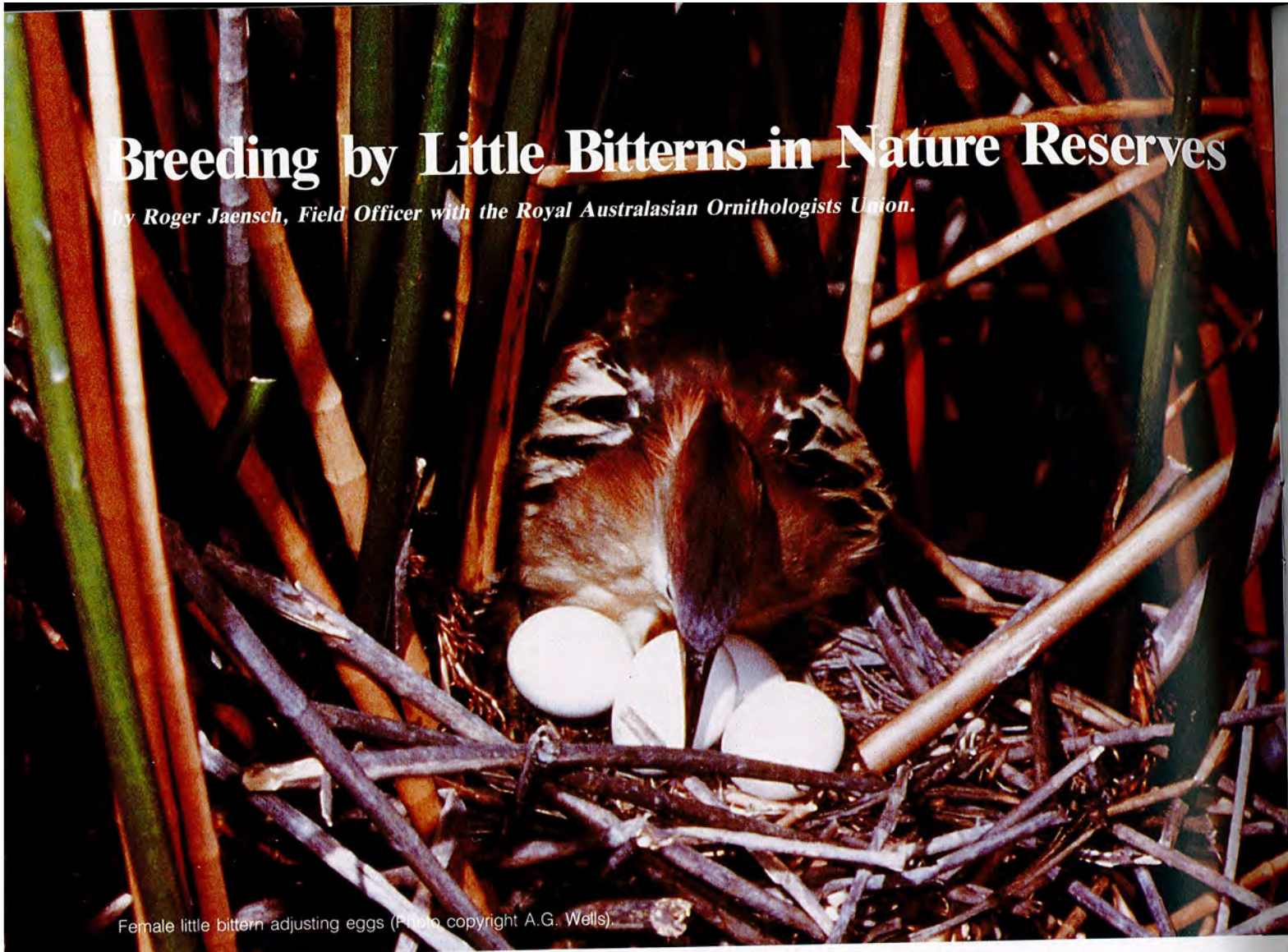


Breeding by Little Bitterns in Nature Reserves

by Roger Jaensch, Field Officer with the Royal Australasian Ornithologists Union.



Female little bittern adjusting eggs (Photo copyright A.G. Wells)

One of the most attractive and intriguing waterbirds found in Western Australia is the Little Bittern *Ixobrychus minutus*. Because it usually feeds, roosts and breeds entirely within the cover of dense swamp vegetation, few observers have been aware of the behaviour of this tiny, 30cm-long heron. However, recent fieldwork by amateur participants in the Royal Australasian Ornithologists Union's Survey of Waterbird Usage of Wetland Nature Reserves has revealed much about the breeding ecology of the Little Bittern. Excellent photographic opportunities have also enabled Bert and Babs Wells to produce a unique comprehensive record of the breeding of this cryptic bird.

Background

Taxonomists recognise three principal subspecies of the Little Bittern. The piebald Eurasian subspecies spends the northern winter in the eastern half of Africa where it intermingles with the widespread but largely sedentary and more colourful African subspecies. Eurasian Little Bitterns occur as far east as northern India but are not strongly migratory and would not mix with Little Bitterns of the Australasian subspecies *I.m. dubius*.

In Australia, the Little Bittern may be found in reedbeds, flooded tea-trees and other dense swamp cover from north-coastal Queensland through southern Australia to the South-West. Rather isolated occurrences in the Kimberley, Top End and New Guinea and the lack of southern observations in winter months support the idea that Australasian Little Bitterns migrate northwards each autumn. Intensive fieldwork in both the north and south is needed to confirm this theory.

Data from the RAOU Waterbird Survey

Data from the RAOU's South-West Waterbird Usage Survey (1981-85) has partly mirrored the findings of the Atlas of Australian Birds (1977-1981) in regard to distribution of Little Bitterns in W.A. Most survey records have been of one to three birds at Jandabup Lake, Thomsons Lake, Forrestdale Lake, Benger Swamp (all on the Coastal Plain), Pleasant View Lake, Angove Lake, and Mettler Lake (all Albany Shire) Nature Reserves. In addition, discoveries of five birds at Kulunilup Swamp and seven at Yarnup Lagoon (both in Cranbrook Shire) have filled the distribution gap between Manjimup and Albany and enhanced the conservation value of nature reserves in the Lake Muir region.

Experienced ornithologists in W.A. have been well aware of the relative ease of finding Little Bitterns on the Coastal Plain: these birds are usually less easily encountered in the

Eastern States. Well known non-reserve haunts in W.A. include Herdsman Lake, Mongers Lake and Wilgarup Swamp (near Manjimup) while a bird was recently seen at a sanctuary in the West Gingin area. Little Bitterns have been found breeding at some of these wetlands.

Apart from wandering immatures, most observations of Little Bitterns occur as a result of observers tracking down adult males calling to advertise their nest sites. RAOU observers had found one pair of Little Bitterns nesting at both Pleasant View and Forresdale Lakes, but loose colonies were located in 1983-84 at Jandabup Lake and Yarnup Lagoon.

The Jandabup Colony

The presence of a loose colony of Little Bitterns at Jandabup Lake (Wanneroo Shire) was fully established on 19 November 1983 when a third nest was discovered within 30 metres of two similarly-spaced nests which had been located by R. King and D. Watkins on 15 and 18 November. Although colonies of Little Bitterns of varying density (eg. one pair per three hectares to 15 pairs per hectare) have sometimes been noted in Europe, little or no published evidence of colonial nesting exists in Australia.

Three calling males were first heard at Jandabup about half an hour after sunset on 10 November. On still, late-spring evenings the deep, monotone croaking or grunting advertising calls of male Little Bitterns may carry for more than 100 metres.

The first nest, containing two half-grown young, was located about 20 metres from where one male had been calling on 10 November, in a tall dense clump of spike-rush *Baumea articulata*. This nest was empty within a few days but two striking stripey immatures were seen in a nearby rush clump on 7 December. The second nest was found in less dense rush and unlike the first, was not so close to the rush edge or as low to the waterline. It held 3 eggs on 18 November, but one hatched within a day and the nest was bare by 2 December.



▲ Eggs hatching (Photo copyright A.G. Wells).

It has been written of the Eurasian Little Bittern that nests within loose colonies may be occupied in stages. Again, this tallied well with the Jandabup colony as the third nest contained only one egg when first located and when the clutch of five was complete, the young in the other nests had all left. The third nest was in even less dense *Baumea* and was in a particularly favourable position for observation (from a hide) and flash photography of the sitting adults.

A Chronological Photographic Record

Bert and Babs Wells were most fortunate in being able to photograph the breeding cycle at the third nest, from incubation to the stage of young leaving the nest. The usual precautions were taken to minimise disturbance and the bitterns were apparently not upset.

During daylight at least, the parents approached and left the nest by clambering deftly through the rushes. Their long toes and strong claws are well suited to this method and it was not surprising to see these appendages well developed from an early stage in the growth of the chicks. Sitting birds will only fly from the nest if caught by surprise, skimming swiftly above the rush tips with shallow wing beats. In this attitude their trailing feet and pale

wing patches are especially conspicuous.

Incubation

Incubation of the five eggs in the third nest took 20-21 days and during brief periods of observation, only the female was seen on the eggs. Generally a little rough in texture, the white eggs of the Little Bittern look remarkably like those of a pigeon. Nests are typically shallow and flat or slightly concave and are composed of many fine pieces of *Baumea* stems and seed heads.

Hatching of the eggs in the third nest began on 10 December and finished on 14 December. The fifth egg did not hatch but remained in the nest. Initially only the female was seen attending the young. She was particularly concerned at the threat of intruders and on one occasion, a Marsh Harrier passing overhead caused her to leave the nest in great haste, knocking a chick into the water (30cm below). The chick was later discovered and replaced in the nest by the photographers, after eight fat leeches had been removed from the chick's body! It was thought that this youngster survived to fledgling.

Feeding the Young

The male bittern was first seen at the nest on 16 December when he deposited black tadpoles (*Littoria moorei*?) into the nest bowl. Male



▲ Female disgorging tadpole to feed young. (Photo copyright A.G. Wells).

▼ Female leaving to search for food. (Photo copyright A.G. Wells).



birds are recognised by the extensive deep pink-red skin on their faces and bills: females gain a temporary pink flush when feeding the chicks. Males are generally more richly coloured on their necks and show a black rather than grey-brown back when seen in flight.

Over the following four days, both male and female were seen with equal frequency, bringing tadpoles to the nestlings. The pair were seen together on only one occasion. As the oldest chick grew strong enough, it would reach up and grapple with the adult's bill (perhaps stimulated by the red on the bill of the adult, as is the case with some other birds, eg. gulls), shaking it vigorously. This would induce the parent to regurgitate a tadpole, but the grappling chick would sometimes miss the food, ensuring that the less developed chicks would not miss out. As it was, two chicks were lost to unknown causes before 20 December.

The bittern chicks were able to adopt the cryptic bittern defence posture from an early stage: that is, necks fully outstretched and bills pointed skyward. When the oldest chick was about ten days old the parents would only come as close as the back of the nest, possibly concerned that their frequent visits would soon attract a predator. Alternatively, the parents may have been encouraging the young to leave the nest, also a safety precaution. On 20 December, both chicks were seen to leave the nest for increasing periods of up to two hours. No doubt they were being fed nearby by the parents. Rapid development of young and early nest-departure are well known aspects of breeding of Little Bitterns in Europe and to a lesser extent in Western Australia.

Conclusions

Rapidly falling waterlevels meant that the two roaming young and their parents would have left the nest vicinity soon after 20 December. Although observers had no guarantees that the young lived to be free-flying, there was no immediate reason to doubt it. The perils of harriers, rats, snakes, swamphens,

accidents and competition possibly necessitate the large clutch of four or five eggs for a heron that presumably lives for quite a few years. Of course, Little Bitterns dispersing from drying lakes at night face death from collision and nocturnal predators and many have been picked up dead or in unusual surroundings.

An old bittern nest was found in rushes near the three 1983 nests, indicating nesting in a previous year. More searching could reveal more nests but the significance of the colony cannot be properly gauged without exhaustive searches of all ready lakes in the region. It seems that minimal burning of the rush would be desirable so that dense clumps with old stems (for nest material) can develop.

The Yarnup Colony

On 23 December 1983, D.G. Watkins detected at least six Little Bitterns calling at Yarnup Lagoon. On following this up on 2 February 1984, R. Jaensch saw seven adults (only one female) and located five active nests: one with three eggs, two with four eggs and two with four young. The nests were sited in dense thickets of *Melaleuca laterita* (to 2.5m high and 10m wide) in a band fringing one third of the 25 ha lagoon. Most of the nest sites incorporated fine sedge, or spike-rush *Baumea articulata* growing within the *Melaleuca*, and were adjacent to extensive rush-beds in the lagoon. Water under the nests was mostly 20 to 40cm deep.

After five hours of careful searching, a further 14 nests of various ages were found in this belt (ie. 19 in total). Seven nests contained eggshells or 'fresh' material indicating use in the 1983-84 nesting season. Several instances of three old nests placed within two metres of each other suggested repeated use of a territory by a pair which built new nests each year.

Two of the active nests contained fresh eggs and the chicks were mostly less than 10 days old. These different stages and the seven recent nests could again indicate use of nests in



▲ Chicks display a "cryptic pose" to blend with reeds. (Photo copyright A.G. Wells).

▼ Chick leaving the nest (Photo copyright A.G. Wells).



stages, or otherwise repeat nesting by the five to seven pairs accounted for.

A fascinating aspect of behaviour by the adults was that if the sitting bird was flushed quietly from the nest, it would return to the nest within three minutes and harass the intruding observer from a distance of no more than 1.5 metres! Peering with neck horizontal and clambering at a level of half the height of the teatree thicket, the parent jabbed the observer and uttered sharp 'kuk' or 'khot' noises until he left the scene.

The Yarnup colony could well be

the largest documented colony of the Little Bittern in Australia. Challenge to this claim may come from the Riverina districts of New South Wales but colonies of similar size may yet be found elsewhere in the South-West (eg. Kulunilup Lake.) The most serious threat to the Yarnup colony would be burning of the teatree fringe: 'cold burns' in surrounding scrub could enter the flooded thick teatree canopies but would stop in the reeds beyond. The bitterns seem to prefer the most mature teatree which is thickened with sedge and rush.