Threatened Species Assessment

Haliaeetus leucogaster
White-bellied Sea-Eagle

Taxonomy

Haliaeetus leucogaster Mathews, 1912

Shephard et al. (2005b) noted the following in relation to Sea-Eagle genetics and the Australian population: 'There is insufficient evidence to suggest division of the (Sea-Eagle) population into different units for conservation management purposes based on the theoretical definition of the 'evolutionary significant unit'. It is clear from the analysis that there are signatures of both historical and contemporary processes affecting the current distribution. Additional sampling and confirmation of the perceived pattern of population structure using a nuclear marker is recommended to validate conservation monitoring and management at a continental scale.'

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1992).

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

Proposed conservation status

Endangered in Victoria

Criterion C2a(ii)

For species that also occur outside of Victoria, the *Guidelines for Application of IUCN Red List Criteria at Regional and National Levels: Version 4.0 (2012)* apply. This may lead to an adjustment of the threat category, to reflect the influence of adjacent populations.

The regional assessment (Victoria only) results in Critically Endangered, primarily on the basis of a small population. The birds are regarded as threatened in South Australia and Tasmania, but not in other Australian states, so this assessment has been downgraded to Endangered EN^{o} to account for the influence of interstate populations that reduce the extinction risk in Victoria.

Species Information

Description and Life History

The White-bellied Sea-Eagle is a large white bird of prey with broad greyish wings and a short pale wedge-shaped tail (length 75-85 cm, wingspan 180-220 cm). Adults have a white head, breast and abdomen, and the tail is pale grey with a white tip. Juveniles are speckled slaty brown with a paler face. By the second year, they are whiter in colour although patchy. Females are larger than males. Juveniles and immature birds may sometimes be confused with Wedge-tailed Eagles (*Aquila audax*). The voice is distinctive: a 'loud deep goose-like honking or cackling; begging juveniles give more prolonged yelping or wailing' (Marchant and Higgins 1993, p. 83, 88-89). Males have a slightly higher pitched and quicker call. For detailed information on identification see Marchant and Higgins (1993, pp 82-83) and Debus (2017a, p. 3; 2017b, pp 26-27).

Sea-Eagles pair for life and are mostly sedentary once a home range has been established, although immature birds can disperse widely (Favaloro 1944). If one of a pair dies, it is quickly replaced by a bird from the 'pool' of unpaired individuals. One or two whitish-yellow eggs are produced usually between April and August, although the timing of breeding appears to vary with latitude, occurring later further from the equator (Bilney and Emison 1983). Nests, which can be used for years in succession, are constructed of sticks lined with leaves and can become very large as new material is added (Bilney and Chatto 1986).

Nests are usually near water, in tall live or dead trees or on remote coastal cliffs. River Red Gum (*Eucalyptus camaldulensis*), Forest Red Gum (*E. tereticornis* subsp. *mediana)* and Southern Mahogany (*E. botryoides*) are commonly used as nest trees (Emison and Bilney 1982). On islands free of predators, nests may be close to the ground in shrubs or rocky platforms (Marchant and Higgins 1993). Birds rarely use artificial structures as nest sites.

White-bellied Sea-Eagles are generally seen alone or in pairs, although they sometimes congregate where food is abundant. They are opportunistic carnivores, feeding on birds, mammals, fish, reptiles and carrion. Birds often have favoured roosts on prominent trees and soar in large circles with wings upswept during flight. While hunting they may hover low and dive close to the water to catch prey. Pairs may hunt together and they are known to harass other bird species (such as terns) and either steal prey or have them regurgitate it.

Generation Length

The generation length of the White-bellied Sea-Eagle is estimated to be 13 to 15 years. This is expected to be similar to other raptors of this size. The birds may live up to 25 years in the wild. A review of longevity of raptors by Newton (1979) indicated that some can survive up to 26 years in the wild and 55 years in captivity. NSW Scientific Committee (2016) gives a generation length of 13 years and a maximum of 30 years, while BirdLife International (2016) gives an average figure of 14.7 years. Some Sea-Eagle territories (e.g. Mallacoota) are known to have been occupied for over 50 years (Marchant and Higgins 1993, p. 87). This suggests some birds do indeed live for many years.

Distribution

White-bellied Sea-Eagles have been recorded in the northern hemisphere from India to China and south through Asia, New Guinea and Australia. They occur along the coastline of Australia and also range inland over large rivers and wetlands (Bilney and Emison 1983, Blakers et al. 1984). In Victoria, they are most common between Gabo Island and Wilsons Promontory. There are now an estimated six resident pairs in Western Port (O'Brien and Lacey 2016) and birds are recorded through to Port Phillip Bay and occasionally further west (Victorian Biodiversity Atlas (VBA) data). Populations also exist along the Murray and Goulburn Rivers and they are sometimes recorded over other inland areas on impoundments where there are plenty of large trees (e.g. Cardinia Reservoir, M.O'Brien pers. comm. December 2018). In Victoria, Sea-Eagles favour forested coasts and forested margins of inland waterways.

It appears that active nest sites are quite widely spaced. The recorded distances between active nest sites have varied, being 4-13 km in the Gippsland Lakes (25 breeding pairs in 400 km^2), 10 km in Barmah Forest and 40-65 km along the Murray River. It is probable that the White-bellied Sea-Eagle has never occurred in high densities in Victoria (DSE 2003).

Habitat

The White-bellied Sea-Eagle is found in coastal habitats (especially those close to the sea) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). They are mostly recorded in coastal lowlands (Marchant and Higgins 1993). Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds (Marchant and Higgins op. cit.). They also occur at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves. In Victoria the taxon is mainly coastal but is also resident on some inland rivers (eg. Murray and Goulburn Rivers) and larger inland lakes (Emison et al. 1987, p. 81; M.O'Brien pers. comm. December 2018).

Threats

Declines in Sea-Eagle subpopulations are related in no small part to anthropogenic encroachment, in all its forms, during critical phases of the birds' breeding cycle (Dennis et al. 2012, p. 66). Decline over much of the coastal range in Victoria could be presumed because of the widespread clearing of coastal forests for agriculture and urban expansion (especially on the central and western coasts). Habitat destruction represents the most significant threat to the species, as it has resulted in the direct loss of nesting sites and has caused birds to nest in suboptimal habitat types where breeding success can be reduced (Bilney and Emison 1983, Emison et al. 1987). Increased human presence has been detrimental to nesting White-bellied Sea-Eagles because they are sensitive to disturbance, and may desert nests and young (Debus et al. 2014, M.O'Brien pers. comm. December 2018). The high proportion of nest sites on private land makes conservation of the taxon difficult in some parts of Victoria (e.g.

Gippsland, Emison et al. 1987) and South Australia (Dennis et al. 2011). Competition for breeding sites also occurs with the larger Wedge-tailed Eagle, with occasional fatalities resulting, and is likely to intensify as breeding habitat becomes more scarce (NSW Scientific Committee 2016).

Although there is currently little direct evidence, other possible threats which may be implicated in the decline in the taxon in Victoria include direct poisoning during dog and fox control programs, secondary poisoning during rabbit control programs, deliberate shooting, and food chain contamination by chemicals and heavy metals.

The mortality of White-bellied Sea-eagles is likely to be above historical levels (NSW Scientific Committee 2016).

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

Evidence:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 220,731 km² and the Area of Occupancy (AoO) is estimated to be 4,929 km², both of which exceed the thresholds for criterion B.

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:

Eligible under Criterion C2 as Endangered

It is estimated that there are 150 to 200 mature individuals. Historic surveys for the taxon (mainly in the Gippsland Lakes area) and more recent survey data for southern Victoria (mainly Westernport) suggest a maximum

population of approximately 100 breeding pairs (SAC 1992, DSE 2003, O'Brien and Lacey 2016). DSE (2003) indicates the distribution of the Victorian populations as two population concentrations: approximately 25 pairs around the Gippsland Lakes and 25 pairs around Corner Inlet, and a further 50 pairs scattered throughout the rest of Victoria. It is possible that these figures are over-estimates (M. O'Brien pers. comm. December 2018).

The number of mature individuals is inferred to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100%.

Increased human disturbance (especially at nest sites) may lead to breeding reduction and/or failure. The combination of a decline in nesting success, a decline in the number of active nests and increased mortality indicate the Sea-Eagle is likely to be in decline.

The taxon qualifies as Critically Endangered under this criterion, but it has been downgraded to Endangered to account for the influence of interstate populations that reduce the extinction risk in Victoria.

Criterion D. Very small or restricted population			
	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 km2 or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Vulnerable

It is estimated that there are 150 to 200 mature individuals.

The taxon qualifies as Endangered under this criterion, but it has been downgraded to Vulnerable to account for the influence of interstate populations that reduce the extinction risk in Victoria.

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

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