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**MAMMALS AND BIRDS OF THE TOWNSVILLE
DISTRICT, NORTH QUEENSLAND. 2. BIRDS**

By H. J. LAVERY, M.Sc.

SUMMARY

A survey of birds in the Townsville district of north Queensland during 1965-1966 provided records of 229 species. Habitat types and a measure of abundance for each species are given.

INTRODUCTION

In the first paper of this series (Lavery and Johnson 1967), the Townsville district was described and the background to a fauna survey undertaken from April 1965 to November 1966 given. In this paper the birds recorded during the survey are listed.

METHODS

The habitat types recognized and areas of intensive study have been described previously (Lavery and Johnson 1968). Random traverses of intensively studied areas were made regularly throughout the study period and specimens collected, using guns, rifles, traps and mist nets. Traverses at night were made with the aid of spotlights. Frequency ratings abundant, common, uncommon and scarce were allocated as for mammals. For seasonal visitors, ratings were applied only to that period when birds were in greatest numbers.

Specimens of uncommon species collected were housed at the Queensland Museum, Brisbane, and at Queensland Department of Primary Industries' Animal Health Station, Townsville.

RESULTS

Species collected are listed below, together with habitat types and estimated abundance in each type. An asterisk indicates that the record is based only on a sighting of a readily identified species.

Names for all species are after a list of the species of birds occurring in Queensland being prepared by the author for publication.

- **Podiceps ruficollis* (Vroeg). Little grebe. Freshwaters, common.
- **Podiceps poliocephalus* Jardine and Selby. Hoary-headed grebe. Freshwaters, scarce.
- **Podiceps cristatus* (L.). Great crested grebe. Freshwaters, uncommon.
- **Pelecanus conspicillatus* Temminck. Australian pelican. Freshwaters and saline areas, common.
- **Phalacrocorax sulcirostris* (Brandt). Little black cormorant. Freshwaters and saline areas, abundant.
- **Phalacrocorax carbo* (L.). Black cormorant. Freshwaters and saline areas, uncommon.
- **Phalacrocorax varius* (Gmelin). Pied cormorant. Freshwaters and saline areas, uncommon.
- **Phalacrocorax melanoleucos* (Vieillot). Little pied cormorant. Freshwaters and saline areas, common.
- **Anhinga anhinga* (L.). Australian darter. Freshwaters and saline areas, common.
- **Ardea pacifica* Latham. White-necked heron. Freshwaters, common.
- **Ardea novaehollandiae* Latham. White-faced heron. Freshwaters, common; saline areas, uncommon.
- Butorides striatus* (L.). Mangrove heron. Saline areas, common.
- **Egretta alba* (L.). White egret. Freshwaters and saline areas, common.
- **Egretta garzetta* (L.). Little egret. Freshwaters, common; saline areas, uncommon.
- **Egretta sacra* (Gmelin). Reef heron. Saline areas, uncommon.
- **Egretta intermedia* (Wagler). Plumed egret. Freshwaters, abundant.
- Nycticorax caledonicus* (Gmelin). Nankeen night heron. Open forest (adjacent to freshwaters), common.
- Xenorhynchus asiaticus* (Latham). Jabiru. Freshwaters and saline areas, uncommon.
- **Threskiornis molucca* (Cuvier). Australian white ibis. Freshwaters, abundant; saline areas and cultivation, common.
- Threskiornis spinicollis* (Jameson). Straw-necked ibis. Freshwaters and cultivation, abundant; urban, common; saline areas, uncommon.

- **Plegadis falcinellus* (L.). Glossy ibis. Freshwaters, uncommon.
Platalea regia Gould. Royal spoonbill. Freshwaters and saline areas, common.
Platalea flavipes Gould. Yellow-billed spoonbill. Freshwaters and saline areas, uncommon.
- **Cygnus atratus* (Latham). Black swan. Freshwaters, common.
**Anseranas semipalmata* (Latham). Magpie goose. Freshwaters, abundant.
**Nettapus coromandelianus* (Gmelin). White-quilled pygmy goose. Freshwaters, common.
**Nettapus pulchellus* Gould. Green pygmy goose. Freshwaters, common.
**Dendrocygna arcuata* (Horsfield). Water whistling-duck. Freshwaters, abundant.
Dendrocygna eytoni (Eyton). Grass whistling-duck. Freshwaters and cultivation, abundant; saline areas, uncommon.
Anas superciliosa Gmelin. Black duck. Freshwaters, abundant; saline areas, uncommon.
Anas gibberifrons Muller. Grey teal. Freshwaters and saline areas, abundant.
**Malacorhynchus membranaceus* (Latham). Pink-eared duck. Freshwaters, uncommon.
Aythya australis (Eyton). White-eyed duck. Freshwaters (open), common; saline areas, scarce.
Chenonetta jubata (Latham). Maned wood duck. Freshwaters, common; saline areas, scarce.
**Elanus notatus* Gould. Black-shouldered kite. Open forest, cultivation, urban and saline areas, uncommon.
Aviceda subcristata (Gould). Crested hawk. Rain forest, one collected.
Milvus migrans (Boddaert). Fork-tailed kite. Open forest, cultivation, urban and saline areas, abundant.
Haliastur indus (Boddaert). Red-backed sea-eagle. Open forest and saline areas, common.
Haliastur sphenurus (Vieillot). Whistling eagle. Open forest, cultivation and urban, common.
**Accipiter novaehollandiae* (Gmelin). Grey goshawk. Rain forest, one observed.
Accipiter cirrocephalus (Vieillot). Collared sparrowhawk. Open forest and cultivation, uncommon.
**Erythrotriorchis radiatus* (Latham). Red goshawk. Rain forest, one seen.
**Hieraaetus morphnoides* (Gould). Australian little eagle. Open forest and cultivation, uncommon.
**Aquila audax* (Latham). Wedge-tailed eagle. Open forest and saline areas, scarce.
**Haliaeetus leucogaster* (Gmelin). White-breasted sea-eagle. Saline areas, uncommon.

- **Circus approximans* Peale. Swamp harrier. Freshwaters, common.
- **Pandion haliaetus* (L.). Osprey. Saline areas, one seen.
- **Falco peregrinus* Tunstall. Peregrine falcon. Open forest and cultivation, uncommon.
- **Falco longipennis* Swainson. Little falcon. Open forest and cultivation, uncommon.
- Falco cenchroides* Vigors and Horsfield. Nankeen kestrel. Open forest, cultivation and urban, common.
- Falco berigora* Vigors and Horsfield. Brown hawk. Open forest and cultivation, common.
- Alectura lathamii* Gray. Brush turkey. Rain forest, abundant; dry scrub, common; open forest, scarce.
- Coturnix ypsilophorus* Bosc. Brown quail. Open forest and cultivation, common.
- Turnix maculosa* (Temminck). Red-backed quail. Open forest, one collected.
- Grus rubicundus* (Perry). Brolga. Freshwaters and cultivation, abundant; open forest, common; saline areas, uncommon.
- Rallus philippensis* (L.) Banded landrail. Open forest (margin), one collected.
- Porphyrio porphyrio* (L.). Swampphen. Freshwaters, abundant.
- **Fulica atra* L. Coot. Freshwaters, common.
- Otis australis* (Gray). Australian bustard. Open forest, cultivation and saline areas, uncommon.
- Irediparra gallinacea* (Temminck). Lotus bird. Freshwaters, common.
- Haematopus ostralegus* L. Pied oystercatcher. Saline areas, common.
- Vanellus miles* (Boddaert). Masked plover. Freshwaters and cultivation, abundant; saline areas, common.
- **Pluvialis squatarola* (L.) Grey plover. Freshwaters (margins), scarce.
- Pluvialis dominica* (Muller). Eastern golden plover. Saline areas, one collected, others observed.
- Charadrius ruficapillus* Temminck. Red-capped dotterel. Saline areas, common.
- Charadrius mongolus* Pallas. Mongolian sand-dotterel. Saline areas, one flock seen.
- Charadrius leschenaultii* Lesson. Large sand-dotterel. Saline areas, common.
- Charadrius melanops* Vieillot. Black-fronted dotterel. Freshwaters, common.
- Charadrius veredus* Gould. Oriental dotterel. Freshwaters (margins) and cultivation, uncommon.
- **Numenius minutus* Gould. Little whimbrel. Saline areas, uncommon.
- Numenius phaeopus* (L.). Whimbrel. Saline areas, abundant.
- Numenius madagascariensis* (L.). Eastern curlew. Saline areas, abundant.
- **Limosa limosa* (L.). Black-tailed godwit. Freshwaters, one flock of five birds observed.

- Limosa lapponica* (L.). Bar-tailed godwit. Saline areas, abundant.
- Tringa stagnatilis* (Bechstein). Marsh sandpiper. Cultivation, one exhausted bird collected.
- **Tringa nebularia* (Gunnerus). Greenshank. Saline areas (estuaries), common.
- Tringa cinerea* (Gueldenstadt). Terek sandpiper. Saline areas, common.
- Tringa brevipes* (Vieillot). Grey-tailed tattler. Saline areas, common.
- Arenaria interpres* (L.). Turnstone. Saline areas, uncommon.
- Gallinago hardwickii* (Gray). Australian snipe. Freshwaters, uncommon.
- Calidrus tenuirostris* (Horsfield). Great knot. Saline areas (beaches), common.
- Calidris ruficollis* (Pallas). Little stint. Saline areas, abundant.
- Calidris acuminata* (Horsfield). Sharp-tailed sandpiper. Freshwaters and saline areas, abundant.
- **Calidris ferrugineus* (Pontoppidan). Curlew sandpiper. Saline areas, uncommon.
- **Limicola falcinellus* (Pontoppidan). Broad-billed sandpiper. Freshwaters, uncommon.
- Himantopus himantopus* (L.). White-headed stilt. Freshwaters and saline areas, common.
- Burhinus magirostris* (Latham). Southern stone curlew. Open forest, cultivation and urban, common.
- **Esacus magirostris* (Vieillot). Beach stone curlew. Saline areas, uncommon.
- Stiltia isabella* (Vieillot). Australian pratincole. Freshwaters (margins) and cultivation, uncommon.
- Larus novaehollandiae* Stephens. Silver gull. Saline areas, abundant; freshwaters and urban, uncommon.
- Chlidonias hybrida* (Pallas). Marsh tern. Freshwaters, common.
- Gelochelidon nilotica* (Gmelin). Gull-billed tern. Saline areas, common; freshwaters, uncommon.
- Hydroprogne caspia* (Pallas). Caspian tern. Saline areas, common; freshwaters, uncommon.
- Sterna albifrons* Vroeg. Little tern. Freshwaters and saline areas, common.
- Sterna bergii* Lichtenstein. Crested tern. Freshwaters and saline areas, common.
- Sterna bengalensis* Lesson. Lesser crested tern. Saline areas, common.
- Ptilinopus regina* Swainson. Red-crowned pigeon. Dry scrub, common.
- Ptilinopus superbus* (Temminck). Purple-crowned pigeon. Cultivation, one collected.
- **Ptilinopus magnificus* (Temminck). Wompoo pigeon. Rain forest, uncommon.
- Lopholaimus antarcticus* (Shaw). Top-knot pigeon. Rain forest and dry scrub, common.
- Columba leucomela* Temminck. White-headed pigeon. Rain forest, common.

- **Columba livia* Gmelin. Domestic pigeon. Cultivation and urban, common.
Macropygia phasianella (Temminck). Brown pigeon. Rain forest and dry scrub, common; open forest (marginal to dry scrub), uncommon.
- **Streptopelia chinensis* (Scopoli). Indian dove. Urban, scarce.
Geopelia humeralis (Temminck). Bar-shouldered dove. Dry scrub, common; open forest and saline areas, uncommon.
Geopelia striata (L.). Peaceful dove. Open forest, cultivation and urban, abundant.
- **Chalcophaps indica* (L.). Green-winged pigeon. Rain forest (including margins), uncommon.
Ocyphaps lophotes (Temminck). Crested pigeon. Open forest, common; cultivation, uncommon.
Geophaps scripta (Temminck). Squatter pigeon. Open forest, uncommon.
Trichoglossus haematodus (L.). Rainbow lorikeet. Abundant throughout.
Trichoglossus chlorolepidotus (Kuhl). Scaly-breasted lorikeet. Common throughout.
Calyptorhynchus magnificus (Shaw). Red-tailed black cockatoo. Rain forest, dry scrub and open forest, common.
Cacatua galerita (Latham). Sulphur-crested cockatoo. Rain forest, dry scrub and open forest, common; cultivation, uncommon.
Cacatua tenuirostris (Kuhl). Little corella. Cultivation, common.
- **Cacatua roseicapilla* Vieillot. Galah. Open forest and cultivation, uncommon.
Aprosmictus erythropterus (Gmelin). Red-winged parrot. Open forest uncommon.
Alisterus scapularis (Lichtenstein). King parrot. Rain forest and dry scrub, common.
Platycercus elegans (Gmelin). Crimson rosella. Rain forest and dry scrub, common.
Platycercus adscitus (Latham). Pale-headed rosella. Open forest, common.
Cacomantis variolosus (Vigors and Horsfield). Brush cuckoo. Open forest, uncommon.
Cacomantis pyrrhophanus (Vieillot). Fan-tailed cuckoo. Open forest, one collected, another seen.
Chalcites lucidus (Gmelin). Golden bronze cuckoo. Rain forest, one collected.
Eudynamys cyanocephala (Latham). Koel. Open forest, common.
Scythrops novaehollandiae (Latham). Channel-billed cuckoo. Open forest, uncommon.
Centropus phasianinus (Latham). Pheasant coucal. Open forest and cultivation, common.

- Ninox novaeseelandiae* (Gmelin). Boobook owl. Dry scrub and open forest, common.
- Tyto alba* (Scopoli). Barn owl. Open forest, common.
- Podargus strigoides* (Latham). Tawny frogmouth. Open forest, common; urban, uncommon.
- Caprimulgus macrurus* Horsfield. Large-tailed nightjar. Open forest, one collected.
- Eurostopodus albogularis* (Vigors and Horsfield). White-throated nightjar. Open forest (including along roads), uncommon.
- Collocalia francica* (Gmelin). Grey swiftlet. Rain forest and dry scrub, common; open forest, uncommon.
- **Alcyone azurea* (Latham). Azure kingfisher. Rain forest (margins), common.
- **Dacelo novaeguineae* (Hermann). Laughing kookaburra. Open forest, uncommon.
- **Dacelo leachii* Vigors and Horsfield. Blue-winged kookaburra. Open forest, common; cultivation, uncommon.
- Halcyon macleayii* Jardine and Selby. Forest kingfisher. Rain forest and open forest, common.
- Halcyon australasiae* (Vieillot). Sacred kingfisher. Open forest and saline areas, common; rain forest, cultivation and urban, uncommon.
- Halcyon chloris* (Boddaert). Mangrove kingfisher. Open forest and saline areas, common.
- Merops ornatus* Latham. Rainbow-bird. Rain forest, open forest and cultivation, abundant; urban, common.
- Eurystomus orientalis* (L.). Eastern broad-billed roller. Open forest and cultivation, common; urban, uncommon.
- **Pitta versicolor* Swainson. Noisy pitta. Rain forest (open floor), two observed.
- Mirafra javanica* Horsfield. Singing bushlark. Open forest and cultivation, common.
- Hirundo tahitica* Gmelin. Welcome swallow. Abundant throughout region.
- **Petrochelidon nigricans* (Vieillot). Tree-martin. Over freshwaters, uncommon.
- **Petrochelidon ariel* (Gould). Fairy martin. Over freshwaters and saline areas, common.
- Anthus novaeseelandiae* Vieillot. Australian pipit. Open forest, cultivation and saline areas, abundant.
- Coracina novaehollandiae* (Gmelin). Black-faced cuckoo-shrike. Open forest, cultivation and urban, abundant.
- Coracina papuensis* (Gmelin). Little cuckoo-shrike. Cultivation, uncommon.
- Coracina lineata* (Swainson). Barred cuckoo-shrike. Rain forest and dry scrub, uncommon.
- Coracina tenuirostris* (Jardine). Jardine triller. Dry scrub, uncommon.

- Lalage leucomela* (Vigors and Horsfield). Varied triller. Open forest and saline areas, uncommon.
- Orthonyx spaldingi* Ramsay. Northern chowchilla. Rain forest and dry scrub, common.
- Cisticola exilis* (Vigors and Horsfield). Golden-headed fantail-warbler. Saline areas, common.
- Cincloramphus cruralis* (Vigors and Horsfield). Brown songlark. Open forest, one collected.
- Malurus melanocephalus* (Latham). Red-backed wren. Dry scrub and open forest, common; cultivation, uncommon.
- Gerygone igata* (Quoy and Gaimard). Brown warbler. Rain forest and dry scrub, abundant.
- Gerygone levigaster* Gould. Buff-breasted warbler. Open forest and saline areas, common.
- Sericornis citreogularis* Gould. Yellow-throated scrub-wren. Rain forest and dry scrub, common.
- Sericornis magnirostris* (Gould). Large-billed scrub-wren. Rain forest and dry scrub, uncommon.
- **Oreoscopus gutturalis* (De Vis). Fern wren. Rain forest (margins), common.
- Microeca flavigaster* Gould. Lemon-breasted flycatcher. Rain forest, dry scrub and open forest, common.
- Heteromyias cinereifrons* (Ramsay). Grey-headed robin. Rain forest (margins), two collected.
- Eopsaltria australis* (Shaw). Southern yellow robin. Dry scrub, common.
- Eopsaltria capito* Gould. Pale yellow robin. Rain forest, common.
- Rhipidura fuliginosa* (Sparrm). Grey fantail. Rain forest, common.
- Rhipidura rufifrons* (Latham). Rufous fantail. Rain forest, common.
- Rhipidura rufiventris* (Vieillot). Northern fantail. Rain forest and dry scrub, common.
- Rhipidura leucophrys* (Latham). Willie wagtail. Open forest, cultivation and urban, common.
- Myiagra rubecula* (Latham). Leaden flycatcher. Open forest, common.
- **Seisura inquieta* (Latham). Restless flycatcher. Open forest, common.
- Arses kaupi* Gould. Australian pied flycatcher. Rain forest, uncommon.
- **Monarcha melanopsis* (Vieillot). Black-faced flycatcher. Dry scrub, uncommon.
- Monarcha trivirgata* (Temminck). Spectacled flycatcher. Dry scrub, uncommon.
- Monarcha leucotis* Gould. White-eared flycatcher. Dry scrub, one collected.
- Pachycephala pectoralis* (Latham). Golden whistler. Rain forest and dry scrub, common.

- Pachycephala rufiventris* (Latham). Rufous whistler. Open forest, common.
- Colluricincla megarhyncha* (Quoy and Gaimard). Rufous shrike-thrush. Dry scrub and open forest, common; cultivation, uncommon.
- Colluricincla boweri* Ramsay. Bower shrike-thrush. Rain forest and dry scrub, common.
- Psophodes olivaceus* (Latham). Eastern whipbird. Rain forest, common.
- Neositta chrysoptera* (Latham). Orange-winged sittella. Rain forest, one collected.
- Climacteris leucophaea* (Latham). White-throated tree-creeper. Rain forest, and dry scrub, common.
- Dicaeum hirundinaceum* (Shaw). Mistletoe bird. Dry scrub and open forest, common.
- Pardalotus melanocephalus* Gould. Black-headed pardalote. Open forest and cultivation (adjacent to freshwater areas), common.
- Nectarinia jugularis* (L.). Yellow-breasted sunbird. Open forest and dry scrub, common; saline areas, uncommon.
- Zosterops lateralis* (Latham). Grey-breasted silvereye. Rain forest and dry scrub, common.
- Lichmera indistincta* (Vigors and Horsfield). Brown honeyeater. Open forest and urban, common.
- Myzomela dibapha* (Latham). Scarlet honeyeater. Open forest, common; rain forest, uncommon.
- Myzomela obscura* Gould. Dusky honeyeater. Open forest, common.
- Conopophilus rufogularis* (Gould). Rufous-throated honeyeater. Open forest (near freshwaters), common.
- Meliphaga lewini* (Swainson). Lewin honeyeater. Rain forest and dry scrub, common.
- Meliphaga notata* (Gould). Lesser Lewin honeyeater. Dry scrub and open forest, uncommon.
- Meliphaga frenata* (Ramsay). Bridled honeyeater. Rain forest, abundant; dry scrub, common.
- Meliphaga gracilis* (Gould). Graceful honeyeater. Open forest, uncommon.
- Meliphaga flava* (Gould). Yellow honeyeater. Open forest and urban, common.
- **Melithreptus lunatus* (Vieillot). White-naped honeyeater. Rain forest (margins), two observed.
- Melithreptus albogularis* Gould. White-throated honeyeater. Open forest, common.
- Acanthorhynchus tenuirostris* (Latham). Eastern spinebill. Rain forest and dry scrub, uncommon.
- **Stomiopera unicolor* (Gould). White-gaped honeyeater. Urban, uncommon.

- Myzantha flavigula* Gould. Yellow-throated miner. Open forest, common.
- **Entomyzon cyanotis* (Latham). Blue-faced honeyeater. Open forest, common.
- Philemon novaeguineae* (Muller). Helmeted friar bird. Open forest, common.
- Philemon corniculatus* (Latham). Noisy friar bird. Open forest, abundant; urban, uncommon.
- Philemon citreogularis* (Gould). Little friar bird. Open forest, common.
- **Taeniopygia guttata* (Vieillot). Zebra finch. Open forest and cultivation, common.
- Poephila bichenovii* (Vigors and Horsfield). Banded finch. Open forest and cultivation, uncommon.
- **Lonchura castaneothorax* (Gould). Chestnut-breasted finch. Open forest and cultivation, uncommon.
- Lonchura punctulata* L. Spice finch. Cultivation and urban, abundant.
- Aegintha temporalis* (Latham). Red-browed finch. Dry scrub, common; rain forest, uncommon.
- **Nechmia phaeton* (Hombron and Jacquinot). Crimson finch. Open forest (along freshwaters) and cultivation, uncommon.
- **Passer domesticus* (L.). House sparrow. Urban, scarce 1965, uncommon 1966.
- Aplonis metallica* (Temminck). Australian shining starling. Dry scrub, uncommon.
- Acridotheres tristis* (L.). Indian myna. Cultivation and urban, abundant.
- Oriolus sagittatus* (Latham). Olive-backed oriole. Open forest, cultivation and urban, common.
- Sphecotheres vieilloti* Vigors and Horsfield. Southern figbird. Open forest and urban, common.
- Dicrurus hottentottus* (L.). Spangled drongo. Open forest and urban, common.
- Grallina cyanoleuca* (Latham). Magpie lark. Open forest, cultivation and urban, abundant.
- Artamus leucorhynchus* (L.). White-breasted wood-swallow. Open forest and cultivation, common; urban, uncommon.
- Artamus superciliosus* (Gould). White-browed wood-swallow. Cultivation, scarce.
- **Artamus cinereus* Vieillot. Black-faced wood-swallow. Open forest and cultivation, common.
- **Strepera graculina* (Shaw). Pied currawong. Rain forest, dry scrub, open forest and cultivation, common.
- Cracticus nigrogularis* (Gould). Pied butcher-bird. Open forest, common.
- Gymnorhina tibicen* (Latham). Black-backed magpie. Open forest, cultivation and urban, common.

- Ailuroedus crassirostris* (Paykull). Catbird. Rain forest, abundant.
- Scenopoeetes dentirostris* (Ramsay). Tooth-billed bower-bird. Rain forest, common.
- Priondura newtoniana* De Vis. Golden bower-bird. Rain forest, uncommon.
- Ptilonorhynchus violaceus* (Vieillot). Satin bower-bird. Rain forest, common.
- Chlamydera nuckalis* (Jardine and Selby). Great bower-bird. Open forest (lowlands and hills), common; cultivation and urban, uncommon.
- Ptiloris victoriae* Gould. Victoria rifle-bird. Rain forest, common.
- Corvus coronoides* Vigors and Horsfield. Australian raven. Open forest, scarce.
- Corvus orru* Bonaparte. Australian crow. Open forest and cultivation, abundant.

DISCUSSION

The avifauna of the Townsville district is as diverse and as representative of Queensland as a whole as is the mammal fauna. There is a broadly similar avifauna to that of the Warwick district in southern Queensland (see Kirkpatrick 1967), with differences in species related mainly to the presence of saline habitat at Townsville. No bird is peculiar to the district.

The present study, using different methods of obtaining records and covering more recent years, provides some comparison with the results of Lavery and Hopkins (1963). For the period 1938-1963, 231 records (four uncertain) were listed for the Townsville district; the present study over the whole Townsville district, incorporating the major habitat type of rain forest, included all of these records except three species previously considered common and 50 species observed at irregular intervals during the 25-year period. Some of these species may have occurred; many were collected in 1965-1966 to the immediate south, north and west of the Townsville district (for example, diamond dove (*Geopelia cuneata* (Latham)), cockatiel (*Nymphicus hollandicus* (Kerr)), red-backed kingfisher (*Halcyon pyrrhopygia* Gould) and tawny grassbird (*Megalurus timoriensis* Wallace) from Gumlu, red-browed pardalote (*Pardalotus rubricatus* Gould) from lower Burdekin River, and plum-headed finch (*Aidemosyne modesta* (Gould)) from Woodstock.

Excluding new records of 32 species primarily from rain-forest habitat, 19 species were added to the list of birds of the Townsville district. Some records are notable extensions to the previously known range of species; these include the Australian raven (*C. coronoides*) northwards and the golden bower-bird (*P. newtoniana*) southwards. Perhaps surprisingly, some components of the avifauna of north Queensland remain absent from the Townsville region: to the west typical inland species such as the emu (*Dromiecius novaehollandiae* (Latham)), white-winged chough (*Corcorax melanorhamphos* (Vieillot)) and apostle bird (*Struthidea cinerea* Gould) were noted only as far east as the Great Dividing Range at Mingela, while oceanic birds such as the brown gannet (*Sula leucogaster* (Boddaert)) were seen only to the east of the mainland islands, of which Magnetic

Island is nearest to Townsville. Although many species exhibit movement patterns consequent upon extreme variation of seasonal climatic conditions both in and outside the study region, it is noteworthy that during the present study the area was not subjected to cyclonic disturbances, which were the most likely to have produced unusual records.

No species is known to have deserted the Townsville district as a result of the activities of European man, whose effect is most clearly reflected in the introduced species: the domestic pigeon (*C. livia*), spice finch (*L. punctulata*), Indian myna (*A. tristis*) and, in the last few years, the Indian dove (*S. chinensis*) and house sparrow (*P. domesticus*) are established only on cultivation and in urban areas. All of the introduced species, as well as such native species as the Australian white ibis (*T. molucca*), straw-necked ibis (*T. spinicollis*), grass whistling-duck (*D. eytoni*), fork-tailed kite (*M. migrans*), nankeen kestrel (*F. cenchroides*), brolga (*G. rubicundus*), masked plover (*V. miles*), southern stone curlew (*B. magnirostris*) and magpie lark (*G. cyanoleuca*), are considered pests of man in the district (Lavery unpublished). The infestation of disturbed habitat by native species is frequent, while few individuals of introduced species inhabit natural habitat types; this is in contrast to the mammals (see Lavery and Johnson 1968). No introduced species is known to be as abundant in the Townsville district as many native species, most of which are numerous in preferred habitat and many of which (for example, brown quail (*C. ypsilophorus*), peaceful dove (*G. striata*), pheasant coucal (*C. phasianinus*), singing bushlark (*M. javanica*) and Australian pipit (*A. novaeseelandiae*)) clearly have benefited from man's activities. Nevertheless the potential effect of further exploitation of natural habitat on the survival of native birds, although slower-acting than that effect on mammals, is evident.

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The author is an officer of the Entomology Section, Division of Plant Industry, Queensland Department of Primary Industries, and is stationed at the Animal Health Station, Oonoonba, Townsville.