Fauna of The Rapid Creek Region of Darwin

This study aims to introduce the diversity of animals in Rapid Creek . It does not constitute an intensive fauna survey of the region, but pools existing information for the purposes of management. The list includes fauna which <u>could</u> be encounted in the freshwater zone of Rapid Creek. Other habitats (mangrove, estuarine) have been briefly reviewed to update the current fauna list.

1. Literature Review

There have been a number of reports on the area covering hydrology, water quality, drainage, recreational (the Brinkin lake proposal) and landscaping developments. An environmental study which was conducted in the Leanyer and Marrara swamps in 1978, provides a tentative list of invertebrates occurring in the Buffalo Creek mangroves. Dwyer and Associates (1980) provide a good assessment of the vertebrates (birds, reptiles and mammals) and invertebrates (benthic fauna) occurring in Rapid Creek mangroves. This is supplemented with a list of the fish fauna utilising the mangroves and estuary (CCNT 1991).

Studies on the freshwater habitats of Darwin have not yet been initiated. Current knowledge of lentic and lotic environments stem from faunal collections in the Alligator River Region by the CSIRO (Midgley, 1972) and the Office of the Supervising Scientist (Marchant, 1982; Tyler and Crook, 1987; Bishop *et.al.* 1986). Current studies on freshwater ecology of Magela Creek in Kakadu National Park are nearing completion and will soon be published. These will provide a good basis from which similar ecosystems in Darwin can be assessed.

The apparent dearth of aquatic studies results from the lack of basic research. Animal groups such as the Platyhelminthes, Nemertea, Nematoda, etc. require careful taxonomic identification, while in other cases the relevant identification keys do not exist for Australian species. A large proportion of aquatic animals in lentic and lotic environments are immature insects and crustaceans. Full descriptions of some species utilise adult and immature specimens. Few adults have been linked to their immature aquatic forms and the immature forms have not been described. The taxonomy of aquatic insect larvae is therefore limited, and keys are scattered or in a state of revision. Most of the Northern Territory Museum's collection remains undescribed, and will remain so until a complete revision of the relative orders within Australia have taken place.

2. Rapid Creek Fauna Survey

2.1 Region of Investigation

An assessment of Rapid Creek for a plan of management requires the inclusion of all abiotic and biotic components affecting the system. The area in this study encompasses the whole catchment, an area of 28 square kilometres. The size of the freshwater region (the swamp and stream) varies seasonally with the annual wet. Drainage of the wetland is slow and springs maintain a good flow of water in the creek for most of the year. A rich and diverse range of aquatic organisms are able to live there.

To adequately describe the fauna, the habitats have been separated into terrestrial and aquatic. The latter has been grossly divided into freshwater (swamp and stream) and brackish/saline (mangroves and estuary) habitats. A degree of overlap does occur through tidal influence but this has been ignored in this review.

2.2 Terrestrial Fauna

A rich and diverse fauna utilise the region. Dwyer and Associates assessed the variety of mammals, birds and reptiles in 1980. The Casuarina Recreation Reserve Management Plan published by the CCNT, and a current list from their Biological Data Base. form a basis for this survey. Species most likely to occur in the whole region are listed in Appendix 1.1.

2.3 Freshwater fauna

A diverse range of organisms utilise freshwater habitats. The fauna in the Northern Territory is not likely to be very different from any other Australian region. While different species will occur, the basic structure of the communities are essentially composed of the same specialised groups of animals. This survey provides a list of species which have been encountered in the Top End.

Annelid worms

The diversity of fauna living in freshwater is unknown and can only be assessed when the fauna list is provided from the museum (Dr Russell Hanley). There is a large fauna list for mangrove and estuarine habitats, compiled from EIS studies conducted in the N.T.

Snails and Mussels

Australia's aquatic molluscs have been well documented. An comprehensive list of most of the species occurring within Northern Australia, has been compiled from the Museum and Smith (1992). (Appendix 2.1)

Insects

Some of the insects have been identified from adult specimens located within the Darwin region. The Order Odonata (Dragonflies) and Trichoptera (Caddis-flies) have been described Australia wide. Specimens in the Northern Territory have been identified from adults captured within a 50 km radius of Darwin. The museum collection has very few specimens from the other Orders identified; these include the Collembola, Hemiptera, Diptera, Coleoptera, Megaloptera, and Neuroptera. The fauna list is compiled from the N.T. Museum, the Department of Primary Industry and published reports of species occurring in the Alligator Rivers region (Magela Creek). (Appendix 2.1)

Crustaceans

A brief reconnaissance of the freshwater stream revealed the presence of a large number of crustaceans. Many of these species have a wide distribution throughout Northern Australia. Julli (1986), Marchant (1982) and Williams (1979,1980) provided the basis for assembling this list. (Appendix 2.1)

Aquatic vertebrates (Fish)

They have been no previous surveys in Rapid Creek. The list (Appendix 2.2) is suggestive of species most likely to be encounted in streams or swamps This has been compiled from Larson & Martin (1990), and species located within Howard Springs (CCNT 1992) and Magela Creek. (Marchant 1982). It is probable that the diversity of fish within Rapid Creek would be reduced because of its small size.

2.4 Mangrove and Estuarine Fauna

The Invertebrate benthic and littoral fauna were surveyed by Dwyer and Associates. in 1980 (Appendix 3.1). The Conservation Commission compiled a list of vertebrates occurring in the mangroves and estuary of Casuarina in 1991 (Appendix 3.2).

3. Environmental Impact on biological communities

In Darwin, man has many direct affects on the natural ecosystems and the biological communities within and surrounding the metropolitan area. While this surveys primary aim is to provide a guide to the diversity of animals living within the different habitats of Rapid Creek. Brief field observations in the area have highlighted a number of factors having noticeable impacts on terrestrial and aquatic biological communities This brief list is provided to assist in developing management strategies to maintain the biodiversity of animal communities within the region

3.1 Terrestrial

Environmental Impacts on the Terrestrial Habitats

- 1. The continued habitat loss through development.
 - The maintenance of habitat diversity (Botanical Assessment) is of primary importance
- 2. The impact of feral animals (eg. feral pig, domestic dog and cat)
 - -The feral pig is known to have a significant effect of river catchments, damaging water bodies and destroying vegetation. The domestic dog and more importantly the cat have a large impact on native reptiles, birds and mammals.
- 3. The effect of land fill and refuse
 - Habitat Loss.
- 4. Human and recreational impact
 - Unknown.
- 5. Fire Management
 - -Effect on animal communities is unknown. It must influence the viability of small populations of reptiles, birds and mammals in the area.

Fauna of The Rapid Creek Region of Darwin

Appendix 1.1 Terrestrial Invertebrates of Rapid Creek

Order Lepidoptera	Butterflys
Family: Papilionidae	-
Cressida cressida cassandra	
Graphium euryplus lycaon	Pale Green Butterfly
Papilio canopus canopus	Northern Citrus Butterfly
Family: Pieridae	-
Appias paulina ega	
Catopsilia scylla etesia	
Catopsilia pomona pomona	Cassia Butterfly
Delias argenthona fragalactea	2
Elodina perdita walkeri	
Eurema hecabe phoebus	
Family: Nymphalidae	
Cethosia penthesilia paksa	
Danaus affinis affinis	
Danaus chrysippus petilia	Lesser Wanderer Butterfly
Danaus hamatus hamatus	2
Euploea core corrina	Oleander Butterfly
Hypocystaadiante antirius	<i>2</i>
Hypolimnas bolina nerina	
Hypolimnas missipus	
Junonia hedonia zelina	
Junonia orythyia albicincta	
Melanitis leda bankia	Evening Brown Butterfly
Phalantha phalantha araca	
Family: Lycaenidae	
Candalidea erinus erinus	

CCNT (1991)

Appendix 1.2 Terrestrial Vertebrates of Rapid Creek

Class: Amphibia
Family: Hylidae
Cyclorana australi
Litoria bicolor
Litoria caerulea
Litoria dahlii
Litoria inermis
Litoria microbelos
Litoria nasuta
Litoria rothii
Litoria rubella
Litoria tornieri

Northern Dwarf Tree Frog Green Tree Frog

Rocket Frog

Desert Tree Frog

Family: Leptodactylidae

Limnodynastes ornatus

Platyplectron omatus Ranidella bilingua Uperoleia inundata Uperoleia lithomoda

Notaden melanoscaphus

Limnodynastes convexiusculus Marbled Frog **Ornate Burrowing Frog** Northern Spadefoot Toad

CCNT (1992); Tyler and Davies (1986)

Class: Reptilia Family: Agamidae Chamydosaurus kingii Frilled Lizard Diporiphora bilineata **Two-Lined** Dragon Lophognathus gilberti Lophognathus temporalis Northern Water Dragon Family: Boidae Bothrochilus olivaceus **Olive Python** Liasis childreni Children's Python Liasis mackloti Morelia spilota **Carpet Python** Family: Colubridae Amphiesma mairii Freshwater Snake Boiga irregularis Brown tree Snake Dendrelaphis punctulatis Common tree Snake Fordonia leucobalia White bellied Mangrove Snake Myron richardsoni Mangrove Snake Family: Elapidae Cryptophis pallidiceps Northern Small-Eyed Snake Demansia olivacea Whip Snake Furina diadema **Red-Naped Snake** Pseudonaja nuchalis Western Brown Snake Cererus australis Family: Gekkonidae Hemidactylus frenatus House Gecko Heteronotia binoei Bynoe's Gecko Oedura rhombifer Family: Hydrophiidae Hydrelaps darwinensis Hydrelaps elegans Family: Pygopodidae Delma botea Legless Lizard Lialis burtonis Burton's Snake-Lizard Family: Scincidae Carlia amax Carlia foliorum Carlia gracilis Four-Fingered Skink Carlia rufilatus

Ctenopus essingtoni

Tiliqua scincoides Family: Varanidae Varanus gouldii Varanus mitchelli Varanus timorensis **Class Avies** Family:Acanthizidae Gerygone chloronata Gerygone laevigaster Gerygone magnirostris Gerygone olivacea Smicrornis brevirostris Family:Accipitridae Accipiter cirrhocephalus Accipiter fasciatus Aquila audax Aviceda subcristata Circus approximans Circus assimilis Elanus notatus Haliaeetus leucogaster Hamirostra melanosternon Milvus indus Milvus migrans Milvus sphenurus Pandion haliaetus Family: Aegothelidae Aegotheles cristatus Family: Alaudidae Mirafra javanica Family:Alcedinidae Alcedo azurea Alcedo pusilla Dacelo leachii Halcyon chloris Halcyon pyrrhopygia Todiramphus macleayii Todiramphus sancta Family: Anatidae

Family: Scincidae (cont.)

Sphenomorphus crassicaudus Sphenomorphus isolepis

Anas gibberifrons Anas superciliosa Anseranas semipalmata Aythya australis Dendrocygna arcuata Eastern Blue-tongued Lizard

Gould's Goanna Mitchell's Water Monitor Spotted Tree Monitor CCNT (1993)

Birds Green-Backed Gerygone Mangrove Gerygone

Large- Billed Gerygone White-Throated Gerygone Weebill

Collared Sparrowhawk Brown Goshawk Wedge Tailed Eagle Pacific Baza Marsh Harrier Spotted Harrier Black-shouldered Kite White Bellied Sea-eagle Black-breasted Buzzard Brahminy Kite Black Kite Whistling Kite Osprey

Australian Owlet Night-jar

Singing bushlark

Azure Kingfisher Little Kingfisher Blue-winged Kookaburra Collared Kingfisher Red-backed Kingfisher Forest Kingfisher Sacred Kingfisher

Grey Teal Pacific Black Duck Magpie Goose Hardhead Wandering Whistling duck Family: Scincidae (cont.) Sphenomorphus crassicaudus Sphenomorphus isolepis Tiliqua scincoides Family: Varanidae Varanus gouldii Varanus mitchelli Varanus timorensis

Class Avies Family:Acanthizidae Gerygone chloronata Gervgone laevigaster Gerygone magnirostris Gerygone olivacea Smicrornis brevirostris Family:Accipitridae Accipiter cirrhocephalus Accipiter fasciatus Aquila audax Aviceda subcristata Circus approximans Circus assimilis Elanus notatus Haliaeetus leucogaster Hamirostra melanosternon Milvus indus Milvus migrans Milvus sphenurus Pandion haliaetus Family: Aegothelidae Aegotheles cristatus Family: Alaudidae Mirafra javanica Family:Alcedinidae Alcedo azurea Alcedo pusilla Dacelo leachii Halcvon chloris Halcyon pyrrhopygia Todiramphus macleavii Todiramphus sancta Family: Anatidae Anas gibberifrons Anas superciliosa Anseranas semipalmata Aythya australis Dendrocygna arcuata

Eastern Blue-tongued Lizard

Gould's Goanna Mitchell's Water Monitor Spotted Tree Monitor CCNT (1993)

Birds

Green-Backed Gerygone Mangrove Gerygone Large- Billed Gerygone White-Throated Gerygone Weebill

Collared Sparrowhawk Brown Goshawk Wedge Tailed Eagle Pacific Baza Marsh Harrier Spotted Harrier Black-shouldered Kite White Bellied Sea-eagle Black-breasted Buzzard Brahminy Kite Black Kite Whistling Kite Osprey

Australian Owlet Night-jar

Singing bushlark

Azure Kingfisher Little Kingfisher Blue-winged Kookaburra Collared Kingfisher Red-backed Kingfisher Forest Kingfisher Sacred Kingfisher

Grey Teal Pacific Black Duck Magpie Goose Hardhead Wandering Whistling duck

Family: Anatidae (cont.) Dendrocygna evtoni Nettapus pulchellus Tadorna radjah Family: Anhingidae Anhinga melanogaster Family: Apodidae Apus pacificus Family: Ardeidae Ardea alba Ardea garzetta Ardea ibis Ardea intermedia Ardea novaehollandiae Ardea pacifica Ardea picata Ardea sacra Ardea sumatrana Ardeola striatus Ixobrychus flavicollis Nycticorax caledonicus Family:Artamidae Artamus leucorhynchus Family: Burhinidae Burhinus grallarius Esacus magnirostris Family: Campephagidae Coracina novaehollandiae Coracina papuensis Coracina tenuirostris Lalage leucomela Lalage sueurii Family:Caprimulgidae Eurostopodus argus Caprimulgus macrurus Family: Charadriidae Charadrius leschenaultii Charadrius mongolus Charadrius ruficapillus Charadrius veredus Erythrogonys cinctus Pluvialis dominica Pluvialis squatarolua Vanellus miles Family: Ciconiidae Ephippiorhynchus asiaticus Family: Columbidae Chalcophaps indica Columba livia

Plumed Whistling Duck Green Pygmy-goose **Radjah Shelduck** Darter Fork-tailed Swift Great Egret Little Egret Cattle Egret **Intermediate Egret** White-faced Heron Pacific Heron **Pied Heron** Eastern Reef Egret Great-billed Heron Striated Heron **Black Bittern Rufous Night Heron** White-breasted Woodswallow **Bush Thick-knee Beach Thick-knee** Black-faced Cuckoo-shrike White-bellied Cuckoo-shrike Cicadabird Varied Triller White-winged Triller Spotted Nightjar Large-tailed Nightjar Large Sand Plover **Mongolian** Ployer **Red-capped** Plover **Oriental Plover Red-kneed** Dotterel Lesser Golden Plover **Grey Plover** Masked Plover (Lapwing) Black-necked Stork (Jabiru) **Emerald Ground-dove Feral Pigeon**

Family: Columbidae (cont.) Ducula bicolor Geopelia humeralis Geopelia placida Ptilinopus regina Family: Corvidae Corvus orru Family: Cracticidae Cracticus nigrogularis Cracticus quoyi Family: Cuculidae Cuculus variolosus Centropus phasianinus Chrysococcyx basalis Chrysococcyx minutillus Cuculus pallidus Cuculus saturatus Eudynamys scolopacea Scythrops novaehollandiae Family: Dicaeidae Dicaeum hirundinaceum Family:Dicruridae Dicrurus bracteatus Family: Falconidae Falco berigora Falco cenchroides Falco longipennis Falco peregrinus Falco subniger Family: Fregatidae Fregata ariel Fregata minor Family: Glareolidae Glareola maldivarum Stiltia isabella Family: Grallinidae Grallina cyanoleuca Family: Gruidae Grus rubicundus Family:Haematopodidae Haematopus ostralegus Family:Hirundinidae Hirundo ariel Hirundo nigricans Family: Jacanidae Irediparra gallinacea Family: Laridae Chlidonias hybrida Chlidonias leucoptera

Torresian Imperial Pigeon Bar-shouldered Dove Peaceful Dove **Rose-crowned Fruit-dove** Torresian Crow **Pied Butcherbird Black Butcherbird Brush Cuckoo** Pheasant Coucal Horsfield's Bronze-cuckoo Little Bronze-cuckoo Pallid Cuckoo **Oriental** Cuckoo Common Koel Channel-billed Cuckoo Mistletoe Bird Spangled Drongo **Brown Falcon** Australian Kestrel Australian Hobby **Peregrine Falcon Black Falcon** Least Frigatebird **Great Frigatebird Oriental Pratincole** Australian Pratincole Australian Magpie-lark Brolga **Pied Oystercatcher Fairy Martin** Tree Martin Comb-crested Jacana Whiskered Tern White-winged Tern

Family: Laridae (cont.) Larus novaehollandiae Sterna albifrons Sterna anaethetus Sterna bengalensis Sterna bergii Sterna caspia Sterna dougallii Sterna hirundo Sterna nilotica Family: Maluridae Cinclorhamphus cruralis Malurus melanocephalus Family: Motacillidae Anthus novaeseelandiae Motacilla flava Family: Megapodiidae Megapodius reinwardt Family: Meliphagidae Conopophila albogularis Entomyzon cvanotis Lichenostomus unicolor Lichmera indistincta Manorina flavigula Meliphaga albilineata Melithreptus albogularis Myzomela erythrocephala Myzomela obscura Philemon argenticeps Philemon buceroides Philemon citreogularis Ramsayornis fasciatus Family: Meropidae Eurystornus orientalis Merops ornatus Family: Muscicapidae Colluricincla megarhyncha Eopsaltria pulverulenta Microeca flavigaster Myiagra alecto Myiagra inquieta Myiagra rubecula Myiagra ruficollis Pachycephala simplex Rhipidura leucophrys Rhipidura rufiventris

Silver Gull Little Tern **Bridled Tern** Lesser Crested Tern Crested Tern **Caspian** Tern Roseate Turn Common Teal Gull-billed Tern **Brown Songlark Red-backed Fairy-Wren Richard's Pipit** Yellow Wagtail **Orange-footed Scrubfowl Rurous-banded Honeyeater Blue-faced Honeyeater** White-gaped Honeyeater **Brown Honeyeater** Yellow-throated Miner White-lined Honeyeater White-throated Honeyeater **Red-headed Honeyeater Dusky Honeveater** Silver-crowned Friarbird Helmeted Friarbird Little Friarbird **Bar-breasted Honeyeater** Dollarbird Rainbow Bee-eater Little Shrike-thrush Mangrove Robin Lemon-bellied Flycatcher **Shining Flycatcher Restless Flycatcher** Leaden Flycatcher **Broad-billed Flycatcher**

Grey Whistler Willie Wagtail Northern Fantail

Family:Oriolidae Oriolus flavocinctus Oriolus sagittatus Sphecotheres viridis Family: Otididae Ardeotis australis Family:Pardalotidae Pardalotus striatus Family:Pelecanidae Pelecanus conspicillatus Family: Phalacrocoracidae Phalacrocorax carbo Phalacrocorax melanoleucos Phalacrocorax sulcirostris Phalacrocorax varius Family:Phasianidae Coturnix chinensis Coturnix australis Family:Pittidae Pitta iris Family: Plataleidae Platalea flavipes Platalea regia Plegadis falcinellus Threskiornis aethiopica Threskiornis spinicollis Family:Ploceidae Lonchura castaneothorax Lonchura flaviprymna Neochmia phaeton Poephila acuticauda Taeniopygia bichenovii Family: Podargidae Podargus strigoides Family: Podicipedidae Tachybaptus novaehollandiae Family: Procellariidae Puffinus pacificus Family: Psittacidae Aprosmictus erythropterus Cacatua galerita Cacatua roseicapilla Cacatua pastinator Calyptorhynchus banksii Leptolophus hollandicus Platycercus venustus Psitteuteles versicolor Trichoglossus rubritorquis

Yellow Oriole **Olive-backed** Oriole Figbird Australian Bustard Striated Pardalote **Australian** Pelican Great Cormorant Little pied Cormorant Little black Cormorant Pied Cormorant King Quail **Brown Quail Rainbow** Pitta Yellow-billed Spoonbill **Royal Spoonbill Glossy Ibis** Sacred Ibis Straw-Necked Ibis Chestnut-Breasted mannikin Yellow-rumped Mannikin **Crimson Finch** Long-tailed Finch **Double-barred** Finch **Tawny Frogmouth** Australian Grebe Wedge-tailed Shearwater **Red-winged Parrot** Sulphur-crested Cockatoo Galah Little Corella Red-tailed Black-cockatoo Cockatiel Northern Rosella Varied Lorikeet **Red Collared Lorikeet**

Family:Ptilonorhynchidae Chlamydera nuchalis Family:Rallidae Amaurornis olivacea Eulabeornis castaneoventris Gallirallus philippensis Poliolimnas cinereus Porphyrio porphyrio Porzana pusilla Family: Recurvirostridae Himantopus himantopus Family:Scolopacidae Actitis hypoleucos Arenaria interpres Calidris acuminata Calidris alha Calidris canutus Calidris ferruginea Calidris minuta Calidis ruficollis Calidis tenuirostris Gallinago megala Gallinago stenura Limosa lapponica Limosa limosa Numenius madagascariensis Numenius minutus Numenius phaeopus Tringa brevipes Tringa glareola Tringa incana Tringa nebularia Tringa stagnatilis Xenus cinereus Family: Strigidae Ninox connivens Ninox noveseelandiae Family:Sulidae Sula leucogaster Family: Sylviidae Acrocephalus arundinaceus Acrocephalus stentoreus Cisticola exilis Cisticola juncidis Megalurus timoriensis Family: Turnicidae Turnix maculosa Turnix pyrrhothorax

Great Bowerbird **Bush-hen** Chestnut Rail **Buff-banded Rail** White-browed Crake **Purple Swamphen Baillon's** Crake **Pied Stilt Common Sandpiper Ruddy Turnstone** Sharp-tailed Sandpiper Sanderling Red knot **Curlew Sandpiper** Little Stint **Red necked Stint** Great Knot Swinhoe's Snipe **Pin-tailed Snipe** Bar-tailed Godwit Black-tailed Godwit Eastern Curlew Little Curlew Whimbrel Grey-tailed Tattler Wood Sandpiper Wandering Tattler Greenshank Marsh Sandpiper **Terek Sandpiper Barking Owl** Southern Boobook **Brown Booby** Great reed-Warbler Clamorous Reed Warbler Golden-Headed Cisticola **Zitting Cisticola Tawny Grassbird Red-backed Button-quail Red-chested Button-quail**

Family: Tytonidae *Tyto alba* Family:Zosteropidae *Zosterops lutea*

Barn Owl

Yellow White Eye CCNT (1993); Simpson & Day (1989)

Class: Mammalia Family: Bovidae Bubalus bubalus Family: Canidae Canis familiaris Family:Dasyuridae Dasyurus hallucatus Family: Emballonuridae Taphozous flaviventris Family: Equidae Equus caballus Family: Felidae Felis catus Family: Macropodidae Macropus agilis Macropus antilopinus Family: Megadermatidae Macroderma gigas **Family Molossidae** Chaeophon jobensis **Family Muridae** Hydromys chrysogaster Melomys burtoni Melomys littorali Mesembriomys gouldii Mus musculus Rattus colletti Rattus rattus Rattus tunneyi Family: Peramelidae Isoodon macrourus Family: Petauridae Petaurus breviceps Family: Phalangeridae Trichosurus arnhemensis Family: Pteropodidae Macroglossus lagochilus Pteropus alecto Pteropus scapulatus Family: Suidae Sus scrofa

Water Buffalo Dog, Dingo Northern Ouoll Yellow-bellied Sheathtail Bat Feral Horse Feral Cat Agile Wallaby Antilopine Wallaroo Ghost Bat Northern Mastiff-bat Water Rat **Grass Melomys** Grassland Melomys **Black Footed Tree Rat** House Mouse **Dusky Rat Black Rat** Pale Field-Rat Northern Brown Bandicoot Sugar Glider Northern Brushtail Possum Northern Blossom-Bat **Black Flying-fox** Little Red Flying fox Feral Pig

Family: Tachyglossidae Tachyglossus aculeatus Family: Vespertilionidae Chalinolobus gouldi Chalinolobus nigrogriseus Eptesicus pumulis Miniopterus schreibersii Myotis adversus Nycticeius grevii Nyctophilus arnhemensis Nyctophilus geoffroyi

Short-beaked Echidna

Gould's Wattled Bat Hoary Bat Little cave Eptesicus **Common Bent-wing Bat** Large-footed Mouse Eared Bat Little broad-nosed Bat Arnhem Land Long-eared Bat Lesser Long-eared Bat CCNT (1993)

Appendix 2.1 Freshwater Macro-invertebrates of Rapid Creek

Phylum: Porifera Sponges Pectispongilla botryoides **Phylum Annelida** Class: Hirudinea Leeches Glossiphoniidae sp.A Richardsonianidae sp.A Phylum: Chelicerata Class: Arachnida

Order: Araneae Family:Pisauridae

Dolomedes sp.

Spiders

Class: Crustacea Subclass: Branchiopoda Order: Cladocera Water Fleas Family: Bosminidae Bosmina meridionalis Bosminopsis deitersi Family:Chydoridae Alona davidi Alona monacantha Alonella clathratula Australochydorus aporus Biapertura karua Biapertura kendallensis Biapertura macrocopa Biapertura rigidicaudis Biapertura verrucosa Camptocerus australis Chydorus eurynotus Dadayamacrops Dunhevedia crassa Ephemeroporus barroisi

Family:Chydoridae (cont.) Euryalona orientalis Graptoleberis testudinaria Kurzia longirostris Leydigia acanthocercoides Oxyurella singalensis Family:Daphniidae Ceriodaphnia cornuta Scapholeberis kingi Simocephalus latirostris Simocephalus serrulatus Family:Macrothricidae Echinisca triserialis Echinisca williams Ilyocryptus spinifer Macrothrix hystrix Macrothrix spinosa Streblocerus serricaudatus Family:Moinidae Moina micrura Moinodaphnia macleayi Family: Sididae Diaphanosoma excisum Diaphanosoma sarsi Latonopsis australis Latonopsis brehmi Latonopsis fasciculata Pseudosida bidentata

Subclass:Copepoda	
Order: Calanoida	
Family:Calanidae	
Calamoecia ultima	
Family: Diaptomidae	
Diaptomus australis	
Diaptomus lumholtzi	
Order: Cyclopoida	
Family:Cyclopoidae	
Ectocyclops sp.	
Mesocyclops aspericornis	
Mesocyclops decipiens	
Mesocyclops leuckarti	
Microcyclops varicans	

Subclass: Malacostraca Order: Decapoda Family: Atyidae *Caridina sp. A* **Calanoid** Copepods

Cyclopoid Copepods

Julli (1986)

Freshwater Shrimps

Family: Palamonidae Freshwater Prawns Macrobrachium rosenbergii Macrobrachium sp. A Macrobrachium sp. B Palaemon spp. Family: Parastacidae Cherax quadricarinatus Family: Sundathelphusidae Holthusiana transversa

Redclaw

Freshwater Crab Marchant (1982)

Phylum: Uniramia Order: Ephemeroptera Family: Baetidae Atalonella sp.A Baetis sp.A Centroptilum sp.A Cloeon fluviatile Thraulus sp.A Family:Caenidae Tasmanocoenis sp.A Tasmanocoenis sp.B

Order: Odonata

Mayflies

N.T.Museum

Dragonflies

Family:Coenagrionodae Agriocnemis pygmaea Austrognacantha heterogena Ceriagrion aeruginosum Ischnura heterosticta heterosticta Ischnura pruinescens Pseudagrion microcephalum Family: Aeshnidae Anax guttatus Hemianax papuensis Family: Gomphidae Ictinogomphus australis Family: Corduliidae Pentathemis membranulata Family: Libellulidae Aethriamanta circumsignata Agrionoptera insignis allogenes Brachydiplax denticauda Crocothemis nigrifrons Diplacodes bipunctata Diplacodes haematodes Diplacodes nebulosa Diplacodes trivialis Hydrobasileus brevistylus Nannodiplax rubra

Family: Libellulidae (cont.)

Neurothemis stigmatizans stigmatizans Orthetrum caladonicum Orthetrum sabina sabina Pantala flavescens Potamarcha congener Rhodothemis lieftincki Rhodothemis braganza Rhodothemis graphiptera Tholymis tillarga Trapezostigma loewii

Order: Trichoptera Family: Philopotamidae Chimarra uranka Chimarra sp. A Chimarra sp. B Chimarra sp. C Family: Hydroptilidae Tricholeiochiton bifurca Family: Calamoceratidae Anisocentropus banghaasi Anisocentropus muricat Family: Leptoceridae Leptocerus atsou Family: Ecnomidae Ecnomus miriwud Ecnomus tropilus Ecnomus ancisus

N.T. Museum

Caddisflies

N.T. Museum

Order: Hemiptera	
Family: Corixidae	Water Boatmen
Agraptocorixa halei	
Agraptocorixa sp. A	
Agraptocorixa sp. B	
Family: Belastomatidae	Giant Water Bugs
Lethocerus distinctifemyr sp.	-
Lethocerus insulanus sp.	
Lethocerus sp. A	
Diplanychus sp. A	
Family: Gerridae	Water Striders
Limnogonus sp.	
Rhagadotarus sp.	
Rheumatometra sp.	
Family: Hydrometridae	
Hydrometra sp.	
Family: Naucoridae	
Naucoris sp. A	

Family: Nepidae Ranatra diminuta Family: Notonectidae Nychia marshalli Anisops paracrinita Anisops spinloa Anisops stali Anisops nasuta Enithares spinola Enithares loria Enithares sp. A Enithares sp. B Enithares sp.C Family: Pleidae Plea brunni Family: Veliidae Rhagovelia sp.

Water Scorpion

Backswimmers

Dep. I Industories, N.T.Museum; Marchant (1982)

Order: Diptera See Appendix

Order: Coleoptera Family: Dytiscidae Hydronatus rufoniger Hydroparini porroster sp. Liodessus sp. Family: Gyrinidae Dineutus neohollandiscus Gyrinus convexiusculus Family: Haliplidae Haliplus sp. A Family: Hydrophilidae Amphiops australicus Berosus australiae Berosus debilipennis Berosus pycepiens Berosus pulchellus Berosus trisha Berosus macumbensis Helochares clypeatus Helochares lowrye Helochares tatei Hydrochos sp. Hydrophilus brevispinna Family: Hygribiidae Hygrobia maculata Family: Noteridae Hydrocanthus australasiae Flies & Mosquitoes

Beetles Water Beetles

Whirligig Beetles

Water Beetles

Family: Spercheidae Spercheus platycephalus Family: Staphylinidae Gyrophaena sp. Aleochara sp. Oxytelus sp. Bledius sp.

Rove Beetles

NT Museum; Dep I Ind; Marchant (1982)

Order: Neuroptera Family: Sisyridae Sisyra sp.

Phylum: Mollusca Class: Bivalvia Family: Hyriidae Velesunio angisii Velesunio wilsonii

Sponge-flies

Freshwater Mussels

Freshwater Snails

Class: Gastropoda Family: Ancylidae Ferrissia petterdi Family: Lymnaeidae Austropeplea lessoni Family: Planorbidae Amerianna bonushenricus Amerianna cumingi Isodorella newcombi Glyptophysa badia Helicorbis meniscoides Family: Thiaridae Melanoides (Melanoides) tuberculata Thiara amarula Family: Viviparidae Notopala essingtonensis Notopala waterhousii

N.T.Museum; Marchant (1982); Smith (1992)

Appendix 2.2 Freshwater Vertebrates of Rapid Creek

Class: Pisces	Fish
Family: Megalopidae	
Meyalops cyprinoides	Ox-eye Herring
Family: Clupeidae	77. Ver
Nematalosa erebi	Bony Bream
Family: Ariidae	2
Arius graeffei	Blue Catfish

Family: Plotosidae	
Neosilurus hyrtlii	Hyrtl's Catfish
Porochilus rendahli	Rendahl's Catfish
Family: Belonidae	
Strongylura kreffii	Freshwater Longtom
Family: Melanotaeniidae	-
Melanotaenia nigrans	Black-Banded Rainbow Fish
Melanotaenia splendida australis	Red-Tailed Rainbow Fish
Family: Pseudomugilidae	
Pseudomugil tenellus	Delicate Blue-eye
Family: Atherinidae	
Craterocephalus stercusmuscarum	Fly-specked Hardyhead
Family: Chandidae	
Ambassis agrammus	Sail-fin Glassfish
Denariusa bandata	Penny Fish
Family: Centropomidae	
Lates calcarifer	Barramundi
Family: Terapontidae	
Leiopotherapon unicolor	Spangled Grunter
Amniataba percoides	Banded Grunter
Family: Apogonidae	
Glossamia aprion	Mouth Almighty
Family: Toxotidae	
Toxoles chatareus	Common Archerfish
Family: Scatophagidae	
Selenotoca multifasciata	Striped Scat
Family: Gobiidae	
Glossogobius giuris	Flathead Goby
Family: Eleotrididae	
Hypseleotris compressa	Empire Gudgeon
Mogunda mogurnda	Purple-spotted Gudgeon
Oxyeleotris lineolata	Sleepy Cod
Oxyeleotris nullipora	Dwarf Gudgeon
Oxyeleotris sp.	Black-banded Gudgeon
	Larson and Martin (1990)

Appedix 3.1 Invertebrates of Rapid Creek Mangroves and Estuary

Class: Polychaeta Amaena trilobata Laonome sp. Leitoscoloplus simplex Lumbrinereis sp. Lysilla sp. Magelon sp. Marphysa sanquinea Nephtys vikingensis Owenia sp. Phyllodoce sp.

Class: Polychaeta (cont.)
Sigalion sp.
Class: Crustacea
Order: Thoracica
Balanus sp.
Tetraclita sp.
Class Malacostraca
Order: Tanaidacea
Apseudes estuarius
Order Isopoda
Family:Sphaeromidae
Order: Decapoda
Family: Alphidae
Alpheus sp.
Family: Callianassidae
Callianassa sp.
Family: Diogenidae
Clibanarius virescens
Family: Grapsidae
Helice leachii
Helice sp.
Metapograpsus messor
Metapograpsus sp.
Sesarma guttata
Sesarma meinerti
Sesarma semperi
Sesarma smithii
Family: Mictyridae
Mictyris longicarpus
Family: Ocypodidae
Cleistostoma wardii
Macrophthalmus depressus
Macrophthalmus pacificus
Macrophthalmus sp.
Heloecius cordiformis
Scopimera inflata
Uca bellator
Uca coarctata
Uca dussumieri
Uca lactea
Uca seismella Family:Paraellanidae
Family:Porcellanidae
Petrolisthes sp.
Family: Portunidae
Scylla serrata

Sand Lice **Pistol Shrimps** Mud Shrimps Hermit Crabs Shore Crabs Broad-fronted Mangrove Crab Mangrove Crabs Soldier Crabs Stalk-eyed Crabs Sentinel Crab Semaphore Crab Sand Bubbler Fiddler Crabs

Dwyer (1980)

Barnacles

Porcellain Crabs

Mud Crab

Family: Thalassinidea Thalassina anomala

Class: Gastropoda Family: Amphibolidae Salinator fragilis Family: Cerithiidae Cacozeliana lacertina Clypeomorus dorsuosus Family: Ellobiidae Cassidula angulifera Cassidula rugata Ellobium aurisjudae Pythia scarabeus Family: Littorinidae Littorina scabra Family: Muricidae Pterynotus permeatus Family: Nassariidae Nassarius sp. Zeuxis dorsalis Family: Neritidae Nerita lineata Family: Onchidiidae Onchidium damelii. Family:Potamididae Telescopium telessopium Terebralia pelustris Telrebralia sulcata Cerithidia anticapata Family: Scalidae Clathrus minora Family: Trochidae Umbonium sp. Family: Turbinidae Turbo pentholatus

Mangrove Lobster

Dwyer (1980)

Air Breathers

Creepers

Air-breathing Ear Shells

Periwinkles Murex Shells Dog Whelks

Nerites

Air-breathing Sea Slugs

Mudwhelks

Wentle-traps

Top Shells

Turban Shells

Dwyer (1980)

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Basket Shells

Rock Borers

Lantern Shells

False Dog Cockles

Family:Mactridae	Trough Clams
Notospisula trigonella	
Spisula trigonella	
Family: Mesodesmatidae	Wedge Shells
Atactodea striata	-
Family: Mytilidae	Mussels
Modiolus sp.	
Family: Tellinidae	Tellins
Tellina tenulata	*
Tellina sp.	
Family:Trapeziidae	
Fluviolanatus amaris	
Family: Ostreidae	Oysters
Saccostrea sp.	
Family:Veneridae	Venus Shells
Eumarcia fumigata	
Gafrarium tumidum	
Periglypta resticulata	Dwyer (1980)

Appendix 3.2: Vertebrates of Rapid Creek Mangroves and Estuary

Class: Pisces	Fish
Family: Acanthuridae	
Acacthurus grammoptilus	Surgeon Fish
Family: Apogonidae	-
Apogon angustata	Cardinal Fish
Apogon cooki	
Apogon opercularis	
Apogon rupellii	Gobbleguts
Fowleria aurita	
Family: Atherinidae	
Allanetta mugiloides	Hardyhead
Paraplotosus albilabrus	Common Catfish
Family: Batrachoididae	
Halophryne diemensis	Toadfish
Family: Blenniidae	
Omobranchus germaini	Blenni
Omobranchus punctatus	Rocky-Reef Blenni
Omobranchus rotundiceps	
Salarias spaldingi	Blenni
Family: Centropomidae	
Ambassis sp.	Glass Perch
Family:Chaetodontidae	
Chelmon marginalis	Coral Fish
Parachaetodon ocellata	Butterfly Fish
Family: Eleotridae	
Bostrycus sp.	Gudgeon

Class: Pisces (cont.) Family: Ephippidae Platax batavianus **Humphead Batfish** Family: Gerreidae Gerres sp. Silverbiddy Family: Gobiidae Acentrogobius viridipunctatus Goby Amblygobius bynoensis Bynoe's Goby Bathygobius fuscus Goby Cryptocentrus insignitus Goby Cryptocentrus sp. Drombus triangularis Eviota queenslandica Favonigobius melanobranchus Gnatholepsis sp. Gobiopsis sp. Istigobius ornatus Mugilogobius sp. Palutris sp. Priolepsis nuchifasciatus Valenciennea muralis Yongeichthys criniger Family: Labridae Choerodon cyanodus **Tusk Fish** Halichoeres dussumieri Wrasse Family: Lutyanidae Lutyanus monostigmus Snapper Family: Mugilidae Valamugil buchanani **Blue-Tail Mullet** Family: Nemipteridae Scaevius millii Thread-Fin Bream Family: Oxudercidae Boleophthalmus birdsongi Mud Skipper Periophthalmus argentilineatus Silver Mud Skipper Periophthalmus novaeguineaensis Orange-Spot Mud Skipper Family: Platycephalidae Platycephalus indicus Flat Head Family: Plotosidae Euristhmus sp. Cat Fish Family: Pomacentridae Abudefduf bengalensis **Bengal Sargeant-Major** Amphiprion rubrocinctus **Red Anemone Fish** Dischistodus fasciatus **Damsel** Fish Pomacentrus littoralis **Damsel Fish** Family:Pseudochromidae Congrogadus subducens **Eel Blenny** Family:Syngnathisae Choeroichtys brachysoma **Pipe Fish**

Class: Pisces (cont.) Family: Scorpaenidae Scorpaena sp. Sebastapistes sp. Family: Serranidae Diploprion fasciatus Epinephelus corallicola Epinephelus quoyanus Epinephelus suillus Family: Sillaginidae Sillago sp. Family: Soleidae Phyllictthys sclerolepsis Family: Synodontidae Synodus saganeus Family: Teraponidae Amniataba caudovittata Terapon jarbua

Class: Reptilia Family: Cheloniidae Chelodina mydas Chelodina depressa Family: Crocodylidae Crocodylus porosus Family: Hydrophiidae Parahydrophis mertoni

Class: Mammalia Family: Dugongidae Dugong dugon Scorpion Fish Soap Fish Coral Cod Grouper Whiting Tough Sole Grinner Flag-Tail Grunter Target Fish Green turtle Flat-back turtle Salt water crocodile Mertons sea snake CCNT (1991)

Scorpion Fish

Dugong

CCNT (1991)

Bibliography

A.A.Heath Partners Pty Ltd (1978). Leanyer and Marrara Swamps Environmental Study Prepared by the Department of Construction for the Department of theNorthern Territory

Bayly, I.A.E. & Williams, W.D.(1977). Inland Waters and their Ecology. Longman (Australia)

Bishop, K.A., Allen, S.A., Pollard, D.A., Cook, M.G. (1986). Ecological Studies on the Freshwater Fishes of the Alligator Rivers Region. Vol 1, Supervising Scientist for the Alligator River Region. Australian Government Publishing Service

Campbell, I. (1988). Ephemeroptera. In. "Zoological Catalogue of Australia." Vol.6, Executive Editor Walton D.W. Brown Prior Anderson Pty Ltd.

Commonwealth Department of Construction (1978). Vestey's, Mindal , Casuarina and Rapid Creek Beaches. Environmental Planning and Coastal Management Study. N.T. Department of Lands and Housing

Conservation Commission Of the Northern Territory (1991) . Casuarina Coastal Reserve Plan of Management . Pub CCNT

Conservation Commission Of the Northern Territory (1992). Howard Springs Nature Park and Hunting Reserve. Plan of Management. Pub CCNT

Dwyer & Associates Pty Ltd (1980).Rapid Creek Recreational Project Darwin. The Department of Lands Housing, N.T.

Houston, D.W. and Watson, W.W.K. (1988). Odonata. In" Zoological Catalogue of Australia." Vol.6, Executive Editor Walton, D.W. Brown Prior Anderson Pty Ltd.

Jeffries, M. & Mills. D. (1990). Freshwater Ecology (Principles and Applications) Belhaven Press, London

Julli, M.E. (1986). The Taxonomy and Seasonal Population Dynamics of some Magela Creek flood plain Micro crustaceans (Cladocera and Copepoda). Technical Memorandum 18. Supervising Scientist for the Alligator River RegionAustralian Government Publishing Service

Larson, H.K. and Martin, K.C. (1990). Freshwater Fishes of the Northern Territory. N.T. Museum handbook Series No1. N.T. Government Printing Office.

Marchant, R. (1982). The Macro Invertebrates of Magela Creek, N.T. Research Report No.1. Supervising Scientist for the Alligator River Region. Australian Government Publishing Service Midgley, J.H.(1972). Alligator Rivers Region. Environmental Fact Finding Study, Freshwater Fish Inventory and Associated Habitat Information. Department of the Northern Territory

Neboiss, A. (1988). Trichoptera. In "Zoological Catalogue of Australia" Vol.6. Executive Editor Walton, D.W. Brown Prior Anderson Pty Ltd.

Simpson, K. and Day, N. (1989) Field Guide to the Birds of Australia. Penguin books Australia Ltd.

Smith, B.J., (1992). Non-Marine Mollusca. In Houston, W.W.K. (ed.) Zoological Cataloge of Australia. Canberra: AGPS Vol.8 XII 405pp.

Tyler, M.J. and Crook, G.A. (1987). Frogs of the Magela Creek System. Technical Memorandum no. 19. Supervising Scientist for the Alligator River Region. Australian Government Publishing Service.

Tyler, M.J.and Davies, M. (1986). Frogs of the Northern Territory. N.T.Government Printer

Weatherley, A.H. (1967). Australian Inland Waters and their Fauna. Australian National University Press. Canberra.

Williams, W.D. (1980). Australian Freshwater Life. McMillan Melbourne

Williams, W.D. (1979). Notes on the Freshwater Fauna of North-Western Australia especially the Kimberly's. <u>Rec. West. Aust.</u> <u>Mus</u>. Vol 7 (2) 213-227

Willing and Partners (1976). Marrara Swamp and Rapid Creek Storm water Drainage Study.

Willing, English and Devin (1968). Feasibility Study for hte Reclimation of Rapid Creek Mangrove Area

Woodland, D.J.& Ward P.J. (1986). Fish Communities in Sandy Pools of Magela Creek Alligator Rivers Region. Research Report No. 8, Supervising Scientist for the Alligator River Region. Australian Government Publishing Service.