



Ixobrychus dubius Australian Little Bittern

Taxonomy

Ixobrychus dubius Mathews, 1912

Birds of the World (2014) noted that the taxon is 'often considered conspecific with *Ixobrychus minutus*, but shows exceptional vocal differences, and differs further in having dull grey vs. blackish flight-feathers, stronger chestnut head sides, hindneck and particularly carpal area than on African *payesii* and Madagascan *podiceps*, and all-buff versus whitish or half-whitish wing patch.'

However recent checklists treat the Australian Little Bittern as a full species, distinct from the Common Little Bittern of Eurasia and Africa.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1998).

Categorised as Endangered in the 2013 Advisory list of threatened vertebrate fauna in Victoria (DSE 2013).

Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iii,v)

The taxon could be assessed as CR C1+2a(i,ii), but the population numbers are not certain enough., so it has been assessed as EN.

Species Information

Description and Life History

The Little Bittern is identified by its small size, dark cap and back, and buff grey wing patches offsetting dark flight feathers. The birds' flight is rapid for a heron, flying with rapid, shallow, clipped wing beats, legs dangling, often dropping into cover. It is distinguished from the Yellow Bittern by being slightly larger, having a shorter bill, its black (not brown) back, and white to grey buff (not yellow buff) wing patch (IUCN Heron Specialist Group 2019).

Australian Little Bitterns are poorly known due to very cryptic plumage and behaviour which makes the taxon difficult to detect. The bird is probably migratory, breeding in southern Australia in spring and summer, migrating north in late summer or autumn (about March) as the wetlands dry out. Non-breeding regions are poorly known. It has been recorded in northern Australia and New Guinea during the non-breeding season but the number of non-breeding records fall far short of records in southern Australia in the breeding season (probably reflecting lower densities of observers in northern Australia, and greater difficulty of detection when not breeding).

Generation Length

The generation length of the Little Bittern is estimated to be 4.1 years. This estimate is based on the generation length from the IUCN account for Australian Little Bittern (BirdLife International 2016). The age of first breeding is not known.

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Distribution

In spring and summer, most records are from scattered locations in the lowlands of south-eastern Australia (from about Adelaide to the Sunshine coast) and from south-western Australia. The scattered records from locations in northern Queensland, NT, and the Kimberley are largely from autumn and winter. Within Victoria, there are 177 records and nearly all from lowland wetlands. Most records are from wetlands on the eastern fringe of Melbourne (notably around Edithvale) and the wetlands on the Murray River floodplain. There is a scattering of records from other sites, mostly pre-2000, and these records are sparse. The species has only been recorded in 22 of the 123 1-degree squares in Victoria.

Habitat

Habitat information is based on Marchant and Higgins (1990) and Hollands (2016). The birds occur typically in dense emergent vegetation (especially tall sedge, reeds or rushes) of freshwater swamps, lakes and water courses. The vegetation stands can range from large to very small (only a few square metres). The Little Bittern forages for invertebrates or small fish, lunging its bill into water for prey from a perch on emergent vegetation, or when standing or stalking in shallows. The birds nest and roost in dense vegetation (especially reeds and rushes) and rarely emerge into open positions where they can be seen by observers. Moreover, the Little Bitterns are rather silent, increasing the difficulty of detection. Less commonly used habitats include inundated shrub thickets, mangrove swamps or *Juncus*-dominated saltmarsh around brackish-saline wetlands. There are also presumed vagrant records from cereal crops and vegetable gardens, and the birds may perch in trees if flushed.

Threats

The Little Bittern is probably affected by loss of freshwater wetland habitat, and artificial water regimes in some wetlands that diminish area of emergent vegetation. In relation to the threat of climate change, Franklin et al. (2014) noted that 'of greater concern is the exposure of specialists of shallow, permanent, vegetated wetlands in southern Australia such as the Australasian Bittern and Australian Little Bittern.'

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p style="text-align: center;">based on any of the following:</p> <p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>			

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Evidence:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 12 years is suspected to be 5 to 40%, based on (b) above.

There are no solid data on trends, but in the Victorian Biodiversity Atlas (VBA) it is noticeable that all records in western Victoria (west of a line from Werribee to Kerang), and all records in the Gippsland Lakes region, were made before 2000. In the past 20 years records have been from wetlands near Melbourne (mainly on the east side of Port Phillip Bay) and in the mid-Murray Valley, save for a single record near Hamilton and a single record near Traralgon. There may therefore have been some range contraction. From VBA records, the Extent of Occurrence (EoO) from 1970-2000 was about 169,160 km² and the Area of Occupancy (AoO) was 388 km². Since 2000 the calculated EoO has been 75,788 km² (44% of the previous EoO) and the AoO to 124 sq km² (32% of previous AoO). The rough population estimate assumes that population is proportional to range. Reporting rates from Victoria also suggest a decline since the 1980s.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B2 as Endangered

The AoO across the taxon's range is estimated to be 124 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

In the period from 1970-2000, records were scattered through much of Victoria, including the swamps west of Shepparton, the Sale Common region and a number of western district lakes. Since 2000, there have been very records from these regions, but most reports have been near Melbourne or in the Murray or Goulburn valleys. Therefore, pre-2000 records were excluded from EoO and AoO calculations. However, the AoO figure probably underestimates the range, given that the taxon is so easily overlooked.

It is inferred to have one to five locations. The main threats to the taxon (i.e. climatic drying and warming, habitat loss and fragmentation) have a non-reversible impact on the individuals of the taxon and occur in a stochastic manner, and have the potential over time to threaten the majority of individuals in the geographic area. It is uncertain how many such areas there are, but there is assumed to be up to five main areas occupied by the birds, so there is considered to be up to five locations.

It has a continuing decline in (i), (ii), (iii) and (v) above. Numbers, range and habitat are expected to decline, as a result of the identified threats and the drying effects of climate change.

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Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b)	Extreme fluctuations in the number of mature individuals			

Evidence:

Ineligible under Criterion C

It is inferred that there are 30 to 300 mature individuals, but this qualifier is too weak to meet the thresholds.

There are no population estimates available for Victoria. Reporting rates in Victoria since 2000 are very low (present in 0.03 - 0.11% of VBA surveys carried out annually); this reporting rate is lower than that of most cryptic wetland species in Victoria (e.g. 0.05-0.29% for n Lewin's Rail, 0.1-0.65% in Baillon's Crake, 0.05-0.3% in Australian Painted Snipe). In some years there are no Victorian reports of Australian Little Bittern; in the year with most records (2006), Little Bitterns were recorded from 6 Victorian sites. Ninety per cent of records from Victoria include only one or two individuals.

For Victoria, it is assumed that the population could be only a third that of Australasian Bittern (because the reporting rate is about a third that of Australian Bittern) and that it is unlikely to be more numerous; the estimates are rounded given the great uncertainty.

Criterion D. Very small or restricted populations				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)		< 50	< 250	< 1,000
D2 Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.		-	-	D2 Typically: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under Criterion D2 as Vulnerable

It is inferred that the taxon is very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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