

Action Statement

Flora and Fauna Guarantee Act 1988

No. 37 (revised in 2006)

South-eastern Red-tailed Black-Cockatoo *Calyptorhynchus banksii graptogyne*

Preamble

This Action Statement complements the National Recovery Plan (Anon 2006) prepared by the South-eastern Red-tailed Black-Cockatoo Recovery Team, but has a Victorian focus.

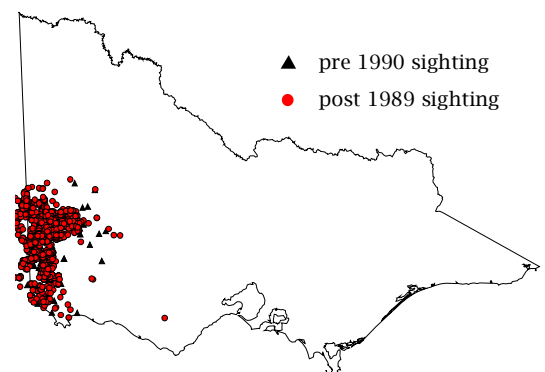
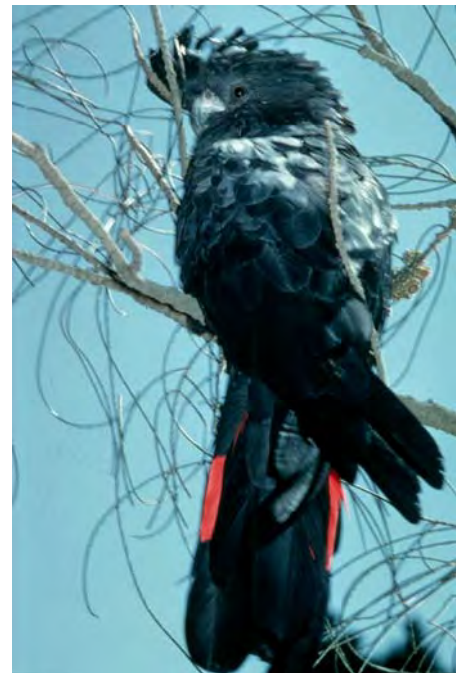
Description

The Red-tailed Black-Cockatoo *Calyptorhynchus banksii* is one of five species of black-cockatoo that comprise the endemic Australian genus *Calyptorhynchus*. The South-eastern Red-tailed Black-Cockatoo *C. b. graptogyne* (Schodde, Saunders and Homberger 1989) is the smallest of five subspecies of the Red-tailed Black-Cockatoo. Adult female *graptogyne* are the brightest and most boldly marked of females across the subspecies.

The South-eastern Red-tailed Black-Cockatoo has a specialised diet – it eats only the seeds of two species of stringybark eucalypts, Desert Stringybark *Eucalyptus arenacea* and Brown Stringybark *E. baxteri*, plus the seeds of Buloke *Allocasuarina luehmannii*. Seeds of these three trees are small and enclosed within a hard woody capsule. The bill of the South-eastern Red-tailed Black-Cockatoo is finer than that of the other subspecies, presumably an adaptation to this specialised diet.

Population Size

Estimating population size and trends in population size are made difficult by the cockatoo's mobility, low visibility when feeding, and difficulties of access to some stringybark woodlands. However, annual organised counts, using numerous volunteer bird observers, are used to estimate population number. These indicate a total population of about 1000 birds, including 600-700 breeding adults (Anon 2006).



Because immature black-cockatoos are difficult to distinguish from adult females, but adult males are distinctive, estimates of the proportion of mature males in post-breeding flocks are used as a measure of annual recruitment to the population. Since 1999 these estimates indicate that recruitment was strong in 1999 and 2005 (years when the availability of seeds from both stringybark species was high), but in the intervening years the proportion of adult males rose, suggesting poor recruitment. A longer data series is required to determine long-term population trends.

Distribution and Habitat

The South-eastern Red-tailed Black-Cockatoo occurs as a single population within an 18 000 km² area of south-western Victoria and south-eastern South Australia. It forages and breeds throughout this area. The eastern boundary of its core distribution can be approximated by lines joining Portland, Casterton, Harrow, Kanagulk and Natimuk. The usual northern boundary is the southern edge of the Little Desert but flocks occasionally move as far north as the Western Highway. South-eastern Red-tailed Black-Cockatoos are highly mobile and occasional records are received from well outside the core distribution.

The South-eastern Red-tailed Black-Cockatoo requires woodlands of stringybark and Buloke for foraging, and large hollows in eucalypts for nesting.

Feeding Habitat

Stringybark woodlands provide the year-round staple food, in the form of seeds from two species of stringybark *Eucalyptus* - Desert Stringybark *E. arenacea* and Brown Stringybark *E. baxteri*. The other critical feeding habitat is Buloke *Allocasuarina luehmannii* woodland that occurs mostly north of Edenhope and provides food, in the form of Buloke seeds, between December and April.

Most records of Red-tailed Black-Cockatoos in Victoria are in three stringybark Ecological Vegetation Classes (EVCs); Heathy Woodland, Heathy Herb-rich Woodland and Damp Sands Herb-rich Woodland. However, there are numerous other EVCs within the species' range in which one of the two species of stringybark can be dominant or co-dominant (Anon 1999; Hill and Burnard 2001) and which also provide feeding habitat. South-eastern Red-tailed Black-Cockatoos selectively use stringybark trees (both species) with a large girth and a large canopy volume. These large trees also have higher capsule densities (number of capsules per branch) and larger crop size (total seeds per tree) (Koch 2003). Each patch of stringybark forest will set seed only once every few years (Brown

Stringybark seeds on a 2-4 year cycle, Desert Stringybark on a 3 year cycle). Therefore, the birds must move at a landscape scale to locate the best available seed crop at any given time.

Buloke seed is available in late summer and autumn but there is considerable annual variation in seed crop size. Red-tailed Black-Cockatoos selectively use Buloke trees with higher densities of cones, larger cones and more seeds per cone (Maron and Lill 2004). Although known to occasionally feed in young Bulokes, Red-tailed Black-Cockatoos show a strong preference for feeding in larger Bulokes that are over 100 years old, and may be 300-400 years old (Maron and Lill 2004). The majority of such Buloke trees are on private land - in one study 62.5% of Buloke feeding trees were on private land (Maron 2000).

Nesting Habitat

The single egg is laid in a wide and deep, near-vertical, hollow spout in a eucalypt, usually River Red Gum *E. camaldulensis*, but Yellow Gum *E. leucoxylon*, Manna Gum *E. viminalis*, Pink Gum *E. fasciculosa* and stringybarks are also used. Suitable spouts occur only in very old eucalypts, dead or alive. To be successful, a nest needs to be within about 5 km of stringybark woodland of at least 5 ha with a seed crop. A nest tree can be a single isolated paddock tree or within a forest block. Breeding seems to occur in loose colonies - frequently, several nests are found within about one km². Some breeding areas are used in most years, whereas others appear to be used less regularly.

Nest trees tend to be found in farmland rather than woodland, and are more often dead than alive. However, this may be an artefact of the higher frequency of dead trees in farmland combined with the greater ease with which farmland nest sites can be located.

Known nest trees ranged in height from 8-32 m (mean 17.5 m) and diameter at breast height (DBH) ranged from 48-198 cm (mean 115.5 cm). Nests were between 6 and 23 m above ground (mean 11.4 m) and were more likely to be found in spouts in major branches than in the trunk. Tree density in farmland in a one hectare quadrat around and including the nest tree averaged 3.1 trees/ha. Nest trees were on average 0.4 km from the nearest potential drinking site (dam/trough/lake) (W. Emison unpublished data).

Roosting Habitat

Red-tailed Black-Cockatoos use clumps of tall eucalypts for roosting, and sometimes use the same site each night for many months (Recovery Team unpublished data). Of 20 roost sites described in detail, 75% were in clumps of River Red Gum, 15% in Yellow Gum and 10% in Manna

Gum. Fourteen of these sites (70%) were on private land. River Red Gums chosen for roosting were on average 80 cm (57-91 cm) DBH and 26 m in height. The distance from the roosting tree to the nearest neighbouring tree was an average of 6.2 m (range 1-11 m). Manna Gums chosen for roosting were slightly smaller – mean DBH of 64 cm (32-108 cm), 20 m in height and 3.9 m from the nearest neighbouring tree (Recovery Team unpublished data).

Life history and ecology

The staple diet of the South-eastern Red-tailed Black-Cockatoo for most of the year is stringybark seed. For a period of 2-3 months in late summer and autumn, the seeds of Buloke can be a very important source of food in years when it has seeded prolifically. Up to 300 birds have been recorded foraging in Buloke woodlands during summer and autumn (R. Hill unpublished data).

Usually, the single egg is laid in spring and juveniles are recruited into the population in late summer-early autumn. If a nest attempt fails a second clutch may be laid as late as February, and active nests have been recorded in all seasons.

Conservation status

That the south-eastern population Red-tailed Black-Cockatoo should be considered a subspecies was first suggested by Ford (1980) and *Calyptorhynchus banksii graptogyne* was formally described in 1989 (Schodde *et al.* 1989).

National conservation status

The South-eastern Red-tailed Black-Cockatoo has been listed as 'endangered' under the Commonwealth **Environment Protection and Biodiversity Conservation Act 1999**.

Victorian conservation status

The South-eastern Red-tailed Black-Cockatoo has been listed as threatened under the **Flora and Fauna Guarantee Act 1988**.

The South-eastern Red-tailed Black-Cockatoo is considered 'endangered' (C2a) in Victoria (Anon 2003).

Decline and threats

Food availability

Food availability is thought to be a key determinant of population size in the South-eastern Red-tailed Black-Cockatoo (Hill 2000).

Stringybark seeds

In the past (pre 1990), fire management practices are believed to have significantly reduced food availability in stringybark woodlands. This is because most fire, whether wildfire or deliberate

fire for fuel-reduction or ecological purposes, scorches or removes some or all of the stringybark canopy, producing a significant reduction in fruit production for 9-11 years after the fire (Koch 2003). This effect had been suspected for some time and in 1989 a moratorium on block burning was implemented in the Red-tailed Black-Cockatoo's range within the Horsham Forest Management Area – perimeter strips are now burnt instead. This moratorium has almost certainly increased stringybark food availability (Koch 2003).

The Portland Fire Protection Plan (DSE 2004) and Horsham Fire Protection Plan (DSE in prep) provide for managing fire at the landscape level aimed at meeting objectives for fuel management whilst maintaining adequate food resources for the Red-tailed Black-Cockatoo. Both plans include as an objective 'in areas identified as critical habitat for the Red-tailed Black-Cockatoo, a minimum of 85% of the forest will not have experienced a crown-scorch fire event for at least 10 years'. Prescribed burning will be implemented in accordance with fire management zoning for the respective Fire Districts and in accordance with this broader objective. Pre-burn surveys are now being used to identify forest patches carrying fresh seed crops, and, where necessary, burning plans are rescheduled to avoid these. Fuel reduction burns not only provide a level of fire protection to local human communities and assets, but also help to prevent the spread of wildfires, and therefore help protect the cockatoo's stringybark habitat.

Detailed mapping of all fires on Victorian public land during the past 30 years has enabled an accurate estimate of the fire history of stringybark-dominated woodlands within the range of the Red-tailed Black-Cockatoo. These data show that 87% of the area of stringybark woodland on public land within the range has been unburnt for more than 9 years. About half (8480 ha) of the 13% that is less than 10 years since fire falls within priority fuel-reduction areas intended to help prevent the spread of wildfire and to protect built assets. Therefore, there is little opportunity to further reduce fire frequency on public land within the Victorian range of the Red-tailed Black-Cockatoo. Equivalent data are not available for stringybark-dominated woodlands on freehold; however, it appears that most stringybark woodland within the range of the Red-tailed Black-Cockatoo is infrequently burnt and that there is little opportunity for substantial gains in food availability by increasing fire interval. However, fuel reduction burns that do not scorch the eucalypt canopy can be achieved when climatic and fuel conditions are favourable, and this should be the aim of all fuel reduction burns in stringybark woodlands. It is important to protect large areas of stringybark woodland from wildfire and to

prioritise important feeding areas in fire protection plans.

Buloke Seeds

In years when Buloke sets seed prolifically, recruitment of immature birds into the population tends to be higher (recovery team unpublished data), indicating the nutritional value of this food to the population.

There are no data available on the extent of the loss of Buloke trees within the range of the South-eastern Red-tailed Black-Cockatoo, but less than 3% of the original vegetation community remains in the broader Wimmera Bioregion. Most Buloke woodland consists of scattered trees on freehold land and these are being steadily lost through tree decline related to pastoral or agricultural activities, senescence, or physical removal (see Habitat Loss).

Buloke is a very slow growing tree and those preferred by the cockatoos are very old. Critically, a Buloke of 19 cm DBH (one of the smallest in which a Red-tailed Black-Cockatoo has been observed feeding) could be around 100 years of age (L. Morcom, University of Ballarat, unpublished data). Trees preferred by the cockatoos are usually at least twice as large, and presumably much older (Maron and Lill 2004). Replacement of Buloke feeding habitat is clearly very difficult and slow, thus the loss of Bulokes through deliberate destruction and through on-going rural tree decline is a serious concern.

Habitat Loss

An estimated 62% of the original woodland habitats of the South-eastern Red-tailed Black-Cockatoo has been lost through clearing for agriculture. Extensive areas of stringybark feeding habitat remain (c. 48%), however, gum woodlands, the main provider of large hollows, have been extensively cleared (c. 3% remain), as have Buloke woodlands (c. 3% remain) (Anon 1999; Croft *et al.* 1999).

Permission to clear blocks of woodland vegetation in South Australia and Victoria is rarely granted, but applications to clear paddock trees have been regularly approved in the past. In recent years approvals to clear have had stringent offset requirements that protect other mature Bulokes or eucalypts. Estimates of rates of loss of paddock trees in south-eastern Australia of up to 40% in 30 years indicate that few paddock trees will survive this century if current rates of attrition continue (Carruthers and Paton in press). Further, revegetation offsets are yet to be proven as an effective replacement habitat, at least in the short-to medium-term (Carruthers and Paton in press). Offset plantings of Buloke will not become suitable cockatoo foraging habitat for at least 100 years (Maron and Lill 2004).

In recent decades, the steady intensification of farming practises, particularly the conversion of sheep pasture to cropping, has led to increasing pressure to remove trees from paddocks. Maron (2005a) found that over a 15 year period (1982-1997) Buloke tree loss averaged 33% in three cropping areas and 21% (and as low as 4%) in a predominantly sheep grazing area. The most significant factor in the loss of trees was the installation of centre pivot irrigation systems, a new development in the West Wimmera. However, other standard farming practices can lead to a slow decline in tree health and eventual death. On-going tree decline, due to a variety of factors including stock camping beneath trees, rubbing of bark by cattle or horses, and the burning of crop stubble, probably affects most of the Red-tailed Black-Cockatoo habitat on private land, and the vast majority of Buloke feeding habitat. Fencing of isolated trees and woodland patches is the most effective way of reducing tree death rates and allowing regeneration of Buloke feeding habitat in agricultural land (Maron 2005b). Low-impact farming activities, such as grazing of sheep, result in a low rate of tree loss and are recommended for important stands of Buloke that cannot be fenced off.

While a level of regeneration is occurring along roadsides, it mostly consists of dense stands of suckers that are very slow growing and will not provide quality feeding habitat for the Red-tailed Black-Cockatoo for many decades at best (Maron 2005a). However, there is potential to hasten this process by thinning these regrowth stands.

Harvesting of firewood from public and freehold land, by commercial operators and private individuals, is also a concern because it may result in the loss of nest trees, or trees with the potential to develop into nest trees. Dead standing timber is protected on public land, but a level of illegal felling continues (R. Hill, personal observation). Most of the dead potential nest trees on public land arose from ring-barking of Red Gum woodlands early last century. Many of these trees are now collapsing and the rate of loss is likely to increase as the dead trees get older. The rate of loss of ring-barked Red Gums is high: 40% of 25 study trees disappeared in a 6-10 year period in the 1990s (4-7% p.a.) (R. Hill unpublished data).

Dead vegetation on private land is not protected by native vegetation clearance controls but Environmental Significance Overlays offer some protection to dead hollow-bearing trees in most of the bird's breeding range in Victoria.

Where stringybark forest abuts pine plantations (*Pinus radiata*) invasion of pine seedlings (often termed pine wildlings) poses a significant threat. In areas of highest wildling density up to 40% of

stringybark trees are either dying or senescent (J. Cook unpublished data). Fire is seen as the most appropriate tool in the broadscale management of pine wildings adjacent to the plantation interface. However, there is a potential tension between the need to reduce the impact of wildings and the impact of fire intensity on the food supply for the Red-tailed Black-Cockatoo. Physical removal of wildings may be preferable in some circumstances.

The most serious medium- to long-term threats to this cockatoo include the loss of dead hollow-bearing trees, lack of regeneration of future hollow-forming trees on private land, deliberate removal of paddock trees and the continuing decline in the health of living trees on farmland.

Recruitment

The key factor constraining recruitment into the population is food availability during the nestling and fledgling stages. When the availability of stringybark seed is low, a male may struggle to harvest enough of the minute seeds to adequately provision the incubating female or the nestlings. A hungry female is forced to leave the nest to forage for herself, leaving the nest contents exposed to predators such as ravens, the Lace Monitor and the Common Brushtail Possum. Human interference, in particular the robbing of nests for the avicultural trade, has also been identified as a potential threat to the Red-tailed Black-Cockatoo population.

Climate Change

Predicted changes to climate under enhanced greenhouse scenarios threaten to (amongst other impacts) increase the frequency and extent of wildfire within stringybark forests of south-western Victoria. This outcome would pose a significant threat to food resources available to the Red-tailed Black-Cockatoo.

Existing conservation measures

Conservation attention has been focussed on the South-eastern Red-tailed Black-Cockatoo since the early 1980s. The key developments in this conservation effort are:

- Joseph (1982) undertook the first detailed survey for the SA Government. He clarified the bird's range, confirmed its dependence on Brown Stringybark seed, reported Buloke as an additional food source, and cited clearing of Brown Stringybark as the main threat to the bird.
- Joseph *et al.* (1991) reported to the Victorian Government that the subspecies was endangered, numbering only 500-1,000 birds. They described feeding, nesting and roosting

habitats, and stressed the importance of dead trees as nest sites.

- Emison *et al.* (1995) began studying nesting habits and success for the Victorian Government in 1988, with support from the World Parrot Trust during 1992-95.
- In 1989 burning procedures in stringybark forests of the Horsham Forest Management Area were modified to boundary strip burns in recognition of the impact of crown fires on seed production.
- In 1993 a Flora and Fauna Guarantee Action Statement (Venn and Fisher 1993) provided a focussed list of management actions.
- In 1996 Birds Australia assumed a prominent role in work for the Red-tailed Black-Cockatoo with the first Recovery Plan produced (Garnett and Crowley 1996) using funds from the Natural Heritage Trust.
- A recovery team was formed in 1996 to facilitate implementation of the recovery plan throughout the taxon's range.
- All of the known biological information was collated in Higgins (1999).
- Several detailed plans have been prepared – a Habitat Management Plan (Hill and Burnard 2001) and a revised National Recovery Plan (Anon 2006).
- Landholder's understanding of and attitudes towards conservation of the South-eastern Red-tailed Black-Cockatoo have been surveyed (Beumer 2003).
- Research has been completed on breeding success, habitat use and ranging behaviour (Hill 2000), factors limiting food supply in stringybark (Koch 2003) and Buloke (Maron 2000, Maron and Lill 2004), on nest predators (Jarmyn 2000), and farming impacts on Buloke tree loss and recruitment (Maron 2005a and 2005b).
- The revised Portland and Horsham Fire Protection Plans (DSE 2004, DSE in prep) include broad protocols aimed at maintaining eucalypt seed availability in stringybark forests.
- Non-government conservation groups have increasingly supported efforts to protect habitat through a range of actions including property purchase, registration of conservation covenants on title, lobbying of all tiers of Government and public education.
- A tender-based conservation program that will provide financial support to landholders who agree to manage Red-tailed Black-Cockatoo habitat has been initiated by the Wimmera Catchment Management Authority with funds from the Natural Heritage Trust.

Conservation objectives

Long-term objective

To shift the status of the South-eastern Red-tailed Black-Cockatoo from endangered to vulnerable within 20 years. This will require the population to increase to greater than 1000 mature individuals with no evidence of an on-going decline in number (based on Species Survival Commission 2001).

Objectives of this Action Statement

1. To monitor distribution, abundance and population trend.
2. To maintain the extent and quality of existing feeding habitat.
3. To maintain current availability of nesting habitat.
4. To minimise the impact of nest predators.
5. To increase community awareness and involvement in conservation of the South-eastern Red-tailed Black-Cockatoo and its habitats.

Intended management actions

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation System. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.

Objective: Monitor distribution, abundance and population trend

1. Conduct an annual count to determine total minimum population size and estimate range.
Responsibility: Recovery Team
2. Conduct annual flock counts in autumn to measure the proportion of adult males in flocks as an index of recruitment. The mean value for 1998-2000 of 37% adult males will be used as a benchmark.
Responsibility: Recovery Team
3. Map annual location records showing separately (a) nesting season locations (b) post-fledging locations and (c) winter roost locations.
Responsibility: Recovery Team

Target:

- By 2011, five annual counts will have been completed and documented. Population data over 13 years (1998-2010) will then be available for analysis of trends in key parameters.

Objective: Maintain extent and quality of existing feeding habitat

A map of existing and potential feeding habitat has been published in the National Recovery Plan (Anon 2006) and that plan considers all existing feeding habitat to be 'habitat critical for survival', as defined under the Commonwealth **Environment Protection and Biodiversity Conservation Act 1999**. This map should be used to inform all planning decisions that could affect Red-tailed Black-Cockatoo habitat. DSE will collaborate with relevant Shires to ensure that remnant and planted habitat is protected to the greatest extent possible. Where clearing is permitted, it is important to ensure that offset works are of real benefit to the Red-tailed Black-Cockatoo. Monitoring of habitat loss, compliance with offset requirements, and success of offset works, will need to be undertaken to gauge the impact of these permit conditions on the conservation of the Red-tailed Black-Cockatoo. DSE, CMAs and Shires will assist landholders in their efforts to protect Red-tailed Black-Cockatoo habitat by making them aware of funding opportunities and providing advice on methods of habitat protection and enhancement. Landholders will be encouraged to place covenants on protected areas, and Shires will be encouraged to introduce a rate reduction policy for areas so protected.

Changes to fire management represent the best opportunity for increasing food availability for the South-eastern Red-tailed Black-Cockatoo population (Koch 2003). Planned fire in stringybark woodlands will be managed in accordance with the objectives outlined in the Portland Fire Protection Plan and draft Horsham Fire Protection Plan - in areas identified as critical habitat for the Red-tailed Black-Cockatoo a minimum of 85% of stringybark forest will not have experienced a crown-scorch fire event for at least 10 years. Wherever possible, areas will not be burnt if the stringybark trees are carrying a fruit crop less than two years old. Further, all planned fires in stringybark woodlands within the range of the Red-tailed Black-Cockatoo will be managed to minimise canopy scorch.

The effectiveness of thinning dense regrowth stands to increase Buloke growth rates and seed production needs further investigation, as does the potential to encourage suckering by disturbance to root systems.

4. Map areas in order of priority for remnant protection and revegetation.
Responsibility: Recovery Team in conjunction with DSE
5. Inform all relevant agencies of habitat mapping and how it relates to planning.
Responsibility: Recovery Team in conjunction with DSE

6. Develop management guidelines for remnant habitat.
Responsibility: Recovery Team in conjunction with DSE and DSI
7. Establish co-operative arrangements with plantation companies regarding control of wildling *Pinus* trees in stringybark forests.
Responsibility: DSE, DPI and Parks Victoria
8. Monitor offset plantings and protected areas to ensure that they have the highest possible chance of providing Red-tailed Black-Cockatoo habitat into the future.
Responsibility: DSE, Recovery Team and Shires
9. Develop and implement a fire management plan for stringybark feeding habitat, including monitoring of seeding phenology of stringybark species in areas identified for burning and avoidance of stands that have produced fruits within the previous two years.
Responsibility: DSE
10. Use GIS data of canopy scorched area to monitor annual changes.
Responsibility: DSE
11. In regrowth Buloke conduct trials of the efficacy of stand thinning to increase growth rates. Continue trials of the efficacy of root disturbance to encourage regeneration of paddock Bulokes.
Responsibility: Recovery Team

Targets:

- No net loss in the area of stringybark feeding habitat;
- Increase in quantity of seed produced in stringybark habitat;
- Improved protection of mature Buloke trees on private land;
- Steadily increasing recruitment rates of immature Bulokes.

Objective: Establish new feeding habitat

Maps which identify existing and potential feeding habitat will be used to prioritise revegetation works. Landholders in identified areas will be targeted for extension efforts to encourage and facilitate revegetation work, including advice on funding sources and techniques. Shires will be encouraged to develop roadside management strategies that promote Red-tailed Black-Cockatoo habitat.

12. Identify opportunities for undertaking revegetation on public and private land.
Responsibility: DSE and Recovery Team

13. Liaise with relevant agencies to facilitate revegetation projects.
Responsibility: DSE, DPI and Recovery Team
14. Develop an information sheet on stringybark and Buloke revegetation techniques.
Responsibility: Recovery Team in conjunction with DSE

Target:

- Significant increase in the number and quality of revegetation works aimed at improving Red-tailed Black-Cockatoo habitat.

Objective: Maintain current availability of nesting habitat

Known and potential nesting trees must be protected throughout the range of the Red-tailed Black-Cockatoo. This is best achieved through the strengthening of Local Government planning overlays to protect living and dead hollow-bearing eucalypts that are within 5 km of a block of stringybark habitat greater than 10 ha in area. In addition to prevention of felling of nesting trees, protection should include mitigation of threats due to farming activities such as livestock camping next to the tree, root damage from ploughing, and damage caused by burning-off of stubble.

15. Strengthen Environmental Significance Overlays in Glenelg and West Wimmera Shires, and pursue their introduction in Horsham and Southern Grampians Shires.
Responsibility: DSE and Shires
16. Publicise the importance of nest trees and their characteristics.
Responsibility: Recovery Team in conjunction with DSE
17. Map existing and potential nesting habitat.
Responsibility: Recovery Team in conjunction with DSE and DPI
18. Investigate areas where nesting has not been recorded but suitable habitat appears to exist.
Responsibility: Recovery Team
19. Encourage the recruitment of potential nest trees throughout the range.
Responsibility: DSE, DPI and Recovery Team

Target:

- No net loss of nesting and potential nesting trees.

Objective: Minimise impact of nest predators

The Red-tailed Black-Cockatoo observer network will report records of breeding to the freecall number maintained by the recovery team [1800

262 062]. Where appropriate, potential predators of eggs and chicks, such as the Common Brushtail Possum and Lace Monitor, will be denied access to known nest trees by placing sheet iron collars around the trunk of the tree. Landholders who do not wish to identify specific sites on their land will be encouraged to undertake protection of nest trees themselves, and will be supplied with information on how to undertake this. Sponsorship for the supply of collaring materials will be sought.

20. Conduct nest searches, using volunteers where possible.

Responsibility: Recovery Team

21. Collar nest trees - utilise volunteer assistance where possible.

Responsibility: Recovery Team

22. Continue to investigate the magnitude of the threat posed by the illegal taking of South-eastern Red-tailed Black-Cockatoos for aviculture.

Responsibility: DSE

Target:

- All known nest trees protected from predators where it is practicable to do so.

Objective: Community awareness and involvement

The observer network provides many benefits, including goodwill, provision of sighting records and voluntary assistance to a range of tasks. Support for this network, including the recovery team newsletter 'Red-tail News', the freecall telephone number [1800 262062] and a dedicated web site, is essential for maintaining the success of the recovery effort.

23. Produce educational materials, including a dedicated website, to raise community awareness of Red-tailed Black-Cockatoo conservation. Produce Red-tail News 3 times per year.

Responsibility: Recovery Team

24. Conduct surveys to assess community awareness/concern for the Red-tailed Black-Cockatoo.

Responsibility: Recovery Team

25. Report annually on the numbers of; 1800 calls, website visits, people in annual count, revegetation projects, clearance permits issued.

Responsibility: Recovery Team

Targets:

- Steady increases in the number of people taking part in the annual population count, the number of calls to the freecall telephone number, number of website visits and the number of people protecting habitat.
- Steady decline in the number of permits given for clearing stringybark and Buloke.

References

Anon, 1999. West Victoria Comprehensive Regional Assessment. Joint Commonwealth and Victorian Regional Forest Agreement Steering Committee, Department of Prime Minister and Cabinet, Canberra.

Anon, 2003. Advisory List of Threatened Vertebrate Fauna in Victoria - 2003. Department of Sustainability and Environment, East Melbourne.

Anon, 2006. National Recovery Plan for the South-eastern Red-tailed Black-Cockatoo. Commonwealth of Australia, Canberra.

Beumer, W. 2003. South -eastern Red-tailed Black-Cockatoos - flagship for the Greater Green Triangle. A survey of landholders' understanding of and attitudes towards the conservation of the South-eastern Red-tailed Black-Cockatoo. Unpublished Report to the Red-tailed Black-Cockatoo Recovery Team.

Carruthers, S. and Paton, D. in press. A review of the status of paddock trees in Australia. Land and Water Australia, Canberra, Australian Capital Territory.

Croft, T., Carruthers, S., Possingham, H. and Inns, B. 1999. Biodiversity plan for the South East of South Australia. Department of Environment and Heritage, Adelaide.

DSE 2004. Portland Fire Protection Plan. Department of Sustainability and Environment, Victoria.

DSE in prep. Horsham Fire Protection Plan. Department of Sustainability and Environment, Victoria.

Emison, W.B., White, C.M. and Caldow, W.D. 1995. Presumptive re-nesting of Red-tailed Black-Cockatoos in south-eastern Australia. *Emu* 95: 141-144.

Ford, H. A. 1980. Morphological and ecological divergence and convergence in isolated populations of the Red-tailed Black-Cockatoo. *Emu* 80:103-120.

Garnett, S. & Crowley, G. 1996. Red-tailed Black-Cockatoo Recovery Plan, *Calyptrorhynchus banksii graptogyne*. Unpublished report to Environment Australia. Birds Australia, Melbourne.

- Higgins, P. (ed). 1999. Handbook of Australian, New Zealand and Antarctic Birds. Volume 4. Oxford University Press, Melbourne.
- Hill, F.A.R. 2000. The Conservation Biology of the South-eastern Red-tailed Black-Cockatoo. Unpublished report to the Red-tailed Black-Cockatoo Recovery Team.
- Hill, R. & Burnard, T. 2001 A Draft Habitat Management Plan for the South-eastern Red-tailed Black-Cockatoo. Unpublished report to the Red-tailed Black-Cockatoo Recovery Team.
- Jarmyn, B. 2000. Nest predation of cockatoos in south-west Victoria: with special reference to the endangered sub-species of Red-tailed Black-Cockatoo, *Calyptorhynchus banksii graptogyne*. BSc (Hons) Thesis, University of Adelaide, Adelaide.
- Joseph, L. 1982. The Red-tailed Black-Cockatoo in south-eastern Australia. *Emu* 82: 42-45.
- Joseph, L., Emison, W. B. and Bren, W. M. 1991. Critical assessment of the conservation status of the Red-tailed Black-Cockatoo in south-eastern Australia with special reference to nesting requirements. *Emu* 91:46-50.
- Koch, P. 2003. Factors influencing food availability for the endangered south-eastern Red-tailed Black-Cockatoo *Calyptorhynchus banksii graptogyne* in remnant stringybark woodland, and implications for management. PhD thesis, University of Adelaide, Adelaide.
- Maron, M. (2000). Characteristics of feeding sites of the endangered south-eastern Red-tailed Black-Cockatoo *Calyptorhynchus banksii graptogyne* in remnant Buloke *Allocasuarina luehmannii* woodland. BSc (Hons) thesis, Monash University, Melbourne.
- Maron, M. 2005a. Agricultural change and paddock tree loss: Implications for an endangered subspecies of the Red-tailed Black-Cockatoo. *Ecological Management and Restoration* 6: 206-211.
- Maron, M. 2005b. Threatened Species and Farming - South-eastern Red-tailed Black-Cockatoo: Management of Buloke feeding habitat in the southern Wimmera. Unpublished report for the Ecologically Sustainable Agriculture Initiative, Threatened Species in Agricultural Landscapes Project. Department of Primary Industries, Melbourne.
- Maron, M. and Lill, A. 2004. Discrimination among potential Buloke (*Allocasuarina luehmannii*) feeding trees by the south-eastern Red-tailed Black-Cockatoo (*Calyptorhynchus banksii graptogyne*). *Wildlife Research* 31: 311-317.
- Schodde, R., Saunders, D.A. and Homberger, D. G. 1989. In Schodde, R. 1989. New subspecies of Australian Birds. *Canberra Bird Notes* 13: 119-122.
- Species Survival Commission 2001. IUCN Red List Categories and Criteria, version 3.1. IUCN, Gland, Switzerland.
- Venn, D.R. and Fisher, J. 1993. Red-tailed Black-Cockatoo *Calyptorhynchus banksii graptogyne*. FFG Action Statement No. 37. Department of Conservation and Natural Resources, Melbourne.

Compiled by Peter Menkhorst (Department of Sustainability and Environment), Richard Hill and Tim Burnard (Birds Australia)

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: <http://www.dse.vic.gov.au>

This Action Statement has been prepared under section 19 of the Flora and Fauna Guarantee Act 1988 under delegation from Professor Lyndsay Neilson, Secretary, Department of Sustainability and Environment, March 2006.

© The State of Victoria, Department of Sustainability and Environment, 2006

Published by the Department of Sustainability and Environment, Victoria. 8 Nicholson Street, East Melbourne, Victoria 3002 Australia

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

ISSN 1448-9902