# The Distribution and Habitat Preference of the Bush-hen *Amaurornis olivacea* in North-eastern New South Wales

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The Bush-hen *Amaurornis olivacea* occurs as four or five subspecies in south-east Asia, New Guinea and Australia. The distribution of the Australian subspecies, *ruficrissa*, is the Kimberley Division, Western Australia, the coast and nearby ranges of Arnhem Land, Northern Territory, from Daly River to Cape Arnhem and the north-east coast from Cape York, Queensland to Clarence River, New South Wales (Marchant & Higgins 1993; Schodde & Tidemann 1990). Documentation of *A. olivacea* within Australia has been scarce and erratic. Before the 1960s the first record was from the Cape River in 1869. The first known record for *A. olivacea* occurred in Australia in 1864 (Boles 1976).

At least ten synonyms have been applied to the Bush-hen: *Amaurornis olivacea, olivaceus, moluccana, moluccanus, ruficrissa, ruficrissus, Gallinula olivacea, moluccana, yorki, frankii* and *Porzana moluccana.*

Little is known about the biology of *A. olivacea* and no detailed studies have been done largely because it is a very secretive bird that is more often heard than seen and dwells in very dense vegetation. However, the voice and call of the Bush-hen are quite distinct and have been recorded (sonagrams in Clarke 1975). Calls are varied and consist of shrieks, piping and clicks. They are vocal all year, becoming very noisy in the morning and afternoon and sometimes into the evening, especially during the breeding season (Beruldsen 1975, 1976; Clarke 1975).

*A. olivacea* are mainly nocturnal but have been noted to remain active on overcast days. They rarely fly, preferring to keep to the shade, often wading in water. Despite their long slender toes, they do not walk on floating vegetation. During the day they rest on coarse, nest-like roosting platforms built in grass tussocks or shrubs (Schodde & Tidemann 1990).

In Australia *A. olivacea* is found in densely overgrown margins of permanent terrestrial freshwater wetlands such as creeks and rivers, billabongs, ponds, swamps, waterholes, dams, lakes and roadside ditches. According to Marchant & Higgins (1993) their habitat requirements appear to be thick undergrowth, especially tall dense grass or dense thickets of Lantana *Lantana camara* or other shrubs near permanent or semi-permanent waterbodies and streams. Their movements, especially in a local context, are unknown. It is suggested that they are nomadic in some areas, while sedentary in others (Beruldsen 1975; Clarke 1975; Morgan & Morgan 1968; Marchant & Higgins 1993).

The social organisation of *A. olivacea* is largely unknown because no detailed studies have been done. It is a solitary bird that will occur in pairs or in family groups of up to six young (Clarke 1975). Their diet is also unknown. It has been suggested that they eat seeds, plant material, insects and occasionally frogs (Marchant & Higgins 1993). Their breeding biology is poorly understood because few nests have been found; it appears to breed from October to April. The nest is placed in clumps of grass, tussocks or shrubbery and is a shallow bowl moulded into a cavity by the bird's body. A roof is made from bending down surrounding stems. The clutch varies from five to seven eggs (Schodde & Tidemann 1990).

In New South Wales, *A. olivacea* is currently listed as 'Vulnerable and Rare' under the Endangered Fauna Schedule 12, National Parks and Wildlife Act, 1974. With increasing development occurring in the Northern Rivers region the habitat of this protected species may be threatened. The present study was therefore undertaken to determine the distribution and habitat preference of *A. olivacea* in north-eastern New South Wales.

## Methods

In June 1994, the Environmental Resource Mapping System (ERMS) database held by National Parks and Wildlife Service, Alstonville, had only 17 records of *A. olivacea* for the Northern Rivers region. Enquires revealed that local bird experts had many undocumented records of Bush-hens in their field notes. We therefore decided to assess the distribution and habitat preference

of Bush-hens in New South Wales by contacting all likely sources of data and collating the results. A list of contributors is in the acknowledgments. Museums, ornithological societies and the New South Wales National Parks and Wildlife Service were also contacted and the limited published records were incorporated.

## Results

Twenty-one experts were contacted and these along with journal searches contributed 58 locations where *A. olivacea* were found in New South Wales – 17 ERMS records and 41 previously undocumented records. These are shown in Figure. 1. A list of the 58 locations has been deposited in RAOU archives. The species is therefore more numerous in north-eastern New South Wales than was previously indicated in the literature with sightings extending from around the Tweed Heads/ Murwillumbah area, down the east coast to Evans Head and inland to Woodenbong. More surveys will probably expand this range, especially in the area between Evans Head and Grafton, where there has been only one recording for the Clarence River at Grafton in 1864.

The major strongholds for *A. olivacea* appear to be the catchment areas south-west of Murwillumbah, west of Brunswick Heads, north of Kyogle, north of Lismore and south-west of Ballina (Fig. 1). Several locations exist within the many tributaries of Coopers and Upper Coopers Creek and the Richmond River, emphasising the importance of these creeks and rivers to Bush-hens. The catchment area of Nightcap Range may also prove to be a valuable site.

## Discussion

At several locations, such as Murwillumbah, *A. olivacea* was described as a resident bird; at other places such as Richmond Hill, (near Lismore) they appear to be nomadic and absent for several years during the dry season. These data suggest that birds may be sedentary in areas that have permanent water but nomadic in areas that have semi-permanent water. All sites that have permanent water could be considered potential breeding sites.

Beruldsen (1976) concluded that *A. olivacea* 'are persistent breeders, and cope with high breeding losses to predation and flooding. They appear to be in no danger as long as their habitats are maintained'. It is therefore essential that the breeding sites of the Northern Rivers region are identified and maintained.

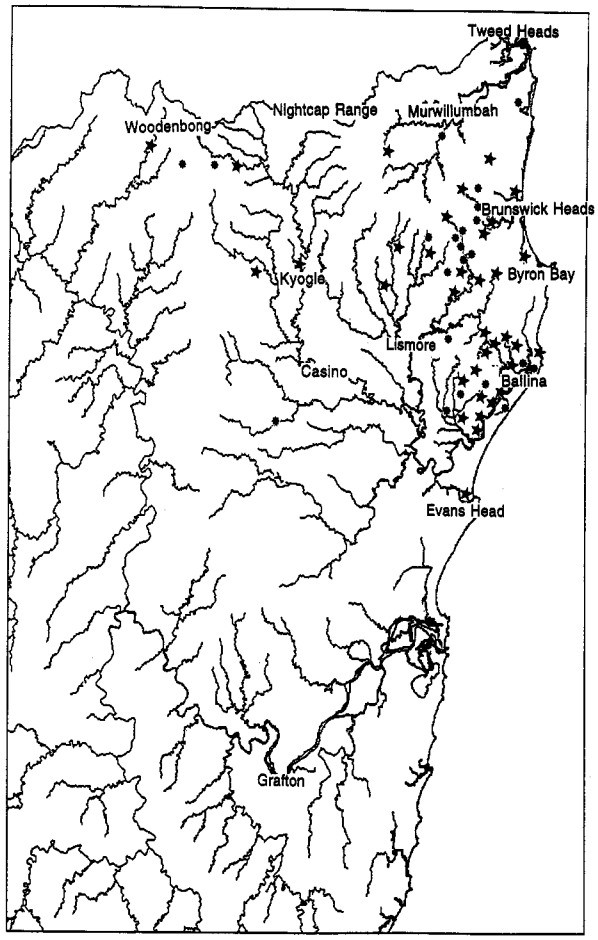


**Figure 1** Locality records for *Amaurornis olivacea* in north-eastern New South Wales for this century. • Environmental Resource Mapping Sites; ★ Records from this study

The social organisation as described by Clarke (1975) is supported by the results in this paper. Clarke (1975) stated that on the majority of occasions *A. olivacea* was seen alone and sometimes they appeared to be in a family group, but he found that Bush-hens were shy. However, they eventually became accustomed to the observers and continued bathing and preening while the observers watched from a distance of 2.5 m.

The present study also yielded limited data on home ranges. The maximum distance *A. olivacea* was recorded from the creek or water source was 500 m and almost all experts noted that *A. olivacea* lived near a water source, usually within 100 m. Whether or not

they exist without a water source is unknown. Because they rarely fly, a thick undergrowth is probably important to provide protection from predators. A mainly nocturnal bird they require nest-like roosting platforms built up in grass tussocks or shrubs associated with thick undergrowth. Their nests require dry grass blades, tussocks or shrubs through which grass grows up to 2 m above ground.

Although the impact of development on *A. olivacea* is not reviewed in this paper, the birds seem to cope with disturbance if the general habitat is maintained and they have been sighted on farmland and roadside ditches directly adjacent to thickets of lantana and rank grass. However, development of roads may increase mortality rates. Based on the present results, we suggest that the habitat requirements for *A. olivacea* in the Northern Rivers region consist of thick undergrowth, two to four metres tall, of rank grass or lantana thickets that are within 1-300 m of permanent or semi-permanent water.

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### Application published in the *Bulletin of Zoological Nomenclature*

The following application, Case 2970, was published on 28 June 1996 in Vol. 53, Part 21 of the *Bulletin of Zoological Nomenclature*. Comment or advice on this application is invited for publication in the *Bulletin* and should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

Case 2970. ***Tyrannula minima* Baird & Baird, 1843 (currently *Empidonax minimus*) and *Contopus pertinax* Cabanis & Heine, 1859 (Aves, Passeriformes): proposed conservation of the specific names.**

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**Abstract.** The purpose of this application is to conserve the specific names of two North American tyrant flycatchers (family TYRANNIDAE), *Empidonax minima* (Baird & Baird, 1843), the least flycatcher, and *Contopus pertinax* Cabanis & Heine, 1859, the greater peewee. The names are threatened by the virtually unused senior synonyms *Platyrhynchus pusillus* and *Tyrannula musica* respectively, both of Swainson (1827).

**Keywords.** Nomenclature; taxonomy; Aves; tyrant flycatchers; least flycatcher; greater peewee; *Empidonax minimus*; *Contopus pertinax*; North America.