection of snakes from Cape York Peninsula. Proc. Zool. Soc. Lond. 1935, 723-731.
- Timms, B.V. (1986). Reconnaissance limnology of some coastal dune lakes of Cape York Peninsula, Queensland. Aust. J. Mar. Freshwater Res. 37, 167-176.
- Tracey, J.G. & Webb, G.J.W. (1975). Vegetation of the humid tropical region of North Queensland. CSIRO Rainforest Ecology Unit: Indooroopilly, Qld.
- Trail, B. (1983). Birds of Mount Adolphus Island, Torres Strait. Aust. Bird Watcher 10, 127-131.
- Troughton, E. le G. (1930). Notes on Striped Opossums of the genus *Dactylopsila* Aust. Zool. 6, 169-174.
- Troughton, E. (1973). Furred Animals of Australia. Angus & Robertson: Sydney.
- Tyler, M.J. (1964). Taxonomic studies of some hylid frogs of Australia and New Guinea. Proc. Zool. Soc. Lond. 145, 91-106.
- Tyler, M.J. (1972). An analysis of the lower vertebrate faunal relationships of Australia and New Guinea. In: "Bridge and Barrier: The Natural and Cultural History of Torres Strait." (Ed. D. Walker), pp 231-255. ANU: Canberra.
- Tyler, M.J. (1979). A new species of *Cophixalus* (Anura: Microhylidae) from Queensland, Australia. Copeia 1979, 118-121.
- Tyler, M.J. (1992). Encyclopedia of Australian Animals: Frogs. Angus & Robertson: Sydney
- Tyler, M.J. & Davies, M. (1977). A new species of hylid frog from northern Australia. Copeia 1977, 620-623.
- Tyler, M.J., Davies M. & Martin, A.A. (1980). Australian frogs of the leptodactylid genus *Uperoleia* Gray. Aust. J. Zool. Suppl. Ser. 79, 1-64.
- Tyler, M.J. & Martin, A.A. (1975). Australian leptodactylid frogs of the *Cyclorana australis* complex. Trans. R. Soc. S. Aust. 99, 93-99.
- Vale, M. (1988). A personal view of Bird Week on Cape York. Nth Qd Nat 187, 2-8.
- Van Beurden, E. & McDonald, K.R. (1980) A new species of *Cyclorana* (Anura: Hylidae) from northern Queensland. Trans. R. Soc. S. Aust 104, 193-195.
- Van Deusen, H.M. (1960). Notes on the marsupial feather-tailed glider of Australia. J. Mammal. 41, 263-264.
- Van Deusen, H.M. (1969). The Hoary Wattled Bat of north Queensland. Nth Qd Nat

148, 5-6.

- Van Deusen, H.M. (1971). Range extension of the Long-tailed Pigmy Possum on the Cape York Peninsula, Queensland. *Nth Qd Nat* 154, 4-5.
- Van Deusen, H.M. (1975). History of Semon's Horseshoe-bat in Australia. *Nth Qd Nat* 165, 4-5.
- Van Deusen, H.M. & Koopman, K.F. (1971). Results of the Archbold Expeditions. No. 95. The genus *Chalinolobus* (Chiroptera, Vespertilionidae) taxonomic review of *Chalinolobus picatus*, *C. nigrogriseus* and *C. rogersi*. *Amer. Mus. Novitat.* 2468, 1-29.
- Van Dyck, S. (1979a). Mating and other aspects of behaviour in wild striped possums. *Vict. Nat* 96, 84-85.
- Van Dyck, S. (1979b). Behaviour in captive individuals of the dasyurid marsupial *Planigale maculata* (Gould 1851). *Mem. Qd Mus.* 19, 413-429.
- Van Dyck, S. (1980a). The Cinnamon Antechinus, *Antechinus leo* (Marsupialia: Dasyuridae), a new species from the vine-forests of Cape York Peninsula. *Aust. Mammal.* 3, 5-17.
- Van Dyck, S. (1980b). Ghost Bat and death cries from the rainforests of McIlwraith Range, Cape York Peninsula. *Nth Qd Nat* 176, 3-5.
- Van Dyck, S. (1982). The relationships of *Antechinus stuartii* and *A. flavipes* (Dasyuridae, Marsupialia) with special reference to Queensland. In: "Carnivorous Marsupials". (Ed. M. Archer). pp 723-766. *Roy Zool. Soc. N.S.W. & Surrey Beatty: Sydney.*
- Van Dyck, S. (1986). The Chestnut Dunnart, *Sminthopsis archeri* (Marsupialia: Dasyuridae), a new species from the savannahs of Papua New Guinea and Cape York Peninsula, Australia. *Aust. Mammal.* 9, 111-124.
- Vaivers, D. (1951). Expedition through Cape York Peninsula. *Nth Qd Nat* 96, 6-7; 97, 3,6,7; 98, 4-6; 99, 3-5.
- Vernon, D.P. (1977). A specimen record of Hutton's Shearwater from Booby Island Queensland. *Sunbird* 8, 92-93.
- Vidgen, H.G. (1921). Birds visiting Cape York Peninsula and New Guinea. *Emu* 20, 227-228.
- Waite, E.R. (1918). Review of the Australian blind snakes (Family Typhlopidae). *Rec. S. Aust. Mus.* 1, 1-34.
- Walker, T.A. (1988). The flora and fauna of Bramble Cay, January 1987. *Qd Nat* 28, 32-36.
- Walton, D.W. (Ed). (1988). *Zoological Catalogue of Australia. Vol 5. Mammalia.* Australian Government Publishing Service: Canberra.

- Warham, J. (1961). The birds of Raine Island, Pandora Cay and Murray Island Sandbank, north Queensland. *Emu* 61, 77-93.
- Warham, J. (1962). Bird islands within the Barrier Reef and Torres Strait. *Emu* 62, 99-111.
- Watts, C.H.S. (1976). *Leggadina lakedownensis*, a new species of murid rodent from north Queensland. *Trans.R. Soc. S. Aust.* 100, 105-108.
- Watts, C.H.S. & Aslin, H.J. (1981). *The Rodents of Australia*. Angus & Robertson: Sydney.
- Weaver, C.M. (1982). Breeding habitats and status of the Golden-shouldered Parrot *Psephotus chrysopterygius*, in Queensland. *Emu* 82, 2-6.
- Wells, R. (1975). Notes on an unidentified skink of the genus *Carlia* from Black Mountain, N.E. Queensland. *Herptofauna* 7, 11.
- Werren, G.L. & Barwell, G.C. (1987). Records of the Trumpet Manucode and the rare Blue-faced Finch in a bird list from the Carbine Tableland, far north-east Queensland. *Sunbird* 17, 99-105.
- Wheeler, J.R. (1962). Spice Finch in Queensland. *Emu* 62, 215.
- Wheeler, R. (1978). Two unusual bird sightings. *Nth Qd Nat* 171, 3.
- Wheeler, W.R. & Watson, I. (1963). The Silver Gull *Larus novaehollandiae* Stephens. I. Distribution and status. *Emu* 63, 99-117.
- White, H.L. (1917). North Australia birds. *Emu* 16, 117-158 & 205-231.
- White, H.L. (1922a). Descriptions of new nests and eggs. *Emu* 21, 164-169.
- White, H.L. (1922b). Description of the nest and eggs of *Turnix olivii* (Robinson). *Emu* 22, 2-3.
- White, H.L. (1922c). Description of eggs of the Golden-shouldered Parrot (*Psephotus chrysopterygius*). *Emu* 22, 98-99.
- White, H.L. (1922d). A collecting trip to Cape York Peninsula. *Emu* 22, 99-116.
- White, S.A. (1911). Descriptions of new eggs. *Emu* 10, 339-340.
- Wieneke, J. (1992). Altitudinal distribution of the Grey-headed Robin. *Sunbird* 22, 36-37.
- Wilkins, G.H. (1928). *Undiscovered Australia*. Ernest Benn Ltd: London.
- Williams, B. (1989). Bird watching up north. *RAOU News* 79, 5.
- Wilson, S.K. & Knowles, D.G. (1988). *Australia's Reptiles*. Collins: Sydney.
- Winter, J.W. (1973). Rain-forest mammals. *Wildlife in Australia* 10, 84-86.

- Winter, J.W. (1980). McIlwraith Range Closed Forest Fauna Survey. Final report (outline) compiled for ANPWS. QNPWS: Brisbane.
- Winter, J.W. (1981). Mammals of the Laura District. In: "Early Man in North Queensland". (Eds A. Rosenfeld, D. Horton & J. Winter), pp 45-49. Terra Australis No.6., Department of Prehistory, ANU: Canberra.
- Winter, J.W. (1984a). Mammals of the wet tropics of Australia. *Wildlife Australia* 21, (2), 24-28.
- Winter, J.W. (1984b). Conservation studies of tropical rainforest possums. In: "Possums and Gliders". (Eds A.P. Smith & I.D. Hume), pp 469-481. Aust. Mammal Society & Surrey Beatty: Sydney.
- Winter, J.W. (1984c). The Thornton Peak Melomys, *Melomys hadrourus* (Rodentia: Muridae): a new rainforest species from northeastern Queensland, Australia. *Mem. Qd Mus.* 21, 519-539.
- Winter, J.W. (unpubl). Fauna survey northern Cape York Peninsula, 1973. Unpublished Internal Report QNPWS: Brisbane.
- Winter, J.W. (unpubl). McIlwraith Range closed forest fauna survey. Unpublished data.
- Winter, J.W. & Allison, F.R. (1980). The native mammals of Cape York Peninsula - changes in status since the 1948 Archbold Expedition. In: "Contemporary Cape York Peninsula". (Eds N.C. Stevens & A. Bailey), pp 31-44. Royal Society of Queensland: Brisbane.
- Winter, J.W. & Atherton, R.G. (1985). Survey of the Mammals and other vertebrates of the Weipa Region, Cape York Peninsula. Queensland Natinal Parks & Wildlife Service : Brisbane
- Winter, J.W., Atherton R.G., Bell, F.C. & Pahl, L.I. (1991). Distributions of selected north-eastern Australian rainforest mammals. In: "The Rainforest Legacy. Vol 2". (Eds G. Werren & P. Kershaw), pp 155-175. Australian Government Publishing Service: Canberra.
- Woinarski, J.C.Z. (1990). Effects of fire on the bird communities of tropical woodlands and open forests in northern Australia. *Aust. J. Ecol.* 15, 1-22.
- Woinarski, J.C.Z. (1992). Biogeography and conservation of reptiles, mammals and birds across north-western Australia: an inventory and base for planning an ecological reserve system. *Wildl. Res.* 19, 665-705.
- Wood, G.A. (1988). Further field observations of the Palm Cockatoo *Probosciger aterrimus* in the Cape York Peninsula, Qld. *Corella* 12, 48-52.
- Woodroffe, G., Marshall, I.D. & Taylor, W.P. (1977). Antigenically distinct strains of Ross River virus from north Queensland and coastal New South Wales. *AJEBAK* 55, 79-87.
- Woolley, P. (in press). The Chestnut Dunnart, *Sminthopsis archeri* (Marsupialia: Dasyuridae). Report on RGSQ Expedition to Heathlands, February 1992.

- Zann, R.A. (1972). Ethology of *Poephila* grassfinches (Estrildidae). Ph.D. Thesis, University of Queensland; Brisbane.
- Zann, R.A. (1976a). Variation in the songs of the three species of estrildine grassfinches. *Emu* 76, 97-108.
- Zann, R.A. (1976b). Distribution, status and breeding of Black-throated Finches *Poephila cincta* in northern Queensland. *Emu* 76, 201-206.
- Zillman, D. (1972). Jottings of a jaunt into the peninsula. *Wambaliman* 6 (1), 4-7.
- Zillman, D. (1973). Birds of Cape York Peninsula. *Wambaliman* 7 (1), 10-14.
- Zillman, E.E. (1975a). Fawn-breasted Bower-bird of Cape York Peninsula. *Wambaliman* 9 (9), 6-8.
- Zillman, E.E. (1975b). Marbled Frogmouth. *Wambaliman* 9 (9), 8-10.
- Zweifel, R.G. (1962). A systematic review of the microhylid frogs of Australia. *Am. Mus. Novit.* 2113, 1-40.
- Zweifel, R.G. (1985). Australian frogs of the family microhylidae. *Bull. Am. Mus. Nat. Hist.* 182, 265-388.
- Zweifel, R.G. & Parker, F. (1969). A new species of microhylid frog (Genus *Cophixalus*) from Australia. *Am. Mus. Novit.* 2390, 1-10.
- Zweifel, R.G. & Parker, F. (1977). A new species of frog from Australia (Microhylidae, *Cophixalus*). *Am. Mus. Novit.* 2614, 1-10.

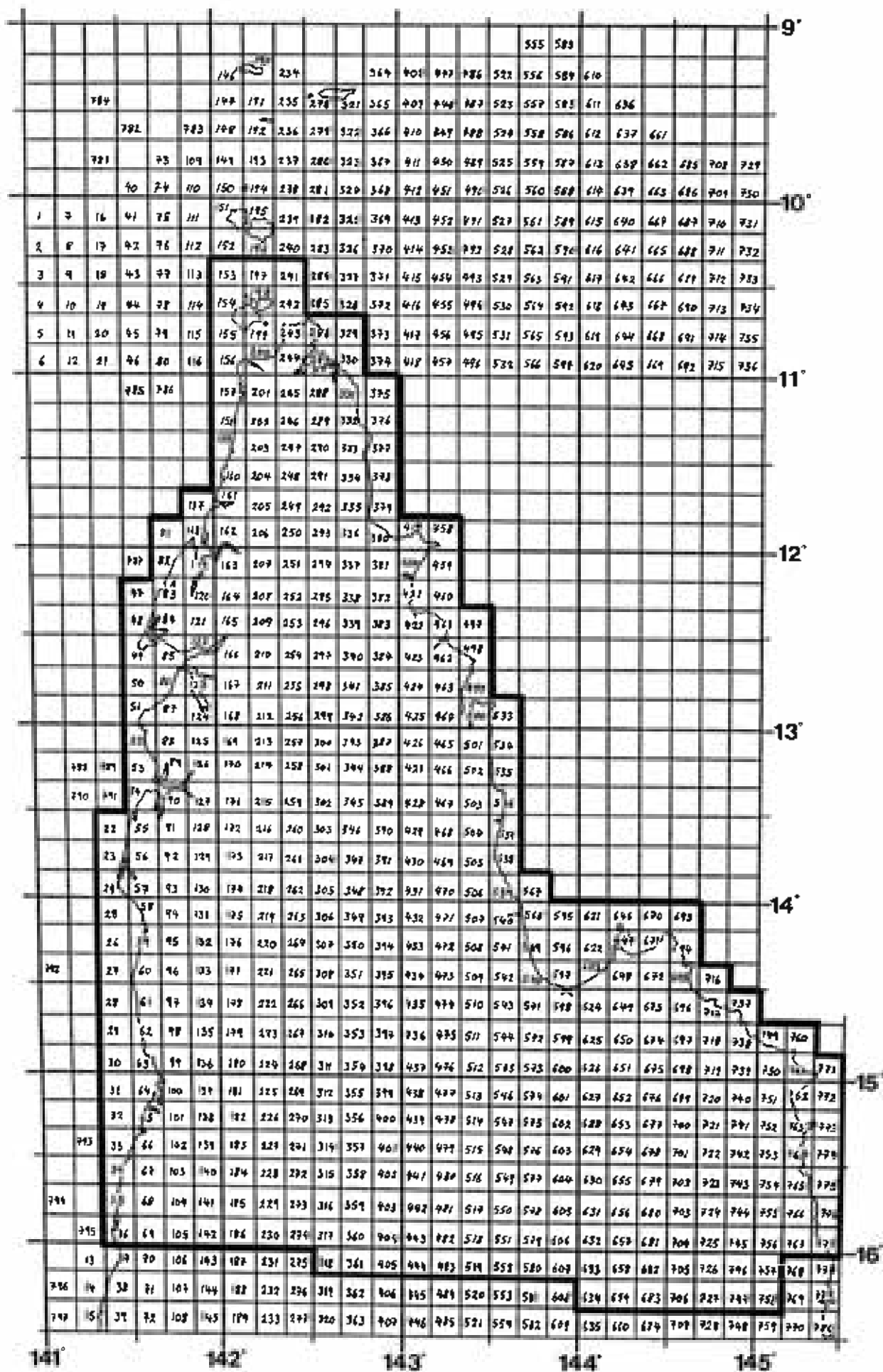
6. APPENDICES

The following appendices include:

- 6.1 A map indicating all grid cell numbers in the area covered by the fauna database.
- 6.2 A list of the sources used and their respective code numbers.
- 6.3 A description of the database structure.
- 6.4 A list of species and genera where problems are encountered in identification or alternative names are in use.
- 6.5 Species list for CYPLUS region.
- 6.6 Distribution maps of endemic and threatened species recorded in the CYPLUS region.

6.1 Map of Region.

This map details the grid cell numbers for the area covered in the CYPFAUNA database. The thickened line is the boundary of the CYPLUS study area.



6.2 Source List.

Sources used in the compilation of species' distributions for the Cape York Peninsula Biogeographic Region. Numbers correspond to those in the database. The missing numbers refer to references that were deleted following the receipt of more recent records from another source.

1. Queensland Museum
2. Museum of Victoria
3. Northern Territory Museum
4. South Australian Museum
5. Western Australian Museum
6. Australian Museum
7. RAOU Bird Atlas Scheme
8. CSIRO National Wildlife Collection
9. Winter & Atherton (1985)
10. Winter (unpubl.) - McIlwraith Range Survey
11. Winter (1973; unpubl.); Knox & Winter (unpubl.)
12. Lyons (unpubl.) - Lakefield N.P.
13. BERS (1982)
14. Draffan *et al.* (1983)
15. Reeder & Morton (1983)
16. Qld Mus. (1976); Covacevich (1977)
17. Broadbent & Clark (1976)
18. ABRS Report No. 2 (1975)
19. Cameron & Cogger (1992)
20. Nix & Switzer (1991)
21. ABRS Report No. 4 (1976a)
22. ABRS Report No. 5 (1976b)
23. ABRS Report No. 6 (1977a)
24. ABRS Report No. 7 (1977b)
25. Domrow (1967, 1969)
26. Smith, A.P. *et al.* (unpubl.)
27. Lonnberg & Mjoberg (1916)
28. Eldridge & Close (1992); Eldridge pers. comm.
29. Woolley (in press)
30. Gould (1983)
31. Allen (1989)
32. Walton (1988)
33. Troughton (1930, 1973)
34. Watts & Aslin (1981)
35. Strahan (1983)
36. Tate (1945, 1947, 1948a, b, 1951, 1952)
37. Gordon & Lawrie (1977); Gordon pers. comm.
38. Macfarlane & Stager (1988)
39. Winter (1981)
40. Parnaby (1986)
41. Robinson *et al.* (1978)
42. Dunnet & Mardon (1974)
43. Domrow (1957, 1958, 1967, 1974, 1977, 1978a, b)
44. Marsh *et al.* (1984)
45. Richards (1983, 1990)
46. Archer (1976, 1981)

47. Van Dyck (1979a, 1980a, b, 1982, 1986)
48. Limpus *et al.* (1983)
49. Groves (1982)
50. Koopman (1984)
51. Martin (1976)
52. Taylor & Horner (1973a, b)
53. Ligon (1976)
54. Adams *et al.* (1988)
55. Ingleby (1991a, b)
56. Molnar *et al.* (1984)
57. Taplin (1980)
58. Johnson & Strahan (1982)
59. Baverstock *et al.* (1980)
60. Robinson (1980a, b)
61. Chimiba & Kitchener (1991)
62. Kitchener & Caputi (1985); Kitchener *et al.* (1986, 1987)
63. Beveridge (1980, 1984)
64. Bentley (1967)
65. Freedman (1967)
66. Woodroffe *et al.* (1977)
67. Boyd (1966)
68. Van Deusen (1971), Van Deusen & Koopman (1971)
69. Pullar (1953)
70. Lott (unpubl.)
71. Blair (1986)
72. Mackerras (1959, 1962)
73. Dixon & Huxley (1985)
74. Ramsay (1877a)
75. Longman (1926, 1930)
76. Gray (1862)
77. Thomas (1924, 1926)
78. Fauna Conservation Branch News
79. Wilkins (1928)
80. Kershaw (1914, 1915)
81. Doherty *et al.* (1964, 1971)
82. Le Souef (1894, 1896, 1897a, b, c, d)
83. Froggatt (1935)
84. Barrett (1929)
85. Mathew (1885)
86. Limpus *et al.* (1989)
87. Holmes (1986)
88. Garnett (1987); Garnett & Bredl (1985); Garnett *et al.* (1988)
89. Elvish & Walker (1991)
90. Sedgwick (1984)
91. Roberts (1975)
92. Czechura (1981)
93. Crowhurst (1983, 1989); Magarry *et al.* (1983)
94. Ross (1990)
95. Squire (1990)
96. Beruldsen (1990)
97. Britton (1990a, b, 1991, 1992)
98. Redhead (1988, 1990)
99. Stewart (1984), Palliser (1985), Niland (1986)

100. Ingram *et al.* (1986)
101. Boles & Longmore (1989)
102. Werren & Barwell (1987)
103. Ingram (1976)
104. Drake (1979)
105. Ingram (in press)
106. Milton & Harding (1992)
107. Horton (1992)
108. Geeves & Horton (1990)
109. Cody (1991)
110. Horton (1987)
111. Traill (1983)
112. Vale (1988)
113. King (1990)
114. Ford (1980a, b, 1981, 1985, 1986)
115. Anon. (1986)
116. Jahnke (1985)
117. Walker (1988)
118. Crowhurst (1982, 1983)
120. Johnstone (1982)
121. Debus (pers. comm.)
122. Beruldsen (1979, 1990)
124. Weaver (1982)
125. Frith (1982), Frith *et al.* (1977)
126. Bruce (1979)
127. Forshaw & Muller (1978)
128. Johnson & Hooper (1973)
129. Zillman (1972)
130. Lavery (1966); Lavery & Grimes (1971)
131. Forshaw (1981)
132. Storr (1973, 1984)
133. Blackman (1971)
134. Rowley (1970)
135. Mees (1964)
136. Robertson & Hamilton (1968)
137. Forshaw (1968)
138. Standfast (1965)
139. Officer (1962, 1964a, b, 1967)
140. Roff (1967)
141. Hitchcock (1965)
142. Pecotic (1983)
143. Hall (1974)
144. Gannon (1962)
145. Warham (1961, 1962)
146. Keast (1958a, b)
147. Condon & Amadon (1954)
148. Storr (1953)
149. Mack (1953)
150. Thomson (1935a)
151. McLennan (1922)
152. White (1917)
153. Macgillivray (1912, 1914, 1917)
155. Barnard (1911, 1928)

156. Kershaw (1914)
157. Mathews (1910-1927)
158. Cochrane (1903)
159. Broadbent (1884)
160. Macleay (1876)
161. Forbes (1878); Moseley (1879)
162. Bennett (1867); Meston (1894)
163. Macgillivray (1852)
164. Chisholm (1944)
165. Jenkins & Hill (1981)
166. Couper et al. (in press)
167. James (in press); Crossland (in press); Cohen & Williams (in press, a, b)
168. Couper (1992)
169. Kennett et al. (1992)
170. Richards (1992)
171. Greer (1975, 1979, 1985, 1991, 1992); Greer & Cogger (1985)
174. Ingram & Covacevich (1980, 1988, 1989); Ingram & Czechura (1990)
175. Ingram (1977a, b, 1978, 1979a, b, 1990); Ingram & Rawlinson (1981)
176. Poiner et al. (1990)
177. Hawkins et al. (1988)
178. Low (1989)
179. Covacevich (1987); Covacevich & Ingram (1978, 1980); Covacevich et al. (1982)
180. Smith (1985)
181. Czechura & Covacevich (1985)
182. Cogger (1975, 1986, 1992)
183. Hoser (1989)
184. Wilson & Knowles (1988)
185. King (1983); King & King (1975)
186. Limpus et al. (1983)
187. Messel et al. (1981)
188. Limpus (1980, 1981)
189. Cogger et al. (1983)
190. Glazebrook (1977)
191. Heatwole (1975)
192. Johnson (1973)
193. Campbell (1901)
194. Arnold (1966)
195. Brown (1954)
196. Loveridge (1934, 1935)
197. Smith (1926)
198. Boulenger (1882, 1885)
199. Kluge (1963, 1967, 1974)
200. Bustard (1970)
201. Longman (1937); Orrell (1969)
202. Copland (1945, 1946, 1957)
203. Kinghorn (1926, 1932, 1935)
204. Thomson (1935b)
205. Waite (1918)
206. Fry (1913a, b)
207. Longman (1912)
208. Garman (1901)
209. Macleay (1876, 1877a, b, c, 1884)
210. Gunther (1877, 1879)

211. Parker (1940)
212. Moore (1961)
213. Zweifel (1985)
214. Delvinquier (1987)
215. Timms (1986)
216. Davies & McDonald (1979a, b); Davies *et al.* (1983, 1986a, b)
217. Covacevich & Archer (1975); Broughton & Sabath (1980); Sabath *et al.* (1981); Easteal *et al.* (1985)
218. Tyler & Martin (1975)
219. Parker & Tanner (1971)
220. Straughan (1968, 1969a, b)
221. Byron & Blake (in press)
222. Leggett (1987, 1990)
223. Hortle & Pearson (1990)
224. Kailola & Pierce (1988), Kailola (1983)
225. Saeed *et al.* (1989)
226. Davis (1984)
227. Beumer *et al.* (1981)
228. Allen & Hoese (1980)
229. Nichols (1949)
230. Macleay (1882)
231. Coles & Lumsden (in press); Lumsden & Coles (1993)
232. Brown & Benson (1989)
233. Cogger (1961)
234. McKean & Hall (1965)
235. Reeders & Henry (1985)
236. Veivers (1951)
237. Winter *et al.* (1991)
238. Bird Notes and Members Sightings - QOS Newsletter (1972-1992)
239. Alexander (1922)
240. Barnard (1910)
241. Mackay (1991)
242. Vidgen (1921)
243. Campbell (1922)
244. Ashby (1925)
245. Hindwood (1931); Hindwood & McGill (1953)
246. Mayr (1943)
247. Favalaro (1943)
248. McGill & Keast (1945)
249. Joseph & Drummond (1982)
250. Claridge (1989)
251. Wieneke (1992)
252. Ross (1985); Andrew & Eades (1992)
253. Williams (1989)
254. Mitchell (1990, 1991, 1992)
255. Coulson-Bartlett (1992)
256. Higgs (1986)
257. Maclean (1989)
258. Taplin *et al.* (1988); Taplin & Kreiger (1989); Krieger (1990)

6.3 Database Structure.

FIELD	DESCRIPTION
GENUSNAM	Genus name
SP_NAME	Species name
TAG	: The presence of ? indicates some confusion and/or doubt over the identification (see 6.4) or location.
COM_NAME	
SPECIES_N	Species number
FAMILY	Family name
FAMILY_N	Family number
CLASS	Class name
STATUS1	Level of concern: PE - Presumed Extinct, EN - Endangered, V - Vulnerable, R - Rare, PV - Potentially Vulnerable, IK - Insufficiently Known, SI Special Interest.
STATUS2	Origin: N - Native (includes natural invasions), I - Introduced by man or through agency of man.
STATUS3	Distribution: E - Endemic, i.e. greater than 75% of Australian range restricted to the region.
STATUS4	Bird type: L - Land bird, W - Waterbird
LAT	Latitude: Both given as the centre of a 10' grid cell.
LONG	Longitude
GRID_N	Grid number: see 6.1 for map with cell numbers.
SOURCE	Reference: for explanation of code numbers see 6.2.
YEAR	Time of record: where no time given the year of source publication is provided, in case of surveys and some museum data an average year is used.
EFFORT	Search effort index: indication of sampling intensity based on number of days spent in area by surveys, the number of lists submitted to RAOU Atlas and number of references (if no duration mentioned then effort = 1 for each reference).
REGION	Biogeographic region: CYP - Cape York Peninsula (including Torres Strait Islands north of 11°S.) see 6.1, GC - Gulf Country, EU - Einasleigh Uplands, WT - Wet Tropics, The southern-most cells belong to the last three regions.

6.4 Problem Species and Genera.

Difficulties arose concerning the following animals because of confusion or changes in taxonomy and/or an inability to reliably separate very similar species, even with specimens in the hand. In those instances where some doubt over identification has been raised, the species' records in the database have been marked with a "?". However, in other unmarked records, one should be aware of possible misidentification and the likely alternative names (different name for same species or name of a similar sympatric species).

Amphibians

Cyclorana brevipes / *C. longipes* / *C. manya*
Uperoleia lithomoda / *U. mimula*
Litoria pallida / *L. latopalmata*
Litoria genimaculata / *L. serrata* / *L. eucnemis*
Litoria microbelos / *L. dorsalis*

Reptiles

Nactus arnouxii / *N. pelagicus*
Varanus gouldii / *V. panoptes*
Varanus teriae / *V. prasinus*
Varanus scalaris / *V. timoriensis*
Lygisaurus macfarlani / *L. sesbrauna*
Sphenomorphus crassicaudis / *S. pumilis* and other species (Also known as *Glaphyromorphus*.)
Carlia rubrigularis / *C. rhomboidalis*
Morelia mackloti / *M. fuscus*
Morelia maculosa / *M. childreni* / *M. stimsoni*
Acanthophis praelongus / *A. antarcticus*
Demansia vestigiata / *D. atra* / *D. papuensis*
Lapemis curtus / *L. hardwickii*
Ramphotyphlops species

Birds

Malurus amabilis / *M. variegata*
Melithreptus laetior / *M. gularis*
Pachycephala griesioceps / *P. simplex*
Turnix pyrrhothorax / *T. melanogaster* (males only)
 (The first three species were once treated as subspecies of the alternative name.)

Mammals

Antechinus leo / *A. godmani*
Petrogale coenensis / *P. godmani* (see Eldridge & Close[1992].)
Pipistrellus species
Nyctophilus species
Eptesicus species
Mormopterus species
Melomys cervinipes / *M. capensis*
 {For some discussion on the state of the taxonomy of the bat genera see Adams *et al.* (1987, 1988) and Kitchner *et al.* (1986, 1987).}

6.5 Species List.

Species listed in alphabetical order within each family for each class. Additional information supplied includes:

A = level of concern : EN - Endangered, V - Vulnerable, R - Rare, PV - Potentially Vulnerable, IK - Insufficiently Known, SI - Special Interest.

B = origin : N - Native, I - Introduced.

C = distribution : E - Endemic.

D = bird type : L - Land bird, W - Waterbird.

Records = number of cells in CYPLUS region in which the species was recorded.

FRESHWATER FISH

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
ANGUILLIDAE	<i>Anguilla</i>	<i>obscura</i>	South Pacific Eel		N		3
	<i>Anguilla</i>	<i>reinhardtii</i>	Long-finned Eel		N		9
	<i>Anguilla</i>	sp.			N		1
CLUPEIDAE	<i>Nematalosa</i>	<i>erebi</i>	Bony Bream		N		9
OSTEOGLOSSIDAE	<i>Scleropages</i>	<i>jardinei</i>	Gulf Saratoga	PV	N		4
ARIIDAE	<i>Arius</i>	<i>berneyi</i>	Berney's Catfish	IK	N		2
	<i>Arius</i>	<i>graefferi</i>	Lesser Salmon Catfish	IK	N		1
	<i>Arius</i>	<i>leptaspis</i>	Triangular Shield Catfish	IK	N		2
	<i>Arius</i>	<i>midgleyi</i>	Shovel-nosed Catfish	PV	N		2
	<i>Arius</i>	sp.			N		3
PLOTOSIDAE	<i>Anodontiglanis</i>	<i>dahli</i>	Toothless Catfish	PV	N		1
	<i>Neosilurus</i>	<i>ater</i>	Black Catfish	IK	N		15
	<i>Neosilurus</i>	<i>brevidorsalis</i>	Short-finned Catfish	IK	N	E	3
	<i>Neosilurus</i>	<i>hyrtlii</i>	Hyrtl's Tandan	IK	N		21
	<i>Neosilurus</i>	sp. {2 spp.}			N		4
	<i>Porochilus</i>	<i>obbesi</i>	Obbe's Catfish	R	N		5
	<i>Porochilus</i>	<i>rendahli</i>	Rendahl's Catfish	PV	N		4
	<i>Tandanus</i>	sp.			N		1
BELONIDAE	<i>Strongylura</i>	<i>krefftii</i>	Freshwater Longtom		N		4
ATHERINIDAE	<i>Craterocephalus</i>	<i>stercusmuscarum</i>	Fly-specked Hardyhead		N		21
	<i>Craterocephalus</i>	sp.			N		3
MELANOTAENIIDAE	<i>Iriatheria</i>	<i>weneri</i>	Threadfin Rainbowfish	PV	N	E	3
	<i>Melanotaenia</i>	<i>maccullochi</i>	McCulloch's Rainbowfish	PV	N		9
	<i>Melanotaenia</i>	<i>nigrans</i>	Black-banded Rainbowfish	PV	N		9
	<i>Melanotaenia</i>	<i>splendida</i>	Australian Rainbowfish		N		56
	<i>Melanotaenia</i>	<i>trifasciata</i>	Banded Rainbowfish		N		27
PSEUDOMUGILIDAE	<i>Pseudomugil</i>	<i>gertrudae</i>	Spotted Blue-eye	IK	N		16
	<i>Pseudomugil</i>	<i>signifer</i>	Pacific Blue-eye		N		9
	<i>Pseudomugil</i>	<i>tenellus</i>	Delicate Blue-eye	PV	N		2
SYNBRANCHIDAE	<i>Ophisternon</i>	<i>gutturale</i>	Swamp Eel	IK	N		3
SCORPAENIDAE	<i>Notesthes</i>	<i>robusta</i>	Bullrout		N		1
CENTROPOMIDAE	<i>Lates</i>	<i>calcarifer</i>	Barramundi	PV	N		13
AMBASSIDAE	<i>Ambassis</i>	<i>agassizii</i>	Agassiz's Glassfish	IK	N		2
	<i>Ambassis</i>	<i>agrammus</i>	Sailfin Glassfish	IK	N	E	18
	<i>Ambassis</i>	<i>elongatus</i>	Elongate Glassfish		N		5
	<i>Ambassis</i>	<i>macleayi</i>	Macleay's Glassfish	IK	N		9
	<i>Ambassis</i>	sp.			N		5

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
TERAPONIDAE	<i>Denariusa</i>	<i>bandata</i>	Pennyfish	R	N		3
	<i>Anniatapia</i>	<i>percolides</i>	Barred Grunter		N		15
	<i>Hephaestus</i>	<i>carbo</i>	Coal Grunter	IK	N		14
	<i>Hephaestus</i>	<i>fuliginosus</i>	Sooty Grunter		N		12
	<i>Leipottherapon</i>	<i>unicolor</i>	Spangled Perch		N		16
	<i>Pingalla</i>	<i>lorentzi</i>	Lorentz's Grunter	R	N	E	4
KUHLIIDAE	<i>Kuhlia</i>	<i>rupestris</i>	Jungle Perch	PV	N		9
APOGONIDAE	<i>Glossamia</i>	<i>apron</i>	Mouth Almighty		N		31
TOXOTIDAE	<i>Toxotes</i>	<i>chatareus</i>	Seven-spot Archerfish		N		6
ELEOTRIDAE	<i>Hypseleotris</i>	<i>compressa</i>	Empire Gudgeon		N		19
	<i>Mogumda</i>	<i>adspersa</i>	Purple-spotted Gudgeon	PV	N		10
	<i>Mogumda</i>	<i>mogumda</i>	Northern Trout Gudgeon		N		21
	<i>Ophieleotris</i>	<i>aporus</i>	Snakehead Gudgeon		N		1
	<i>Oxyleotris</i>	<i>arvensis</i>	Aru Gudgeon	PV	N	E	1
	<i>Oxyleotris</i>	<i>fimbriatus</i>	Fimbriate Gudgeon	PV	N	E	2
	<i>Oxyleotris</i>	<i>lineolatus</i>	Sleepy Cod	PV	N		7
	<i>Oxyleotris</i>	<i>multipora</i>	Poreless Gudgeon	R	N	E	15
	<i>Oxyleotris</i>	spp. 121			N		7
GOBIIDAE	<i>Awaous</i>	<i>crassilabrus</i>	Roman Nose Goby		N	E	6
	<i>Glossogobius</i>	<i>aureus</i>	Golden Goby		N		3
	<i>Glossogobius</i>	<i>celebius</i>	Celebes Goby		N		5
	<i>Glossogobius</i>	<i>concauifrons</i>	Concave Goby		N	E	3
	<i>Glossogobius</i>	<i>günur</i>	Flathead Goby		N		2
	<i>Glossogobius</i>	sp.			N	E	12
	<i>Redigobius</i>	<i>bikolanus</i>	Speckled Goby		N		8
	<i>Redigobius</i>	sp.			N		1
	<i>Schismatogobius</i>	sp.	Scaleless Goby		N	E	1
SOLEIDAE	<i>Brachius</i>	<i>salinarum</i>	Saltpan Sole		N		2
	<i>Brachius</i>	<i>salheimi</i>	Freshwater Sole		N		1

AMPHIBIANS

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS	
MYOBATRACHIDAE	<i>Crinia</i>	<i>deserticola</i>			N		29	
	<i>Crinia</i>	<i>remota</i>			N	III	49	
	<i>Limnodynastes</i>	<i>convexusculus</i>	Marbled Frog		N		37	
	<i>Limnodynastes</i>	<i>ornatus</i>	Ornate Burrowing Frog		N		70	
	<i>Limnodynastes</i>	<i>peronii</i>	Brown-striped Frog		N		3	
	<i>Limnodynastes</i>	<i>tasmaniensis</i>	Spotted Grass Frog		N		2	
	<i>Limnodynastes</i>	<i>terraereginae</i>			N		9	
	<i>Mixophyes</i>	<i>schevilli</i>	Northern Barred Frog		N		8	
	<i>Notaden</i>	<i>melanoscapus</i>	Northern Spadefoot Toad		N		7	
	<i>Pseudophryne</i>	<i>major</i>			N		1	
	<i>Taudactylus</i>	<i>acutirostris</i>	Sharp-snouted Day Frog	EN	N		4	
	<i>Uperoleia</i>	<i>lithomoda</i>			N		16	
	<i>Uperoleia</i>	<i>mimula</i>			N		23	
	<i>Uperoleia</i>	sp.			N		5	
	HYLIDAE	<i>Cyclorana</i>	<i>brevipes</i>			N		8
		<i>Cyclorana</i>	<i>manya</i>			N	III	2
		<i>Cyclorana</i>	<i>novaehollandiae</i>			N		31
<i>Litoria</i>		<i>alboguttata</i>	Striped Burrowing Frog		N		15	
<i>Litoria</i>		<i>bicolor</i>	Northern Dwarf Tree Frog		N		58	
<i>Litoria</i>		<i>caerulea</i>	Common Green Tree Frog		N		45	
<i>Litoria</i>		<i>dahlii</i>			N		4	
<i>Litoria</i>		<i>fallax</i>	Eastern Dwarf Tree Frog		N		6	
<i>Litoria</i>		<i>genimaculata</i>			N		18	
<i>Litoria</i>		<i>gracilentata</i>	Dainty Green Tree Frog		N		22	
<i>Litoria</i>		<i>inermis</i>			N		52	
<i>Litoria</i>		<i>infrafronata</i>	Giant Green Tree Frog		N		32	
<i>Litoria</i>		<i>lesueurii</i>	Lesueur's Frog		N		12	
<i>Litoria</i>		<i>longirostris</i>			R	N	III	4
<i>Litoria</i>		<i>lorica</i>	Little Waterfall Frog	R	N		1	
<i>Litoria</i>		<i>microbelos</i>				N	19	
<i>Litoria</i>		<i>nannotis</i>	Waterfall Frog		N		3	
<i>Litoria</i>		<i>nasuta</i>	Rocket Frog		N		87	
<i>Litoria</i>		<i>nigrofrenata</i>				N	63	
<i>Litoria</i>		<i>pallida</i>				N	70	
<i>Litoria</i>		<i>rheocola</i>			PV	N	6	
<i>Litoria</i>		<i>rothii</i>				N	62	

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
	<i>Litoria</i>	<i>rubella</i>	Brown Tree Frog		N		44
	<i>Litoria</i>	<i>xanthomera</i>	Orange-thighed Green Frog		N		4
	<i>Nyctimystes</i>	<i>dayi</i>			N		4
MICROHYLIDAE	<i>Cophixalis</i>	<i>bombiens</i>		R	N	E	2
	<i>Cophixalis</i>	<i>concinus</i>	Elegant Microhylid	R	N	E	3
	<i>Cophixalis</i>	<i>crepitans</i>		R	N	E	3
	<i>Cophixalis</i>	<i>exiguus</i>		PV	N	E	3
	<i>Cophixalis</i>	<i>peninsularis</i>		IK	N	E	1
	<i>Cophixalis</i>	<i>saxatalis</i>		R	N	E	2
	<i>Sphenophryne</i>	<i>fryi</i>		PV	N	E	6
	<i>Sphenophryne</i>	<i>gracilipes</i>			N	E	45
	<i>Sphenophryne</i>	<i>pluvialis</i>		PV	N	E	5
RANIDAE	<i>Rana</i>	<i>daemeli</i>	Wood Frog		N	E	68
BUFONIDAE	<i>Bufo</i>	<i>marinus</i>	Marine Toad		I		69

REPTILES

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
CROCODYLIDAE	<i>Crocodylus</i>	<i>johnstoni</i>	Freshwater Crocodile	V	N		15
	<i>Crocodylus</i>	<i>porosus</i>	Estuarine Crocodile	V	N		41
CHELONIDAE	<i>Caretta</i>	<i>caretta</i>	Loggerhead Turtle	EN	N		1
	<i>Chelonia</i>	<i>mydas</i>	Green Turtle	V	N		7
	<i>Eretmochelys</i>	<i>imbricata</i>	Hawksbill Turtle	V	N		6
	<i>Lepidochelys</i>	<i>olivacea</i>	Pacific Ridley	V	N		3
	<i>Natator</i>	<i>depressa</i>	Flatback Turtle	PV	N		8
CHELIDAE	<i>Chelodina</i>	<i>novaeguineae</i>	New Guinea Long-necked Turtle		N		3
	<i>Chelodina</i>	<i>rugosa</i>	Northern Long-necked Turtle		N		16
	<i>Elseya</i>	<i>tatisternum</i>	Saw-shelled Turtle		N		21
	<i>Emydura</i>	<i>kreffti</i>	Kreffft's River Turtle		N		8
	<i>Emydura</i>	<i>subglobosa</i>		IK	N		2
	<i>Emydura</i>	sp.			N		2
AGAMIDAE	<i>Chlamydosaurus</i>	<i>kingū</i>	Frilled Lizard		N		38
	<i>Diporiphora</i>	<i>australis</i>	Tommy Roundhead		N		6
	<i>Diporiphora</i>	<i>bilineata</i>	Two-lined Dragon		N		88
	<i>Diporiphora</i>	<i>magna</i>			N		1
	<i>Diporiphora</i>	sp.			N		5
	<i>Gemmatophora</i>	<i>nobbi</i>	Nobby Dragon		N		2
	<i>Gemmatophora</i>	<i>temporalis</i>			N		21
	<i>Gonocephalus</i>	<i>boydii</i>	Boyd's Forest Dragon	PV	N		5
	<i>Physignathus</i>	<i>tesueunii</i>	Eastern Water Dragon		N		5
	GEKKONIDAE	<i>Carphodactylus</i>	<i>laevis</i>	Chameleon Gecko	PV	N	
<i>Cyrtodactylus</i>		<i>louisiadensis</i>	De Vis' Banded Gecko	R	N	E	9
<i>Diplodactylus</i>		<i>conspicillatus</i>	Fat-tailed Gecko		N		1
<i>Diplodactylus</i>		<i>steindachneri</i>			N		3
<i>Diplodactylus</i>		<i>williamsi</i>			N		1
<i>Gehyra</i>		<i>baliola</i>		PV	N	E	4
<i>Gehyra</i>		<i>dubia</i>			N		83
<i>Gehyra</i>		<i>nana</i>			N		1
<i>Gehyra</i>		sp.			N		1
<i>Hemidactylus</i>		<i>frenatus</i>	Asian House Gecko		I		2
<i>Heteronotia</i>		<i>binoei</i>	Bynoe's Gecko		N		59
<i>Lepidodactylus</i>		<i>lugubris</i>			N		7
<i>Lepidodactylus</i>		<i>pumilis</i>		R	N	E	7
<i>Nactus</i>		<i>arnouxii</i>			N	E	92
<i>Nactus</i>		<i>galgajuga</i>		R	N	E	2

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
	<i>Nephronus</i>	<i>asper</i>	Spiny Knob-tailed Gecko		N		8
	<i>Oedura</i>	<i>castelnauii</i>	Northern Banded Velvet Gecko		N	E	40
	<i>Oedura</i>	<i>coggeri</i>	Northern Spotted Velvet Gecko	PV	N		2
	<i>Oedura</i>	<i>marmorata</i>	Marbled Velvet Gecko		N		11
	<i>Oedura</i>	<i>rhombofer</i>	Zigzag Velvet Gecko		N		58
	<i>Oedura</i>	<i>sp.</i>			N		1
	<i>Phyllurus</i>	<i>cornutus</i>			N		5
	<i>Rhacodactylus</i>	<i>australis</i>	Cape York Tree Gecko	PV	N	E	31
	<i>Rhynchoedura</i>	<i>ornata</i>	Beaked Gecko		N		1
PYGOPODIDAE	<i>Delma</i>	<i>inornata</i>			N		1
	<i>Delma</i>	<i>tincta</i>			N		8
	<i>Lialis</i>	<i>burtonis</i>	Burton's Flap-footed Lizard		N		34
	<i>Pygopus</i>	<i>nigriceps</i>	Black-headed Scaly-foot		N		3
VARANIDAE	<i>Varanus</i>	<i>gouldii</i>	Gould's Sand Goanna		N		37
	<i>Varanus</i>	<i>indicus</i>	Mangrove Monitor	PV	N		22
	<i>Varanus</i>	<i>mertensi</i>	Mertens' Water Monitor		N		6
	<i>Varanus</i>	<i>panoptes</i>			N		14
	<i>Varanus</i>	<i>scalaris</i>	Spotted Tree Monitor		N		38
	<i>Varanus</i>	<i>semiremex</i>	Rusty Monitor		N		13
	<i>Varanus</i>	<i>teriae</i>		IK	N	E	4
	<i>Varanus</i>	<i>tristis</i>	Freckled Tree Monitor		N		19
	<i>Varanus</i>	<i>varius</i>	Lace Monitor		N		6
SCINCIDAE	<i>Anomalopus</i>	<i>pluto</i>		IK	N	E	5
	<i>Carlia</i>	<i>amax</i>		PV	N		1
	<i>Carlia</i>	<i>coensis</i>		R	N	E	9
	<i>Carlia</i>	<i>dogare</i>		PV	N	E	5
	<i>Carlia</i>	<i>jamoldae</i>			N		33
	<i>Carlia</i>	<i>longipes</i>			N	E	105
	<i>Carlia</i>	<i>munda</i>			N		39
	<i>Carlia</i>	<i>mundivensis</i>			N		1
	<i>Carlia</i>	<i>pectoralis</i>			N		9
	<i>Carlia</i>	<i>rimula</i>		R	N	E	12
	<i>Carlia</i>	<i>rostralis</i>			N		8
	<i>Carlia</i>	<i>rubrigularis</i>			N		9
	<i>Carlia</i>	<i>schmeltzii</i>			N		10
	<i>Carlia</i>	<i>scirtetis</i>		R	N	E	2
	<i>Carlia</i>	<i>storri</i>			N		52

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
	<i>Carlia</i>	<i>vivax</i>			N		19
	<i>Carlia</i>	<i>sp.</i>			N		1
	<i>Coeranoscincus</i>	<i>frontalis</i>		PV	N		1
	<i>Cryptoblepharus</i>	<i>carnabyi</i>			N		4
	<i>Cryptoblepharus</i>	<i>fuhni</i>		R	N	E	2
	<i>Cryptoblepharus</i>	<i>litoralis</i>			N		31
	<i>Cryptoblepharus</i>	<i>plagiocephalus</i>			N		21
	<i>Cryptoblepharus</i>	<i>virgatus</i>	Fence Skink		N		102
	<i>Ctenotus</i>	<i>essingtoni</i>			N		7
	<i>Ctenotus</i>	<i>inornatus</i>			N		1
	<i>Ctenotus</i>	<i>nullum</i>		IK	N	E	6
	<i>Ctenotus</i>	<i>quinkan</i>		IK	N	E	5
	<i>Ctenotus</i>	<i>rawlinsoni</i>		R	N	E	3
	<i>Ctenotus</i>	<i>robustus</i>			N		14
	<i>Ctenotus</i>	<i>spaldingi</i>			N		80
	<i>Ctenotus</i>	<i>sp.</i>			N		1
	<i>Egernia</i>	<i>frerei</i>	Major Skink		N		21
	<i>Egernia</i>	<i>rugosa</i>	Yakka Skink	R	N		3
	<i>Emoia</i>	<i>atrocostata</i>		R	N	E	2
	<i>Emoia</i>	<i>longicauda</i>			N	E	17
	<i>Eugongylus</i>	<i>rufescens</i>			N	E	4
	<i>Lamprolepis</i>	<i>smaragdina</i>			I		1
	<i>Lampropholis</i>	<i>basiliscus</i>			N		5
	<i>Lampropholis</i>	<i>coggeri</i>			N	E	4
	<i>Lampropholis</i>	<i>czechurai</i>			N		4
	<i>Lampropholis</i>	<i>delicata</i>			N		1
	<i>Lerista</i>	<i>ingrami</i>		PV	N		1
	<i>Lerista</i>	<i>zonulata</i>			N		1
	<i>Lygisaurus</i>	<i>aeratus</i>			N	E	22
	<i>Lygisaurus</i>	<i>laevis</i>			N	E	6
	<i>Lygisaurus</i>	<i>macfarlanei</i>			N	E	45
	<i>Lygisaurus</i>	<i>sesbrauna</i>			N	E	25
	<i>Lygisaurus</i>	<i>tanneri</i>		IK	N	E	5
	<i>Lygisaurus</i>	<i>timlowi</i>			N		2
	<i>Menetia</i>	<i>greyii</i>			N		1
	<i>Menetia</i>	<i>koshlandae</i>			N		2
	<i>Morethia</i>	<i>taeniopleura</i>	Fire-tailed Skink		N		19

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
	<i>Sphenomorphus</i>	<i>crascens</i>			N	E	1
	<i>Sphenomorphus</i>	<i>crassicaudus</i>			N	E	11
	<i>Sphenomorphus</i>	<i>fuscicaudis</i>			N	E	5
	<i>Sphenomorphus</i>	<i>mjobergi</i>		R	N	E	1
	<i>Sphenomorphus</i>	<i>nigricaudis</i>			N	E	55
	<i>Sphenomorphus</i>	<i>pardalis</i>			N	E	36
	<i>Sphenomorphus</i>	<i>pumilus</i>		PV	N	E	19
	<i>Sphenomorphus</i>	<i>tenuis</i>			N		10
	<i>Sphenomorphus</i>	<i>tigrinus</i>		PV	N	E	3
	<i>Tiliqua</i>	<i>scincoides</i>	Eastern Blue-tongue Lizard		N		23
	<i>Tropidophorus</i>	<i>queenslandiae</i>	Prickly Rain-forest Skink	PV	N		3
BOIDAE	<i>Aspidites</i>	<i>melanocephalus</i>	Black-headed Python		N		20
	<i>Candoia</i>	<i>bibroni</i>			I		1
	<i>Morelia</i>	<i>amethystina</i>	Amethystine Python	PV	N	E	27
	<i>Morelia</i>	<i>childreni</i>	Children's Python		N		10
	<i>Morelia</i>	<i>mackloti</i>	Water Python		N		15
	<i>Morelia</i>	<i>maculosa</i>			N		13
	<i>Morelia</i>	<i>spilota</i>	Carpet Snake		N		18
	<i>Morelia</i>	<i>stimsoni</i>			N		3
	<i>Morelia</i>	<i>viridis</i>	Green Tree Python	R	N	E	7
ACROCHORDIDAE	<i>Acrochordus</i>	<i>arafurae</i>	File Snake		N		6
	<i>Acrochordus</i>	<i>granulatus</i>	Little File Snake		N		2
COLUBRIDAE	<i>Boiga</i>	<i>irregularis</i>	Brown Tree Snake		N		32
	<i>Cerberus</i>	<i>rhynchops</i>	Bockadam		N		2
	<i>Dendrelaphis</i>	<i>calligastra</i>	Northern Tree Snake		N	E	24
	<i>Dendrelaphis</i>	<i>punctulata</i>	Common Tree Snake		N		39
	<i>Enhydryis</i>	<i>polylepis</i>	Macleay's Water Snake		N		22
	<i>Stegonotus</i>	<i>cucullatus</i>			N		25
	<i>Stegonotus</i>	<i>parvus</i>		PV	N	E	1
	<i>Tropidonophis</i>	<i>mairii</i>	Common Keelback		N		48
ELAPIDAE	<i>Acanthophis</i>	<i>antarcticus</i>	Common Death Adder		N		7
	<i>Acanthophis</i>	<i>praelongus</i>			N		17
	<i>Demansia</i>	<i>olivacea</i>			N		1
	<i>Demansia</i>	<i>papuensis</i>			N		3
	<i>Demansia</i>	<i>psammophis</i>	Yellow-faced Whip Snake		N		3
	<i>Demansia</i>	<i>torquata</i>	Collared Whip Snake		N		9
	<i>Demansia</i>	<i>vestigata</i>	Black Whip Snake		N		35

FAMILY GENUS SPECIES NAME COMMON NAME A B C RECORDS

Furina	<i>ornata</i>	Orange-naped Snake	N			21
Furina	<i>tristis</i>	Brown-headed Snake	N			36
Hemiaspis	<i>signata</i>	Black-bellied Swamp Snake	N			2
Oxyuranus	<i>scutellatus</i>	Coastal Taipan	N			19
Pseudechis	<i>australis</i>	Mulga Snake	N			14
Pseudechis	<i>porphyrynacus</i>	Red-bellied Black Snake	N			2
Pseudonaja	<i>nuchalis</i>	Western Brown Snake	N			6
Pseudonaja	<i>textilis</i>	Eastern Brown Snake	N			3
Rhinoplocephalus	<i>boschmai</i>	Carpenteria Whip Snake	N			4
Rhinoplocephalus	<i>nigrescens</i>	Eastern Small-eyed Snake	N			1
Rhinoplocephalus	<i>nigrostratus</i>	Black-striped Snake	N			13
Rhinoplocephalus	<i>sp.</i>		N			2
Simoseps	<i>semifasciatus</i>	Half-girdled Snake	N			8
Simoseps	<i>warro</i>		N			11
Suta	<i>suta</i>	Curl Snake	N			2
Vermicella	<i>annulata</i>	Bandy-bandy	N			4
Acalyptophis	<i>peronii</i>		N			5
Aipysurus	<i>eydouxi</i>		N			6
Aipysurus	<i>jaevis</i>		N			7
Astroia	<i>stokesii</i>		N			8
Distira	<i>kingii</i>		N			1
Distira	<i>major</i>		N			5
Distira	<i>sp.</i>		N			1
Enhydryna	<i>schistosa</i>		N			5
Hydrelaps	<i>darwiniensis</i>		N	PV		1
Hydraphis	<i>elegans</i>		N			10
Hydraphis	<i>mcdownelli</i>		N	PV		1
Hydraphis	<i>ornatus</i>		N	PV		1
Lapemis	<i>curtus</i>		N			22
Pelamnis	<i>platusus</i>	Yellow-bellied Sea Snake	N			6
Ramphotyphlops	<i>affinis</i>		N			3
Ramphotyphlops	<i>braminus</i>		N			1
Ramphotyphlops	<i>broomi</i>		N			3
Ramphotyphlops	<i>diversus</i>		N			1
Ramphotyphlops	<i>grypus</i>		N			1
Ramphotyphlops	<i>leucoproctus</i>		N			1
Ramphotyphlops	<i>polygrammicus</i>		N			11

HYDROPHIIDAE

TYPHLOPIIDAE

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
	<i>Ramphotyphlops</i>	<i>proximus</i>			N		1
	<i>Ramphotyphlops</i>	<i>unguirostris</i>			N		1
	<i>Ramphotyphlops</i>	<i>wiedii</i>			N		3
	<i>Ramphotyphlops</i>	<i>sp.</i>			N		5

BIRDS

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
DROMAIDAE	<i>Dromaius</i>	<i>novaeollandiae</i>	Emu		N		L	28
CASUARIIDAE	<i>Casuarus</i>	<i>casuarus</i>	Southern Cassowary	V	N		L	18
PODICIPEDIDAE	<i>Poliocephalus</i>	<i>poliocephalus</i>	Hoary-headed Grebe		N		W	2
	<i>Tachybaptus</i>	<i>novaeollandiae</i>	Australasian Grebe		N		W	26
PROCELLARIIDAE	<i>Puffinus</i>	<i>pacificus</i>	Wedge-tailed Shearwater				W	4
OCEANITIDAE	<i>Oceanites</i>	<i>oceanicus</i>	Wilson's Storm-petrel		N		W	2
PELECANIDAE	<i>Pelecanus</i>	<i>conspicillatus</i>	Australian Pelican		N		W	79
SULIDAE	<i>Sula</i>	<i>dactylatra</i>	Masked Booby		N		W	1
	<i>Sula</i>	<i>leucogaster</i>	Brown Booby		N		W	12
ANHINGIDAE	<i>Anhinga</i>	<i>melanogaster</i>	Darter		N		W	73
PHALACROCORACIDAE	<i>Phalacrocorax</i>	<i>carbo</i>	Great Cormorant		N		W	24
	<i>Phalacrocorax</i>	<i>melanoleucos</i>	Little Pied Cormorant		N		W	83
	<i>Phalacrocorax</i>	<i>sulcirostris</i>	Little Black Cormorant		N		W	52
	<i>Phalacrocorax</i>	<i>varius</i>	Pied Cormorant		N		W	31
FREGATIDAE	<i>Fregata</i>	<i>ariel</i>	Least Frigatebird		N		W	33
	<i>Fregata</i>	<i>minor</i>	Great Frigatebird		N		W	14
PHAETHONTIDAE	<i>Phaethon</i>	<i>rubicauda</i>	Red-tailed Tropicbird		N		W	1
ARDEIDAE	<i>Ardea</i>	<i>novaeollandiae</i>	White-faced Heron		N		W	78
	<i>Ardea</i>	<i>pacifica</i>	Pacific Heron		N		W	52
	<i>Ardea</i>	<i>pictata</i>	Pied Heron		N		W	30
	<i>Ardea</i>	<i>sumatrana</i>	Great-billed Heron	SI	N		W	28
	<i>Ardeola</i>	<i>ibis</i>	Cattle Egret		N		W	8
	<i>Butorides</i>	<i>striatus</i>	Striated Heron		N		W	44
	<i>Dupetor</i>	<i>flavicollis</i>	Black Bittern		N		W	31
	<i>Egretta</i>	<i>alba</i>	Great Egret		N		W	88
	<i>Egretta</i>	<i>garzetta</i>	Little Egret		N		W	60
	<i>Egretta</i>	<i>intermedia</i>	Intermediate Egret		N		W	51
	<i>Egretta</i>	<i>sacra</i>	Eastern Reef Egret		N		W	43
	<i>Ixobrychus</i>	<i>minutus</i>	Little Bittern	R	N		W	1
	<i>Nycticorax</i>	<i>caledonicus</i>	Rufous Night Heron		N		W	68
CICONIIDAE	<i>Xenorhynchus</i>	<i>asiaticus</i>	Black-necked Stork		N		W	71
PLATALEIDAE	<i>Platalea</i>	<i>flavipes</i>	Yellow-billed Spoonbill		N		W	27
	<i>Platalea</i>	<i>regia</i>	Royal Spoonbill		N		W	57
	<i>Plegadis</i>	<i>falcinellus</i>	Glossy Ibis		N		W	26
	<i>Threskiornis</i>	<i>aethiopica</i>	Sacred Ibis		N		W	78
	<i>Threskiornis</i>	<i>spinicollis</i>	Straw-necked Ibis		N		W	89
ANATIDAE	<i>Anas</i>	<i>castanea</i>	Chestnut Teal		N		W	1
	<i>Anas</i>	<i>gibberifrons</i>	Grey Teal		N		W	27

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
	<i>Anas</i>	<i>querquedula</i> ?	Garganey ?		N		W	1
	<i>Anas</i>	<i>rhynchotis</i>	Australasian Shoveler		N		W	1
	<i>Anas</i>	<i>supercilliosa</i>	Pacific Black Duck		N		W	73
	<i>Anseranas</i>	<i>semipalmata</i>	Magpie Goose		N		W	50
	<i>Aythya</i>	<i>australis</i>	Hardhead		N		W	25
	<i>Chenonetta</i>	<i>jubata</i>	Maned Duck		N		W	3
	<i>Cygnus</i>	<i>atratus</i>	Black Swan		N		W	1
	<i>Dendrocygna</i>	<i>arcuata</i>	Wandering Whistling-duck		N		W	24
	<i>Dendrocygna</i>	<i>eytoni</i>	Plumed Whistling-duck		N		W	9
	<i>Malacorhynchus</i>	<i>membranaceus</i>	Pink-eared Duck		N		W	5
	<i>Nettapus</i>	<i>coromandelianus</i>	Cotton Pygmy-goose	SI	N		W	4
	<i>Nettapus</i>	<i>pulchellus</i>	Green Pygmy-goose		N		W	38
	<i>Tadorna</i>	<i>radjah</i>	Radjah Shelduck	SI	N		W	51
PANDIONIDAE	<i>Pandion</i>	<i>haliaetus</i>	Osprey		N		W	59
ACCIPITRIDAE	<i>Accipiter</i>	<i>cirrhocephalus</i>	Collared Sparrowhawk		N		L	29
	<i>Accipiter</i>	<i>fasciatus</i>	Brown Goshawk		N		L	64
	<i>Accipiter</i>	<i>novaehollandiae</i>	Grey Goshawk		N		L	40
	<i>Aquila</i>	<i>audax</i>	Wedge-tailed Eagle		N		L	51
	<i>Aquila</i>	<i>gurneyi</i>	Gurney's Eagle		N	E	L	1
	<i>Aviceda</i>	<i>subcristata</i>	Pacific Baza		N		L	18
	<i>Circus</i>	<i>aeruginosus</i>	Marsh Harrier		N		L	28
	<i>Circus</i>	<i>assimilis</i>	Spotted Harrier		N		L	12
	<i>Elanus</i>	<i>notatus</i>	Black-shouldered Kite		N		L	29
	<i>Erythrotriorchis</i>	<i>radiatus</i>	Red Goshawk	V	N		L	21
	<i>Haliaeetus</i>	<i>leucogaster</i>	White-bellied Sea-eagle		N		W	81
	<i>Haliastur</i>	<i>indus</i>	Brahminy Kite		N		L	57
	<i>Haliastur</i>	<i>sphenurus</i>	Whistling Kite		N		L	105
	<i>Hamirostra</i>	<i>melanosternon</i>	Black-breasted Buzzard	SI	N		L	30
	<i>Hieraaetus</i>	<i>morphnoides</i>	Little Eagle		N		L	15
	<i>Lophoictinia</i>	<i>isura</i>	Square-tailed Kite	R	N		L	23
	<i>Milvus</i>	<i>migrans</i>	Black Kite		N		L	85
FALCONIDAE	<i>Falco</i>	<i>berigora</i>	Brown Falcon		N		L	70
	<i>Falco</i>	<i>cenchrroides</i>	Australian Kestrel		N		L	59
	<i>Falco</i>	<i>longipennis</i>	Australian Hobby		N		L	29
	<i>Falco</i>	<i>peregrinus</i>	Peregrine Falcon		N		L	21
	<i>Falco</i>	<i>subniger</i>	Black Falcon		N		L	5
MEGAPODIIDAE	<i>Alectura</i>	<i>lathamii</i>	Australian Brush-turkey		N		L	79
	<i>Megapodius</i>	<i>reinwardt</i>	Orange-footed Scrubfowl		N		L	64

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
PHASIANIDAE	<i>Coturnix</i>	<i>australis</i>	Brown Quail		N		L	27
	<i>Coturnix</i>	<i>chinensis</i>	King Quail		N		L	9
	<i>Coturnix</i>	<i>novaezeelandiae</i>	Stubble Quail		N		L	1
TURNICIDAE	<i>Gallus</i>	<i>sp.</i>	Chicken, Jungle Fowl		I		L	5
	<i>Turnix</i>	<i>maculosa</i>	Red-backed Button-quail		N		L	25
	<i>Turnix</i>	<i>melanogaster</i>	Black-breasted Button-quail	V	N		L	3
	<i>Turnix</i>	<i>olivei</i>	Buff-breasted Button-quail	IK	N	E	L	7
	<i>Turnix</i>	<i>pyrrothorax</i>	Red-chested Button-quail		N		L	4
	<i>Turnix</i>	<i>varia</i>	Painted Button-quail		N		L	4
	<i>Turnix</i>	<i>velox</i>	Little Button-quail		N		L	1
RALLIDAE	<i>Fulica</i>	<i>atra</i>	Eurasian Coot		N		W	7
	<i>Gallinula</i>	<i>olivacea</i>	Bush-hen		N		W	16
	<i>Gallinula</i>	<i>tenebrosa</i>	Dusky Moorhen		N		W	2
	<i>Poliolimnas</i>	<i>cinereus</i>	White-browed Crake		N		W	6
	<i>Porphyrio</i>	<i>porphyrio</i>	Purple Swamphen		N		W	15
	<i>Porzana</i>	<i>tabuensis</i>	Spotless Crake		N		W	2
	<i>Rallina</i>	<i>tricolor</i>	Red-necked Crake		N		W	11
	<i>Rallus</i>	<i>philippensis</i>	Buff-banded Rail		N		W	9
GRUIDAE	<i>Grus</i>	<i>antigone</i>	Sarus Crane		N		W	27
	<i>Grus</i>	<i>rubicundus</i>	Brolga		N		W	73
OTIDIDAE	<i>Ardeotis</i>	<i>australis</i>	Australian Bustard		N		L	63
JACANIDAE	<i>Irediparra</i>	<i>gallinacea</i>	Comb-crested Jacana		N		W	28
BURHINIDAE	<i>Burhinus</i>	<i>magnirostris</i>	Bush Thick-knee		N		L	46
	<i>Burhinus</i>	<i>neglectus</i>	Beach Thick-knee	V	N		W	37
HAEMATOPODIDAE	<i>Haematopus</i>	<i>fuliginosus</i>	Sooty Oystercatcher	SI	N		W	13
	<i>Haematopus</i>	<i>longirostris</i>	Pied Oystercatcher		N		W	39
CHARADRIIDAE	<i>Charadrius</i>	<i>leschenaulti</i>	Large Sand Plover		N		W	19
	<i>Charadrius</i>	<i>melanops</i>	Black-fronted Plover		N		W	28
	<i>Charadrius</i>	<i>mongolus</i>	Mongolian Plover		N		W	26
	<i>Charadrius</i>	<i>ruficapillus</i>	Red-capped Plover		N		W	34
	<i>Charadrius</i>	<i>veredus</i>	Oriental Plover		N		W	3
	<i>Erythrogonys</i>	<i>cinctus</i>	Red-kneed Dotterel		N		W	6
	<i>Pluvialis</i>	<i>fulva</i>	Lesser Golden Plover		N		W	33
	<i>Pluvialis</i>	<i>squatarola</i>	Grey Plover		N		W	13
	<i>Vanellus</i>	<i>miles</i>	Masked Lapwing		N		L	79
	<i>Vanellus</i>	<i>tricolor</i>	Banded Lapwing		N		L	1
RECURVIROSTRIDAE	<i>Himantopus</i>	<i>himantopus</i>	Black-winged Stilt		N		W	30
	<i>Recurvirostra</i>	<i>novaezeelandiae</i>	Red-necked Avocet		N		W	3

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS	
SCOLOPACIDAE	<i>Arenaria</i>	<i>interpres</i>	Ruddy Turnstone		N		W	21	
	<i>Calidris</i>	<i>acuminata</i>	Sharp-tailed Sandpiper		N		W	26	
	<i>Calidris</i>	<i>alba</i>	Sanderting		N		W	2	
	<i>Calidris</i>	<i>canutus</i>	Red Knot		N		W	9	
	<i>Calidris</i>	<i>ferruginea</i>	Curlew Sandpiper		N		W	13	
	<i>Calidris</i>	<i>ruficollis</i>	Red-necked Stint		N		W	31	
	<i>Calidris</i>	<i>subminuta</i>	Long-toed Stint		N		W	1	
	<i>Calidris</i>	<i>tenuirostris</i>	Great Knot		N		W	6	
	<i>Gallinago</i>	<i>hardwickii</i>	Latham's Snipe		N		W	9	
	<i>Gallinago</i>	<i>megala</i>	Swinhoe's Snipe		N		W	2	
	<i>Limicola</i>	<i>falcinellus</i>	Broad-billed Sandpiper		N		W	1	
	<i>Limosa</i>	<i>japonica</i>	Bar-tailed Godwit		N		W	21	
	<i>Limosa</i>	<i>limosa</i>	Black-tailed Godwit		N		W	7	
	<i>Numenius</i>	<i>madagascariensis</i>	Eastern Curlew	R	N		W	33	
	<i>Numenius</i>	<i>minutus</i>	Little Curlew		N		W	17	
	<i>Numenius</i>	<i>phaeopus</i>	Whimbrel		N		W	46	
	<i>Philomachus</i>	<i>pugnax</i>	Ruff		N		W	2	
	<i>Tringa</i>	<i>brevipes</i>	Grey-tailed Tattler		N		W	25	
	<i>Tringa</i>	<i>glareola</i>	Wood Sandpiper		N		W	1	
	<i>Tringa</i>	<i>hypoleucos</i>	Common Sandpiper		N		W	38	
	<i>Tringa</i>	<i>incana</i>	Wandering Tattler		N		W	6	
	<i>Tringa</i>	<i>nebularia</i>	Greenshank		N		W	26	
	<i>Tringa</i>	<i>stagnatilis</i>	Marsh Sandpiper		N		W	11	
	<i>Tringa</i>	<i>terek</i>	Terek Sandpiper		N		W	14	
	GLAREOLIDAE	<i>Stiltia</i>	<i>isabella</i>	Australian Pratincole		N		L	21
	STERCORARIIDAE	<i>Stercorarius</i>	<i>pomarinus</i> ?	Pomarine Jaeger ?		N		W	1
	LARIDAE	<i>Anous</i>	<i>minutus</i>	Black Noddy		N		W	5
<i>Anous</i>		<i>stolidus</i>	Common Noddy		N		W	8	
<i>Chlidonias</i>		<i>hybrida</i>	Whiskered Tern		N		W	10	
<i>Chlidonias</i>		<i>leucoptera</i>	White-winged Tern		N		W	9	
<i>Gelochelidon</i>		<i>nilotica</i>	Gull-billed Tern		N		W	34	
<i>Gygis</i>		<i>alba</i>	White Tern		N		W	1	
<i>Hydroprogne</i>		<i>caspia</i>	Caspian Tern		N		W	33	
<i>Larus</i>		<i>dominicanus</i>	Kelp Gull		N		W	1	
<i>Larus</i>		<i>novaeollandiae</i>	Silver Gull		N		W	52	
<i>Sterna</i>		<i>albifrons</i>	Little Tern	R	N		W	22	
<i>Sterna</i>		<i>anaethetus</i>	Bridled Tern		N		W	27	
<i>Sterna</i>	<i>bengalensis</i>	Lesser Crested Tern		N		W	32		

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
COLUMBIDAE	<i>Sterna bergii</i>	Crested Tern	N				W	47
	<i>Sterna dougalli</i>	Roseate Tern	N				W	11
	<i>Sterna fuscata</i>	Sooty Tern	N				W	5
	<i>Sterna hirundo</i>	Common Tern	N				W	13
	<i>Sterna sumatrana</i>	Black-naped Tern	N				W	22
	<i>Chalcophaps indica</i>	Emerald Dove	N				L	41
	<i>Columba leucomela</i>	White-headed Pigeon	N				L	4
	<i>Columba livia</i>	Rock Pigeon	I				L	1
	<i>Ducula spilorrhoa</i>	Torresian Imperial-pigeon	N				L	107
	<i>Ducula zoeae ?</i>	Zoe Imperial-pigeon ?	N				L	1
<i>Geopelia cuneata</i>	Diamond Dove	N				L	19	
<i>Geopelia humeralis</i>	Bar-shouldered Dove	N				L	133	
<i>Geopelia pacifica</i>	Peaceful Dove	N				L	114	
<i>Lopholaimus antarcticus</i>	Topknot Pigeon	N				L	8	
<i>Macropygia ambouhensis</i>	Brown Cuckoo-dove	N				L	33	
<i>Ocyphaps lophotes</i>	Crested Pigeon	N				L	4	
<i>Petrophassa scripta</i>	Squatter Pigeon	N				L	29	
<i>Phaps chalcoptera</i>	Common Bronzewing	N				L	14	
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	N				L	50	
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	N				L	40	
<i>Ptilinopus superbus</i>	Superb Fruit-dove	N				L	29	
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	N				L	115	
<i>Cacatua roseicapilla</i>	Galah	N				L	65	
<i>Cacatua sanguinea</i>	Little Corella	N				L	14	
<i>Calyptrorhynchus magnificus</i>	Red-tailed Black-cockatoo	N				L	71	
<i>Probosciger aterrimus</i>	Palm Cockatoo	N	IK		E	L	48	
<i>Ectectus rufus</i>	Eclectus Parrot	N	R		E	L	15	
<i>Geoffroyus geoffroyi</i>	Red-cheeked Parrot	N	R		E	L	13	
<i>Glossopsitta pusilla</i>	Little Lorikeet	N				L	4	
<i>Psitteneutes versicolor</i>	Varied Lorikeet	N				L	19	
<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	N				L	22	
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	N				L	131	
<i>Psittaculirostris diophrthaima</i>	Double-eyed Fig-parrot	N				L	18	
<i>Alisterus scapularis</i>	Australian King-parrot	N				L	4	
<i>Aprasmictus erythropterus</i>	Red-winged Parrot	N				L	87	
<i>Nymphicus hollandicus</i>	Cockatiel	N				L	1	
<i>Melospitacus undulatus</i>	Budgerigar	N				L	1	
<i>Platycercus adscitus</i>	Pale-headed Rosella	N				L	70	

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
CUCULIDAE	<i>Platycercus</i>	<i>elegans</i>	Crimson Rosella		N		L	1
	<i>Psephotus</i>	<i>chrysopterygius</i>	Golden-shouldered Parrot	EN	N	E	L	29
	<i>Centropus</i>	<i>phasianinus</i>	Pheasant Coucal		N		L	81
	<i>Chrysococcyx</i>	<i>basalis</i>	Horsfield's Bronze-cuckoo		N		L	12
	<i>Chrysococcyx</i>	<i>lucidus</i>	Shining Bronze-cuckoo		N		L	18
	<i>Chrysococcyx</i>	<i>malayanus</i>	Little Bronze-cuckoo		N		L	21
	<i>Chrysococcyx</i>	<i>osculans</i>	Black-eared Cuckoo		N		L	4
	<i>Chrysococcyx</i>	<i>russatus</i>	Gould's Bronze-cuckoo		N		L	28
	<i>Cuculus</i>	<i>castaneiventris</i>	Chestnut-breasted Cuckoo		N	E	L	17
	<i>Cuculus</i>	<i>pallidus</i>	Pallid Cuckoo		N		L	18
	<i>Cuculus</i>	<i>pyrrhophanus</i>	Fan-tailed Cuckoo		N		L	36
	<i>Cuculus</i>	<i>saturatus</i>	Oriental Cuckoo		N		L	13
	<i>Cuculus</i>	<i>variolosus</i>	Brush Cuckoo		N		L	48
	<i>Eudynamis</i>	<i>scolopacea</i>	Common Koel		N		L	50
	STRIGIDAE	<i>Scythrops</i>	<i>novaeollandiae</i>	Channel-billed Cuckoo		N		L
<i>Ninox</i>		<i>boobook</i>	Southern Boobook		N		L	58
<i>Ninox</i>		<i>connivens</i>	Barking Owl		N		L	22
<i>Ninox</i>		<i>rufa</i>	Rufous Owl	R	N		L	11
TYTONIDAE	<i>Tyto</i>	<i>alba</i>	Barn Owl		N		L	17
	<i>Tyto</i>	<i>longimembris</i>	Eastern Grass Owl	IK	N		L	11
	<i>Tyto</i>	<i>multipunctata</i>	Lesser Sooty Owl	PV	N		L	4
	<i>Tyto</i>	<i>novaeollandiae</i>	Masked Owl	IK	N		L	5
PODARGIDAE	<i>Podargus</i>	<i>ocellatus</i>	Marbled Frogmouth	V	N		L	6
	<i>Podargus</i>	<i>papuensis</i>	Papuan Frogmouth		N	E	L	59
	<i>Podargus</i>	<i>strigoides</i>	Tawny Frogmouth		N		L	61
AEGOTHELIDAE	<i>Aegotheles</i>	<i>cristatus</i>	Australian Owlet-nightjar		N		L	30
CAPRIMULGIDAE	<i>Caprimulgus</i>	<i>guttatus</i>	Spotted Nightjar		N		L	21
	<i>Caprimulgus</i>	<i>macrurus</i>	Large-tailed Nightjar		N		L	59
	<i>Caprimulgus</i>	<i>mystacalis</i>	White-throated Nightjar		N		L	11
	<i>Apus</i>	<i>pacificus</i>	Fork-tailed Swift		N		L	20
APODIDAE	<i>Collocalia</i>	<i>esculenta</i>	Glossy Swiftlet		N		L	1
	<i>Collocalia</i>	<i>spodiopygia</i>	White-rumped Swiftlet		N		L	32
	<i>Collocalia</i>	<i>vanikorensis</i>	Uniform Swiftlet		N		L	4
	<i>Hirundapus</i>	<i>caudacutus</i>	White-throated Needletail		N		L	17
ALCEDINIDAE	<i>Ceyx</i>	<i>azurea</i>	Azure Kingfisher		N		W	78
	<i>Ceyx</i>	<i>pusilla</i>	Little Kingfisher		N		L	24
	<i>Dacelo</i>	<i>leachii</i>	Blue-winged Kookaburra		N		L	114
	<i>Dacelo</i>	<i>novaequineae</i>	Laughing Kookaburra		N		L	93

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
	<i>Halcyon</i>	<i>chloris</i>	Collared Kingfisher		N		W	17
	<i>Halcyon</i>	<i>macleayii</i>	Forest Kingfisher		N		L	95
	<i>Halcyon</i>	<i>pyrrhopygia</i>	Red-backed Kingfisher		N		L	23
	<i>Halcyon</i>	<i>sancta</i>	Sacred Kingfisher		N		L	81
	<i>Syma</i>	<i>torotoro</i>	Yellow-billed Kingfisher		N	E	E	34
	<i>Tanysiptera</i>	<i>sylvia</i>	Buff-breasted Paradise-kingfisher		N		L	23
MEROPIDAE	<i>Merops</i>	<i>ornatus</i>	Rainbow Bee-eater		N		E	123
CORACIIDAE	<i>Eurystomus</i>	<i>orientalis</i>	Dollarbird		N		L	55
PITTIDAE	<i>Pitta</i>	<i>erythrogaster</i>	Red-bellied Pitta		N	E	L	16
	<i>Pitta</i>	<i>versicolor</i>	Noisy Pitta		N		L	31
ALAUDIDAE	<i>Mirafra</i>	<i>javanica</i>	Singing Bushlark		N		L	5
HIRUNDINIDAE	<i>Cecropis</i>	<i>ariel</i>	Fairy Martin		N		L	28
	<i>Cecropis</i>	<i>nigricans</i>	Tree Martin		N		L	41
	<i>Hirundo</i>	<i>daurica</i>	Red-rumped Swallow		N		L	1
	<i>Hirundo</i>	<i>neoxena</i>	Welcome Swallow		N		L	42
	<i>Hirundo</i>	<i>tahitica</i>	Pacific Swallow		N		L	1
MOTACILLIDAE	<i>Anthus</i>	<i>novaeseelandiae</i>	Richard's Pipit		N		L	27
CAMPEPHAGIDAE	<i>Coracina</i>	<i>lineata</i>	Yellow-eyed Cuckoo-shrike		N		L	13
	<i>Coracina</i>	<i>maxima</i>	Ground Cuckoo-shrike		N		L	2
	<i>Coracina</i>	<i>novaeollandiae</i>	Black-faced Cuckoo-shrike		N		L	99
	<i>Coracina</i>	<i>papuensis</i>	White-bellied Cuckoo-shrike		N		L	116
	<i>Coracina</i>	<i>tenuirostris</i>	Cicadabird		N		L	49
	<i>Lalage</i>	<i>leucomela</i>	Varied Triller		N		L	74
	<i>Lalage</i>	<i>sueurii</i>	White-winged Triller		N		L	45
MUSCICAPIDAE	<i>Arses</i>	<i>kaupi</i>	Pied Monarch		N		L	6
	<i>Arses</i>	<i>telescopthalmus</i>	Friiled Monarch		N	E	L	24
	<i>Colluricincla</i>	<i>boweri</i>	Bower's Shrike-thrush		N		L	5
	<i>Colluricincla</i>	<i>harmonica</i>	Grey Shrike-thrush		N		L	45
	<i>Colluricincla</i>	<i>megarhyncha</i>	Little Shrike-thrush		N		L	69
	<i>Drymodes</i>	<i>superciliaris</i>	Northern Scrub-robin		N	E	L	13
	<i>Eopsaltria</i>	<i>australis</i>	Eastern Yellow Robin		N		L	4
	<i>Eopsaltria</i>	<i>pulverulenta</i>	Mangrove Robin		N		L	16
	<i>Machaerirhynchus</i>	<i>flaviventer</i>	Yellow-breasted Boatbill		N		L	25
	<i>Microeca</i>	<i>flavigaster</i>	Lemon-bellied Flycatcher		N		L	90
	<i>Microeca</i>	<i>griseoiceps</i>	Yellow-legged Flycatcher	SI	N	E	L	9
	<i>Microeca</i>	<i>leucophaea</i>	Jacky Winter		N		L	24
	<i>Monarcha</i>	<i>frater</i>	Black-winged Monarch	SI	N	E	L	7
	<i>Monarcha</i>	<i>leucotis</i>	White-eared Monarch		N		L	12

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	<i>Monarcha</i>	<i>melanopsis</i>	Black-faced Monarch		N		L	14
	<i>Monarcha</i>	<i>trivirgatus</i>	Spectacled Monarch		N		L	49
	<i>Myiagra</i>	<i>alecto</i>	Shining Flycatcher		N		L	54
	<i>Myiagra</i>	<i>cyanofeuca</i>	Satin Flycatcher		N		L	25
	<i>Myiagra</i>	<i>inquieta</i>	Restless Flycatcher		N		L	11
	<i>Myiagra</i>	<i>rubecula</i>	Leaden Flycatcher		N		L	98
	<i>Myiagra</i>	<i>ruficollis</i>	Broad-billed Flycatcher		N		L	29
	<i>Pachycephala</i>	<i>griseiceps</i>	Grey Whistler		N		L	43
	<i>Pachycephala</i>	<i>lanioides</i>	White-breasted Whistler		N		L	2
	<i>Pachycephala</i>	<i>melanura</i>	Mangrove Golden Whistler		N		L	21
	<i>Pachycephala</i>	<i>pectoralis</i>	Golden Whistler		N		L	7
	<i>Pachycephala</i>	<i>rufiventris</i>	Rufous Whistler		N		L	86
	<i>Poecilodryas</i>	<i>albispecularis</i>	Grey-headed Robin		N		L	4
	<i>Poecilodryas</i>	<i>superciliaris</i>	White-browed Robin		N		L	31
	<i>Rhipidura</i>	<i>fuliginosa</i>	Grey Fantail		N		L	65
	<i>Rhipidura</i>	<i>leucophrys</i>	Willie Wagtail		N		L	58
	<i>Rhipidura</i>	<i>phasiana</i>	Mangrove Fantail		N		L	4
	<i>Rhipidura</i>	<i>rufifrons</i>	Rufous Fantail		N		L	63
	<i>Rhipidura</i>	<i>rufiventris</i>	Northern Fantail		N		L	29
	<i>Tregellasia</i>	<i>capito</i>	Pale-yellow Robin	SI	N		L	8
	<i>Tregellasia</i>	<i>leucops</i>	White-faced Robin		N	E	L	17
ORTHONYCHIDAE	<i>Orthonyx</i>	<i>spaldingii</i>	Chowchilla		N		L	5
	<i>Psophodes</i>	<i>olivaceus</i>	Eastern Whipbird		N		L	5
TIMALIIDAE	<i>Pomatostomus</i>	<i>temporalis</i>	Grey-crowned Babbler		N		L	67
SYLVIIDAE	<i>Acrocephalus</i>	<i>stentoreus</i>	Clamorous Reed-warbler		N		W	12
	<i>Cincloramphus</i>	<i>cruralis</i>	Brown Songlark		N		L	1
	<i>Cincloramphus</i>	<i>mathewsi</i>	Rufous Songlark		N		L	12
	<i>Cisticola</i>	<i>exilis</i>	Golden-headed Cisticola		N		L	54
	<i>Cisticola</i>	<i>juncidis</i>	Zitting Cisticola	IK	N		L	4
	<i>Megalurus</i>	<i>timoriensis</i>	Tawny Grassbird		N		L	18
MALURIDAE	<i>Malurus</i>	<i>amabilis</i>	Lovely Fairy-wren		N		L	47
	<i>Malurus</i>	<i>melanocephalus</i>	Red-backed Fairy-wren		N		L	76
ACANTHIZIDAE	<i>Acanthiza</i>	<i>katherina</i>	Mountain Thornbill		N		L	3
	<i>Acanthiza</i>	<i>reguloides</i>	Buff-rumped Thornbill		N		L	1
	<i>Crateroscelis</i>	<i>gutturalis</i>	Australian Fernwren		N		L	3
	<i>Gerygone</i>	<i>laevigaster</i>	Mangrove Gerygone		N		L	11
	<i>Gerygone</i>	<i>magnirostris</i>	Large-billed Gerygone		N		L	64
	<i>Gerygone</i>	<i>mouki</i>	Brown Gerygone		N		L	6

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	<i>Gerygone</i>	<i>olivacea</i>	White-throated Gerygone		N		L	41
	<i>Gerygone</i>	<i>palpebrosa</i>	Fairy Gerygone		N		L	70
	<i>Sericornis</i>	<i>beccarii</i>	Tropical Scrubwren		N	E	L	34
	<i>Sericornis</i>	<i>citreogularis</i>	Yellow-throated Scrubwren		N		L	5
	<i>Sericornis</i>	<i>keri</i>	Atherton Scrubwren		N		L	2
	<i>Sericornis</i>	<i>magnirostris</i>	Large-billed Scrubwren		N		L	8
	<i>Smicronis</i>	<i>brevirostris</i>	Weebill		N		L	33
NEOSITTIDAE	<i>Daphoenositta</i>	<i>chrysoptera</i>	Varied Sittella		N		L	38
CLIMACTERIDAE	<i>Climacteris</i>	<i>leucophaea</i>	White-throated Treecreeper		N		L	6
	<i>Climacteris</i>	<i>picumnus</i>	Brown Treecreeper		N		L	36
MELIPHAGIDAE	<i>Acanthorhynchus</i>	<i>tenuirostris</i>	Eastern Spinebill		N		L	4
	<i>Certhionyx</i>	<i>pectoralis</i>	Banded Honeyeater		N		L	52
	<i>Conopophila</i>	<i>albogularis</i>	Rufous-banded Honeyeater		N		L	17
	<i>Conopophila</i>	<i>rufogularis</i>	Rufous-throated Honeyeater		N		L	13
	<i>Entomyzon</i>	<i>cyanotis</i>	Blue-faced Honeyeater		N		L	97
	<i>Glycichaera</i>	<i>fallax</i>	Green-backed Honeyeater	SI	N	E	L	4
	<i>Grantiella</i>	<i>picta</i>	Painted Honeyeater	R	N		L	1
	<i>Lichenostomus</i>	<i>chrysops</i>	Yellow-faced Honeyeater		N		L	6
	<i>Lichenostomus</i>	<i>flavescens</i>	Yellow-tinted Honeyeater		N		L	9
	<i>Lichenostomus</i>	<i>flavus</i>	Yellow Honeyeater		N		L	87
	<i>Lichenostomus</i>	<i>frenatus</i>	Bridled Honeyeater		N		L	4
	<i>Lichenostomus</i>	<i>unicolor</i>	White-gaped Honeyeater		N		L	28
	<i>Lichenostomus</i>	<i>versicolor</i>	Varied Honeyeater		N		L	28
	<i>Lichenostomus</i>	<i>virescens</i>	Singing Honeyeater		N		L	1
	<i>Lichmera</i>	<i>indistincta</i>	Brown Honeyeater		N		L	64
	<i>Manorina</i>	<i>melanocephala</i>	Noisy Miner		N		L	8
	<i>Meliphaga</i>	<i>gracilis</i>	Graceful Honeyeater		N		L	76
	<i>Meliphaga</i>	<i>lewini</i>	Lewin's Honeyeater		N		L	10
	<i>Meliphaga</i>	<i>notata</i>	Yellow-spotted Honeyeater		N		L	87
	<i>Melithreptus</i>	<i>albogularis</i>	White-throated Honeyeater		N		L	110
	<i>Melithreptus</i>	<i>laetior</i>	Golden-backed Honeyeater	SI	N		L	15
	<i>Melithreptus</i>	<i>lunatus</i>	White-naped Honeyeater		N		L	1
	<i>Myzomela</i>	<i>erythrocephala</i>	Red-headed Honeyeater		N		L	35
	<i>Myzomela</i>	<i>obscura</i>	Dusky Honeyeater		N		L	96
	<i>Myzomela</i>	<i>sanguinolenta</i>	Scarlet Honeyeater		N		L	15
	<i>Philemon</i>	<i>argenticeps</i>	Silver-crowned Friarbird		N		L	49
	<i>Philemon</i>	<i>citreogularis</i>	Little Friarbird		N		L	76
	<i>Philemon</i>	<i>corniculatus</i>	Noisy Friarbird		N		L	30

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
	<i>Philemon</i>	<i>novaeguineae</i>	Helmeted Friarbird		N		L	66
	<i>Phylidonyris</i>	<i>nigra</i>	White-cheeked Honeyeater		N		L	2
	<i>Ramsayornis</i>	<i>fasciatus</i>	Bar-breasted Honeyeater		N		L	31
	<i>Ramsayornis</i>	<i>modestus</i>	Brown-backed Honeyeater		N		L	51
	<i>Trichodere</i>	<i>cockerelli</i>	White-streaked Honeyeater		N	E	L	38
	<i>Xanthotis</i>	<i>flaviventer</i>	Tawny-breasted Honeyeater		N	E	L	49
	<i>Xanthotis</i>	<i>macleayana</i>	Macleay's Honeyeater		N		L	9
NECTARINIIDAE	<i>Nectarinia</i>	<i>jugularis</i>	Yellow-bellied Sunbird		N		L	80
DICAEIDAE	<i>Dicaeum</i>	<i>hirundinaceum</i>	Mistletoebird		N		L	98
PARDALOTIDAE	<i>Pardalotus</i>	<i>punctatus</i>	Spotted Pardalote		N		L	2
	<i>Pardalotus</i>	<i>rubricatus</i>	Red-browed Pardalote		N		L	25
	<i>Pardalotus</i>	<i>striatus</i>	Striated Pardalote		N		L	66
ZOSTEROPIDAE	<i>Zosterops</i>	<i>citrinella</i>	Pale White-eye		N	E	L	13
	<i>Zosterops</i>	<i>lateralis</i>	Silvereye		N		L	22
	<i>Zosterops</i>	<i>lutea</i>	Yellow White-eye		N		L	6
PASSERIDAE	<i>Passer</i>	<i>domesticus</i>	House Sparrow		I		L	15
PLOCEIDAE	<i>Emblema</i>	<i>temporalis</i>	Red-browed Firetail		N		L	47
	<i>Erythrura</i>	<i>gouldiae</i>	Gouldian Finch	EN	N		L	8
	<i>Erythrura</i>	<i>trichroa</i>	sigillifera Blue-faced Finch	R	N		L	6
	<i>Lonchura</i>	<i>castaneothorax</i>	Chestnut-breasted Mannikin		N		L	37
	<i>Lonchura</i>	<i>pectoralis</i>	Pictorella Mannikin		N		L	1
	<i>Lonchura</i>	<i>punctulata</i>	Nutmeg Mannikin		I		L	3
	<i>Neochmia</i>	<i>phaeton</i>	Crimson Finch	IK	N		L	18
	<i>Neochmia</i>	<i>ruficauda</i>	Star Finch	R	N		L	15
	<i>Poephila</i>	<i>bichenovii</i>	Double-barred Finch		N		L	53
	<i>Poephila</i>	<i>cincta</i>	Black-throated Finch		N		L	49
	<i>Poephila</i>	<i>personata</i>	Masked Finch	SI	N		L	27
STURNIDAE	<i>Acridotheres</i>	<i>tristis</i>	Common Mynah		I		L	2
	<i>Aplonis</i>	<i>metallica</i>	Metallic Starling		N		L	28
	<i>Sturnus</i>	<i>vulgaris</i>	Common Starling		I		L	1
ORIOLOIDAE	<i>Oriolus</i>	<i>flavocinctus</i>	Yellow Oriole		N		L	83
	<i>Oriolus</i>	<i>sagittatus</i>	Olive-backed Oriole		N		L	67
	<i>Sphecotheres</i>	<i>viridis</i>	Figbird		N		L	64
DICRURIDAE	<i>Dicrurus</i>	<i>hottentottus</i>	Spangled Drongo		N		L	112
PARADISAEIDAE	<i>Ailuroedus</i>	<i>dentirostris</i>	Tooth-billed Catbird		N		L	5
	<i>Ailuroedus</i>	<i>melanotis</i>	Spotted Catbird		N		L	13
	<i>Chlamydera</i>	<i>cerviniventris</i>	Fawn-breasted Bowerbird		N	E	L	31
	<i>Chlamydera</i>	<i>nuchalis</i>	Great Bowerbird		N		L	85

FAMILY	GENUS NAME	SPECIES NAME	COMMON NAME	A	B	C	D	RECORDS
	<i>Manucodia</i>	<i>keraudrenii</i>	Trumpet Manucode	SI	N	E	L	24
	<i>Prionodura</i>	<i>newtoniana</i>	Golden Bowerbird		N		L	2
	<i>Ptilonorhynchus</i>	<i>violaceus</i>	Satin Bowerbird		N		L	3
	<i>Ptiloris</i>	<i>magnificus</i>	Magnificent Riflebird		N	E	L	32
	<i>Ptiloris</i>	<i>victoriae</i>	Victoria's Riflebird		N		L	5
CORCORACIDAE	<i>Struthidea</i>	<i>cinerea</i>	Apostlebird		N		L	4
GRALLINIDAE	<i>Grallina</i>	<i>cyanoleuca</i>	Australian Magpie-lark		N		L	79
ARTAMIDAE	<i>Artamus</i>	<i>cinereus</i>	Black-faced Woodswallow		N		L	34
	<i>Artamus</i>	<i>cyanopterus</i>	Dusky Woodswallow		N		L	3
	<i>Artamus</i>	<i>leucorhynchus</i>	White-breasted Woodswallow		N		L	75
	<i>Artamus</i>	<i>minor</i>	Little Woodswallow		N		L	32
	<i>Artamus</i>	<i>personatus</i>	Masked Woodswallow		N		L	4
	<i>Artamus</i>	<i>superciliosus</i>	White-browed Woodswallow		N		L	1
CRACTICIDAE	<i>Cracticus</i>	<i>mentalis</i>	Black-backed Butcherbird		N	E	L	73
	<i>Cracticus</i>	<i>nigrogularis</i>	Pied Butcherbird		N		L	63
	<i>Cracticus</i>	<i>quoyi</i>	Black Butcherbird		N		L	68
	<i>Cracticus</i>	<i>torquatus</i>	Grey Butcherbird		N		L	8
	<i>Gymnorhina</i>	<i>tibicen</i>	Australian Magpie		N		L	62
	<i>Strepera</i>	<i>graculina</i>	Pied Currawong		N		L	44
CORVIDAE	<i>Corvus</i>	<i>coronoides</i>	Australian Raven		N		L	3
	<i>Corvus</i>	<i>orru</i>	Torresian Crow		N		L	109

MAMMALS

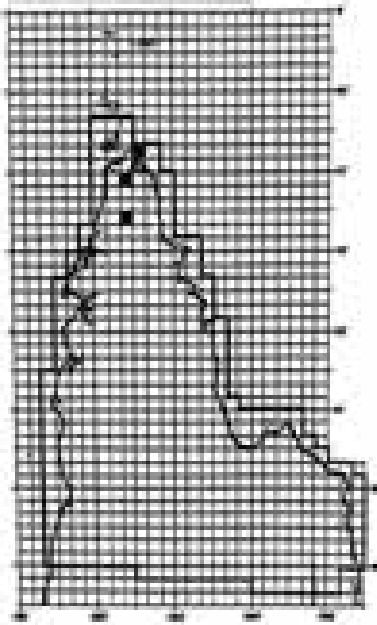
FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
ORNITHORHYNCHIDAE	<i>Ornithorhynchus</i>	<i>anatinus</i>	Platypus	SI	N		3
TACHYGLOSSIDAE	<i>Tachyglossus</i>	<i>aculeatus</i>	Short-beaked Echidna	SI	N		16
DASYURIDAE	<i>Antechinomys</i>	<i>laniger</i>	Kultarr	R	N		1
	<i>Antechinus</i>	<i>flavipes</i>	Yellow-footed Antechinus		N		2
	<i>Antechinus</i>	<i>leo</i>	Cinnamon Antechinus	R	N	E	7
	<i>Antechinus</i>	<i>stuartii</i>	Brown Antechinus	N			2
	<i>Dasyurus</i>	<i>hallucatus</i>	Northern Quoll		N		29
	<i>Dasyurus</i>	<i>maculatus</i>	Spotted-tail Quoll	PV	N		3
	<i>Phascogale</i>	<i>tapoatafa</i>	Brush-tailed Phascogale	IK	N		3
	<i>Planigale</i>	<i>ingrami</i>	Long-tailed Planigale		N		2
	<i>Planigale</i>	<i>maculata</i>	Common Planigale		N		8
	<i>Sminthopsis</i>	<i>archeri</i>	Chestnut Dunnart		N	E	4
	<i>Sminthopsis</i>	<i>murina</i>	Common Dunnart		N		2
	<i>Sminthopsis</i>	<i>virginiae</i>	Red-cheeked Dunnart	PV	N		19
PERORYCTIDAE	<i>Echymipera</i>	<i>rufescens</i>	Rufous Spiny Bandicoot	PV	N	E	10
PERAMELIDAE	<i>Isodon</i>	<i>macrourus</i>	Northern Brown Bandicoot		N		32
	<i>Isodon</i>	<i>obesulus</i>	Southern Brown Bandicoot	IK	N		9
	<i>Perameles</i>	<i>nasuta</i>	Long-nosed Bandicoot		N		5
PETAURIDAE	<i>Dactylopsila</i>	<i>trivirgata</i>	Striped Possum	PV	N	E	20
	<i>Petaurus</i>	<i>breviceps</i>	Sugar Glider		N		45
PSEUDOCHEIRIDAE	<i>Pseudocheirus</i>	<i>cinereus</i>	Caramel Ringtail Possum	R	N		1
	<i>Pseudocheirus</i>	<i>peregrinus</i>	Common Ringtail Possum		N		11
	<i>Pseudochirops</i>	<i>archeri</i>	Green Ringtail Possum	PV	N		1
PHALANGERIDAE	<i>Phalanger</i>	<i>maculatus</i>	Spotted Cuscus	PV	N	E	23
	<i>Phalanger</i>	<i>orientalis</i>	Grey Cuscus	PV	N	E	5
	<i>Trichosurus</i>	<i>vilpecula</i>	Common Brushtail Possum		N		35
BURRAMYIDAE	<i>Cercartetus</i>	<i>caudatus</i>	Long-tailed Pygmy Possum	PV	N		3
ACROBATIDAE	<i>Acrobates</i>	<i>pygmaeus</i>	Feathertail Glider		N		6
POTOROIDAE	<i>Aepyprymnus</i>	<i>rufescens</i>	Rufous Bettong		N		1
POTOROIDAE	<i>Bettongia</i>	<i>tropica</i>	Northern Bettong	EN	N		1
	<i>Hipsiprymnodon</i>	<i>moschatus</i>	Musky Rat-kangaroo	SI	N		3
MACROPODIDAE	<i>Dendrolagus</i>	<i>bennettianus</i>	Bennett's Tree-kangaroo	R	N	E	6
	<i>Lagorchestes</i>	<i>conspicillatus</i>	Spectacled Hare-wallaby	V	N		8
	<i>Macropus</i>	<i>agilis</i>	Agile Wallaby		N		68
	<i>Macropus</i>	<i>antilopinus</i>	Antilopine Kangaroo		N		28
	<i>Macropus</i>	<i>giganteus</i>	Eastern Grey Kangaroo		N		22
	<i>Macropus</i>	<i>parryi</i>	Whiptail Wallaby		N		4

FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
PTEROPODIDAE	<i>Macropus</i>	<i>robustus</i>	Common Wallaroo		N		9
	<i>Onychogalea</i>	<i>unquifera</i>	Northern Naitail Wallaby		N		13
	<i>Petrogale</i>	<i>caenensis</i>	Cape York Rock-wallaby	IK	N	E	5
	<i>Petrogale</i>	<i>godmani</i>	Godman's Rock-wallaby	PV	N	E	16
	<i>Thylogale</i>	<i>stigmatica</i>	Red-legged Pademelon		N		17
	<i>Wallabia</i>	<i>bicolor</i>	Swamp Wallaby		N		10
	<i>Dobsonia</i>	<i>moluccense</i>	Bare-backed Fruit Bat	PV	N		11
	<i>Macroglossus</i>	<i>mimimus</i>	Northern Blossom Bat		N		19
	<i>Nyctimene</i>	<i>robinsoni</i>	Queensland Tube-nosed Bat		N		24
	<i>Pteropus</i>	<i>alecto</i>	Black Flying-fox		N		20
	<i>Pteropus</i>	<i>conspicillatus</i>	Spectacled Flying-fox		N		15
	<i>Pteropus</i>	<i>scapulatus</i>	Little Red Flying-fox		N		47
	<i>Pteropus</i>	sp.			N		1
	<i>Syconycteris</i>	<i>australis</i>	Queensland Blossom Bat		N		20
MEGADERMATIDAE	<i>Macroderma</i>	<i>gigas</i>	Ghost Bat	V	N		8
EMBALLONURIDAE	<i>Taphozous</i>	<i>australis</i>	Northern Sheath-tail-bat	IK	N		9
	<i>Taphozous</i>	<i>flaviventris</i>	Yellow-bellied Sheath-tail-bat		N		9
	<i>Taphozous</i>	<i>mixtus</i>	Papuan Sheath-tail-bat	IK	N		8
	<i>Taphozous</i>	<i>saccolaimus</i>	Naked-rumped Sheath-tail-bat		N		5
	<i>Chaerephon</i>	<i>jobensis</i>	Northern Mastiff-bat		N		8
	<i>Mormopterus</i>	<i>beccarii</i>	Beccari's Mastiff-bat		N		4
	<i>Mormopterus</i>	<i>loriae</i>	Little Northern Mastiff-bat		N		5
	<i>Mormopterus</i>	sp.			N		1
	<i>Hipposideros</i>	<i>ater</i>	Dusky Horseshoe-bat		N		8
	<i>Hipposideros</i>	<i>cervinus</i>	Fawn Horseshoe-bat		N		9
RHINOLOPHIDAE	<i>Hipposideros</i>	<i>diadema</i>	Diadem Horseshoe-bat		N		16
	<i>Hipposideros</i>	<i>semoni</i>	Greater Wart-nosed Horseshoe-bat		N		9
	<i>Rhinolophus</i>	<i>megaphyllus</i>	Eastern Horseshoe-bat		N		20
	<i>Rhinolophus</i>	<i>philippinensis</i>	Large-eared Horseshoe-bat	FI	N		4
	<i>Chalinolobus</i>	<i>nigrogriseus</i>	Hoary Bat		N		24
	<i>Eptesicus</i>	<i>darlingtoni</i>			N		1
	<i>Eptesicus</i>	<i>pumilus</i>	Little Cave Bat		N		7
	<i>Eptesicus</i>	<i>troughtoni</i>	Eastern Cave Bat		N		1
	<i>Kerivoula</i>	<i>papuensis</i>	Golden-tipped Bat		N		3
	<i>Miniopterus</i>	<i>australis</i>	Little Bent-winged Bat	PV	N		11
VESPERTILIONIDAE	<i>Miniopterus</i>	<i>schreibersii</i>	Common Bent-winged Bat	PV	N		14
	<i>Murina</i>	sp.		IK	N		1
	<i>Myotis</i>	<i>adversus</i>	Large-footed Mouse-eared Bat		N		17

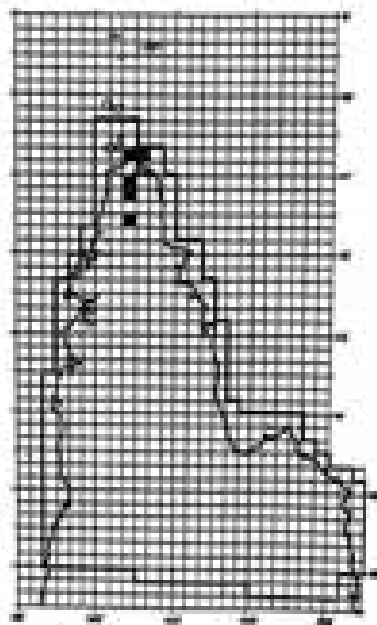
FAMILY	GENUS	SPECIES NAME	COMMON NAME	A	B	C	RECORDS
MURIDAE	<i>Nyctophilus</i>	<i>bifax</i>	North Queensland Long-eared Bat		N		26
	<i>Nyctophilus</i>	<i>geoffroyi</i>	Lesser Long-eared Bat		N		1
	<i>Nyctophilus</i>	<i>timoriensis</i>	Greater Long-eared Bat		N		1
	<i>Pipistrellus</i>	<i>adamsi</i>	Adam's Pipistrelle		N		14
	<i>Pipistrellus</i>	<i>westralis</i>	Western Pipistrelle		N		13
	<i>Scotorepens</i>	<i>sanborni</i>	Little Northern Broad-nosed Bat		N		19
	<i>Scotorepens</i>	sp.			N		2
	<i>Hydromys</i>	<i>crysogaster</i>	Water Rat		N		31
	<i>Leggadina</i>	<i>lakedownensis</i>	Lakeland Downs Mouse	IK	N	E	7
	<i>Melomys</i>	<i>burtoni</i>	Grassland Melomys		N		61
	<i>Melomys</i>	<i>capensis</i>	Cape York Melomys		N	E	22
	<i>Melomys</i>	<i>cervinipes</i>	Fawn-footed Melomys	PV	N		10
	<i>Melomys</i>	sp.			N		3
	<i>Mesembriomys</i>	<i>gouldii</i>	Black-footed Tree-rat	IK	N		9
	<i>Notomys</i>	<i>aquila</i> ?	Northern Hopping-mouse ?	V	N		2
	<i>Pogonomys</i>	<i>mollipilosus</i>	Prehensile-tailed Rat	IK	N	E	4
	<i>Pseudomys</i>	<i>delicatulus</i>	Delicate Mouse		N		18
	<i>Rattus</i>	<i>fuscipes</i>	Bush Rat		N		3
	<i>Rattus</i>	<i>leucopus</i>	Cape York Rat		N	E	24
	<i>Rattus</i>	<i>rattus</i>	Black Rat		I		5
	<i>Rattus</i>	<i>sordidus</i>	Canefield Rat		N		49
	<i>Rattus</i>	<i>tunneyi</i>	Pale Field Rat	PV	N		23
<i>Uromys</i>	<i>caudimaculatus</i>	White-tailed Rat		N		26	
<i>Zyromys</i>	<i>argurus</i>	Common Rock Rat		N		2	
CANIDAE	<i>Canis</i>	<i>dingo</i>	Dingo		N		46
FELIDAE	<i>Felis</i>	<i>catus</i>	Cat		I		30
EQUIDAE	<i>Equus</i>	<i>caballus</i>	Horse		I		9
SUIDAE	<i>Sus</i>	<i>scrofa</i>	Pig		I		59
CERVIDAE	<i>Cervus</i>	<i>timorensis</i>	Rusa Deer		I		5
BOVIDAE	<i>Bos</i>	<i>indicus</i>	Zebu Cattle		I		18
	<i>Bos</i>	<i>taurus</i>	European Cattle		I		2
	<i>Bos</i>	sp.	Cattle		I		2
DUGONGIDE	<i>Dugong</i>	<i>dugon</i>	Dugong	V	N		16
PHYSETERIDAE	<i>Physeter</i>	<i>catodon</i>	Sperm Whale	EN	N		1
DELPHINIDAE	<i>Tursiops</i>	<i>truncatus</i>	Bottle-nosed Dolphin		N		3

6.6 Distribution Maps of Endemic and Threatened Species.

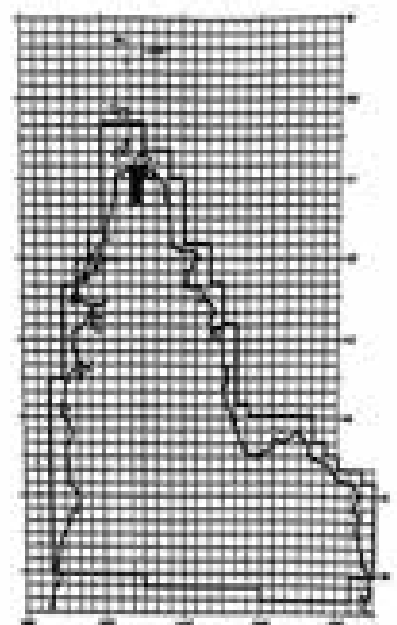
Solid black squares indicate presence of species. Squares with crosses indicate some doubt over the identification and/or location of the species. Information in parentheses refers to E = Endemic, EN = Endangered, V = Vulnerable and R = Rare.



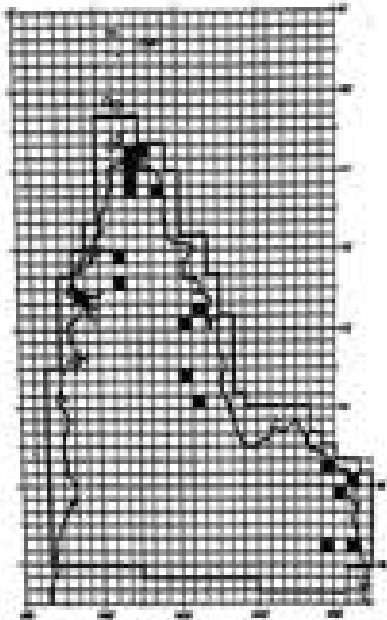
Neosilurus brevidorsalis (E)



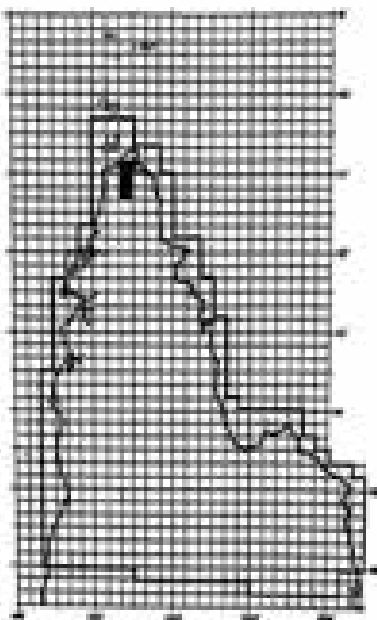
Porochilus obbesi (R)



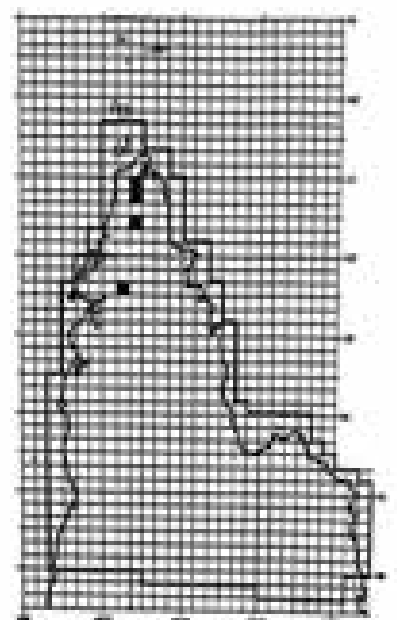
Triatheria weneri (E)



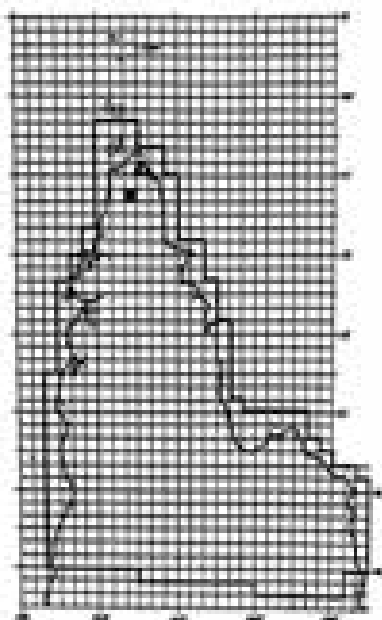
Ambassis agrammus (E)



Denariius bandata (R)



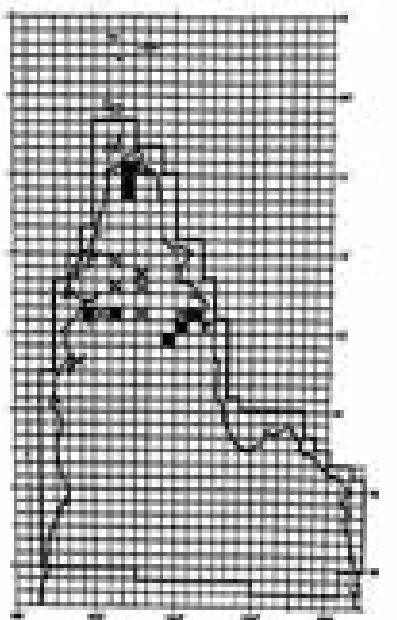
Pingalla lorentzi (R,E)



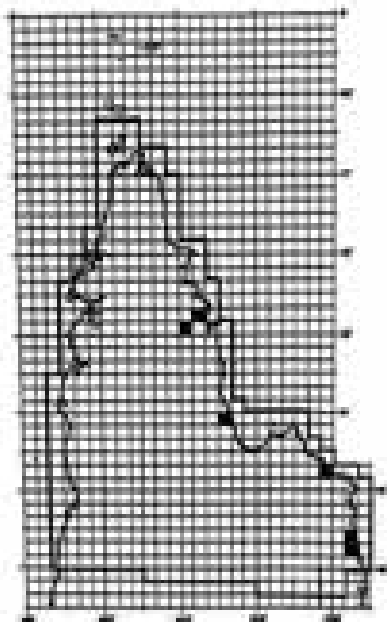
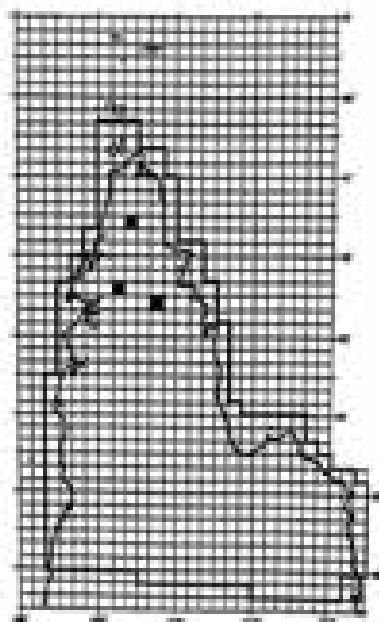
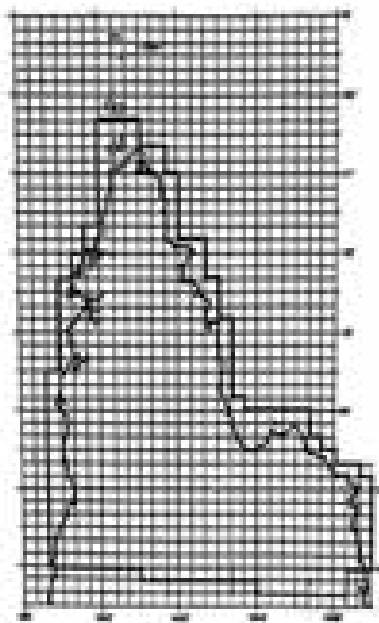
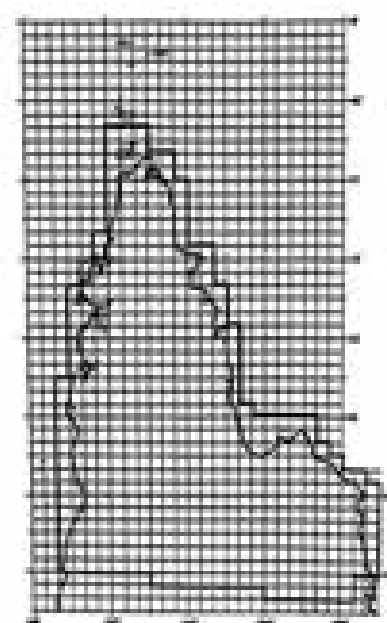
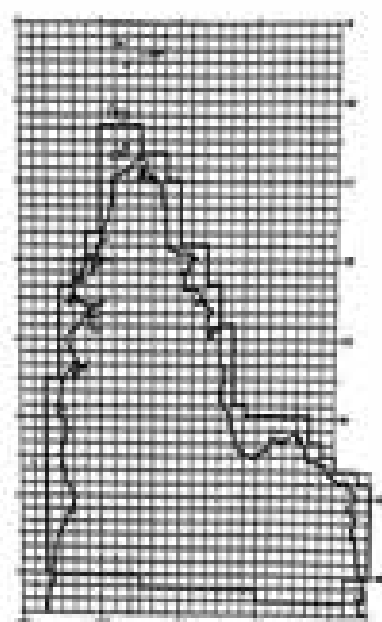
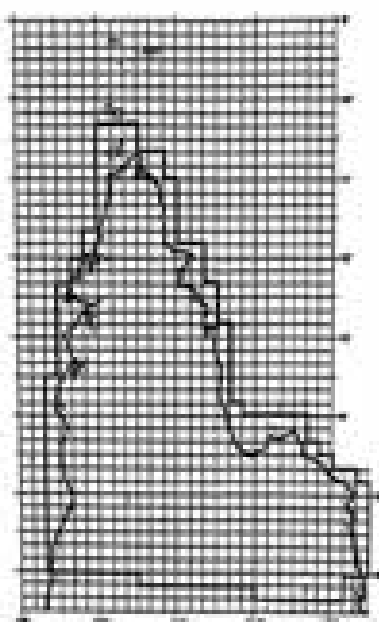
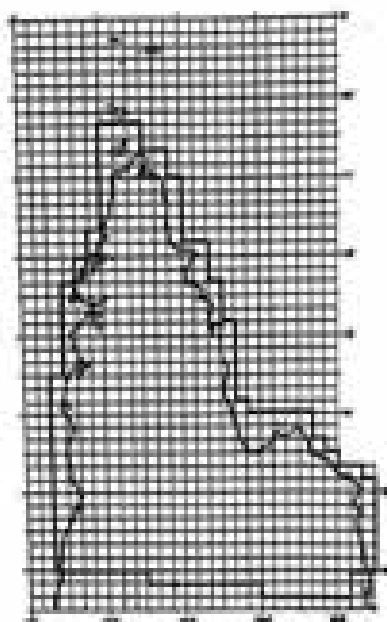
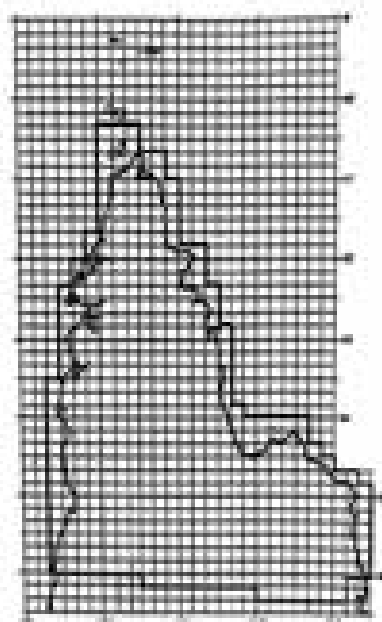
Oxyeleotris aruensis (E)



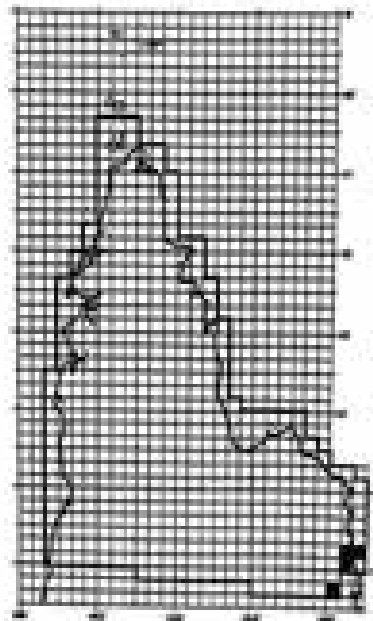
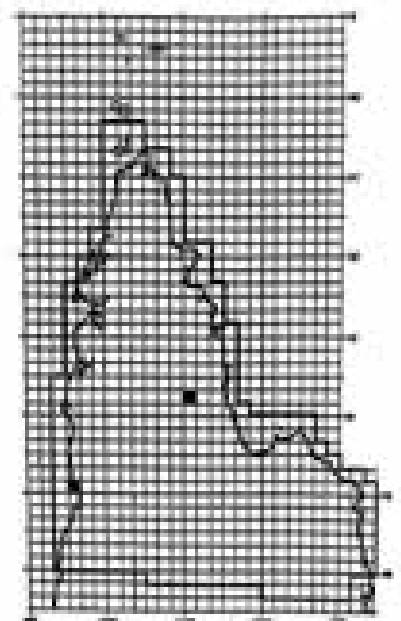
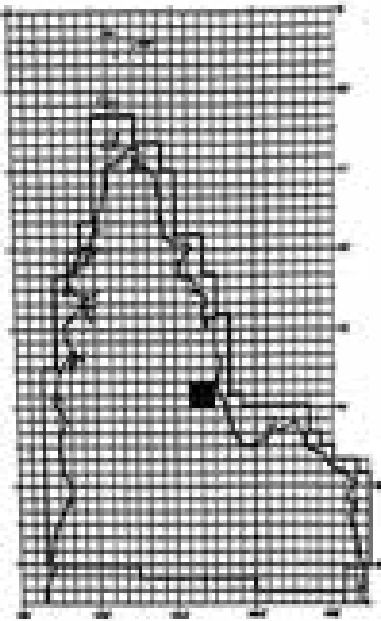
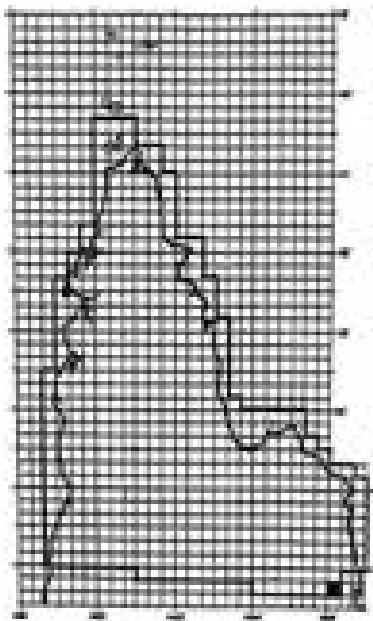
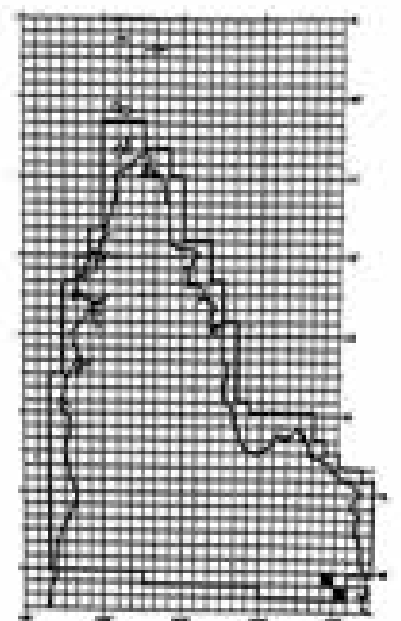
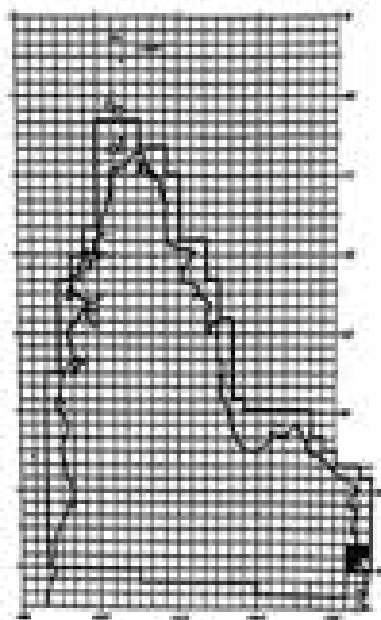
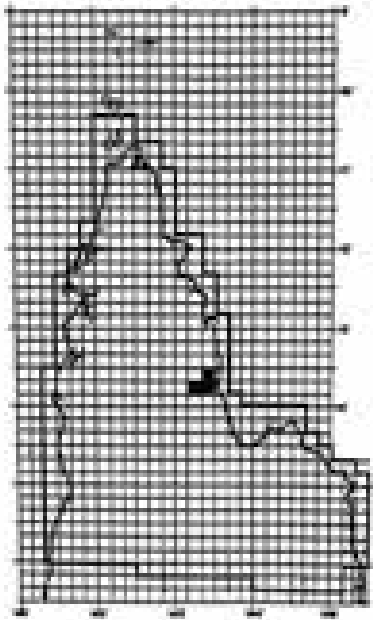
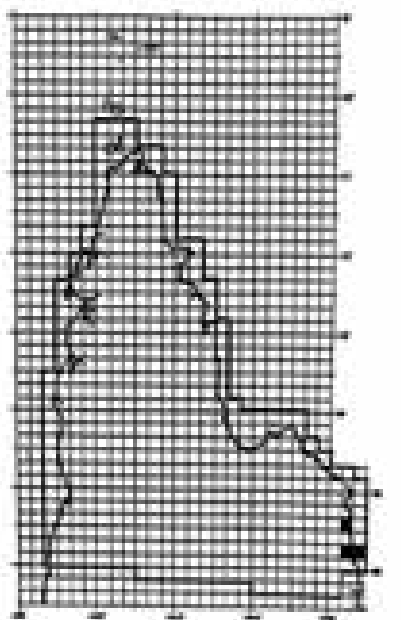
O. fimbriatus (E)

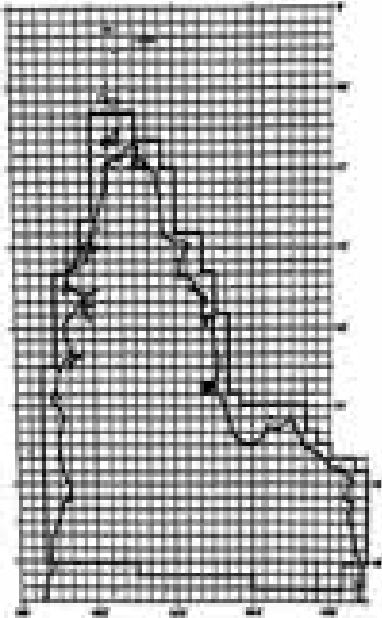
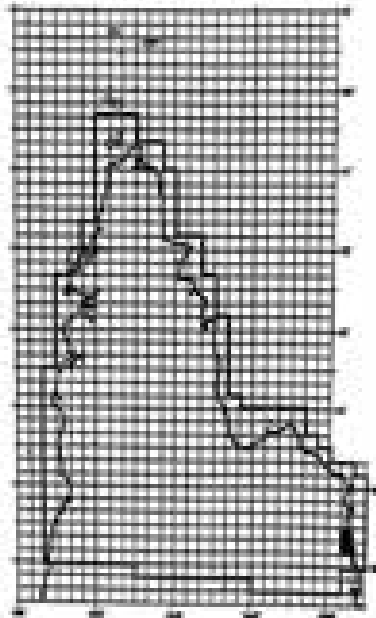
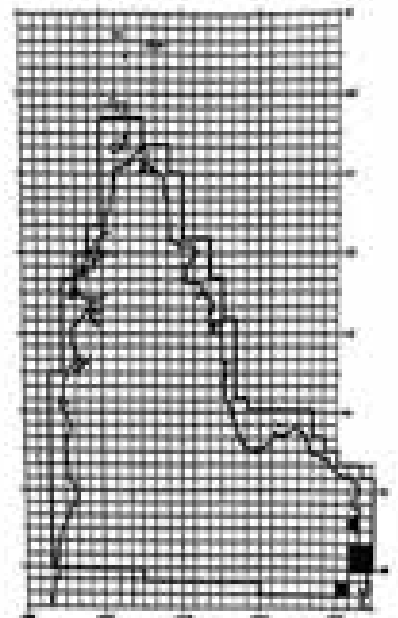
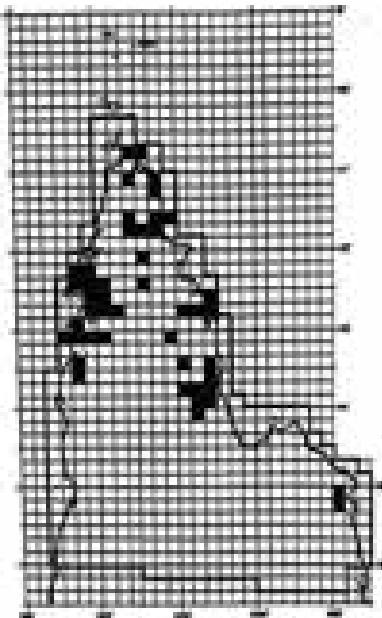
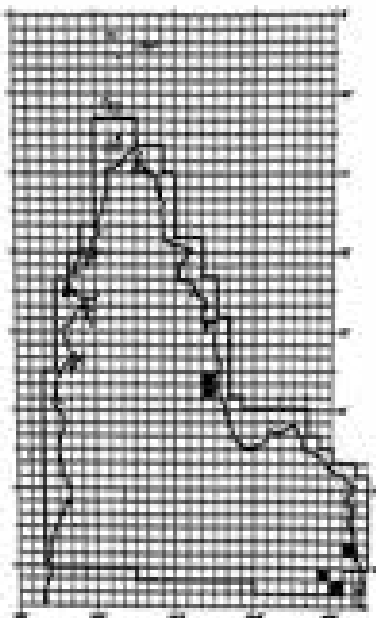
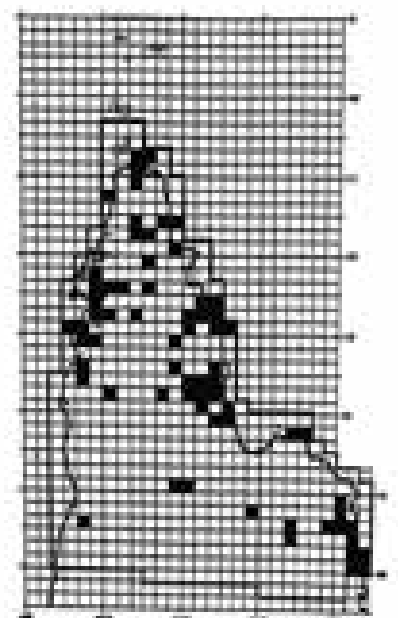
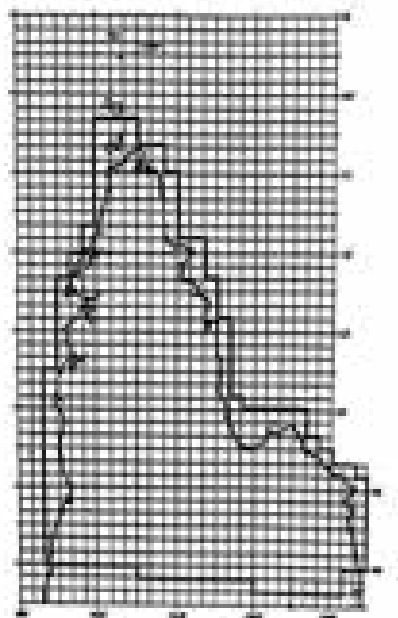
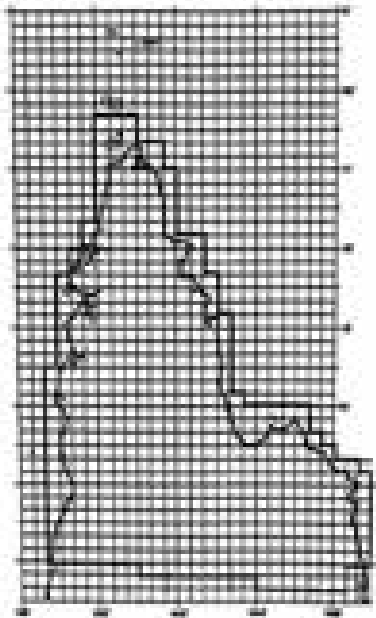
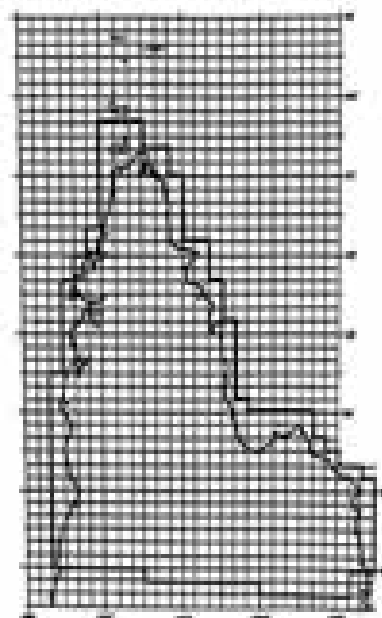


O. nullipora (R,E)

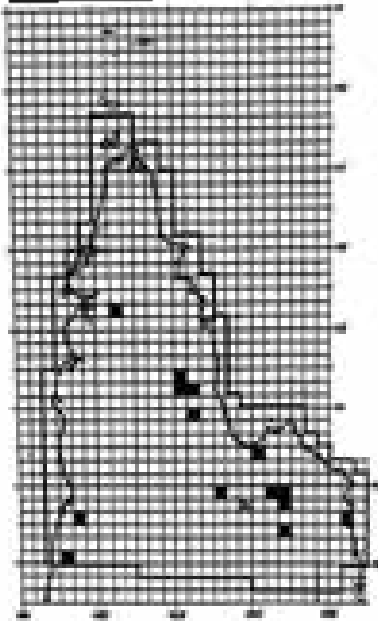
*Awaous crassilabrus* (E)*Glossogobius concavifrons* (E)

Amphibians.

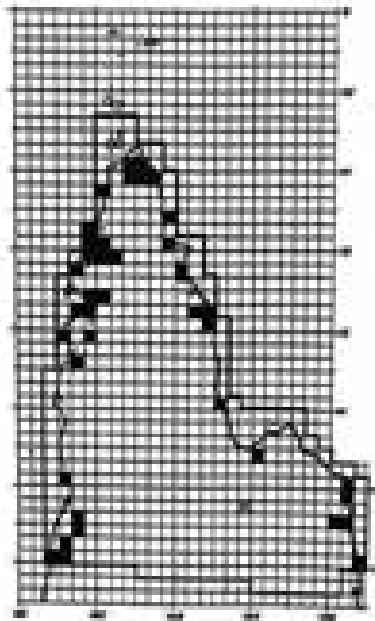
*Crinia remota* (E)*Taudactylus acutirostris* (EN)*Cyclorana manya* (E)*Litoria longirostris* (R,E)*L. lorica* (R)*Cophixalus bombiens* (R,E)*C. concinnus* (R,E)*C. crepitans* (R,E)*C. exiguus* (E)

*C. peninsularis* (E)*C. saxatilis* (R,E)*Sphenophryne fryi* (E)*S. gracilipes* (E)*S. pluvialis* (E)*Rana daemeli* (E)

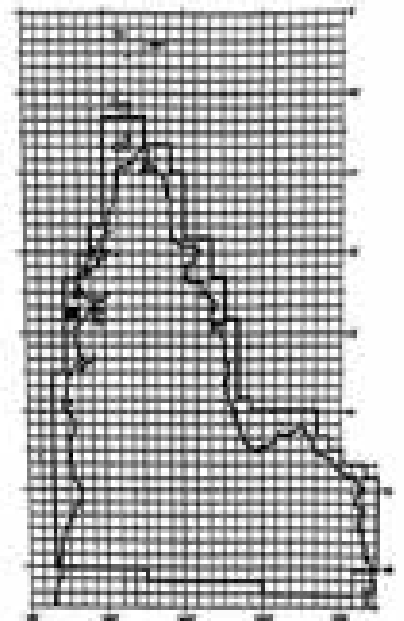
Reptiles.



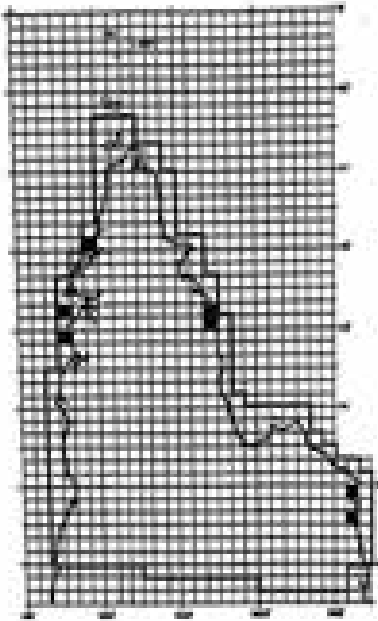
*Crocodylus
johnstoni* (V)



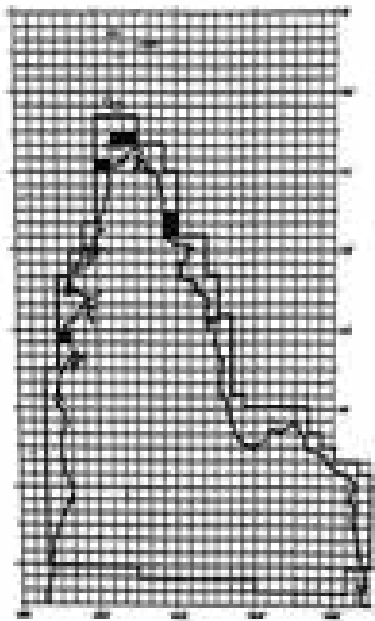
C. porosus (V)



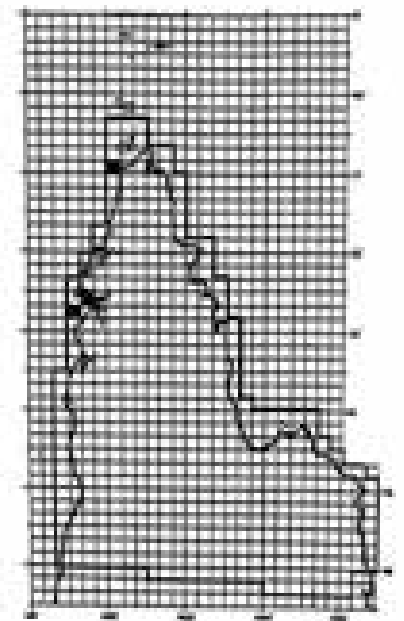
Caretta caretta (EN)



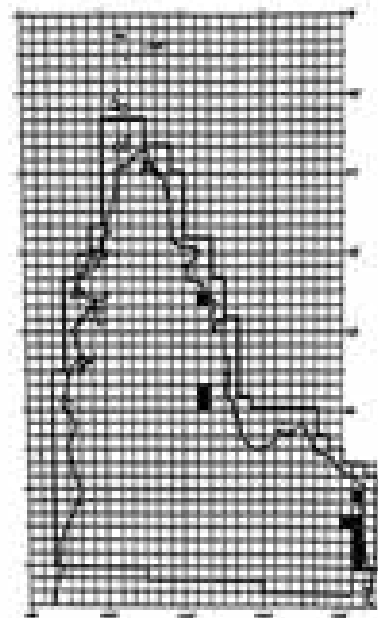
Chelonia mydas (V)



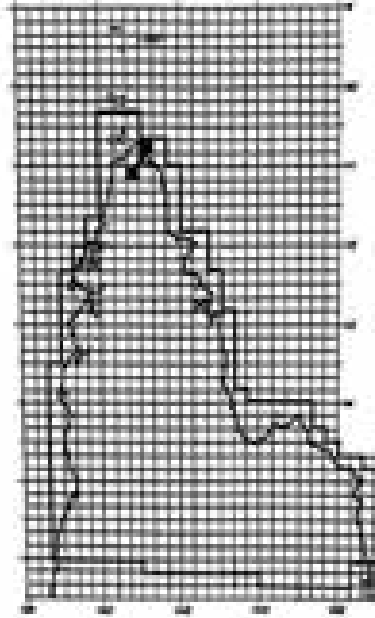
*Eretmochelys
imbricata* (V)



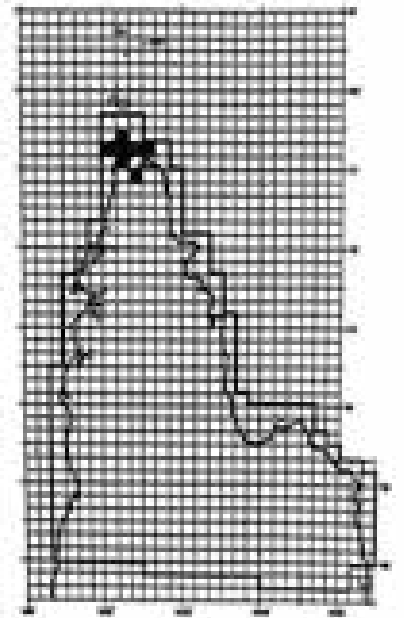
*Lepidochelys
olivacea* (V)



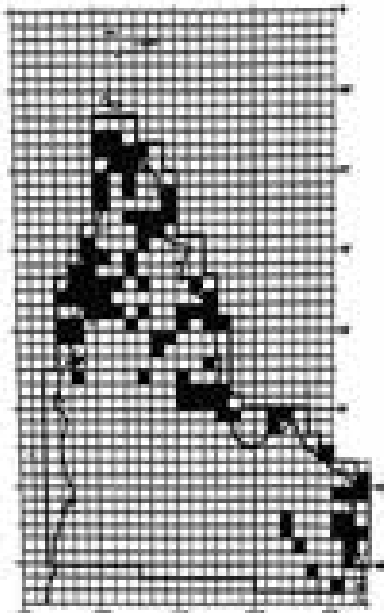
*Cyrtodactylus
louisianensis* (R,E)



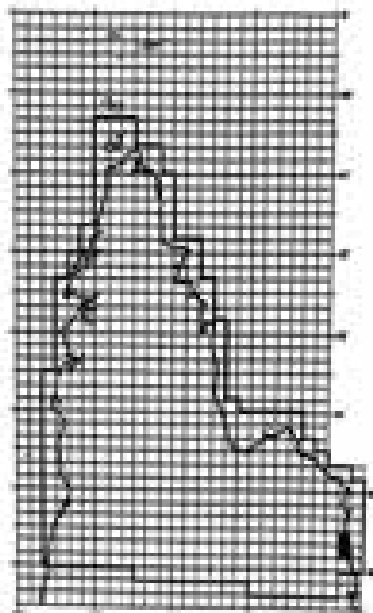
Gehyra baliola (E)



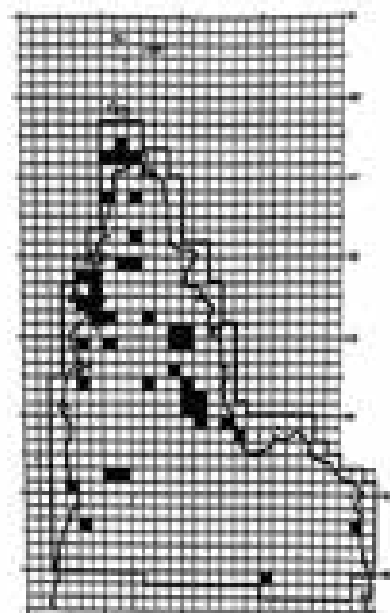
*Lepidodactylus
pumilis* (R,E)



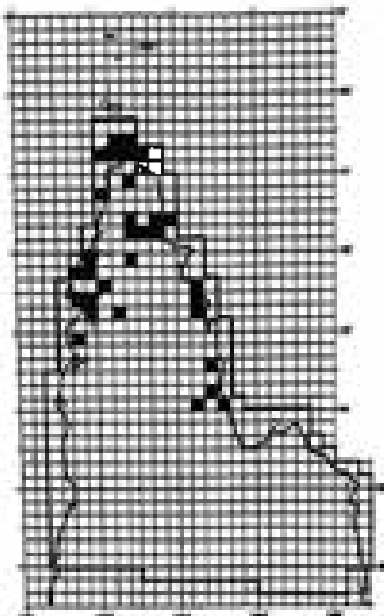
Nactus arnouxii (E)



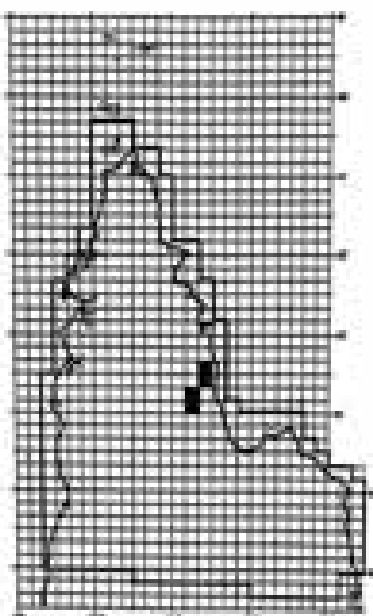
N. galgajuga (R,E)



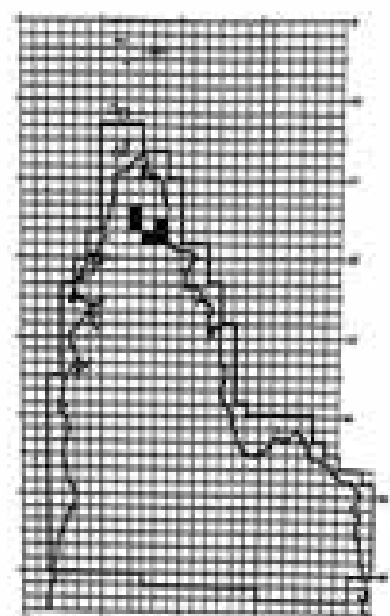
Oedura castelnaui (E)



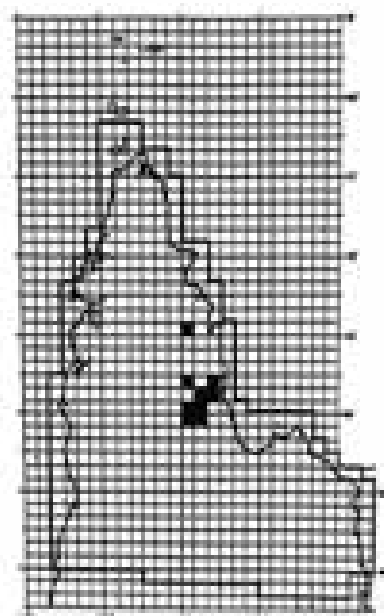
Rhacodactylus australis (E)



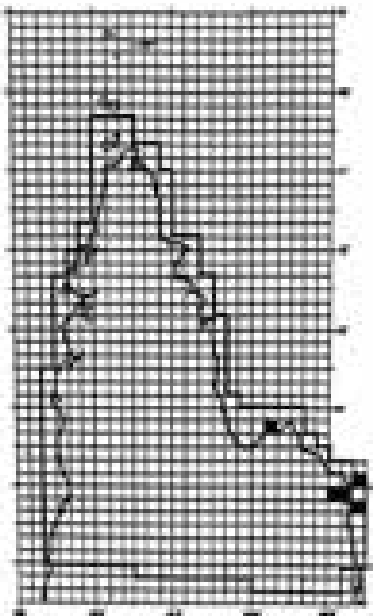
Varanus teriae (E)



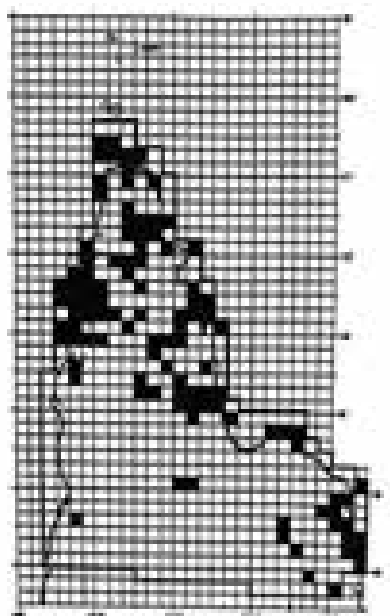
Anomalopus pluto (E)



Carlia coensis (R,E)

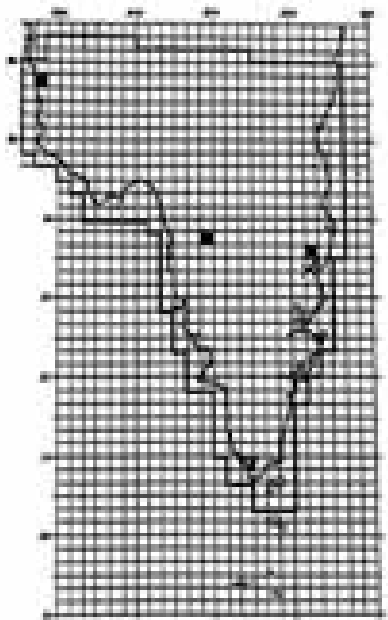


C. dogare (E)

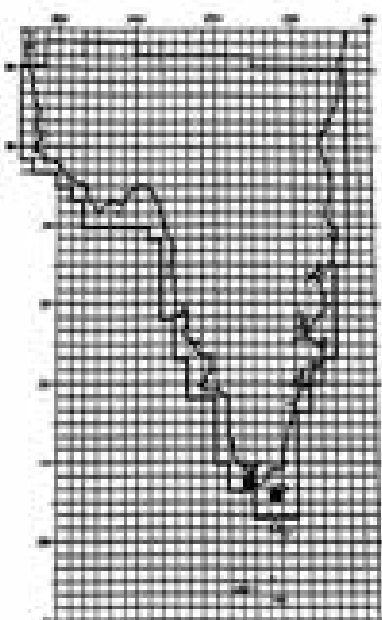


C. longipes (E)

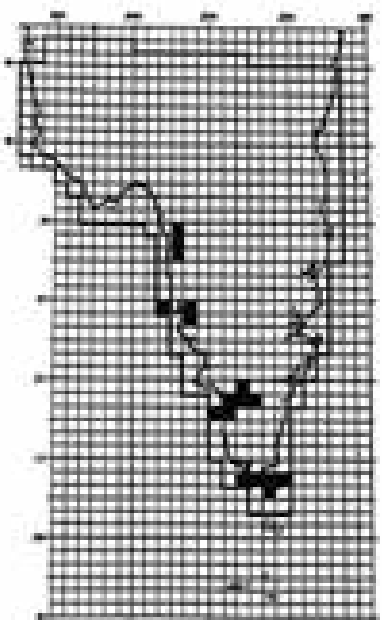
Egernia rugosa (R)



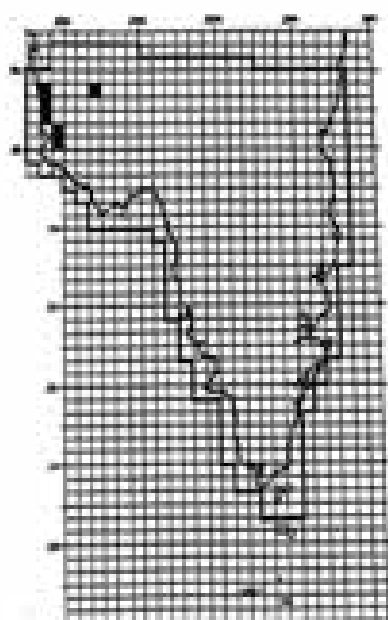
Emoia atrocostata (R,E)



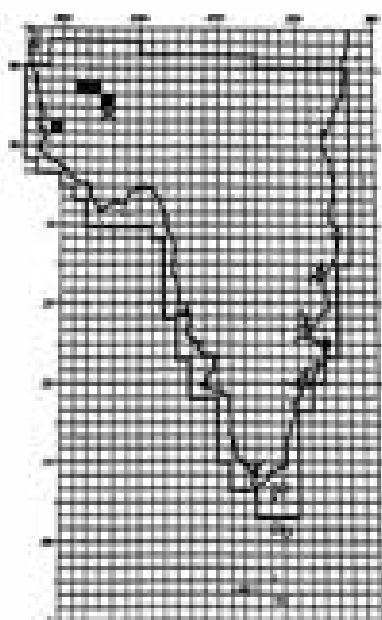
E. longicauda (E)



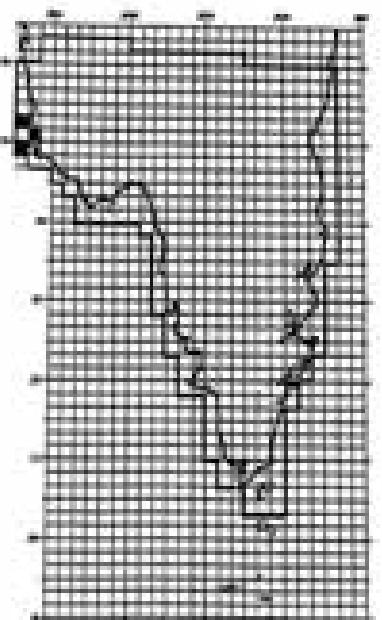
Ctenotus nullum (E)



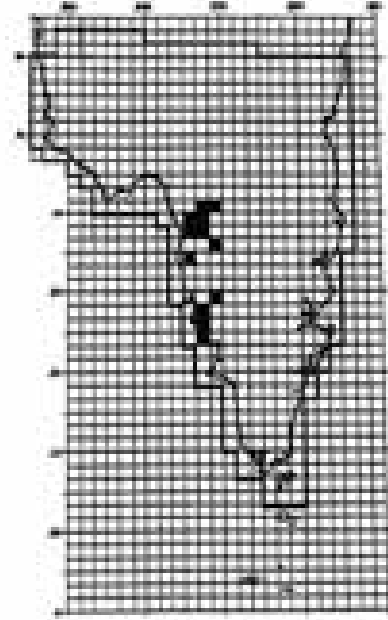
C. quinken (E)



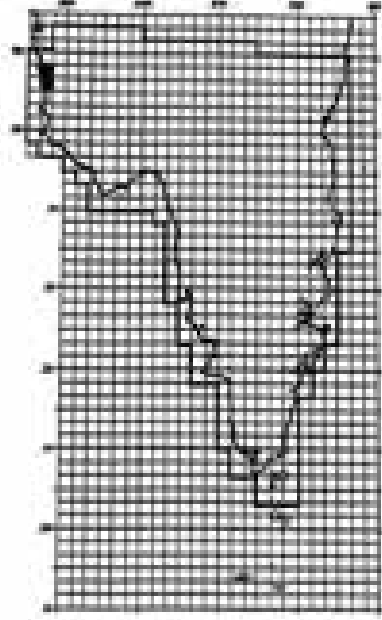
C. rawlinsoni (R,E)



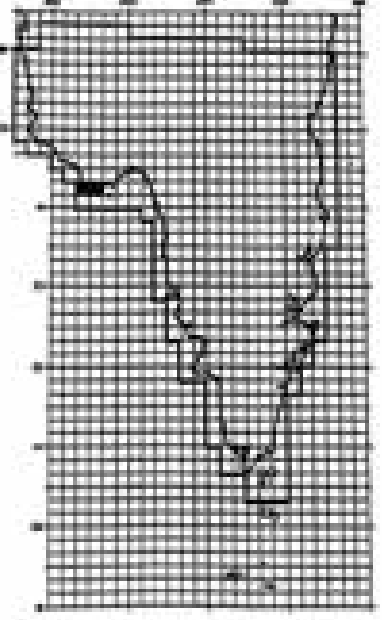
C. timula (R,E)



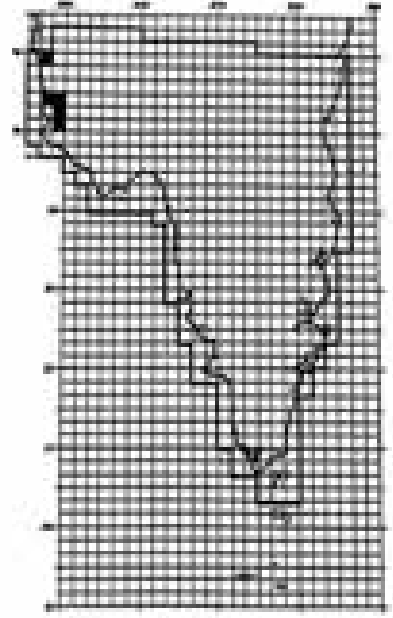
C. scirtetis (R,E)



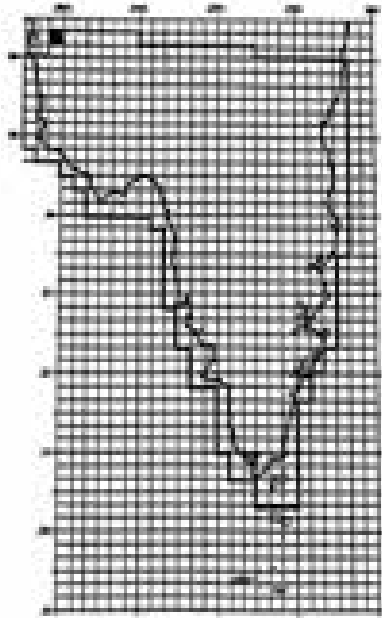
Cryptoblepharus fuhni (R,E)



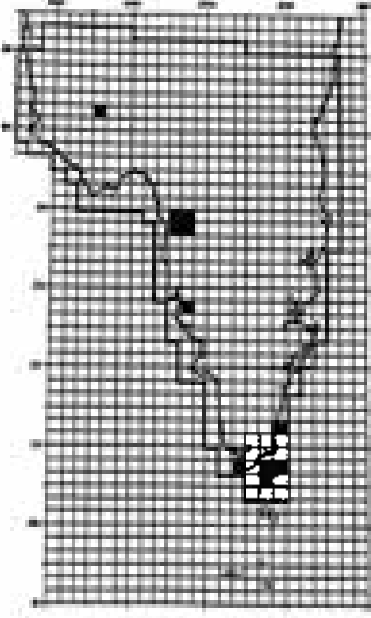
L. tanneri (E)



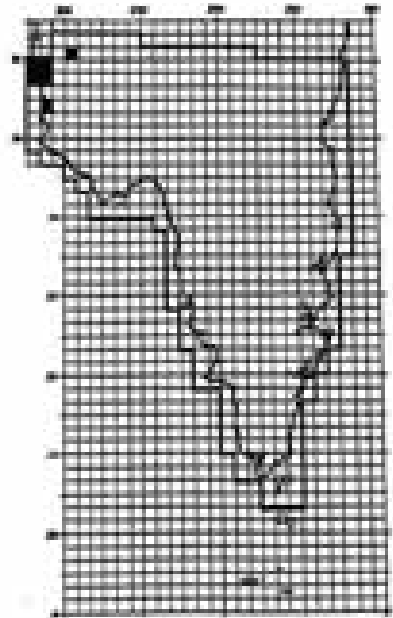
Sphenomorphus cracens (E)



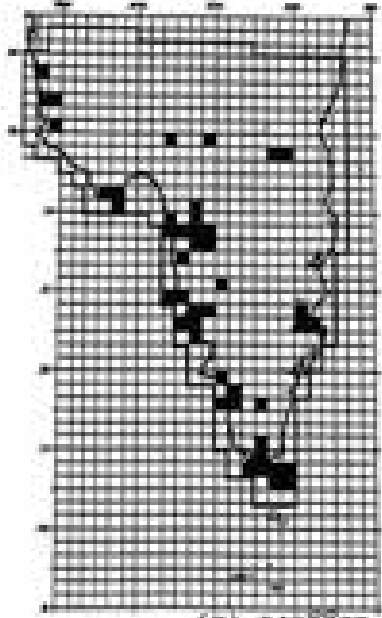
S. crassicaudus (E)



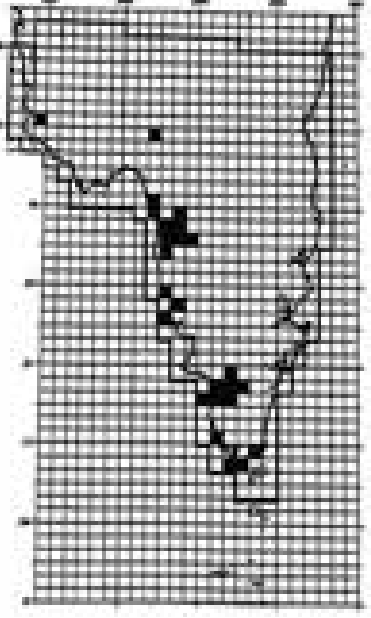
L. laevis (E)



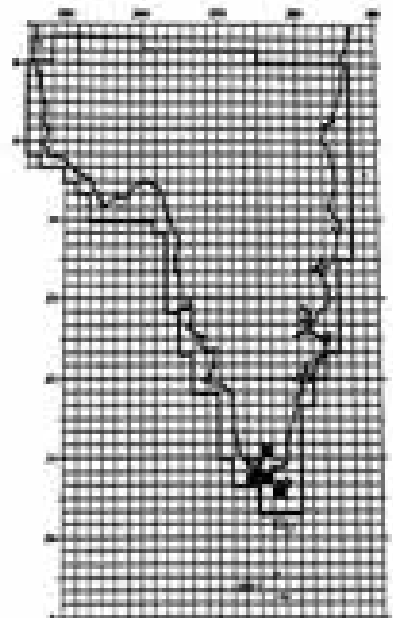
L. macfarlandi (E)



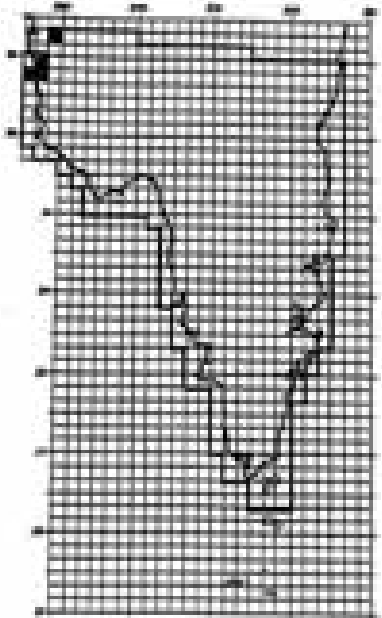
L. sesbrauna (E)



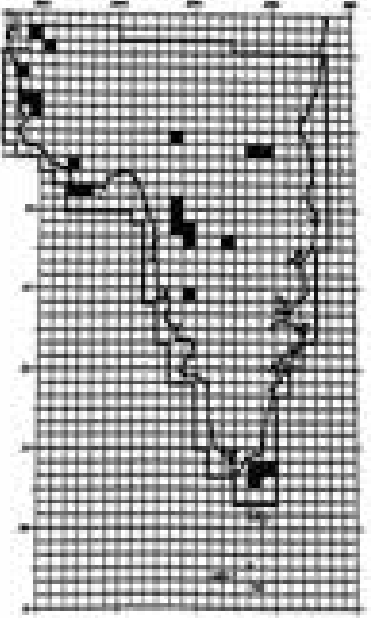
Eugongylus rufescens (E)

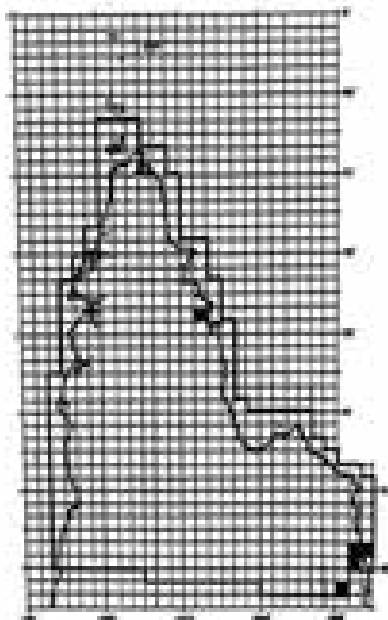
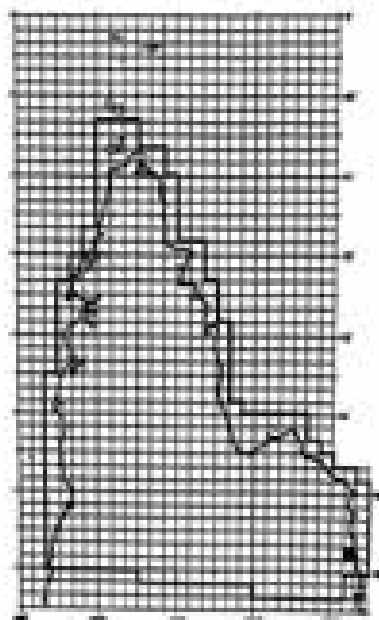
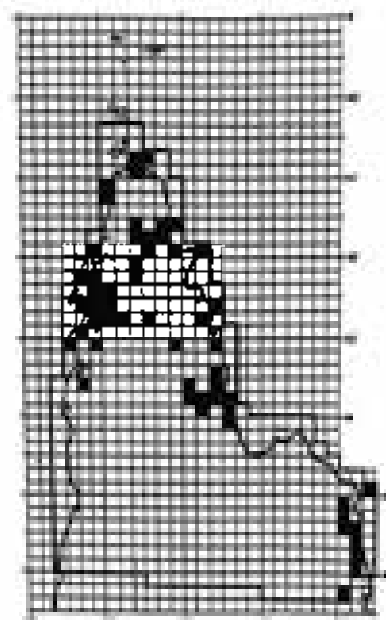
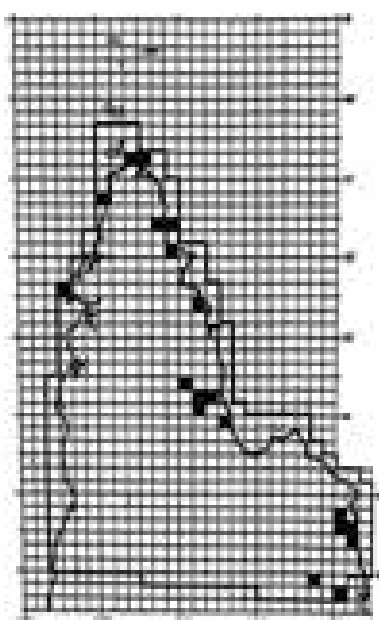
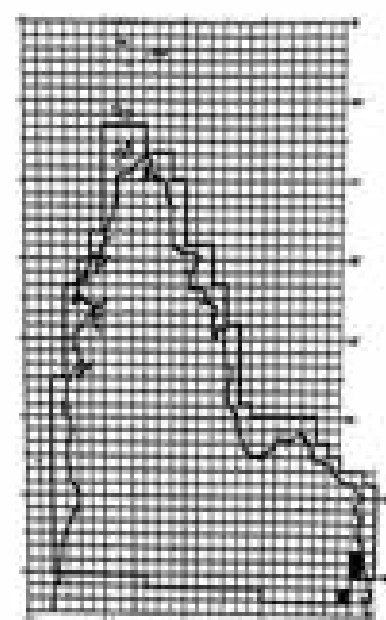
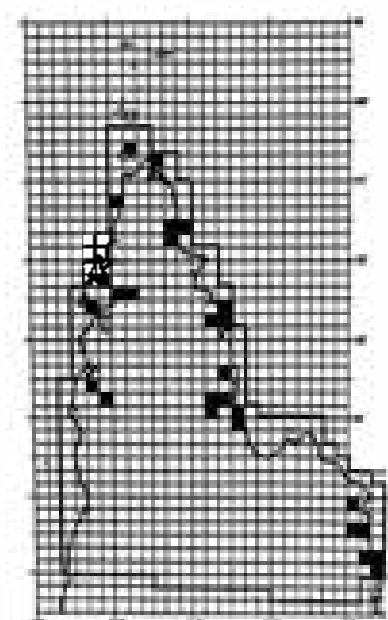
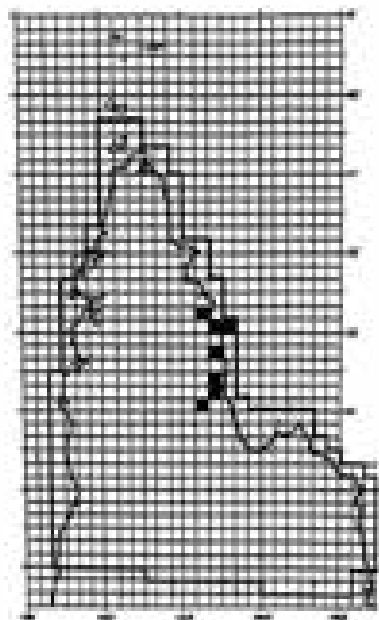
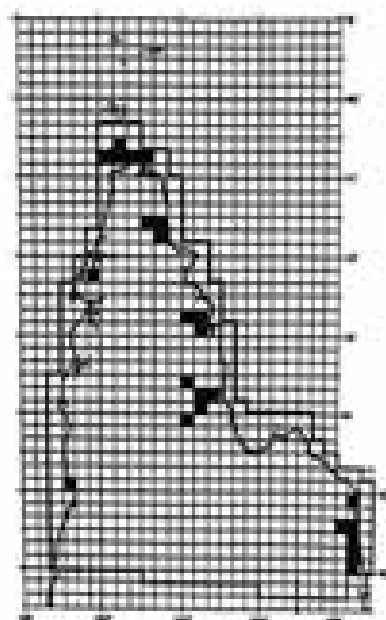


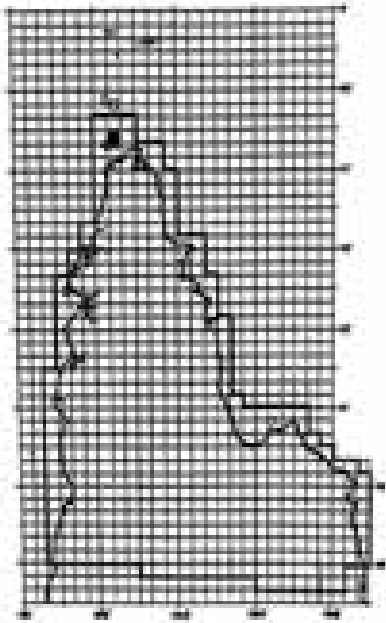
*Lamprohollis
coggeri* (E)



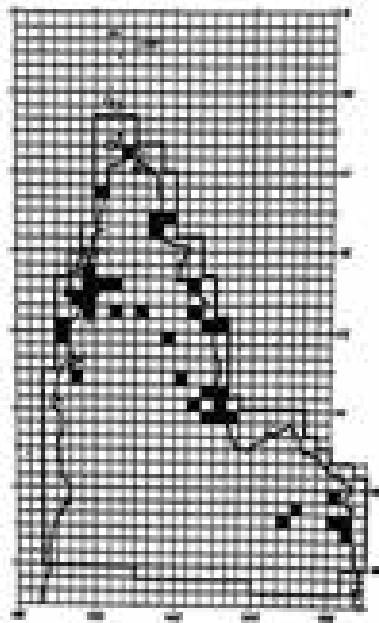
Lygisaurus aereatus (E)



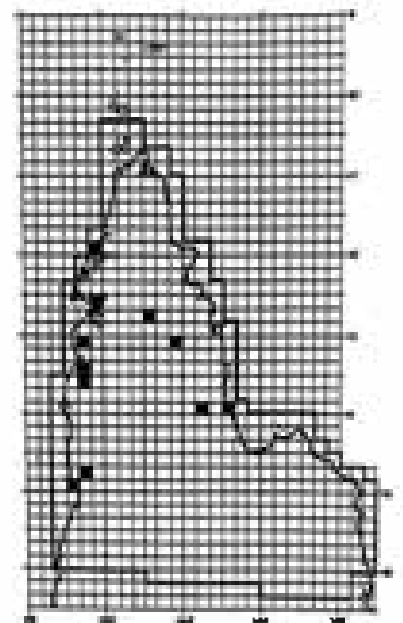
*S. fuscicaudis* (E)*S. mjobergi* (R.E)*S. nigricaudis* (E)*S. pardalis* (E)*S. pumilus* (E)*S. tigrinus* (E)*Morelia amethystina* (E)*M. viridis* (R.E)*Dendrelaphis calligastra* (E)



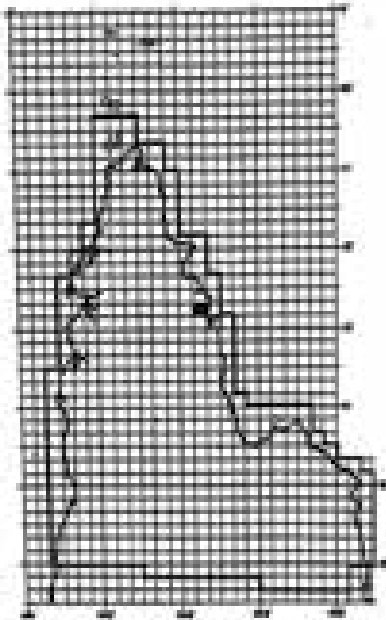
Stegonotus parvus (E)



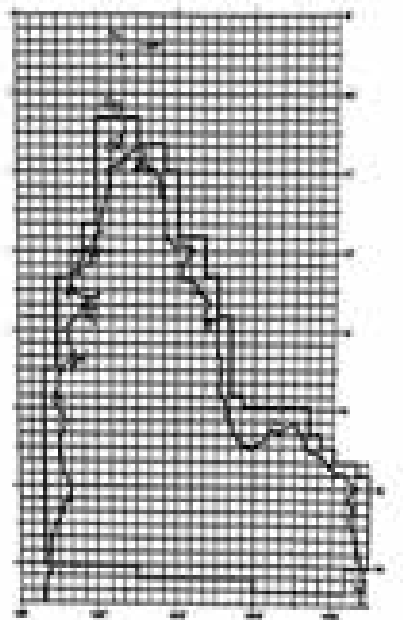
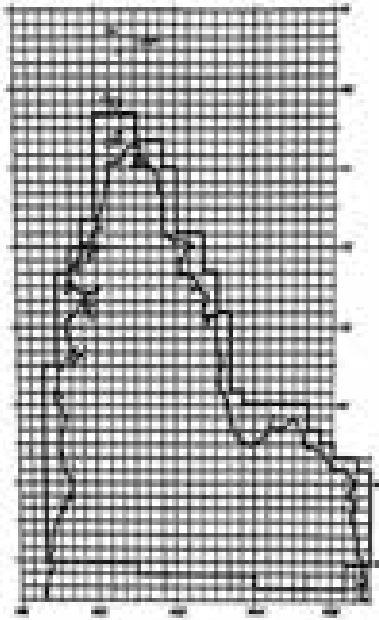
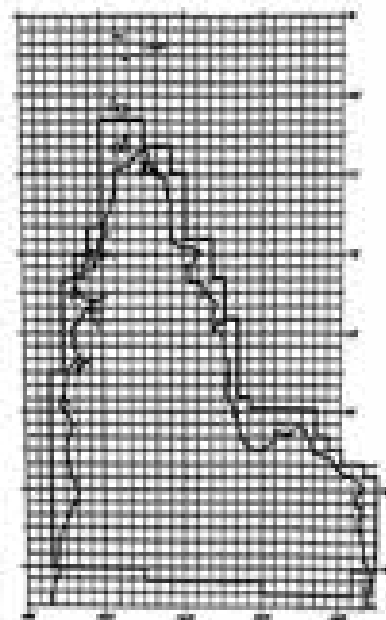
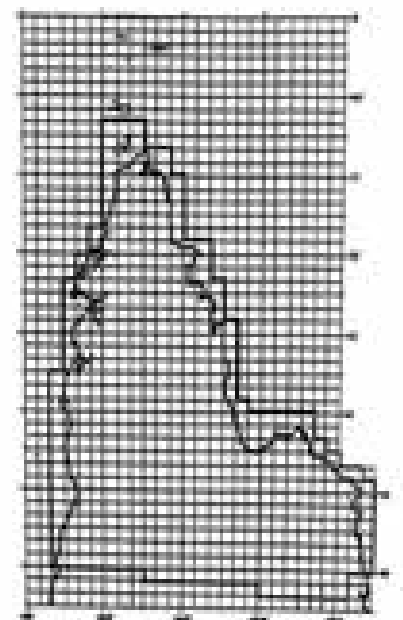
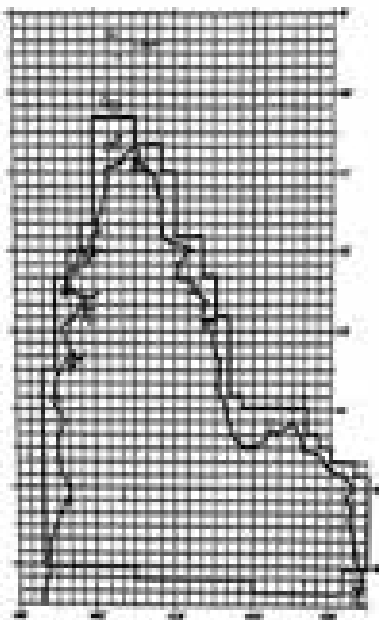
Furina tristis (E)

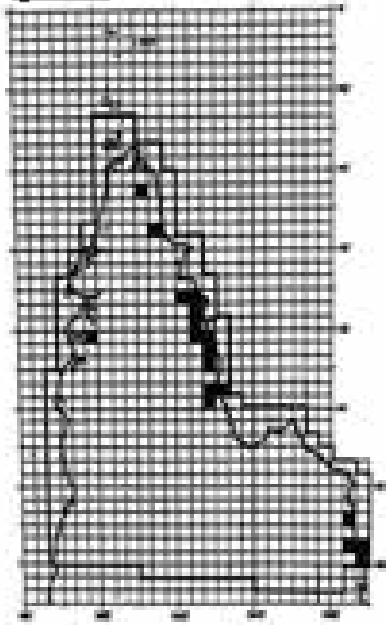


Simoselaps warro (E)

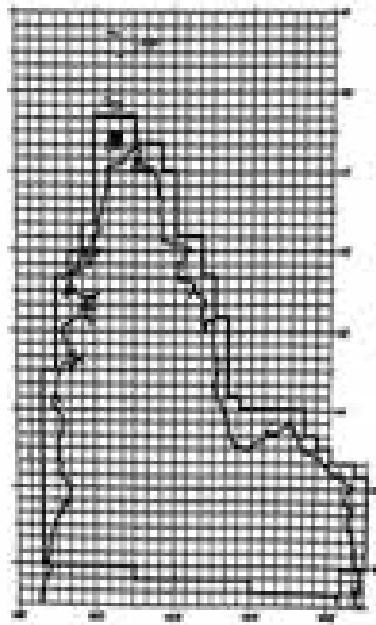


*Ramphotyphlops
leucoproctus* (E)

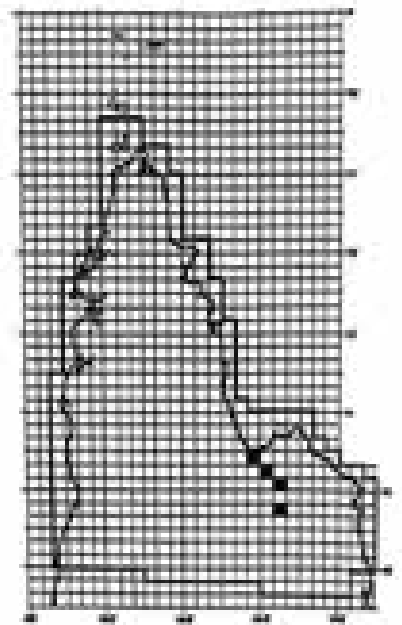




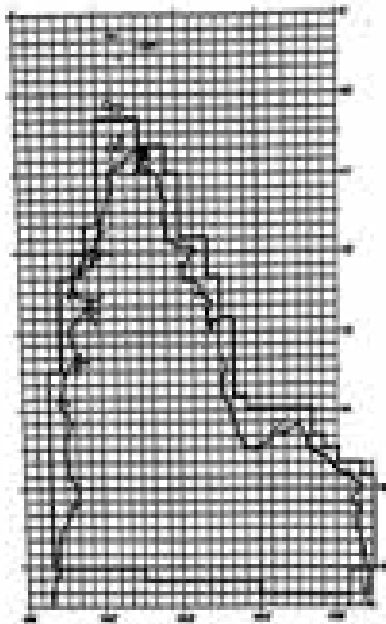
Casuarius casuarius (V)



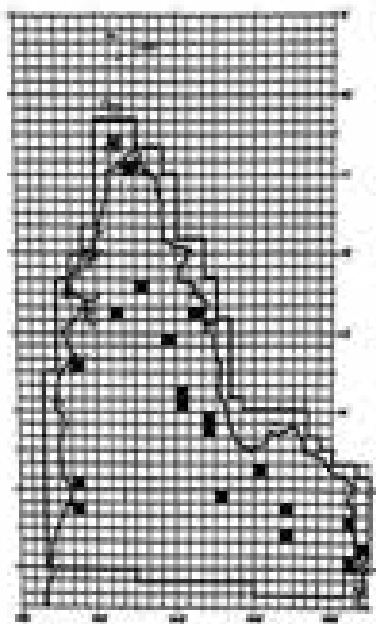
Ixobrychus minutus (R)



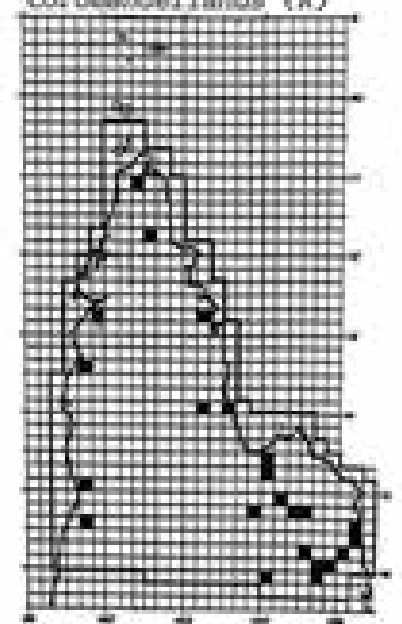
Nettapus coromandelianus (R)



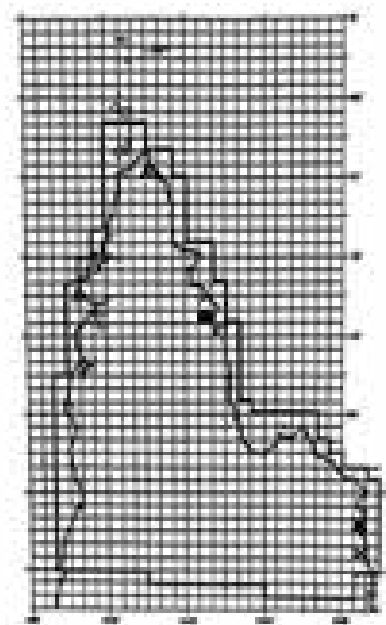
Aquila gurneyi (E)



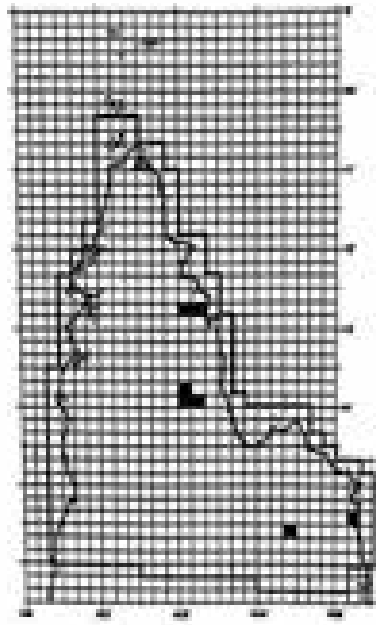
Erythrotriorchis radiatus (V)



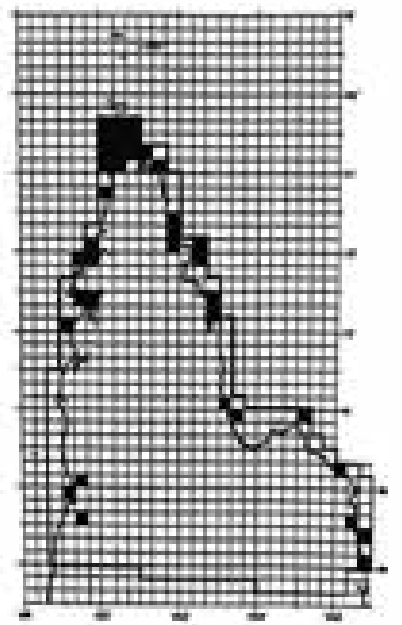
Lophoictinia isura (R)



Turnix melanogaster (V)

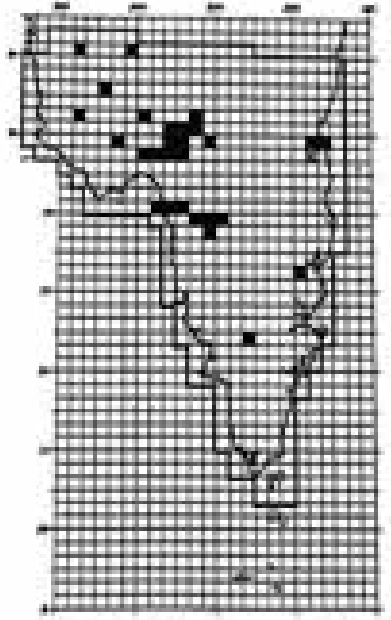


T. olivei (E)

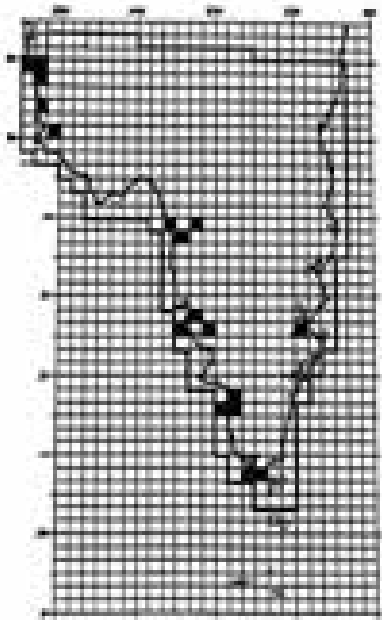


Burhinus neogectus (V)

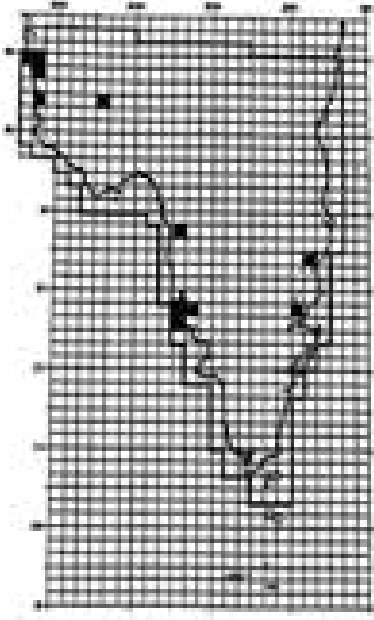
Psephodus
chrysopterygius (BN,F)



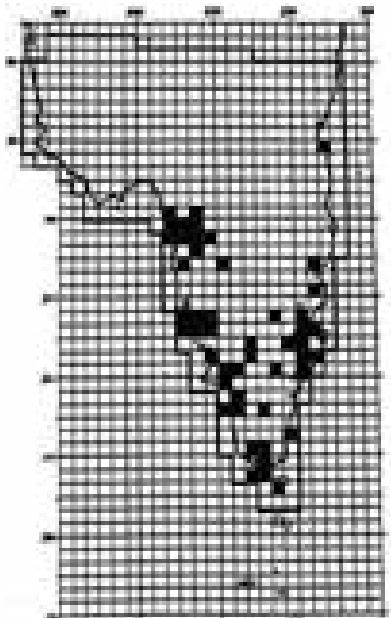
Cuculus
castaneiventris (E)



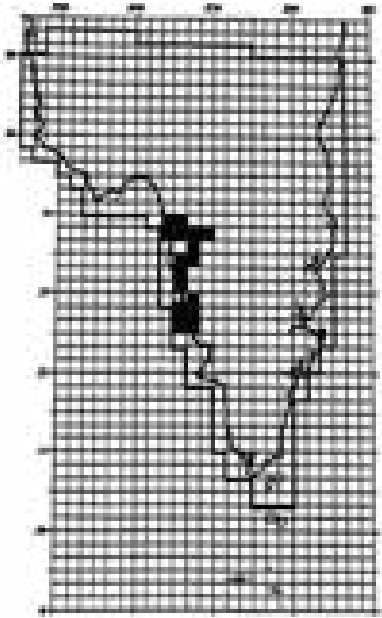
Ninox rufa (R)



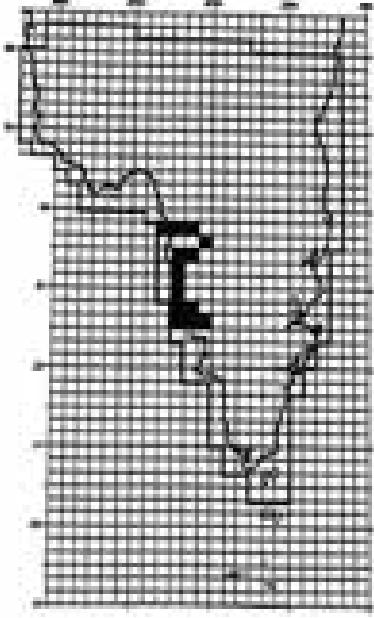
Probusciger
aterrimus (E)



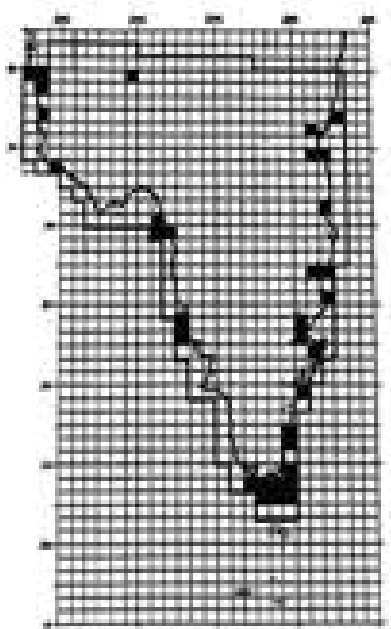
Eclectus
toratus (R,E)



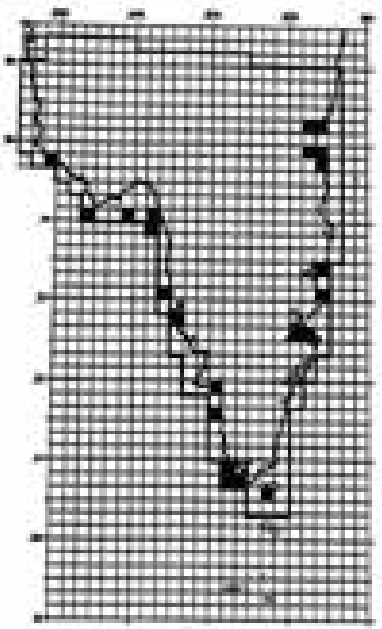
Geoffroyus
geoffroyi (R,E)



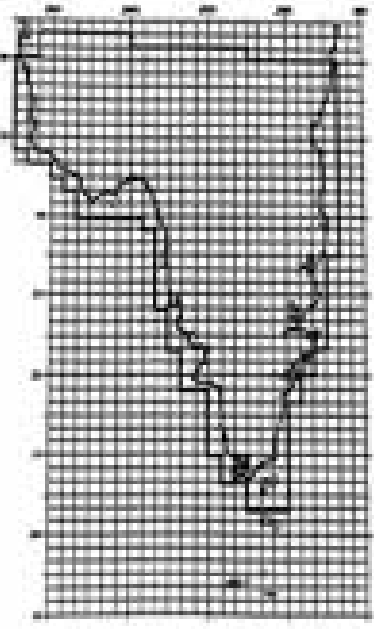
Numenius
madagascariensis (R)

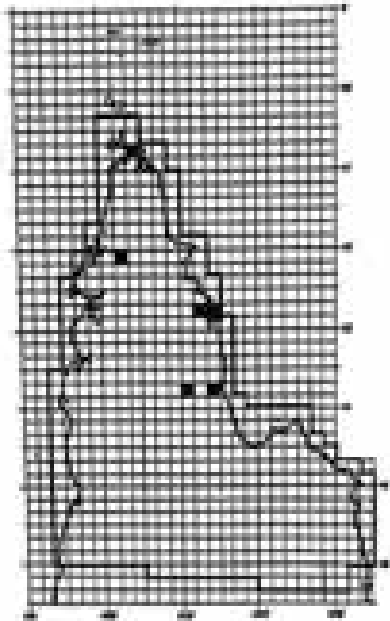
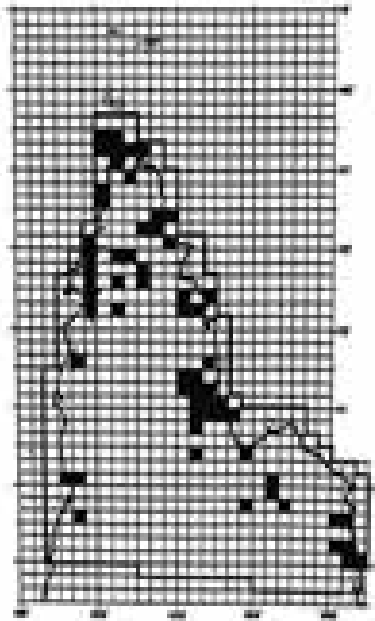
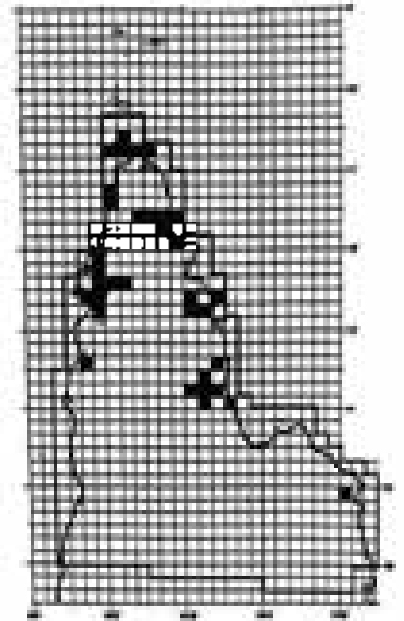
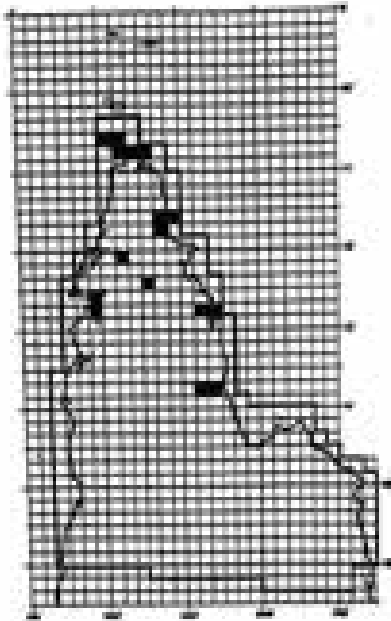
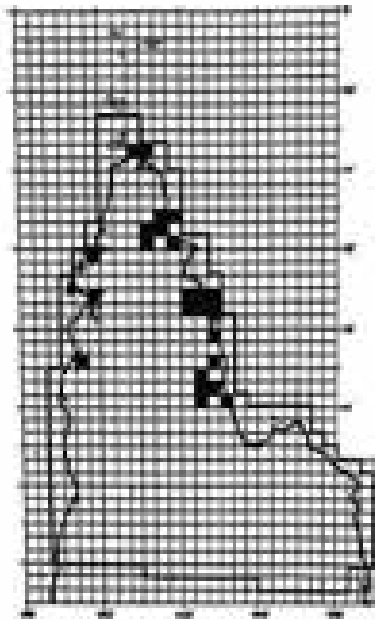
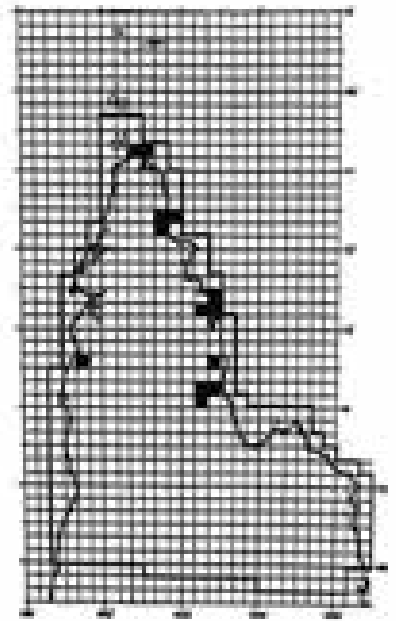
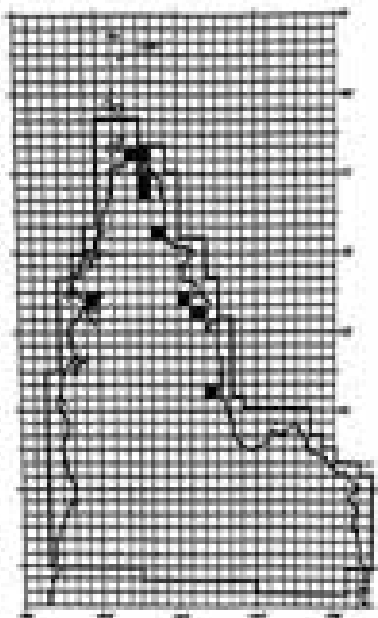
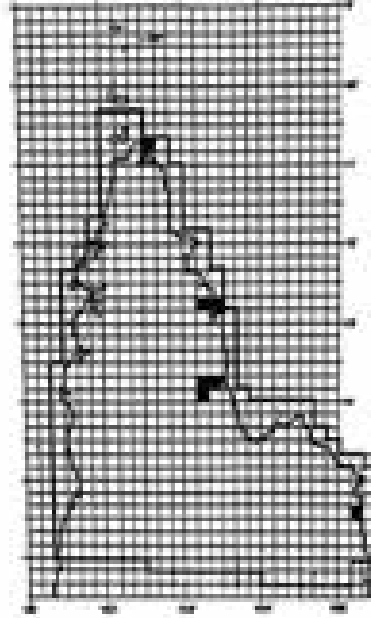
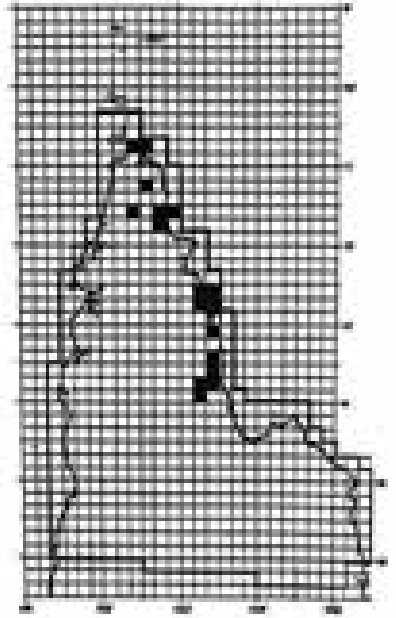


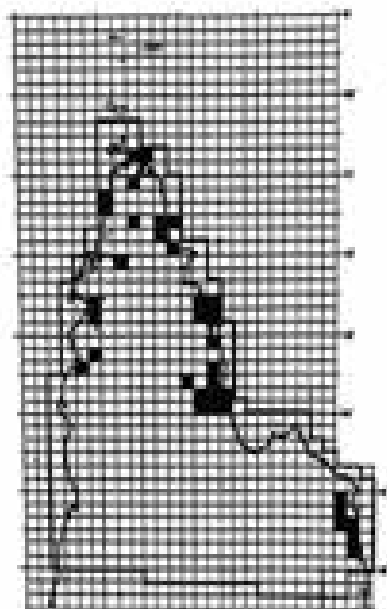
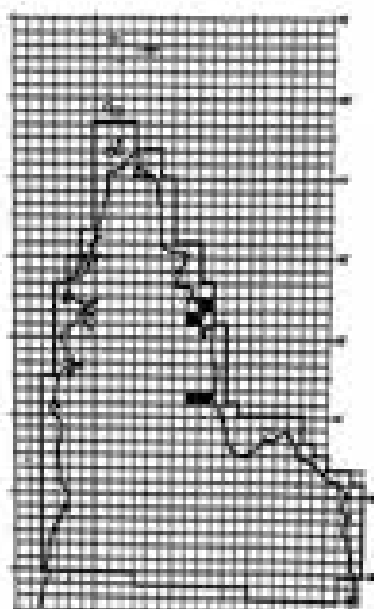
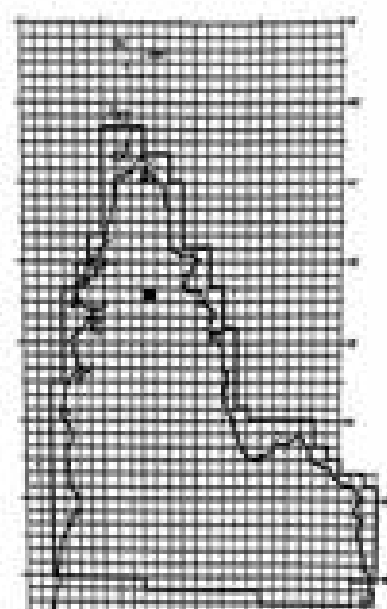
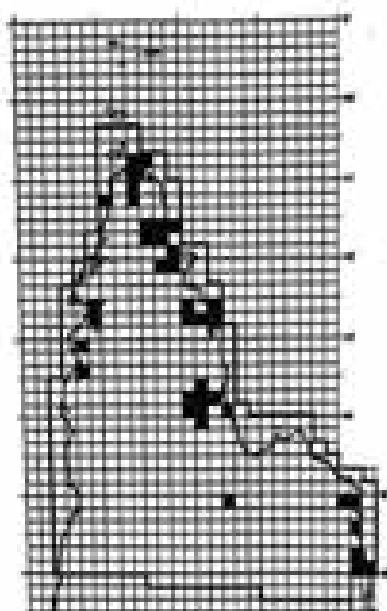
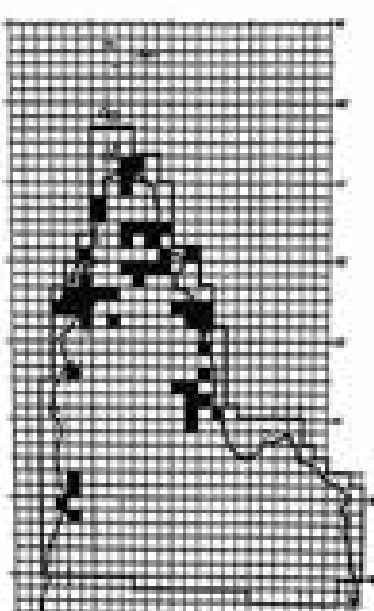
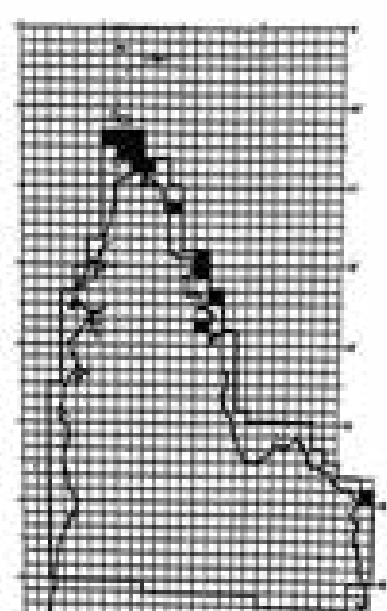
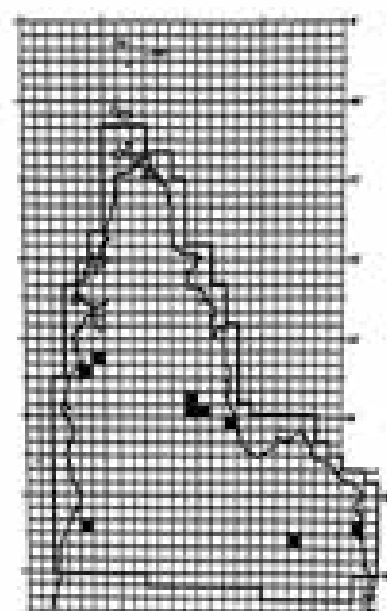
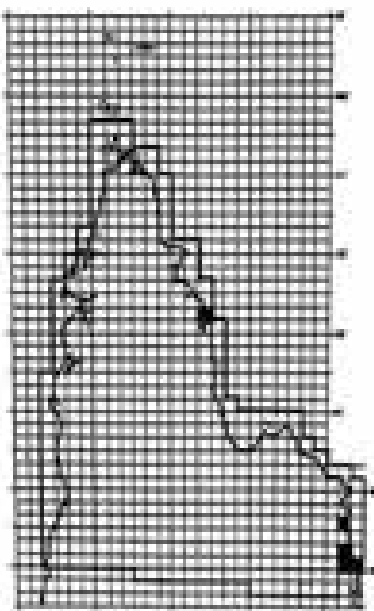
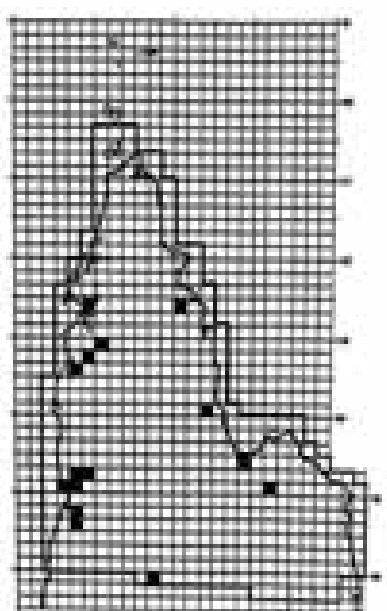
Sterna
albitrons (R)

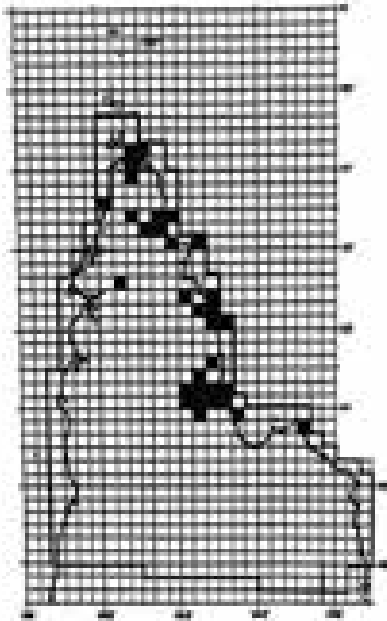


Ducula
zoeae (E)

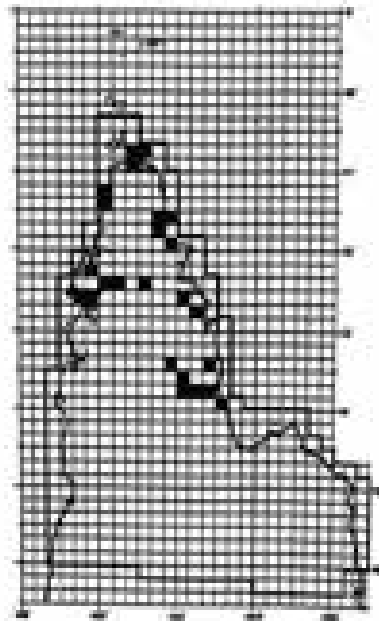


*Podargus ocellatus* (V)*P. papuensis* (E)*Syma torotoro* (E)*Pitta erythrogaster* (E)*Arses
telescopthalmus* (E)*Drymodes
superciliaris* (E)*Microeca griseocephala* (E)*Monarcha frater* (E)*Tregellasia leucops* (E)

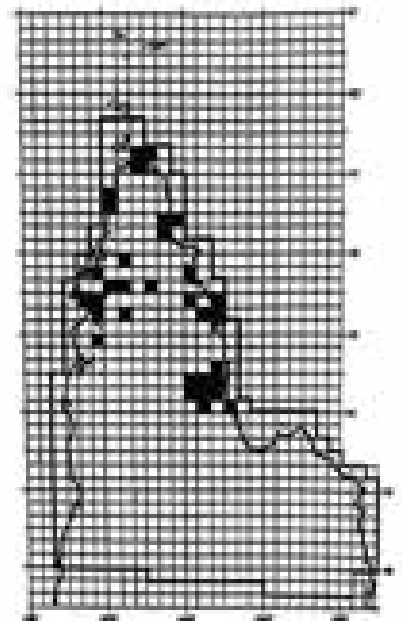
*Sericornis beccarii* (E)*Glycichaera fallax* (E)*Grantiella picta* (R)*Trichodere cockerelli* (E)*Xanthotis
flaviventer* (E)*Zosterops citrinella* (E)*Erythrura gouldiae* (EN)*E. trichroa* (R)*Neochmia ruficauda* (R)



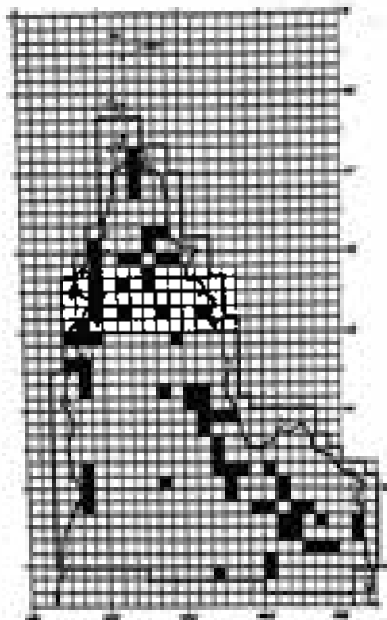
*Chlamydera
cerviniventris* (E)



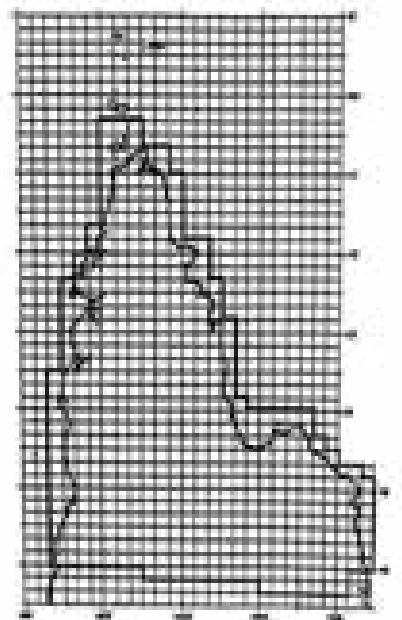
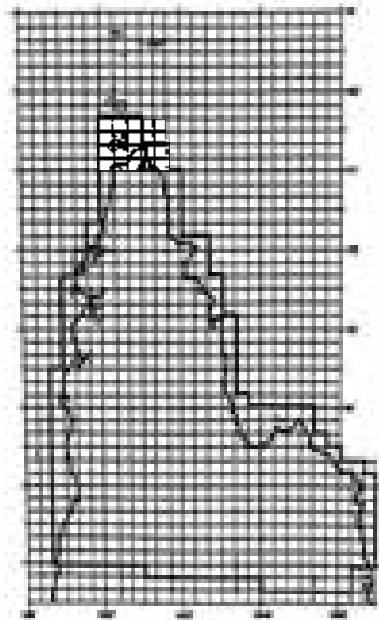
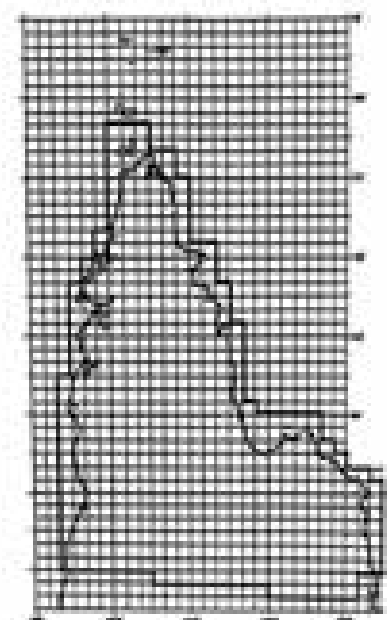
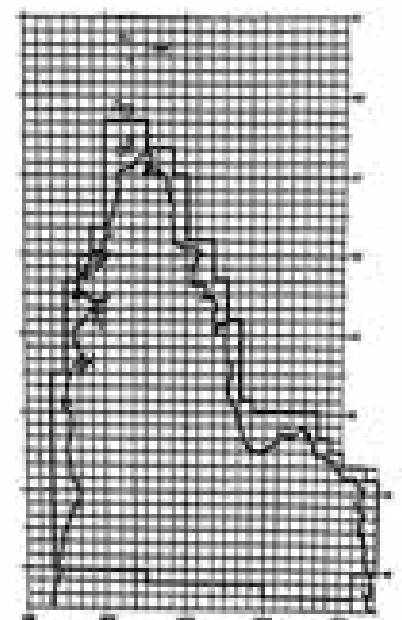
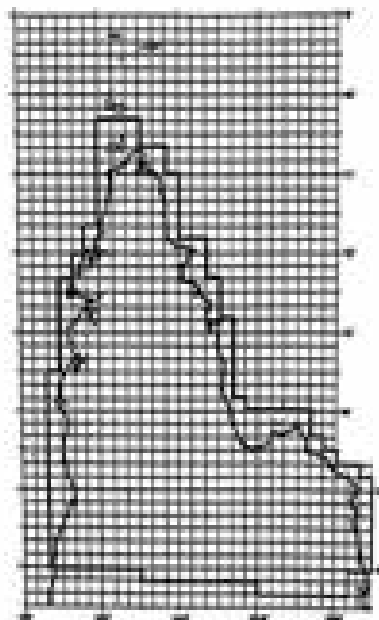
*Manucodia
keraudrenii* (E)

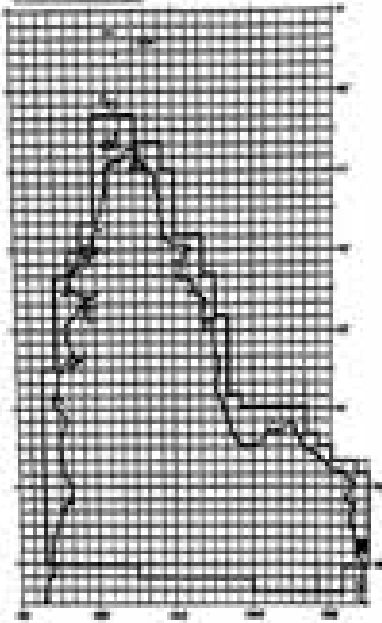


*Ptiloris
magnificus* (E)

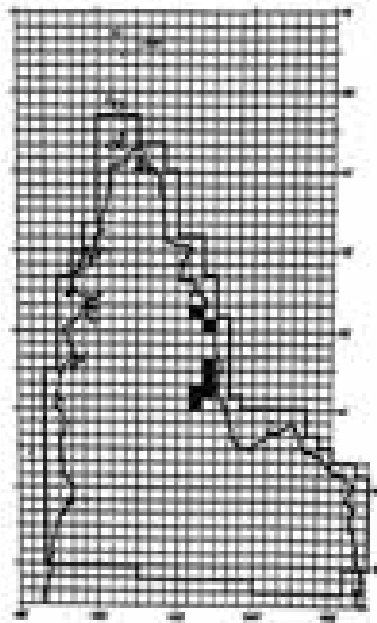


Cracticus mentalis (E)

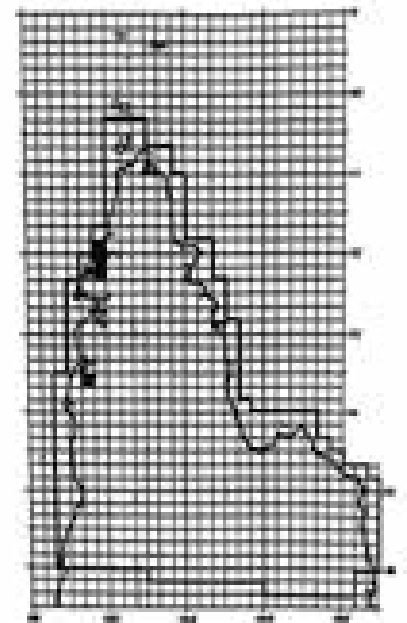




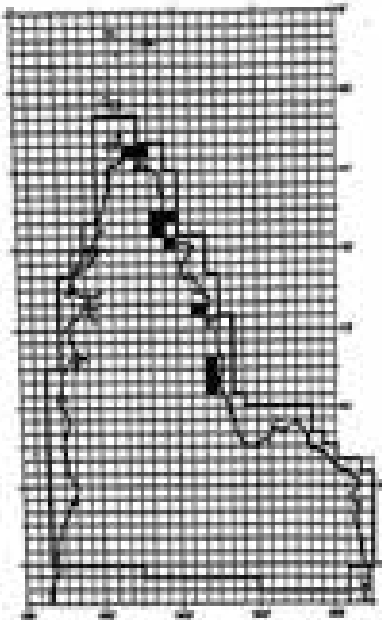
Antechinomys laniger (R)



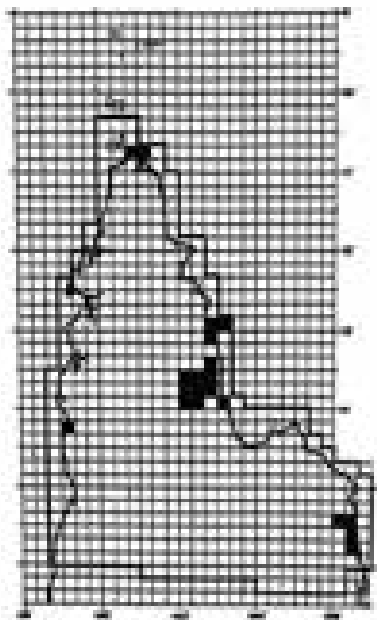
Antechinus leo (R,E)



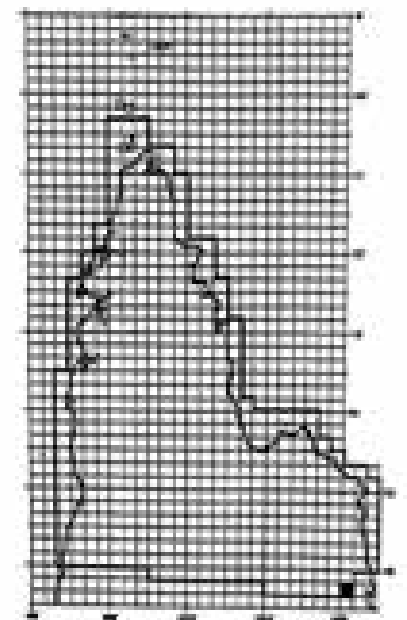
Sminthopsis archeri (E)



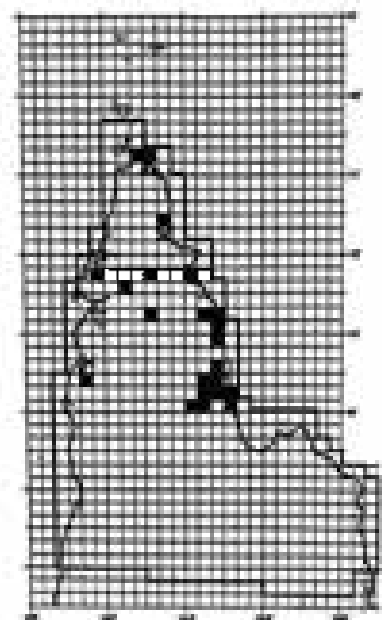
Echymipera rufescens (E)



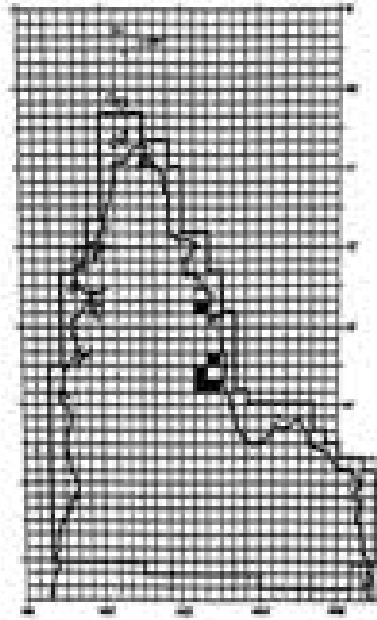
Dactylopsila trivirgata (E)



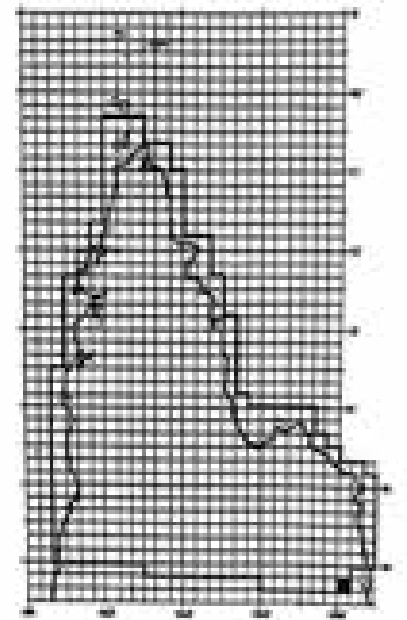
Pseudocheirus cinereus (R)



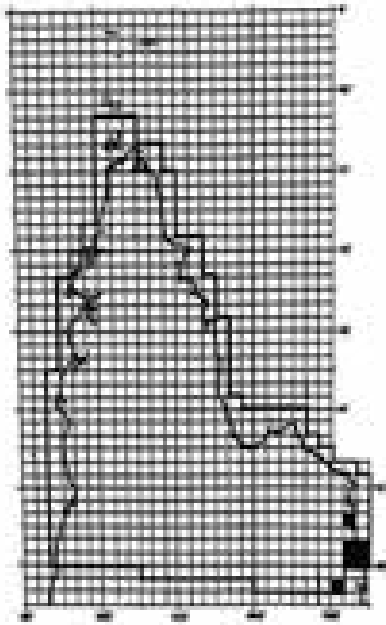
Phalanger maculatus (E)



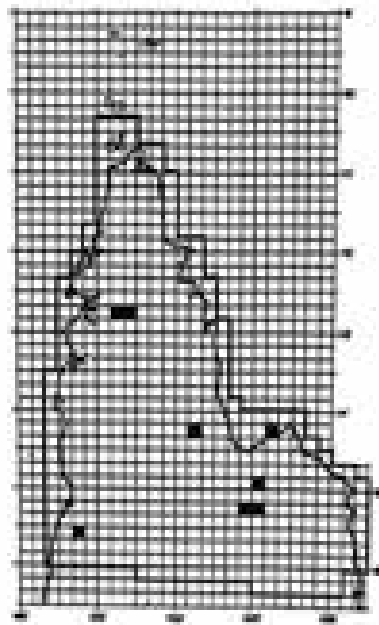
P. orientalis (E)



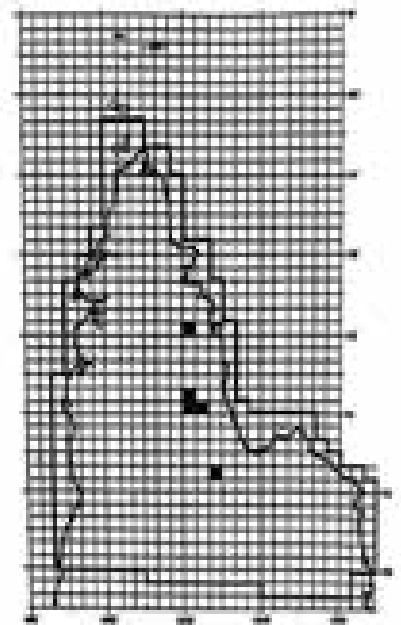
Bettongia tropica (EN)



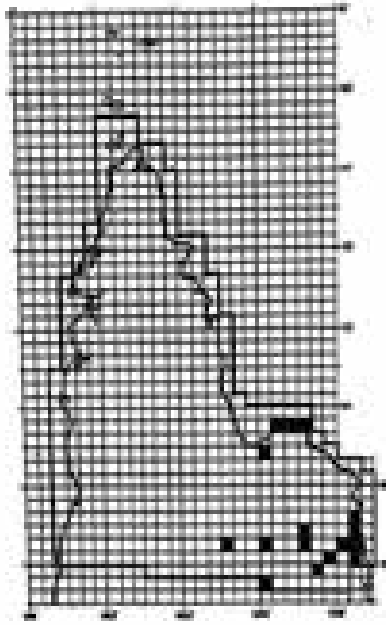
Dendrolagus bennettianus (R,E)



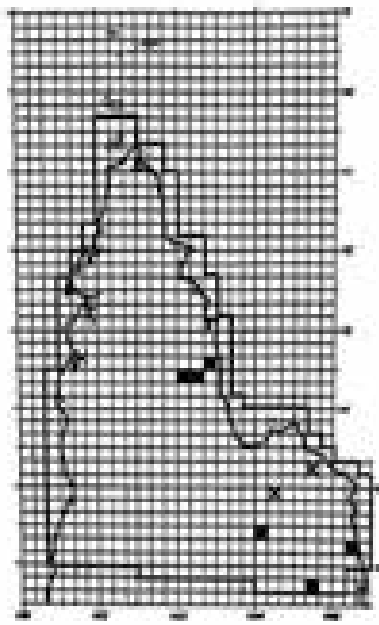
Lagorchestes conspicillatus (V)



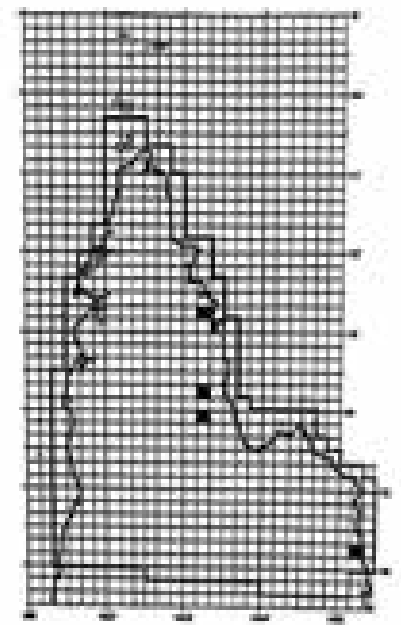
Petrogale coenensis (E)



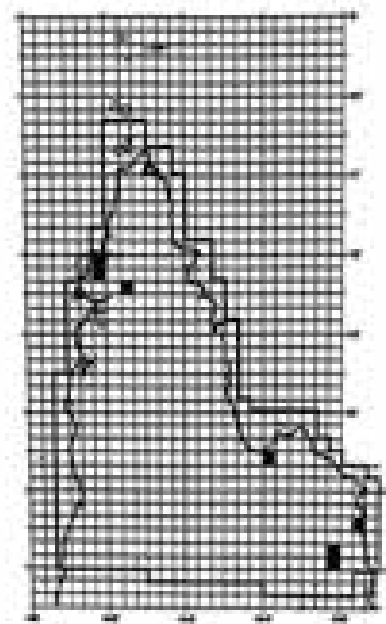
P. godmani (E)



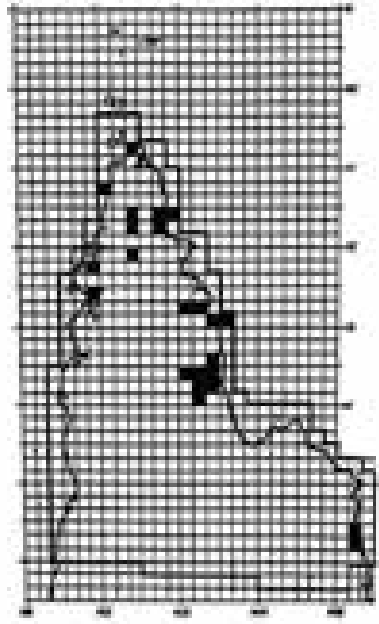
Macroderma gigas (V)



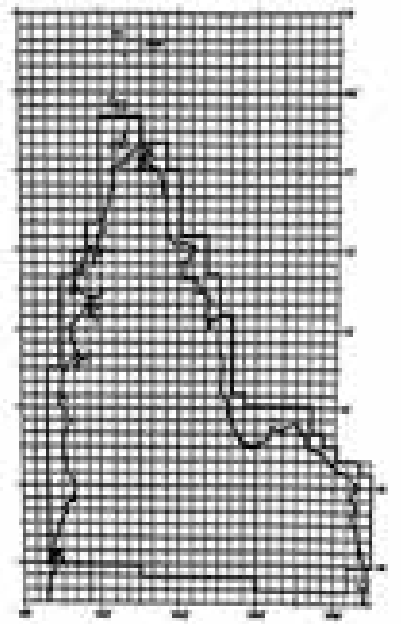
Rhinolophus philippinensis (R)



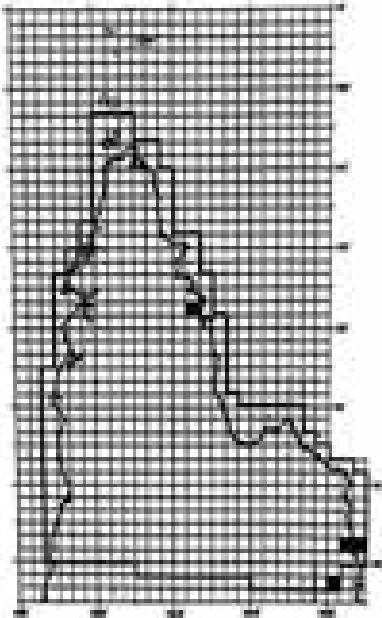
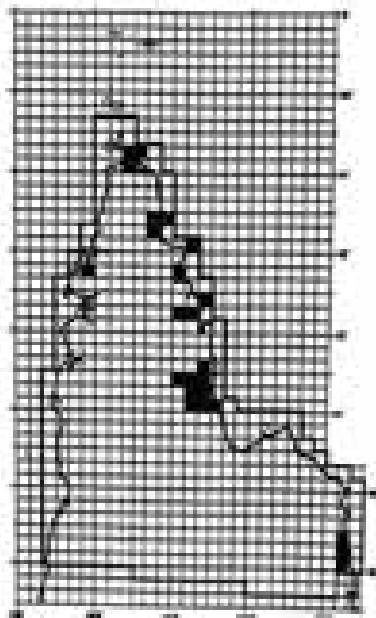
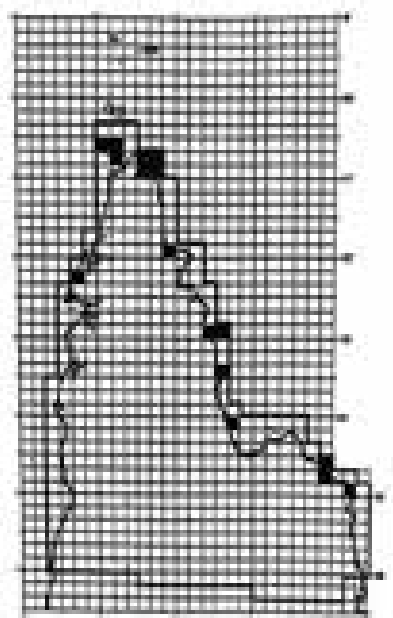
Leggadina lakedownensis (E)



Melomys capensis (E)



Notomys aquilo (V)

*Pogonomys mollipilosus (E)**Rattus leucopus (E)**Dugong dugon (V)*