



Fauna Technical Note No. 1:

Eagle nest searching, activity checking and nest management



The Fauna Technical Note Series provides information for Forest Practices Officers on fauna management in production forests. These technical notes are advisory guidelines and should be read in conjunction with the requirements of the Forest Practices Code.

The technical notes can be accessed on the Forest Practices Authority's website: www.fpa.tas.gov.au.

1. Introduction

This technical note summarises the characteristics of wedge-tailed eagle and white-bellied sea-eagle nesting sites, breeding behaviour, protocols for searching for nests, assessing nest activity and managing nest sites. It aims to provide a background from which informed assessments can be made once experience is gained, ensuring that management recommendations and advice are followed.

Advice should be sought from the FPA Biodiversity Program in all cases where nests are involved. General management recommendations for both eagle species associated with forestry activities are delivered through the Threatened Fauna Adviser. For information on this program, or for a copy, contact staff of the FPA Biodiversity Program.

Wedge-tailed eagle

The Tasmanian subspecies of the wedge-tailed eagle (*Aquila audax fleayi*) is listed as **endangered** on the Tasmanian *Threatened Species Protection Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The species is also a *priority species* in the Tasmanian Regional Forest Agreement.

The Tasmanian wedge-tailed eagle is endemic to the state and is known to occur in all habitats throughout Tasmania (possible vagrant on King Island). The species requires old-growth forest or forest with some old-growth characteristics on sheltered sites for nesting and this, combined with territorial behaviour, acts to limit its breeding range and population. The size of the population is estimated at between 1000 and 1500 individuals. A population decline is inferred due to loss of nesting habitat, nest disturbance from land clearance and other land management practices and from unnatural mortality, including persecution, and electrocution and collision with high voltage power lines. Available data indicate a high proportion of inactive nests and elevated adult mortality leading to a reduction in the mean age of the population and a subsequent reduction in breeding success.

White-bellied sea-eagle

The Tasmanian white-bellied sea-eagle population is listed as **vulnerable** under the Tasmanian *Threatened Species Protection Act 1995*. The species usually nests in forest within 5 km of the coast, lakes or large rivers or areas with a complex mosaic of farm dams. While this species will choose old-growth trees when available, this is not a critical requirement for nesting. The species also nests on sea cliffs and rock stacks. Nest trees can be on exposed slopes and close to forest boundaries, particularly near water. However, nests likely to be affected by forestry operations will generally have site characteristic similar to those for wedge-tailed eagles.

2. Breeding season

The eagle breeding season is accepted to be 1 August to 31 January inclusive, although it may vary between years. Adult eagles may maintain or commence reconstruction of nests to be used in a particular breeding season as early as June (for sea-eagles) and July (for wedge-tails). In some areas of the state, especially when unusually dry conditions delay the onset of breeding or when eagles make secondary attempts to breed, chicks may not fledge until April.

3. Eagle nests and breeding

3.1 Nest and nest site characteristics

- Very large nests, when in use, are usually about 1.2 m across and 1 m deep (ranging from 0.8 m across and 0.5 m deep, to 3 m across and 3 m deep) built low in the canopy of large eucalypts. Nest material comprises sticks from pencil sized up to 40 mm in diameter. Most sticks are about the thickness of an adult's little finger. The nest often appears as a 'bowl' (early in the season) lined by bark and leaves or a flat platform (late in the season).
- Old-growth eucalypt forest greater than 27 m in height (i.e. E-3 up to E1 PI-type height class). Forest less than 27m in height (E4) need only be considered suitable nesting habitat if it contains emergent trees greater than 27 m (ie. \geq E-3). This is often the case along creek lines. White-bellied sea-eagles can often nest in trees less than 27 m, particularly where habitat is limited.
- A nest tree is usually the largest or equal largest in the locality and has large branches that provide a stable support for the nest.
- Nests are generally sited on the leeward slope below the height of the ridge and between 60% of the height of the slope and the base of the slope, though there are exceptions where nests are in gorges or on the slopes below plateaux.
- Nests are usually positioned on the downhill side of the trunk and are usually positioned in the base of the emergent canopy.
- Aspects sheltered from the strongest winds (NW and W) are almost always chosen. Aspects are concentrated in the south-eastern half of the compass, though they range through 360 degrees. Local topography has an important influence on shelter and therefore nest site selection.
- Ground slope is usually less than 35° and site altitude is variable.
- The spacing of active nests between territories (nearest neighbour distance, NND) tends to be fairly regular. Most territories have more than one nest (up to six) and as a result the likelihood of finding additional nests within 2 km of a known nest is high. This likelihood decreases to very low at about $\frac{1}{2}$ NND then increases again reaching a maximum at around 1 NND from an active nest. However, there appears to be an increasing tendency towards a breakdown in nearest neighbour distance. Consequently, this measurement should only be applied to nests active in the same season.
- Nests may be lined and not used due to there being other nests in the territory (e.g. six nests with three being lined).
- White-bellied sea-eagle nest spacing ranges between 3 and 8 km but due to the spacing of favourable water bodies there will be large gaps between occupied areas.

3.2 Breeding characteristics

- Long-term viable nests and territories do not necessarily produce chicks every season. Gaps in production may be due to the greater energetic costs associated with producing more than one chick, a dry season where prey availability is low, or where chicks from previous seasons remain dependant.
- Large differences in breeding times between neighbouring territories can occur e.g. six weeks difference.

3.3 Age of nests

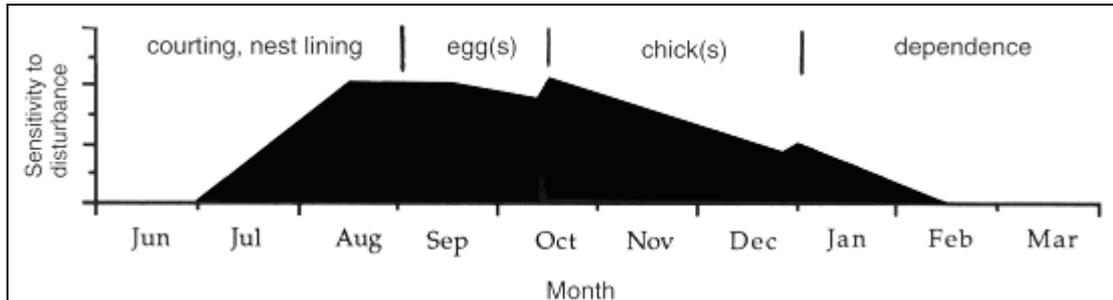
Old nests are generally larger than new nests as they are added to during each breeding season. They will often develop a green stain that extends down the trunk. This stain results from algae growing on the nutrients leached from droppings and prey in the nest. The extent of the staining does not necessarily indicate nest age but is most likely related to the nests having been used for breeding at some stage and being located in a moist environment. Generally, older nests contain some degree of stick bleaching, with some nests containing almost no bleaching as a result of low UV exposure through canopy cover. New nests are generally smaller, contain mostly unbleached sticks and may contain sticks with leaves still attached (note – new nests can show signs of algae staining). Nests that are no longer maintained or have not been used for many years may appear bleached throughout. Nests may also lose form, showing varying degrees of slumping and disintegration.

Never assume that because a nest was not used in the previous season that it is abandoned. Provided the site characteristics are similar, there is a reasonable chance that the eagles will return.

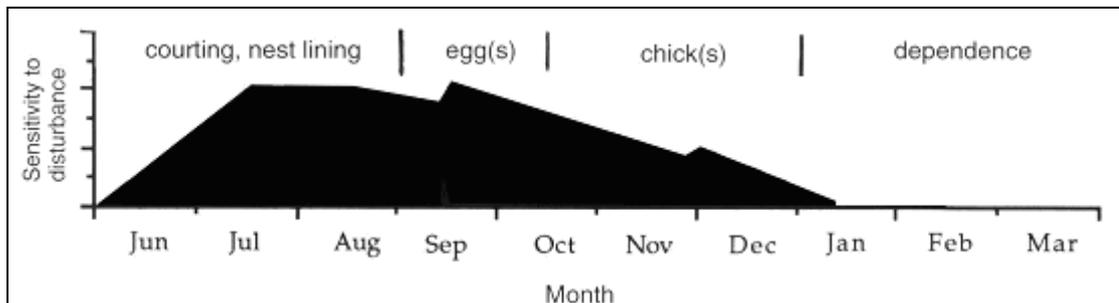
4. Nest disturbance

It is important to understand that eagles' sensitivity to disturbance varies during the breeding season. Generally, eagles are most easily disturbed at the start of the breeding cycle but sensitivity reaches its peak at the beginning of each phase (i.e. nest lining, egg laying, incubation, hatching and fledging).

The diagrams below highlight the fluctuation in sensitivity to disturbance throughout the breeding cycle for each species.



Sensitivity of the Tasmanian wedge-tailed eagle to disturbance while breeding



Sensitivity of the white-bellied sea-eagle to disturbance while breeding

The effects of disturbance are cumulative and:

- increase with intensity, proximity and duration of disturbance
- increase when the nest is the focus of disturbance
- increase with elevation above the nest
- are dependent on timing in relation to the breeding season
- are dependent on individual responses
- may decrease with regularity and predictability.

Birds may desert nests at any stage (i.e. eggs or chicks) if disturbance exceeds a certain threshold. Disturbance does not necessarily have to cause desertion to result in breeding failure, as birds can be kept away from the nest long enough for eggs or young chicks to become chilled and fail to survive. Stress induced by disturbance may also lower the chick's resistance to disease.

5. Searching for nests

Pre-operational searches for eagle nests are required when a search recommendation is delivered through the Threatened Fauna Adviser.

5.1 Who can search for nests?

Only those accredited through training should conduct or supervise nest searches. The more experienced a searcher is, the greater the chance of success. The following people are suitable:

- DPIPWE specialists
- Forest Practices Authority specialists
- private consultants accredited by FPA and the Threatened Species Section of DPIPWE
- Forest Practices Officers, Forest Planners and other persons accredited by FPA and the Threatened Species Section of DPIPWE.

5.2 When should searches be done?

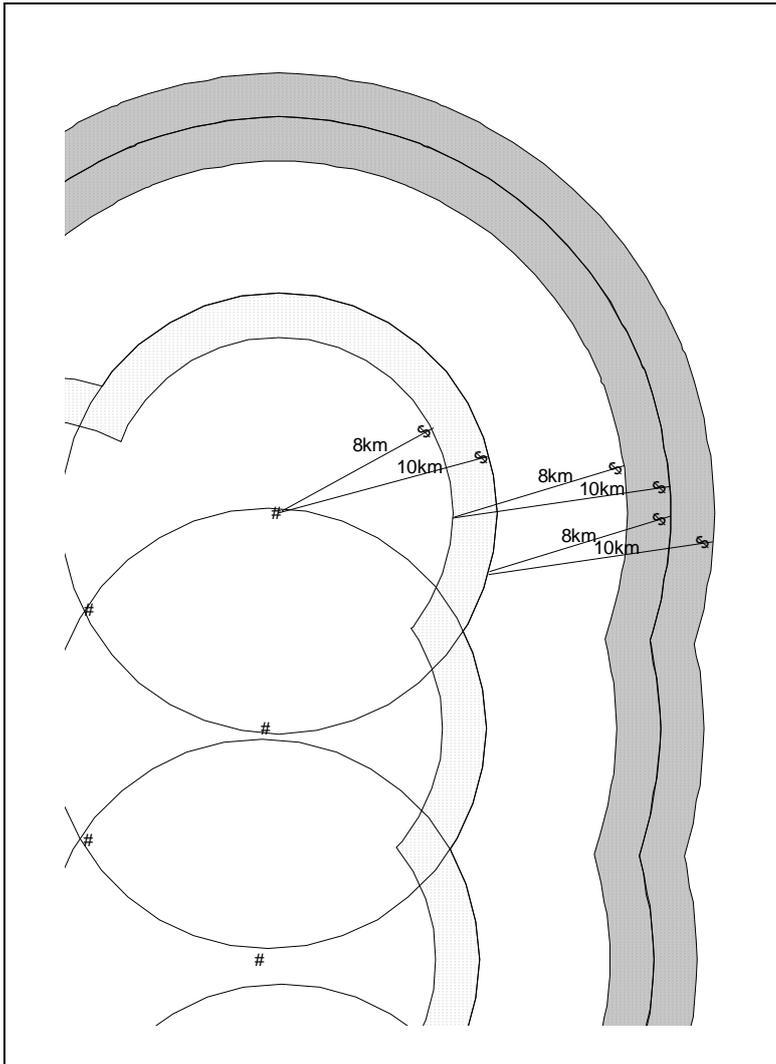
Searches should be conducted outside the breeding season (i.e. February – July inclusive). Specific advice should be sought from staff of the FPA Biodiversity Program if there is uncertainty about the likelihood of sea-eagle nests in a particular area. If a nest search is required during the breeding season of either species, approval will need to be sought from FPA biodiversity staff. Discovery of a nest through a search conducted during this period would result in a serious risk of nest desertion. Searching near a nest might cause the attendant adult/s to leave the nest and remain away for hours before the nest is found. Directed activity at a nest, such as observation from close range, may represent one of the worst kinds of nest disturbances. Such situations are best avoided by strategic planning of coupe searches to avoid the need to conduct searches within the breeding season.

5.3 Finding an eagle's nest

The key to finding new eagles' nests is good planning. The identification of suitable habitat with a high probability of containing nests is achieved through the use of forest type mapping, topography (slope, aspect and relief) and local nearest neighbour distance (NND).

The regular dispersion of wedge-tailed eagle territories provides an opportunity to predict where territories may be centred and therefore where nests may be found. This is also the case for white-bellied sea-eagles, however nests tend to be distributed more linearly along land/water boundaries.

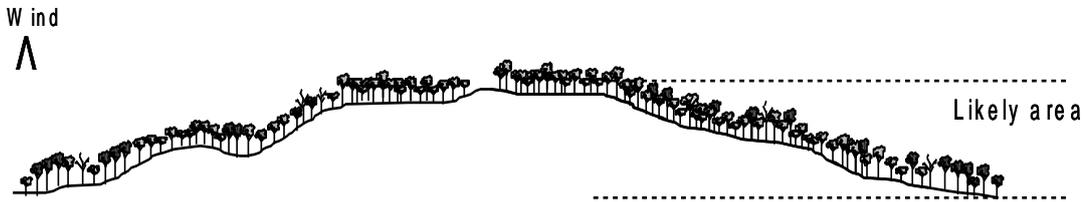
Throughout the state, distance between neighbouring active wedge-tailed eagle nests (the nearest neighbour distance) varies between 4 km and more than 20 km. This obviously makes stepping out nests on a map very difficult. However, NND is more consistent within districts. It is important to use information from an area as close as possible to that in question.



Consider a proposed logging area with an adjacent area where several neighbouring nests are known with NNDs of 8–10 km:

- Nearest new nests could be anywhere within the dotted area. Predicting more distant nest sites (grey areas) compounds the 'slop' in the prediction and quickly becomes an academic exercise using distance alone.
- In the areas of highest probability, we then look for patches of old-growth eucalypt dominated forest of more than 5 ha.
- The use of PI-type mapping is recommended in the assessment of nest search areas. This type of mapping identifies the average forest height. Forest height is one of the major factors determining nest site selection. Be aware that sometimes PI-typing will overlook potential sites where taller trees occur within forest of a lower height class.
- Note that it is good to use local knowledge as well as aerial photographs. Notwithstanding very good planning, there is no substitute for diligent observation.
- Corrections can still be made during the process of searching. This is particularly important during aerial searching where the elevated perspective offers opportunities to reassess the mapped search area.
- Site slope and the shelter offered by a site are important factors when attempting to predict the location of a nest. The vast majority of known nests are in a wind-sheltered position. Although there is a general tendency to shelter from north westerlies, this can be overridden by local conditions. Knowing the size of the hill or slope in question can be helpful in predicting where a nest may be found. Shelter from strong winds is so important that at nearly every site the nest is below the level of the ground at the ridge top.

Typical wedge-tailed eagle nest sites



Small hill

On a small hill the nest tree will probably be down the bottom of the slope.



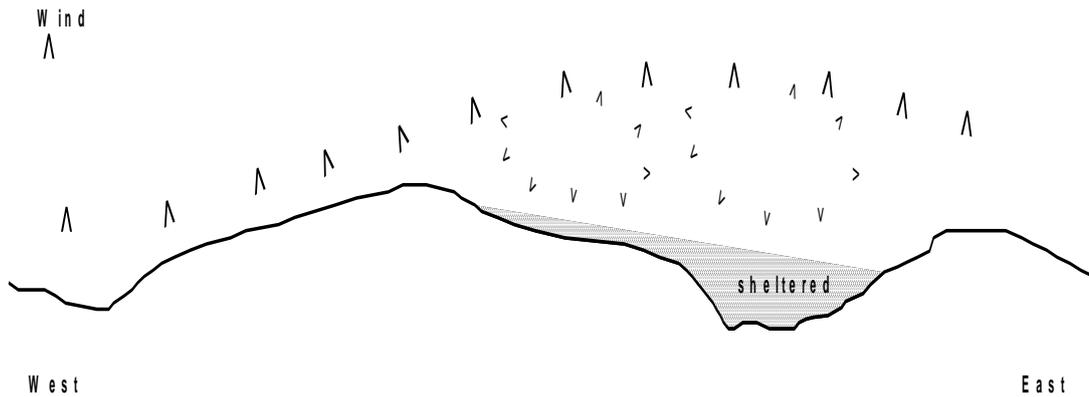
Medium hill

On a medium sized hill eagles can have the advantage of height yet still be sheltered which means that they can be in a broad belt between contours.



Large hill

On a large hill eagles have an even greater choice although they are usually less than half way up the slope, probably to avoid unnecessary effort when carrying prey up the hill.



Consider a gully with a large hill to the west. The westerly wind will be forced up and over the hilltop providing shelter on the leeward side. If the hill is large enough, it will also provide shelter on the opposite side of the gully on the western aspect. These are also sites that should be considered when undertaking forest planning and searching for nests.

There may also be disturbance factors (such as a quarry or house) that limit potential nest sites. Thus, an educated scrutiny of the terrain, in addition to localised disturbance factors, should greatly focus the search area. However, nests may still occur in areas considered disturbed as these will usually have been constructed prior to the disturbance.

Observation of eagles can be helpful in locating nests, especially in large areas of relatively homogeneous native forest. Begging fledglings and mating adults are rarely far from a nest. Adults doing their spectacular, undulating aerial displays are usually near a nest, although during the breeding season merely the sight of a neighbour can trigger such behaviour.

Other incidental behaviour such as an adult carrying food or nesting material can also focus search effort. At the least, a loci of adult activity warrants consideration in designing a nest search area.

A nest search area can, in most cases, be effectively designed within the office environment using contour maps and information on forest maturity and forest height. The use of Geographic Information Systems (GIS) to identify potential habitat can streamline the process and remove human subjectivity. Habitat modelling has proven to be a highly effective method

5.3 How should a search be done?

The method selected will be a reflection of the forest type, the experience of searchers and the funding environment. There are two main methods for searching for potential nest sites:

1. ground searching
2. aerial surveys.

Ground surveys

Searching on foot is particularly suited to drier, more open forests where visibility between trees and into canopies is good. Surveys on foot become less appropriate in thick, wet forests where visibility is poor between trees and into the canopy (meaning a searcher must walk beneath every single tree because of thick understorey). Ground searching is efficient for smaller areas containing less potential habitat (e.g. single coupes) but less efficient for larger areas containing more potential habitat (e.g. large hill slopes in inaccessible river valleys).

Ground surveys are best conducted by two people or more who walk about 50–100 m apart (depending on visibility; i.e. they are within cooee distance of each other), providing an overlap in the trees they are seeing. Potentially suitable areas are marked on a map prior to commencing the search. Searchers should walk along the contour at different levels to ensure that all areas of potential habitat are covered. Searchers should turn and look around at regular intervals – even large nests can be hidden surprisingly well from view from certain angles. All searchers should carry a GPS for recording nest locations and binoculars to be able to discern accumulations of bark from actual nests. In cases where the searchers are unsure, a good quality photograph can be referred to the FPA Ecologist for identification. If a nest is found, remember to record the location by GPS when standing as close to the nest tree as

possible, noting also the accuracy and datum. GPS units can also be used to set pre-determined routes or to log the track taken. Either method will ensure thorough coverage of the search area.

Ground searches should **never** be combined with other work – there is more than one example of a nest tree having a piece of blue flagging tape tied around it. Marking boundaries, searching for rare plants, measuring trees, etc should be done separately, or at a minimum, take extra people with you or spend longer searching.

Aerial surveys

Aerial surveys for locating nests are done by helicopter, not fixed wing aircraft. Helicopters can fly low and slowly enough for trained observers to find nests. Once again, trained eyes are best for this sort of work. It is important to have a very good idea of the areas that need searching. Helicopter time is expensive but can be very efficient in strategically searching a number of coupes or potential operation areas. It is very important that at least one of the observers (the most experienced) acts as a navigator, especially if a nest is located.

A ground survey could be conducted to verify the location of a nest located during an aerial search and if necessary this should be done as soon as practicable after the aerial search, while memory of the site is fresh.

5.4 Planning procedure

The same principles should be followed when planning aerial searches as for ground searches but, due to the expense of helicopter hire, it is recommended that the planning stage be particularly diligent.

The use of technology can streamline this process and aid in ensuring appropriated coverage of the search area. GIS mapping of habitat allows the search areas to be monitored while flying.

5.5 Searching procedure

Maps of the search areas are pre-prepared and one person (the most experienced) acts as the navigator ensuring that the areas are adequately covered before moving on. It is best for this person to be seated in the front, as this position has the best visibility. As a minimum, a GPS unit should be up-loaded with search area waypoints to aid navigation and to record a log of the track for verification. Two spotters should be used in the back, each seated by a window and all crew should be in intercom communication with the pilot. The main flight direction is to be controlled by the navigator (for safety issues the pilot overrides all) but spotters should communicate if a possible nest is seen and they wish to observe it more closely or if they feel an area has not been covered adequately.

The usual search method is to fly parallel transects following the contours. However, topography, weather conditions and safety considerations will ultimately determine the flight path. Narrow gullies are best investigated by flying up from the bottom. Flying downhill limits the view of the forest canopy, particularly that directly in front of the helicopter, but may be unavoidable in which case additional transects should be flown. The contour transect method is most effective in larger areas over even slopes, but the width of transects and flight speed need to be adjusted for the density of the forest crown.

A GPS connected to a laptop computer up-loaded with search area polygons in combination with real-time recording of the helicopter flight path can provide valuable feedback on the adequacy of the search. This method is especially useful in terrain where it is difficult to ascertain the helicopter's position relative to the topography (e.g. highly forested landscapes where there are few discernible features).

Helicopters hovering near a nest are particularly intimidating to eagles. Therefore, time spent near a nest with a helicopter must be kept to an absolute minimum. If a new nest is discovered whilst searching, a GPS fix (as accurate as possible) should be obtained without hovering over the nest for an extended period of time. If it is not possible to obtain a GPS fix quickly at or near the nest then the helicopter must be moved away from the nest (at least 300m) and the position of the nest estimated. A more accurate position of the nest can then be determined at a later date from the ground when it is required as part of the operational planning process.

Considerations for aerial searching

The type of helicopter employed can significantly influence the efficiency of a search. The following should be considered when planning aerial searches:

- Small diesel powered helicopters (eg. Robinson R22 and R44) are not suitable as they simply lack sufficient power when carrying four passengers and for negotiating tight gullies etc.

- Bell Jet Rangers can be used but their efficiency is reduced by a limited capacity to fly slowly with four passengers and to hover while recording nest coordinates. The alternative of carrying fewer spotters helps to lower flight speed and aid hovering but reduces the observed area.
- Aerospatiale Squirrels (either B, B1 or B2 models) are ideally suited to nest searching. Their ability to fly more slowly and to truly hover are both significant advantages. These aircraft have reserve power even when carrying five passengers and are less affected by tail winds and gusts. They also have more comfortable seats, an important consideration for when undertaking full-day searches.

5.6 Precautions for helicopter searches

The use of helicopters in close proximity to eagle nests during the breeding season poses risks to both eagles and the occupants of the helicopter. Human safety is paramount and wherever possible risky practices should be avoided. Protection of threatened species is also very important and every effort should be made to avoid detrimental impacts from human activity. Considerable time and money has been expended in efforts to protect eagle nests during forestry activities.

There have been reported cases of eagle collisions with helicopters in Tasmania; none have been fatal to humans but all have been fatal to the eagles. Many close encounters have been reported. Eagles of both species are capable of attacking and striking aircraft. Helicopters are particularly prone to strikes because of the nature of their flight (i.e. relatively slow and often indirect). Eagles are territorial, particularly during the breeding season, and will aggressively defend their territories from intruders. Aggressive behaviour usually is signalled by 'pot-hooking' displays (flying with extended feet and talons) but an attack may occur suddenly and without warning. Observers should be aware and convey eagle sightings to the helicopter pilot. All observers should then monitor the behaviour of the eagle while in the area.

Aircraft are perceived by eagles to be large birds and are therefore seen as a threat. The degree to which an eagle will be threatened by aircraft depends on several factors. They include:

A. Timing

- The time of year when the encounter occurs will significantly influence the likelihood of an attack. Territorial behaviour increases with the onset of the breeding season July to December, inclusive, for white-bellied sea-eagles and August to January, inclusive, for wedge-tailed eagles.

B. Proximity to an active nest

- The closer an aircraft is to an active nest, the greater is the likelihood of an attack. This applies both to horizontal and vertical distances. The zone of greatest risk is directly over the nest. Figure 1 illustrates the zone in which attacks are likely to take place. The altitude at which attacks will occur increases as a nest is approached, reaching a maximum over the nest.

C. Elevation

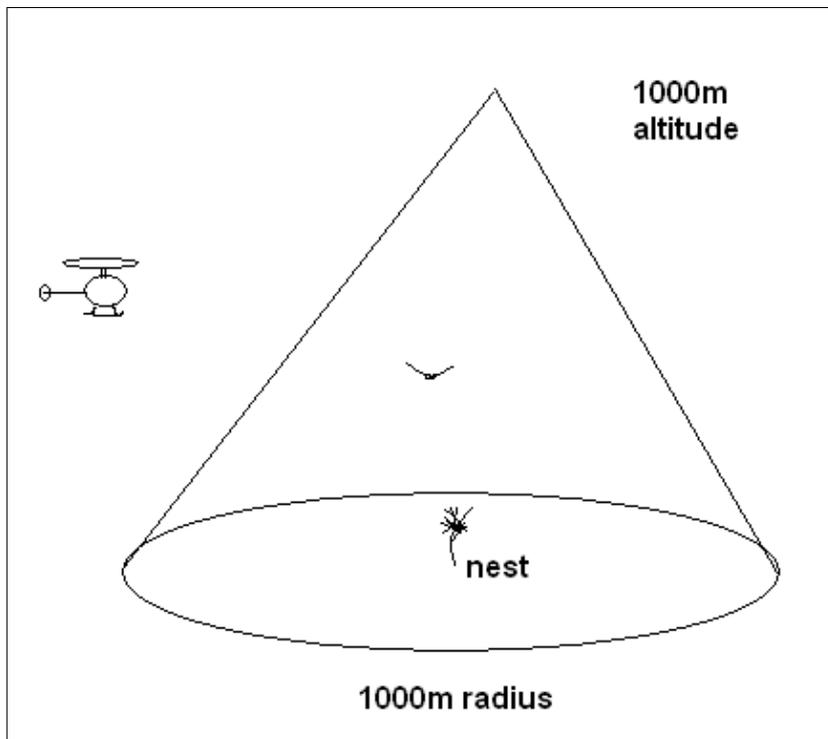
- The altitude at which the aircraft is flying will determine the likelihood of an aggressive encounter. The lower an aircraft is flying, the greater the risk of a strike.

D. Speed/Time

- Aircraft speed influences the time spent within a given distance of a nest and therefore the level of distress the eagles are subjected to. The longer an aircraft dwells in the zone of potential attack, the greater the risk.
- Aircraft speed will influence the risk of a strike by affecting both the chance of an eagle catching the aircraft and the chance of an eagle misjudging the air speed of the aircraft.
- A slow flying helicopter is easier to strike than a fast flying fixed-wing plane, if that is the birds' intent. Conversely, an eagle is more likely to misjudge the speed of a fast moving aircraft, if its intent is to threaten and not to strike.

E. Flight path

- Helicopters often fly in a circuitous path rather than in a direct line. The nature of this flight makes it more likely to aggravate an eagle and allow it to 'catch' the helicopter.



The diagram illustrates the potential zone of attack around an active nest.

6. What happens if a nest is found?

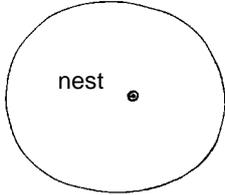
It is extremely important to keep the eagles at a nest. As far as they are concerned, nothing succeeds like breeding success. Desertions due to forestry activities or some other anthropogenic activity usually result in subsequent attempts to nest elsewhere in the territory, often in sub standard sites, where the whole disruptive procedure can just as easily be repeated. Thus, it is important to make serious attempts to keep the birds where they were first found. Each nest is important, whether or not it is active, because nests act as territorial flags and provide birds with alternative nests should the current nest fail. Individuals that will tolerate some disturbance have special value and must be assisted. It is possible they produce tolerant offspring – perhaps the only way for the future. It is critical to the continual use of nests that nest reserves are designed properly and that nest management prescriptions are **strictly** applied.

Reserves: The basic requirement for nest security is a reserve of no less than 10 ha (a circle of 360 m diameter or an oval of about 300 m x 400 m) of undisturbed habitat around the nest concentrated uphill. On slopes, this area should be oval shaped with a long axis up and down the hill and located so the nest is $\frac{2}{3}$ to $\frac{3}{4}$ down the reserve. The steeper the hill, the greater proportion of the reserve needs to be above the nest tree. A strong recommendation stands for a surrounding buffer zone of an additional 10 ha giving a circle of 500 m diameter in total or an oval of about 400 m x 600 m. The canopy height of this buffer should be maintained, although it can be selectively logged at 50% of old-growth stems fallen outward. Roading should be below and outside of the reserve and out of sight of the nest. When designing reserves, take into account the topography so that the reserve provides the maximum protection possible. When planning reserves, nests **should** be visited from the ground prior to implementing the reserve to confirm the correct location of the nest and to determine GPS co-ordinate accuracy and other related management issues.

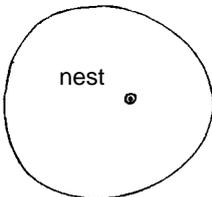
Timing: Forestry activities must not occur within 500 m or 1 km line-of-sight during the breeding season of either species. For example, logging might start near the nest in autumn and get further away as the breeding season approaches. The basic rule during the breeding season is that the later breeding disturbance occurs, the less harm it does.

The diagrams below indicate the recommended reserve design according to the slope of a site.

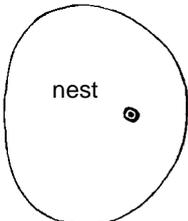
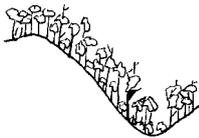
prevailing wind direction →



Low slope: basically oval with more protection on the windward side.



Moderate slope: more protection on the uphill side

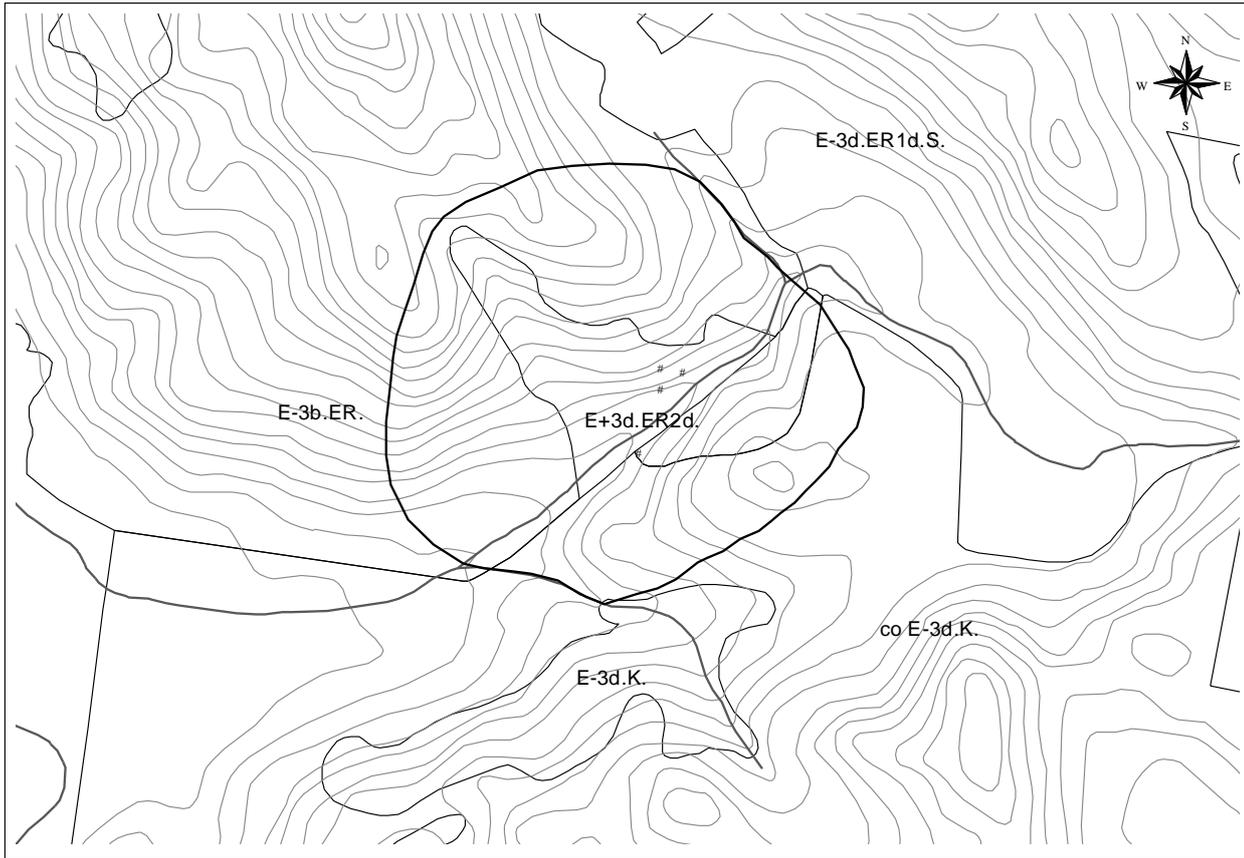


Steep slope: significantly more protection on the uphill side

7. Reserve Design

Reserve design is rarely simple. The diagram below illustrates a well-designed nest reserve for four nests. The reserve has been designed to follow natural boundaries such as creeks and ridges. The boundaries along the ridges extend to its far side to provide topographic and well as vegetative screens and help to protect the nests from visibility from above. As the aspect of the gully is south-west, the nests require protection from strong westerlies. Extending the reserve to the windward side provides this shelter.

What is designed in the office may occasionally prove to be inadequate in the field. The density of the surrounding forest will govern how well the retained forest shelters a nest from the elements and how well it screens a nest from visibility. When marking reserve boundaries in the field, bear in mind that the perspective from a nest is very different from the perspective from the ground. This means that from a nest, the eagles can see much further into the forest than is apparent from the ground.



The above map shows an example of a well designed nest reserve for four nests.

8. Nest activity assessments

Numerous nests may exist within a single territory but only one nest is used for breeding in a given season (multiple nests may be lined but only one is chosen for breeding). Therefore, it is possible to determine if a nest is inactive for that year and assess if forestry activities can occur within the 500 m or 1 km line-of-sight exclusion zones of that nest.

8.1 When can a nest activity be checked?

The breeding season of wedge-tailed eagles is 1 August to 31 January inclusive but this can vary with seasonal effects. The best advice is to avoid activities near nests during this period. If this is not possible, an activity check of the nest must be conducted to determine if the nest is being used. Nests can be checked from the ground with the use of a telescope or good quality binoculars from a suitable vantage point (a telescope means that nests can be checked from a very long distance).

Nest activity checking will only be permitted during specified times through the breeding season. These dates will vary from year to year. The FPA will notify FPOs of these dates each year. If you have not received this advice, contact FPA Biodiversity Program staff.

Nest activity checks must be done by people who have been accredited by FPA or TSS.

8.2 When is a nest active?

The activity status of a nest is determined by appropriate staff within the FPA Biodiversity Program.

As a guide, nest activity can be determined from a number of observations:

- The presence of green leaves or sticks with leaves attached indicates at the very least that the nest is being maintained (active).

- The presence of prey remains on or around the nest, although an active nest will not always have prey remains as they are regularly visited by scavengers.
- The presence of droppings on or around the nest, including on branches of the nest tree and surrounding vegetation
- Obviously, adults or a chick at the nest indicate activity, although adults nearby the nest may simply indicate that the nest is occupied territory.
- Bleached, grey sticks – particularly on the top of the nest – suggest no recent use, whereas brown, unbleached sticks are fairly recent additions.

8.3 Important principles to consider before activity checking a nest

1. The coordinates of a nest proposed for breeding season checks should be accurately known so that the nest can be approached quickly without the need for 'searching'.
2. Outside the breeding season, a vantage point from which the nest can be observed should be established. It is recommended that this point be recorded by GPS so that it can be easily located during the breeding season.
3. Nests whose locality is unconfirmed should not be assessed during the breeding season.

8.4 Procedure for activity checking

All nests must be regarded as **ACTIVE** until otherwise confirmed by FPA Biodiversity Program staff. Activity checks should be conducted in a way that *avoids disturbance*. The procedure to be followed is given below:

1. **Inform FPA Biodiversity Program of intent to check a specific nest for activity and obtain approval to approach the nest** (as required under Recommendation 3 for this species from the Threatened Fauna Adviser Program). You will need to seek landowner's/land manager's permission before undertaking activity checks of nests on adjacent land.
2. A **maximum of two people** are to do the checking.
3. **No more than 20 minutes is to be spent within 100 m of a nest** to establish if the nest is active and record observations. If the nest can be observed from greater than 200 m away then the time allowed can be extended up to 1 hour.
4. **Noise must be kept to an absolute minimum**, there should be no need for any significant noise, especially loud talking etc.
5. **Plan to approach the nest from uphill** to give the best possibility of observing nest contents. Only approach the nest as closely as you need to make the observations, but go no closer than 50 m.
6. If a bird is observed on the nest or in the immediate area, including circling overhead, **leave the nest vicinity immediately** (i.e. move at least 500 m away from the nest).
7. Complete a Nest Activity Assessment Form and forward immediately to the FPA Biodiversity Program. Written approval must be obtained from FPA Biodiversity Program before breeding season operational restrictions are lifted.

9. Planning for good nest management

There are some additional considerations that should be considered when managing eagle nests.

- Planning should aim to reduce the need to undertake activity checks. For all recently active nests, plan forest operations and other developments to take place outside the breeding season.
- Assess carefully the need for nest searches when planning roads, quarries, walking tracks and any other form of land development in addition to forest harvesting operations.
- Where roads pass through or close to nest reserves, consideration should be given to rehabilitation or gating of these roads and keeping gates locked during the breeding season. Where roads are required for access to operational areas, such operations should be programmed for outside the breeding season.
- When planning for plantation establishment, consider the implications of breeding season restrictions on the management of these areas. Plantations are likely to require the monitoring and control of browsing mammals, leaf beetles and weeds. They may also require more ongoing management, such as fire control and thinning. Each of these activities may be restricted subject to the activity of nearby nests.
- If bark heaps close to nests require burning, this should be conducted as early as possible and should be extinguished prior to the breeding season if there are disturbance issues.

Further reading

Brown, WE and Mooney, NJ 1997, *Modelling of the nesting habitat of the wedge-tailed eagle (Aquila audax fleayi) in Tasmania*, report to Tasmanian RFA Environment and Heritage Technical Committee.

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Wiersma, J, Koch A, et al. 2009, 'Eagle Nest Monitoring Project – year 1 2007–2008, Establishing monitoring sites and investigating the relationship between nesting success of the Tasmanian wedge-tailed eagle and environmental variables', *Forest Practices Authority Scientific Report 8*, report to Roaring 40s and the Forest Practices Authority..

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Raptor Nest Search Form

Coupe No.: Grid Coordinates:mEmN (GDA)

Action	Person	Date	Result
Previously searched?			
Potential nesting habitat assessment			Potential nesting habitat area (attach map)
Notification of FPA			Search area verified/extended (mark on map)
Search of nesting habitat	Person-hours:		Search results (mark area searched on map)
Follow-up search(?)	Person-hours:		
Notification to FPA			
Nest site/reserve added to planning maps/GIS			

Raptor Nest Record Form

Nest number and name (Office use only):

SPECIES:

OBSERVER: name, address, phone/fax

DATE OF THIS REPORT:

WHEN WAS THE NEST FOUND?

HOW WAS THE NEST FOUND? eg. during pre-logging search, during forestry operation, etc.

HAD THE AREA BEEN PREVIOUSLY SEARCHED? give detail

LOCATION OF NEST:

Nearest feature:

FPP number: Coupe number:

Grid Coordinates:EN Mapsheet:

Datum (GDA/AGD): GPSed? YES / NO Accuracy (m)

NEST SITUATION: was it in a tree (species?), on a cliff, or on the ground?

HISTORY OF NEST USE: known breeding attempts? results?

NEST DISTURBANCE: forestry, recreation, roading, building, etc.?

WHAT WAS SEEN? eggs, birds, droppings, nest material, prey, etc.?

Raptor Nest Activity Assessment Form

- Ground assessments are NOT to be conducted if the weather is cold or wet.
- Time within 100m of the nest not to exceed 20 minutes.
- Time within 200m of the nest not to exceed 1 hour.

Specialist Use Only	
Activity Classification	
Active	
Not in use	
Requires Confirmation	

Nest Number:		Date:	
Observer Name and Contact Details:		Location Name:	
Environmental Variables Estimated Temperature: Fine / Overcast / Showers (Please circle) Notes:		Grid Reference of Nest Datum (circle): GDA AGD <p style="text-align: center;">digits</p> Easting (6) Northing (7) Co-ordinates where you observed nest Easting (6) Northing (7)	
Start Time: (hh:mm) :(hh:mm) :	Finish Time: :	Duration (mins):	
Nest Description:(Provide any further comments relating to what was observed.)		Were any of these observed on the nest? (Each box MUST be marked Yes/No or Not Assessed)	
		Green Leaves	
		Fresh (brown) sticks	
		White wash (droppings)	
		Flat compressed nest top	
		Nest Bowl (concave nest platform)	
		Brown leaves on nest	
		Down on/around nest	
		Nest Partly/mostly bleached	
		Nest condition Poor/average/good/excellent	
If the nest has no vantage points or you believe the nest cannot be accurately assessed tick this box		Tick Here	
Make sure all boxes have been marked		Prey remains	
Bird on nest or nearby (note age if possible)			
Bird Activity Observed: (Write a description of what was observed e.g. Two birds soaring over the nest, bird carrying sticks)			
<i>Note: Be specific in your description. Comments such as "nest untidy" (common to all nests) provide little detail</i>			

Activity assessment – nest examples



Nest with compressed flat top
(Flat from chick moving on top or past year)



Nest bowl
(dished surface or evident here as chick sits low in nest)



Nest has no vantage point
(This nest cannot be assessed accurately)



Brown leaves and whitewash
(Obvious addition of leaves and whitewash)



Recently added green leaves
(Recent addition of leaves and some whitewash)



Nest partly or mostly bleached
(No brown sticks, green leaching present)



Photography captured by B.S Plumptre and V.N. Thompson

Nest Bowl



Photographed by Chris Bond

Flat Top



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Version Control

Version	Date	Author(s)	Summary of changes
2	July 2009	Biodiversity Section Staff	Document previously available on FPA website revised, including creation of new nest activity assessment form and addition of nest example photographs. Previous revisions pre-date document control.
2.1	Feb 2011	Nina Roberts	Two additional photos and diagrams added to final page to illustrate difference between nest bowl and flat top nests. The addition of document control information. The wording of this document is otherwise identical to that approved by the FPA Biodiversity Manager in early 2010.
2.2	June 2012	Biodiversity Staff	2.1 edited (5.5, page 8) to clarify the action that should be taken when a nest is found during searching. Year taken off form.