

Flora & Fauna Guarantee Action Statement

#60

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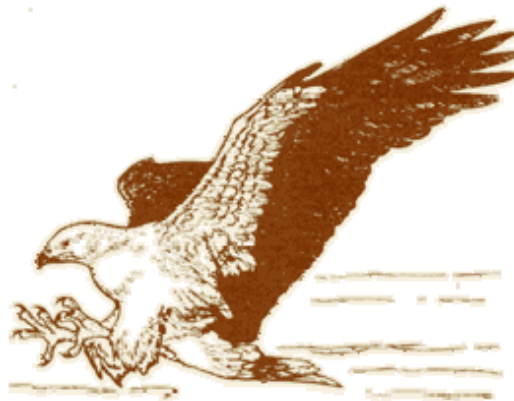
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White-bellied Sea-eagle *Haliaeetus leucogaster*



White-bellied Sea-eagle (*Haliaeetus leucogaster*)
(Illustration by John Las Gourgues)



Distribution in Victoria (DSE 2002)

Description and Distribution

The White-bellied Sea-Eagle, *Haliaeetus leucogaster* (Gmelin), 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 & Higgins 1993). Males have a slightly higher pitched and quicker call (R. Chatto pers. comm.). For a detailed discussion on identification see Marchant & Higgins (1993).

Birds form pairs 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 (R. Chatto pers. comm.). 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 & 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 & 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*) and Southern Mahogany (*E. botryoides*) are commonly used as nest trees (Emison & Bilney 1982). On islands free of pre-dators, nests may be close to the ground in shrubs or rocky platforms (Marchant & 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 (Baker-Gabb 1987, Lawrence pers. comm.).

They are opportunistic carnivores, feeding on birds, mammals, fish, reptiles and carrion (Green 1959, Quinn 1969, Smith 1985). 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.

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 & Emison 1983, Blakers et al. 1984). In Victoria they are most common between Gabo Island and Wilsons Promontory; although there are one or two resident pairs in Western Port and birds are recorded through to Port Phillip Bay and occasionally further west. 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 (Atlas of Victorian Wildlife). They favour forested coasts and forested margins of inland waterways (Emison et al. 1987).

The total Victorian population is thought to be extremely low: possibly only 100 breeding pairs survive (R. Bilney pers. comm.). Distribution records indicate 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.

Conservation Status

Current Status

CNR (1993)	Rare
SAC (1992)	Threatened

The White-bellied Sea-Eagle has been listed as a threatened taxon on Schedule 2 of the Flora and Fauna Guarantee Act 1988.

Reasons for Conservation Status

Although little is known of the sizes of territories of the White-bellied Sea-Eagles, 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 km²), 10 km in Barmah Forest and 40-65 km along the Murray River (Bilney & Emison 1983, Fleay 1948, R. Bilney pers. comm., R. Lyon pers. comm.). It is probable that the White-bellied Sea-Eagle has never occurred in high densities in Victoria.

The White-bellied Sea-Eagle has not been well studied in Victoria, but the Murray River population is known to be small and is considered vulnerable to pesticide contamination due to its fish-eating habits (Robertson et al. 1989). Decline over much of its 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 & Emison 1983). On the other hand, it is possible that the number inhabiting some inland areas has increased following European settlement because of the stabilisation of water levels in major rivers by weirs, the construction of reservoirs and dams and the associated increase in food supply as well as the introduction of European Carp (*Cyprinus carpio*), a favoured food item (Bilney & Emison 1983).

Increased human presence has been detrimental to nesting White-bellied Sea-Eagles because they are sensitive to disturbance and may desert nests and young. Although there is little direct evidence, other possible threats which may be implicated in the decline in the species in Victoria include:

- direct poisoning during Dog and Fox control programs;
- secondary poisoning during Rabbit control programs;
- deliberate shooting;
- eggshell thinning because of the past use of DDT; and
- food chain contamination by heavy metals (Bilney & Emison 1983).

In its final recommendation the Scientific Advisory Committee (1992a) has determined that the White-bellied Sea-Eagle is:

- in a demonstrable state of decline which is likely to result in extinction;
- significantly prone to future threats which are likely to result in extinction; and
- very rare in terms of abundance or distribution.

Major Conservation Objective

Immediate objectives are to:

- obtain an accurate estimate of the total breeding population of White-bellied Sea-Eagles in Victoria within five years;
- identify and protect all known nest sites;
- maintain and improve areas of suitable habitat.

The long-term objectives are to:

- halt the decline in numbers of the White-bellied Sea-Eagle;
- ultimately increase the population size; and
- ensure that the Victorian population, in conjunction with adjacent populations, is genetically viable.

Management Issues

Ecological Issues Specific to the Taxon

Few studies of the White-bellied Sea-Eagle in Victoria have been undertaken and little is known regarding its ecological requirements.

The protection of nest sites is clearly a significant factor in the conservation of this species. They are found in a range of habitat and tree types and are likely to be selected according to food availability. Several nests of the same pair may exist within a territory, so a count of nests may not accurately indicate population numbers. White-bellied Sea-Eagles occasionally occupy disused nests of Whistling Kites (*Haliastur*

sphenurus) and Wedge-tailed Eagles (R. Chatto & I. Davidson pers. obs.).

A study of breeding success of White-bellied Sea-Eagles in the Gippsland Lakes region indicated that the production of young varied in relation to habitat type. Of the 13 nesting territories of White-bellied Sea-Eagles which were surveyed, those in remnant patches of tall open forest averaged 1.2 young per territory compared with 0.2 young per territory for birds inhabiting pasture with isolated trees (Bilney & Emison 1983).

White-bellied Sea-Eagles are sensitive birds and may desert nests and young if disturbed by humans. Thus the avoidance of nest sites by humans during the breeding season is particularly important. During regular inspections of nest sites in Gippsland, R. Chatto (pers. comm.) observed that adults might remain at a nest site during the period of interference, although they will change nests the following year. Deaths of adults have been recorded as a result of deliberate shooting, by secondary poisoning following 1080 baiting programs, and occasionally by entanglement in fishing nets while diving for fish near the water's surface (Favaloro 1944, Hunt and Mooney 1983, D. Quinn pers. comm.). The current and historical threat of poisoning to White-bellied Sea-Eagles either by direct poisoning during Fox and Dog control programs or by secondary poisoning during Rabbit control programs is unknown. Since current 1080 baiting operations undertaken by CNR and other land managers attempt to minimise risks to non-target species, and since raptors are not highly susceptible to 1080 poison, this threat may not be significant.

DDT was first introduced into Australia in 1942. Its usage peaked in the mid 1970s and it was eventually banned in 1987 following concern from overseas buyers that Australian meat was contaminated by both DDT and dieldrin. However, the persistence of the metabolites of DDT will ensure that it remains in the environment for years to come.

Bilney & Emison (1983) postulated that the past use of organochlorides, in particular DDT, may have caused reductions in the breeding success of White-bellied Sea-Eagles, although no studies were made during its period of use. High incidences of eggshell thinning have been attributed to the use of DDT spraying in the cogeneric Bald Eagle (*Haliaeetus leucocephalus*) as well as many other raptor species in the northern hemisphere, and possibly in Peregrine Falcons (*Falco peregrinus*) in Australia (Sprunt 1969, Olsen & Olsen 1979).

Olsen et al. (1993) recently measured the eggs of Australian raptors in museums and private collections. Their comparison of average shell thickness of White-bellied Sea-Eagle eggs before and after 1946 found a significant thinning. Whether the past use of DDT in Victoria has led to significant reproductive failures and population declines for the White-bellied Sea-Eagle is still difficult to determine although it is clearly a possibility.

A study of the Gippsland Lakes region recorded high concentrations of mercury in European Carp, an important food item of the White-bellied Sea-Eagle (Glover et al. 1980, P. Lawrence pers. comm.). Mercury contamination has been

linked to declines of the White-tailed Sea-Eagle (*Haliaeetus albicilla*) in Sweden (Newton 1979).

The use of lead shot in cartridges for hunting waterfowl is listed as a potentially threatening process under the Flora and Fauna Guarantee Act 1988. The final recommendation report noted that the range of fauna possibly affected by the process included predatory species such as the White-bellied Sea-Eagle (SAC 1992a). Raptors are affected by eating the liver or kidneys (where lead is concentrated) or from lead shot in the gizzard or body of their prey. Bald Eagles have died from lead poisoning in the USA (Pattee et al. 1981).

The increase of sediment input into rivers and streams due to human activities is listed under the Flora and Fauna Guarantee Act 1988 as a potentially threatening process. This is caused by increased erosion resulting from changes to land use such as land clearance for agriculture, grazing and forestry activities (SAC 1991). This increase of sediment input may be of concern for White-bellied Sea-Eagles since increasing turbidity of many inland waters could inhibit food collection. Continued drainage of wetlands for agriculture is likely to reduce available habitats throughout the inland. Flood mitigation works are also likely to further reduce habitat availability by reducing the regularity of wetland flooding.

Illegal collection of White-bellied Sea-Eagle eggs may have occurred in the past, although it is unlikely to have ever represented a significant threat to the species because of the relative inaccessibility of many nests.

White-bellied Sea-Eagles have no significant predators. They occasionally nest close to Wedge-tailed Eagles, which have a similar diet. It is not known whether the two species compete for resources, although this is likely to occur in some areas. The two species have been observed chasing each other aggressively, especially near nest sites (T. Aumann & I. Davidson pers. comm.)

Little is known regarding the longevity of the species, but 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. If the White-bellied Sea-Eagle is in fact a long-lived species, any decline in reproductive success that might have occurred in the past, or may be occurring at present, will only become apparent in the future.

If the number of White-bellied Sea-Eagles in Victoria is indeed less than 100 breeding pairs, there may be inbreeding because of a limited gene pool. Although there are records of long-distance movement, primarily by immature birds, there is little information about the extent of dispersal of the species, both within Victoria and other states. It is thought that birds inhabiting inland waterbodies may be more dispersive than those along the coast, as they must move as waters disappear (Favaloro 1944). Information regarding the dispersal of the species in Victoria is required to determine whether there is sufficient genetic exchange, but there is no evidence that the Victorian populations are genetically isolated.

Wider Conservation Issues

The Decade of Landcare Plan 1992 acknowledges that the protection of wildlife values and sustainable farm management are compatible and desirable objectives. The protection and enhancement on both public and private land of native

vegetation suitable for the White-bellied Sea-Eagle is likely to benefit other indigenous flora and fauna species. A wide range of animals depend on large live or dead trees for food, nesting and roosting sites, including arboreal mammals and many hollow-nesting birds.

Any land protection measures undertaken to protect habitat represent significant benefits to the reduction of land degradation. Grazing pressure harms isolated trees in pastures because it inhibits seedling regeneration, compacts the soil and causes ringbarking, so fencing remnant vegetation which is suitable habitat for the White-bellied Sea-Eagle would be valuable. The protection of remnant vegetation near significant wetlands and rivers where White-bellied Sea-Eagles occur should be given priority. The increasing incidence of oil spills world-wide represents a threat to marine and coastal fauna species, including White-bellied Sea-Eagles, either by direct oil contamination or poisoning through the ingestion of oiled prey.

Social and Economic Issues

The social and economic impacts associated with the conservation of the White-bellied Sea-Eagle are generally minor. The protection of nesting sites by minimising human disturbance should be encouraged and would cost little. While White-bellied Sea-Eagles have been recorded in all CNR Areas in Victoria, their distribution is sparse and scattered. The need for conservation actions will be similarly scattered and localised.

As White-bellied Sea-Eagles range over large distances, they utilise both public and private land for food and nest sites. Some of the known nesting sites on public land are in parks and reserves including Croajingalong, Wilsons Promontory and Hattah-Kulkyne National Parks, Rocklands and Toolondo Reserves and French Island State Park.

Because all known sites should be protected from disturbance in the breeding season, visitor access on public land should be prohibited in the vicinity of nest sites. This may impose some restrictions in a small number of cases. It is estimated that half of the known nesting sites of the White-bellied Sea-Eagle in the Gippsland Lakes region are on private land (Emison & Bilney 1982, Emison et al. 1987). The protection of remnant habitat and regeneration of habitat should be encouraged. On private land stock grazing should be excluded by fencing off appropriate areas. This will incur costs of fencing and minor losses of productive land. However, habitat protection and enhancement provide benefits such as shelter for stock and the reversal of salinity and soil erosion, and are viewed positively by many. Costs associated with fencing and revegetation programs may be comparatively low with the assistance of the Land Protection Incentive Scheme and Victorian Prison Industry Council. However, fencing of individual, scattered trees may incur greater costs. There could be conflict over the protection of White-bellied Sea-Eagle habitat in coastal areas as these areas are often highly valued for urban development. To date, no major conflicts have arisen. Many local planning schemes already include restrictions on land use in such areas. There could

be minor restrictions to the location of services and utilities such as the siting of power lines and roads.

Land managers should consider the impact of their operations on the nesting success of White-bellied Sea-Eagles and aim to minimise any disturbance. Timber harvesting operations may need to be restricted within the vicinity of nests during the breeding season. As nest sites are quite widely spaced, it is unlikely to significantly disrupt forestry activities. Historically, White-bellied Sea-Eagles, like other large birds of prey such as the Wedge-tailed Eagle, have been viewed in some rural areas of Australia as predators of livestock (Meredith 1990). The White-bellied Sea-Eagle was once declared vermin in a district in Western Australia and there are still reports of deliberate shooting of the species in Australia (Serventy & Whittell 1976, Hunt & Mooney 1983). They have also been viewed unfavourably by some fishermen. The incidence of deliberate shootings could be minimised by an education program which increases the public awareness of the plight of the species and emphasises that the White-bellied Sea-Eagle is not a significant threat to livestock or fishing.

Management Action

Previous Management Action

The only detailed documented studies undertaken on White-bellied Sea-Eagle in Victoria have been on the Murray River populations by Favaloro in the 1940s and the Gippsland Lakes populations by Bilney and Emison in the 1980s. These studies included general observations, surveys of breeding success and the identification of possible threats.

Few on-ground management actions designed to protect the White-bellied Sea-Eagle have been undertaken. Regular surveys of Lake Wellington and surrounding wetlands to monitor a small number of nest sites are undertaken (P. Lawrence pers. comm.).

CNR regional officers and members of the public have sent records of sightings to the Atlas of Victorian Wildlife Database. In some cases, CNR has limited access to areas (e.g. closed tracks) where breeding White-bellied Sea-Eagles have been observed (P. Lawrence pers. comm.).

Intended Management Action

Research and Monitoring

- Through a public awareness campaign, encourage reports of sightings of White-bellied Sea-Eagles to the CNR Atlas of Victorian Wildlife Database and ensure known nest sites are recorded on the CNR Sites of Significance Register in relevant regions.
- Encourage the creation of a Friends group under the Threatened Species Network to coordinate statewide surveys to locate new nest sites and monitor known nest sites not monitored by CNR. The participation of volunteer groups, including local field naturalists, the Bird Observers Club of Australia (BOCA) and the Royal Australasian Ornithologists Union (RAOU), in surveys should be encouraged.
- Undertake annual ground or aerial surveys of known breeding sites throughout Victoria during the nesting

season to determine how successful breeding is over time. Human disturbance should be minimised during surveys. Surveys should include details of proximity of nesting sites to human activity, habitat descriptions, historical information and behavioural observations.

- Identify, through regular surveys, population trends and whether numbers are declining over their range.
- Collate information from surveys and make available to land managers.
- Determine the critical habitat of the White-bellied Sea-Eagle, once surveys clarify important sites.
- Encourage research to further understand the diet preferences of the White-bellied Sea-Eagle. Such research could include an investigation into the levels of mercury and other heavy metals in White-bellied Sea-Eagles and a determination of the effects of food chain contamination on the survival and reproduction of the species. This would be suitable for a tertiary institution and could be done anywhere in Australia.
- Undertake a population viability assessment of the species once more information is available about the dispersal activity of White-bellied Sea-Eagles in Victoria and other states.
- Liaise with those involved in research into potentially threatening processes which affect White-bellied Sea-Eagles to ensure that the protection of the species is taken into account.

Habitat Conservation

- Protect known nesting sites, and a suitable buffer zone around nests, from human and habitat disturbance on public land through appropriate land management practices. This protection should be given priority.
- Where appropriate, incorporate the protection of suitable habitat in relevant CNR plans (e.g. Forest Management Plans) and local council planning controls.
- Encourage the protection of sites on private land through extension programs (such as Land for Wildlife) or conservation covenants, and provide financial assistance through the Land Protection Incentive Scheme.
- Implement the LCC recommendation (1977 and 1993 proposed recommendations) regarding the transfer to CNR of SEC land on French Island which supports the remaining breeding site on the Western Port and Mornington coasts.

Liaison

- Liaise with CNR staff and other land managers involved in 1080 baiting programs near known nesting sites to ensure that carcasses of target species are buried as soon as possible following baiting to minimise the risk of primary and secondary poisoning of White-bellied Sea-Eagles.

- Liaise with forest planners and other CNR staff involved in timber harvesting operations in the vicinity of active nest sites and foraging areas.
- Cooperate with conservation agencies in other states regarding the protection of White-bellied Sea-Eagles.

Community Education

- Undertake a public awareness program on the importance of protecting the White-bellied Sea-Eagle, emphasising the need to minimise levels of human disturbance. Information could be provided to CNR staff, local government bodies, community groups and landholders through a Land for Wildlife Note, newsletters for RAOU and BOCA, and local newspapers.
- Approach all land managers who have important nesting and foraging habitat on their land regarding sympathetic management of these areas.

Other Desirable Management Actions

- Genetic research may be required to determine whether the Victorian populations are becoming isolated and whether inbreeding is a cause for concern. Banding or radio telemetry programs should be initiated to determine whether birds undertake long distance movements and whether there is genetic interchange between populations within Victoria as well as between states. Fitting transmitters to 10 to 12 week old chicks just before they fledge may be more desirable than tagging birds as there is a greater chance of recovering the birds.
- If genetic research indicates that inbreeding is a threat to the White-bellied Sea-Eagle in Victoria, captive breeding programs may need to be considered to augment the wild populations.
- In the future, land purchase may be considered appropriate to protect particular important nesting and foraging areas for White-bellied Sea-Eagles.

Legislative Powers Operating

Legislation

Flora and Fauna Guarantee Act 1988 provides for the protection of flora and fauna in Victoria and the declaration of critical habitat if so designated.

Wildlife Act 1975: controls research, management and taking of protected wildlife.

National Parks Act 1975: provides for the reservation, protection and management of flora and fauna within national park boundaries.

Crown Land (Reserves) Act 1975: provides for the reservation of Crown Land.

Planning and Environment Act 1987: provides for the protection of native vegetation, and for regional planning controls in all planning schemes.

Vermin and Noxious Weeds 1958: provides for the control of vermin on public and private land.

Conservation, Forests and Lands Act 1987: provides for the management of public land.

Forests Act 1958: provides for the proper management of State Forests.

Land Conservation Act 1970: provides for the determination of uses and reservation of Crown Land.

Licence/Permit conditions

A permit is required from the Manager, Flora and Fauna Branch, CNR, for trapping or capturing White-bellied Sea-Eagles. A permit will be issued only if the purpose is in accordance with the conservation objectives.

CNR will not support applications to clear vegetation with known nesting sites under the Native Vegetation Clearance Controls of the Planning and Environment Act 1987.

Consultation and Community Participation

Consult with relevant CNR staff, local government bodies, community groups and landholders whose land contains suitable habitat and known nesting sites to advise them of the significance of the species and methods of best protecting habitat.

Implementation, Evaluation and Review

Because White-bellied Sea-Eagles have been recorded in all CNR Areas in Victoria, all Area Managers are responsible for the implementation of this action statement. Flora and Fauna Guarantee Officers are responsible for the implementation of the management actions and the evaluation of their effectiveness.

Contacts

Management

All Flora, Fauna and Fisheries Coordinators, CNR

Biology

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Compiler

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Further information

Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action

Statements are available from the Department of Sustainability and Environment website:
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