Draft Flora and Fauna Guarantee Action Statement 2013

Glossy Black-Cockatoo *Calyptorhynchus lathami*

Description

Glossy Black-Cockatoos (*Calyptorhynchus lathami* (Christidis and Boles 2008)) are the smallest of the black-cockatoos, reaching 48 cm in length. Plumages of the adult males and females are markedly different. Males are predominantly sooty brown around the head and underparts, and the tail feathers have a broad, bright red lateral band. Females can be recognised by yellow flecks around the head and neck, while the red band in the tail has narrow bands of black, and is often edged with yellow. The back and wings of both sexes are black. The crest is small, reclined and inconspicuous. The bill is described by Forshaw (1981) as protruding and bulbous with an exceptionally broad lower mandible. Immature birds are similar in appearance to females, except they exhibit a barred or spotted flank of yellow and lack the yellow patches about the head.

The call of the Glossy Black-Cockatoo is distinct and described in Higgins (1999) as consisting of a "repeated soft, wheezy and prolonged 'tarr-red' or 'kaa-er'".

A detailed description of the Glossy Black-Cockatoo can be found in Higgins (1999).

The form of the Glossy Black-Cockatoo listed under the *Flora and Fauna Guarantee Act 1998* in May 1995 was *Calyptorhynchus lathami lathami* (eastern subspecies). Since that time the species name in Victoria has changed and the Glossy Black-Cockatoo is now referred to as *Calyptorhynchus lathami*.

Distribution

The Glossy Black-Cockatoo is endemic to mainland Australia (Higgins 1999). Schodde *et al*. (1993) and Higgins (1999) recognised three subspecies: *C. lathami halmaturinus* which occurs entirely on Kangaroo Island (South Australia), *C. lathami erebus* which occurs along the central Queensland coast and the nominate subspecies *C. lathami lathami* (now known as *Calyptorhynchus. Lathami)* which has the broadest distribution, occurring in south-eastern Queensland and far eastern Victoria. The bill and lower mandible dimensions of Glossy Black-Cockatoos can be used to distinguish the subspecies from each other (Schodde *et al*. 1993).

The Victorian Biodiversity Atlas[1] has around 200 records of the Glossy Black-Cockatoo. Over 95% of these records occur in the East Gippsland Forest Management Area; the bulk occurring east of the Wingan River in the areas surrounding Mallacoota and Genoa. Scattered records occur mostly south of the Princes Highway between Cann River and Lake Tyers. A number of records occur further north in the Snowy River National Park.

There is a single 1993 record of the Glossy Black-Cockatoo from South Gippsland near Won Wron, more than 120 km from the nearest records in eastern Victoria. The Victorian Biodiversity Atlas also contains two records of the Glossy Black-Cockatoo in north-eastern Victoria. One from near Wangaratta in 1921, while the other (2005) is from near Walwa on the New South Wales/Victoria border. The paucity of records in this area supports the suggestion by Baird (1986) that the Glossy Black-Cockatoo is only a vagrant to north-eastern Victoria.

The Victorian Biodiversity Atlas has only three breeding records of the Glossy Black-Cockatoo. These are: Royd Creek, Mallacoota (1978 and 1981) and near Cann River (March 1995).

Habitat

In Victoria, the Glossy Black-Cockatoo inhabits eucalypt forests and woodlands containing a high density of their main food source, the Black Sheoak (*Allocasuarina littoralis*) (Higgins 1999). The species is rarely observed away from *Allocasuarina* stands (Clout 1989) and remnants of chewed cones and debris on the forest floor beneath these trees are an indication that cockatoos have been present. Glossy Black-Cockatoos prefer to feed in mature, sparse trees that are between 2 m and 10 m tall (Higgins 1999).

In addition to the strong association with Black Sheoak, Glossy Black-Cockatoos also require hollow-bearing trees for breeding. Such hollows are usually in eucalypts (Higgins 1999) and a number of studies suggest nest sites are commonly clustered or grouped in the landscape (Garnett *et al*. 1999; Cameron 2006).

[1] 'VBA_FAUNA25', August 2010 © The State of Victoria, Department of Sustainability and Environment

Life history and ecology

Glossy Black-Cockatoos breed between March and August. A detailed study by Cameron (2006) found that nest hollows were typically vertical, or near-vertical, spouts in senescent or dead, but still-standing trees. Trees containing suitably sized hollows for nesting will typically be large and old. A single egg is laid in the hollow where only the female incubates until hatching occurs about 29 days later. During incubation and the first week of brooding, the female rarely leaves the nest to forage for food and is fed by the male (Sindel and Lynn 1989). Young birds fledge around 3 months after hatching, but remain with the parents for several months until independence (Sindel and Lynn op. cit.). The Glossy Black-Cockatoo lifespan is unknown, although cockatoos are generally regarded as being long-lived birds.

Although the Glossy Black-Cockatoo is known to perch and forage in a variety of woody-fruited plants, it is dependent on *Allocasuarina* species (Higgins 1999). A study by Clout (1989) around Eden in New South Wales found the Glossy Black-Cockatoo apparently raised their young entirely on Black Sheoak seeds and spent 88% of the day foraging for food. A number of studies have investigated the factors influencing Glossy Black-Cockatoos selection of trees for feeding, and it seems birds show some preference for individual trees (Pepper *et al.* 2000) and select trees on the basis of cone abundance, with a preference for young cones produced in the previous year (Cameron and Cunningham 2006). Glossy Black-Cockatoos are most commonly observed in threes, comprising a pair and the previous season's young (Forshaw 1981), although observations of more birds together are not uncommon. When feeding, they are generally quiet and can often be closely approached. Pairs are monogamous and the bond between them remains year round, with evidence of males guarding the female outside the breeding season (Arnett and Pepper 1997). The species is not believed to be territorial although Clout (1989) observed an apparent defence of favoured feeding trees.

As stated above, Glossy Black-Cockatoos are dependent on *Allocasuarina* species, therefore, the persistence of *Allocasuarina* species is tied to the survival of the Glossy Black-Cockatoo. *Allocasuarina* species are sensitive to fire. They have long or short-lived seed banks that are exhausted after fire. Capacity to resprout varies among species. They establish immediately following a fire event. Time to reproductive maturity is approx. 5-20 years and senescence occurs after around 50-100 years. They are medium to long lived perennials.

In relation to fire, Pepper (1997) found that a "1991 fire burned 14% of the [sic Kangaroo] Island's foraging habitat, and no cockatoos were found in the burned areas." Lunt (1998) studied changes in vegetation structure in a long-unburnt *Allocasuarina littoralis* (> 115 years) woodland at Ocean Grove, Victoria. Over a 25 year period a dramatic increase in the density of *Allocasuarina littoralis* and a continued decline in the once-dominant eucalypts, especially *Eucalyptus ovata* was observed. He concluded that in the continued absence of fire and other disturbances, it is predicted that *A. littoralis* will continue to dominate the reserve, leading to further declines in eucalypts. It appears unlikely that a single fire will prevent *A. littoralis* dominance, and frequent burning at short intervals may be required to reinstate an open woodland structure. It has been suggested that dense stands of Black Sheoak are less susceptible to fires than the surrounding sclerophyll forests as their compacted litter locally reduces fuel from other species and reduces ground fuel aeration, leading to low intensity fires, or no fires (Keith 1996). Frequent fires open out dense stands and assist invasion by (flammable) sclerophyll shrubs. Too frequent fires will prevent regeneration of Black Sheoak trees as well as seed set and increase the likelihood of individual trees being killed. Trees that may have been of sufficient size to survive an initial fire may be killed if burnt during a subsequent fire (Morrison and Renwick 2000).

Conservation status

Victorian conservation status

The Glossy Black-Cockatoo has been listed as 'threatened' under the *Flora and Fauna Guarantee Act 1988* (SAC 1994).

The Glossy Black-Cockatoo is considered 'vulnerable' in Victoria according to DSE's *Advisory List of Threatened Vertebrate Fauna in Victoria - 2013* (DSE 2013).

Threats

The high risk threats to the Glossy Black-Cockatoo in Victoria are a reduction in food availability and in nesting sites. The table below describes these threats in more detail.

Standard threat	*Source of Threat*	*Explanation*

Carnivory	Fire – season or time	Predation and competition is unlikely to be significantly affected by burning as the species appears to avoid recently burnt areas. However, fledging young may be more vulnerable when in burnt areas.
Habitat damage or loss	Timber harvesting	Incidental damage to, or loss of, stands of Black Sheoak, or loss of large hollow-bearing trees during harvesting operations will reduce the food source and breeding sites of the Glossy Black-Cockatoo. There is no data on the effects of clearfell harvesting on Black Sheoak. The lower growth rates of Black Sheoak (when compared with regenerant eucalypts and wattles) suggest it may be adversely affected by clearfell harvesting (D. Cheal pers. comm. 2010).
	Fire - frequency	Glossy Black-Cockatoos require large hollows for breeding. Hollow development will vary among plant species but large hollows are unlikely to be evident in eucalypts less than 100-200 years of age. These will primarily occur in long unburnt stands of trees.
Inappropriate fire regimes	Fire - frequency	Frequent fires that kill, or reduce the fruiting of, *Allocasuarinas* will adversely affect the food supply of Glossy Black-Cockatoos. Infrequent fire promotes *Allocasuarina* dominance at a site.
	Fire - intensity	High intensity fire has the potential to kill stands of Black Sheoak (Keith 1996). While Black Sheoak adults have some tolerance to fire, a low intensity fire has been shown to kill relatively small stemmed trees (median circumference 14 cm) (Morrison and Renwick 2000). It takes approximately 10 years for Black Sheoak to reach reproductive maturity and longer for significant cone production. Destruction of large hollow-bearing trees for nesting may also occur during intense bushfire. As the species prefers closed vegetation, fires are likely to be relatively intense.
	Fire – season or time	Glossy Black-Cockatoos may be subject to direct or indirect mortality from fire. It is unlikely that adult Glossy Black-Cockatoo would be killed by a bushfire or planned burn. However, adults sitting on eggs and young in the nest would be highly vulnerable during the breeding season. Indirect mortality may occur in several ways. Food supply is a critical factor in the life history of this and other threatened cockatoo species (e.g. Red-tailed Black Cockatoo) and a fire regime that limited food, particularly extensive stands of Allocasuarina, would affect the species. Competition with conspecifics is likely to increase where food resources are limited.
	Fire - extent	Glossy Black-Cockatoos have relatively high calorific requirements. Dense stands of suitable feeding habitat are likely to be important for the species compared to scattered trees. A burn pattern suited to protecting dense stands of *Allocasuarina* are thus probably best suited to Glossy Black-Cockatoo protection.
Weather	Weather - climate change	Reproductive success in the Glossy Black-cockatoo has been linked to rainfall in the previous year which influences the abundance of young cones produced by *Allocasuarina* species (Cameron 2009). An environment with lower rainfall and a greater prevalence or duration of drought may reduce breeding success in the cockatoo.

Important populations

Location name	*Land manager*	*Catchment*	*Bioregion*
East Gippsland Forest Management Area (FMA)	DEPI Land and Fire - East Gippsland Area (LF - EG) Parks Victoria	East Gippsland	East Gippsland Lowlands East Gippsland Uplands

Past management actions

Action	*Result explanation*
Apply ecological burning	In 2007, 'Landscape Mosaic Burning' (DSE 2010) was introduced to areas in far east Gippsland within the known distribution of the Glossy Black-Cockatoo. The objective of this type of burning was to provide an irregular mosaic of unburnt areas and areas burnt at different intensities across time and space. This type of prescribed burning was aimed, in part, at having less of an impact on Glossy Black-Cockatoo food and breeding resources than higher intensity prescribed burning practices. This burning practice is being monitored, including its effects on associated fauna, and will be adjusted in the light of these monitoring outcomes.
Develop/revise management prescriptions and/or zoning for State forest	The East Gippsland Forest Management Area Plan (DCNR 1995) has an interim Conservation Guideline for the Glossy Black-Cockatoo. This guideline states, 'All substantial stands of She-oak will be excluded from harvesting, and nests will be protected as for diurnal raptors'.
Ensure records of species, communities and locations are documented on the relevant databases	Records of the Glossy Black-Cockatoos have been submitted to the Victorian Biodiversity Atlas (formerly the Atlas of Victorian Wildlife).
Provide input into regional fire management and operations plans	Input has been provided to Fire Operations Plans, Timber Release Plans and Wood Utilisation Plans through biodiversity values checking including identifying ways to: • minimise the impact of fire on Black Sheoak stands in proposed burn areas where the Glossy Black-Cockatoo has been recorded, to ensure burning is undertaken in a manner that produces a low intensity burn with a mosaic of burnt and unburnt vegetation; • ensuring harvesting activities are excluded from Black Sheoak stands in proposed coupes where the Glossy Black-Cockatoo has been recorded.

Conservation objectives

Long term objective

To ensure the Glossy Black-Cockatoo can survive, flourish and retain its potential for evolutionary development in the wild.

Objectives of this Action Statement

- To maintain or improve condition of habitat
- To secure populations or habitat from potentially incompatible land use or catastrophic loss
- To increase knowledge of biology, ecology or management requirements

Intended management actions

The purpose of the following actions are to describe what is intended to be done and provide information on what needs to be done to conserve and protected the Glossy Black-Cockatoo. DEPI will consider the following actions in the course of developing future ecological policy, investment strategy and fire and land management.

The intended management actions listed below are further elaborated in DEPI's Actions for Biodiversity Conservation (ABC) 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.

Standard objective	*Targets*	
To secure populations or habitat from potentially incompatible land use or catastrophic loss	• Areas with, or capable of forming, high densities of Black Sheoak identified and protected. • All confirmed nest sites are protected from planned burning activities, timber harvesting and new roading. • Damage to stands of Black Sheoak by planned burning activities, timber harvesting and new roading is avoided entirely or minimised. • All sites with records of Glossy Black-Cockatoo have been highlighted during planning processes and advice provided to mitigate potential threats arising from land management practices in these areas. • No habitat elements identified for protection from fire are lost due to planned burning.	
Action	*Details*	*Responsible agents*
Establish Management Areas or Special Protection Zones	Apply Special Protection Zones of 250 m radius to all confirmed nest sites. Exclude timber harvesting and planned burning within this area. Ensure known nest trees are protected during pre-burn works. Undertake timber harvesting and new roading activities in the East Gippsland Forest Management Area in a manner that minimises damage to stands where Black Sheoak dominates the canopy, sub-canopy or understorey (High priority).	DEPI Land Management Policy Division
Identify fire management priorities and develop detailed strategic plan	Develop a strategic bushfire management plan for the Alpine and Greater Gippsland bushfire risk landscape by June 2015 that contains bushfire management strategies for the landscape Strategy development will also consider the risks of major bushfires and bushfire management activities (including fuel management) on people, infrastructure, industries, the economy and the environment. There is need to develop a benchmark for this action. For further information please see the Establish Benchmarks action.	DEPI Regional Services, Parks Victoria, DEPI Landscape and Environment Performance Division, DEPI Fire Management Policy Division
Provide input into regional fire management and operations plans	All proposed burns with records or that coincide with core habitat based on the species distribution model of Glossy Black-Cockatoo should be highlighted during operational planning processes and assessed	Environment and Water DEPI-Gippsland Region

	for consistency with the strategic plan for the species and potential impact on the species. In the East Gippsland Forest Management Area, operational planning of burns should avoid scheduling burning near confirmed breeding areas, in Fire Management Zones 2-3, during the breeding season (March – November). Fire management works should avoid damage to next trees and *Allocasuarinas*.	
Protect habitat from fire	The strategic bushfire management plan and all other fire management plans should consider the use of planned burning in appropriate areas, and evaluate the net benefit/cost of such burning, to reduce risks to habitat from extensive bushfire. There is need to develop a benchmark for this action. For further information please see the Establish Benchmarks action.	DEPI Regional Services (Gippsland), Parks Victoria, DEPI Landscape and Environment Performance Division, DEPI Fire Management Policy Division
Identify fire management priorities and develop detailed plan	Develop a strategic statewide approach to fuel management that meets legislative and policy requirements for the management of threatened species and communities by June 2014.	DEPI Environment Programs Division, DEPI Fire management section
Provide input into regional fire management and operations plans	Highlight all burns which coincide with core habitat based on the species distribution model or specific records of Glossy Black-Cockatoo during planning processes and assess each for potential impact on the species. Provide advice and mitigation measures to land management agencies and proponents of forest utilisation works in regards to proposed activities at these sites (High priority).	DEPI Regional Services (Gippsland)

Standard objective	*Targets*	
To maintain or improve condition of habitat	• Continuous supply of large hollows suitable for breeding and continuous supply of reproductively mature *Allocasuarina* in dense stands are being maintained.	
Action	*Details*	*Responsible agents*
Apply ecological burning	The bushfire management plan and all other fire management plans are to address the need to maintain, both spatially and temporally, suitable breeding and feeding habitat for the species. In particular, strategic planning should ensure that there is a continuous supply of large hollows suitable for breeding and continuous supply of reproductively mature *Allocasuarina* in dense stands.	Land and Fire DEPI – East Gippsland

Standard objective	*Targets*	
To increase knowledge of biology, ecology or management requirements	• Area surrounding confirmed nest tress are adequately searched (sufficient area and time was spent) to identify additional nest trees. • All records of Glossy Black-Cockatoos submitted to the Victorian Biodiversity Atlas so that they are available as needed to inform management. • Monitoring undertaken to determine the population status of Glossy Black-Cockatoos in Victoria. • Examine and record feed and non-feed trees for differences in seed size.	
Action	*Details*	*Responsible agents*
Conduct survey to determine abundance/extent	In the event that nest trees are located conduct thorough searches in the adjacent area to locate additional nest trees (the species is known to nest in clusters).	DEPI Regional Services (Gippsland)
Undertake research into management requirements	Undertake an analysis of the current status and establish the ongoing methodology for assessing the extent of Glossy Black-Cockatoo food supply and changes arising from bushfires, planned burning, timber harvesting and other gains/losses. Include appropriate data in post-burn assessments to report on the status of Glossy Black-Cockatoo habitat elements (i.e. consistency with burn plan objectives) pre and post planned burns.	DEPI Regional Services (Gippsland) and DEPI Environment Programs Division
Monitor the effects of fire, fire management, timber harvesting and road construction on the species and its habitat elements	Establish monitoring to improve understanding of management on critical habitat elements including food availability and breeding success and to increase general knowledge of the species' requirements.	DEPI Regional Services (Gippsland)
Ensure records of species, communities and locations are documented on the relevant databases	Submit all records of Glossy Black-Cockatoo to the Victorian Biodiversity Atlas.	DEPI Regional Services (Gippsland)
Undertake periodic surveillance monitoring of populations	Monitor all known active nests, record flight paths of birds, quantify and record feeding signs and record which trees are used.	DEPI Regional Services (Gippsland)
Undertake research into the capacity of planned burning to protect habitat/ecological resilience	Investigate the dynamics between planned burning and bushfire in maintaining GBC habitat elements, particularly Allocasuarinas and hollows.	DEPI – Fire Management Policy Division, DEPI Regional Services (Gippsland)

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