LIVING WITH GLOSSY BLACKS:

GLOSSY BLACK-COCKATOO IDENTIFICATION

The Glossy Black-Cockatoo, *Calyptorhynchus lathami*, is found in eastern and south-eastern regions of Australia with three subspecies being recognised. The most widespread of these subspecies, *C. l. lathami,* can be found in Victoria, New South Wales and Queensland, while another, *C. l. erebus,* occurs in central Queensland. The final subspecies, *C. l. halmaturinus,* occurs as an isolated population on Kangaroo Island in South Australia. The species shares its range with two other black-cockatoo species, namely the Yellow-tailed Black-Cockatoo, *Calyptorhynchus funereus* as well as the Red-tailed Black-Cockatoo, *Calyptorhynchus banksii*. This overlap among the three species can create some confusion in differentiating Glossy Black-Cockatoo from the other. This is particularly relevant in southeast Queensland and northern New South Wales where all three species coexist (Figure 1).

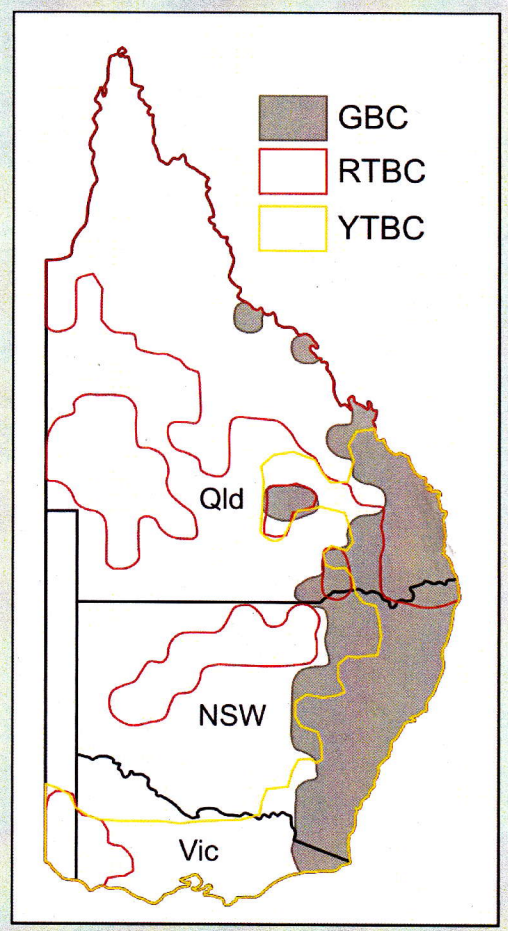

Figure 1: Overlapping distribution of Glossy Black-Cockatoo (GBC), Red-tailed Black-Cockatoo (RTBC) and Yellow-tailed Black-Cockatoo (YTBC) in eastern Australia

Why is identification important?

Accurate identification of these species is important for a number of reasons.

(1) Confirmation of the presence of Glossy Black-Cockatoo within a region may limit development and associated transformation of habitats.

(2) Identification is central to field surveys and population monitoring, which form the basis of regional conservation strategies.

(3) Raising the awareness of the conservation requirements of Glossy Black-Cockatoo more generally requires that individuals can be recognised by members of the broader community.

This fact sheet aims to provide such information to reduce the level of confusion, as even Torresian Crows have been mistaken for Glossy Black-Cockatoo.

Differences among the black-cockatoos

The three black-cockatoos of interest can be separated from one another based on their appearance. Although the three species are of different size, this may not be immediately discernible in the wild. Plumage features are of more value and the three species can be differentiated as follows:

Yellow-tailed Black-Cockatoo – This species is larger than the Glossy Black-Cockatoo and all individuals have large pale yellow panels (coloured sections) in their tail feathers as well as a single large yellow patch of feathers behind the eye (Plate 1). Males have a distinctive pink ring around the eye that is only obvious at close range. The species tends to occur in large flocks and has a slow labouring flight pattern. During flight these birds are quite noisy, especially compared with the quieter Glossy Black-Cockatoo.

Red-tailed Black-Cockatoo – Despite being the largest of all the three black-cockatoo in this region, this species is more likely to be confused with the Glossy Black-Cockatoo as a result of the bright red panels in its tail feathers. Distinguishing features for this species include the

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LIVING WITH GLOSSY BLACKS:

Plate 1: Yellow-tailed Black-Cockatoo male (photo: Bob Inglis)

Plate 2: Red-tailed Black-Cockatoos, female (left), male (right) (photo: Birds QLD)

overall richer black colouration, a prominent crest in both males and females, and in the case of females and juveniles extensive pale yellow barring and spots on the breast plumage (Plate 2). Only males have the solid bright red tail panels while females and juveniles have red/orange panels with horizontal black barring.

Glossy Black-Cockatoo – This is the smallest of the black-cockatoos and also the least 'black'. Both males and females have a browner tone to the head and males have a much smaller crest than the Red-tailed Black-Cockatoo. Adult males have the solid bright red panels in the tail feathers while in females these panels range from red to light orange/yellow with horizontal black barring. Females are distinguished from females of the Red-tailed Black-Cockatoo by having irregular patches of yellow feathers on the head and neck (Plate 3). These can be quite extensive in some individuals while others have only one or two small patches. Both males and females also have a large bulbous bill used to process the species' primary source of food, she-oak cones.

Plate 3: Female Glossy Black–Cockatoo (photo: Terrie Saunders)

Glossy Black Conservancy

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Plumage variation in Glossy Black-Cockatoo

Plumage features vary with the sex and age of Glossy Black-Cockatoos. Accurately aging and sexing birds in the field is therefore important as this can provide valuable information for the conservation of the species. For example, the proportion of juveniles in the population can be indicative of the performance of the population as a whole.

Only adult male Glossy Black-Cockatoo have the distinctive solid bright red panels in the tail feathers, whereas younger birds of both sexes have orange/yellow panels in the tail with the additional horizontal black barring across these coloured panels. The number of bars varies between five and seven (Plate 4). Juveniles also have pale yellow spots on the wings and head as well as pale yellow barring across the chest (Plate 5). As individuals mature they lose these pale spots and barring before finally displaying adult body plumage and this typically occurs within the first 12-18 months.

In females the irregular yellow patches on the head and neck develop from an early age (about 10 months) and are retained into adulthood. These yellow feathers are replaced during the moult. Observers may be able to use these distinctive yellow feather patterns to distinguish individual females from one another.

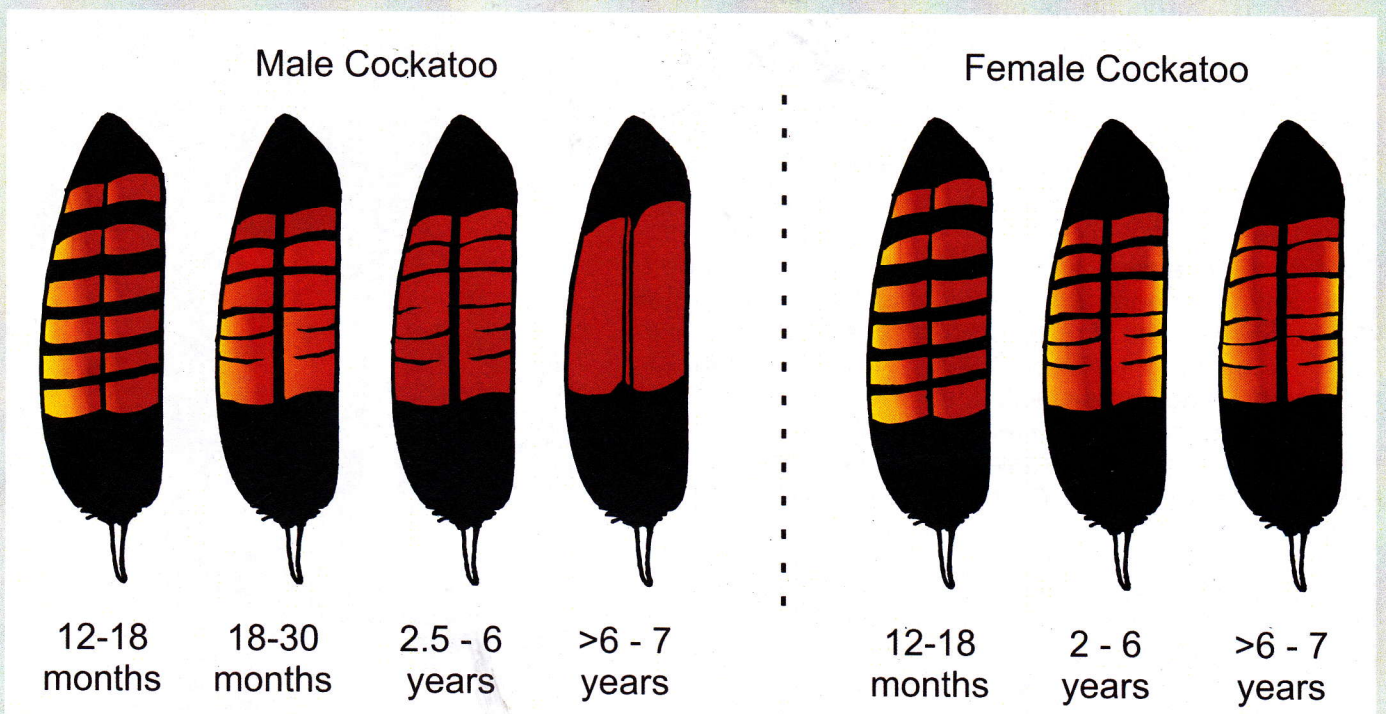

Plate 4: Diagrammatic representation of the tail feather plumage phases of the Glossy Black-Cockatoo. Changes in the male and female cockatoo are shown (simplified from Courtney 1986)

Tail feather plumage in Glossy Black-Cockatoo

Changes in the extent of barring of the tail feathers typically varies with age and sex. By way of background, tail feathers are lost with each moult (each individual will drop half of the tail feathers randomly at each moult) before being replaced. The first moult occurs at about 18 months, usually between September and November.

The second moult during which the second half of the nestling tail is lost occurs at about 2.5 years. New feathers (post-nestling) remain in place for two years but moults occur annually because half the tail feathers are lost at each moult. During the first moult the number of black bars across the coloured areas decreases in both sexes, as does the prominence of these bars.

For males, the coloured panels become progressively redder with each moult and the horizontal black barring is lost during this

process, such that tail feather panels are all red (lacking orange or yellow) by 2.5 years although barring can persist until seven years (Plate 4). By contrast, females do not lose either the black barring or yellow from the tail, but rather retain these features into adulthood.

Field identification

In the field there are some tell-tale signs that can provide the casual observer with other clues as to the species identification, sex and age of individual Glossy Black-Cockatoos.

Firstly, this species tends to occur in smaller groups than the Yellow-tailed Black-Cockatoo. Group sizes are commonly of only two or three birds, although larger flocks do aggregate at watering holes when individuals gather to drink and roost for the night. If two birds are detected it is likely that this will be a bonded male and female pair. If three birds are observed it is likely to be a breeding pair with a fledged chick from the most recent breeding season.

The behaviour of the birds can provide clues to whether there is a chick present. If young birds are present there is often a considerable amount of begging for food taking place and both the male and female will feed the chick. The chick will test she-oak cones during this time but is far less adept at removing the kernels than the adults and will take longer to process the she-oak cones.

Secondly, at certain times of the year a larger proportion of male birds may appear to be present. This will more likely occur during the breeding season when the female is confined to the nest within a suitable hollow-bearing tree.

Other behavioural cues that assist to confirm that Glossy Black-Cockatoos have been sighted include:

- the birds are seen feeding in a she-oak species (e.g. black or forest she-oak),
- the birds are making a distinctive clicking noise as they process the she-oak cones, perhaps punctuated by soft calls,
- there are a large number of chewings from she-oak cones under the feeding trees.

Plate 5: Juvenile female Glossy Black-Cockatoo

Note the spotting around the ear, breast and wings as well as the yellow feathers starting to show on the head. Also note the yellow barring on the abdomen and the orange / yellow tail panels with the horizontal black barring. This individual is likely to be older than nine months but younger than 18 months based on these plumage patterns. (photo: Anonymous – Glossy Black Conservancy)

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GLOSSY BLACK-COCKATOO FEED TREE IDENTIFICATION

Glossy Black-Cockatoos have a highly specialised diet, feeding almost exclusively on the seeds of she-oaks (*Allocasuarina* and *Casuarina* species). Throughout their range they feed on at least nine species of she-oak. Yet within a local area feeding by the Glossy Black-Cockatoo is often restricted to a single species.

Along the coast and ranges of South-East Queensland and North-Eastern New South Wales, Glossy Black-Cockatoos show a distinct preference for the Black She-oak (*Allocasuarina littoralis*) and the Forest She-oak (*Allocasuarina torulosa*). However they have also been recorded feeding on the Coastal She-oak (*Casuarina equisitifolia*), and very rarely on the River She-oak (*Casuarina cunninghamiana*) and Swamp She-oak (*Casuarina glauca*). Further inland and west of the Great Divide, the Glossy Black-Cockatoo will also feed on the Belah (*Casuarina cristata*).

Why is identification of feed trees important?

Accurate identification of Glossy Black-Cockatoo feed trees is important for a number of reasons:

(1) It will help determine which local she-oak species are used as feed trees and aid in the protection of these areas.

(2) It will allow targeted field surveys and population monitoring, which form the basis of regional conservation.

(3) It will raise awareness of the significance of she-oaks as feeding habitat, essential for the conservation of Glossy Black-Cockatoos.

The information below provides some key characteristics that will assist in she-oak identification.

Flowers
She-oaks are typically dioecious, meaning male and female flowers are found on separate trees. A few species are monoecious meaning male and female flowers are found on the same tree. Male flowers look like elongated spikes located on the end of branchlets and female flowers look like small round heads on short stems.

Glossy Black-Cockatoo feeding on Coastal She-oak (photo courtesy Alan Rash)

Fruit
Female flowers develop into a woody cone. The woody cone has many paired valves (the flower bracteoles) which open when the seed is ripe. The papery seed is wind dispersed.

Branchlets and leaves
She-oaks have slender, grooved and jointed branchlets (or cladodes) that look like leaves. At the joints of the branchlets are whorls of small 'teeth' which are modified leaves. Leaves (teeth) of she-oaks are found in whorls of between 4 and 20, with the number of teeth used to identify each species of she-oak. A hand lens is required to count the number of teeth per whorl.

Forest She-oak (*Allocasuarina torulosa*)

Black She-oak (*Allocasuarina littoralis*)

'Teeth' of the Forest and Black She-oaks

This fact sheet provides information on the identification of Glossy Black-Cockatoo feed trees including Black She-oak, Forest She-oak, Coastal She-oak and the inland she-oak known as Belah.

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LIVING WITH GLOSSY BLACKS:

Black She-oak
Allocasuarina littoralis

Habitat and distribution
The Black She-oak occurs in open forest, woodland or occasionally tall heath on well-drained sandy or otherwise poor soils.

Plate 1 Stand of Black She-oak, North-east NSW (T. Fountain)

Description
The Black She-oak grows to a height of 5 to 15m on more favourable sites.

As with many species in the Casuarina family, the Black She-oak is dioecious meaning male and female flowers are produced on separate plants in spring.

Female plants produce woody cones with a wind dispersed seed. Cones are ovoid to cylindrical and are 10 to 30mm in length (rarely to 45mm) and 8 to 21mm in diameter. Unopened cones are grey-brown in colour, with old cones turning grey (Plates 2 and 3).

Plates 2 & 3 Cones of the Black She-oak (T. Fountain)

The Black She-oak has dark grey, deeply furrowed bark (Plate 4).

Plate 4 The bark of the Black She-oak (T. Fountain)

The Black She-oak has very fine, slightly pendulous foliage, with branchlets to 20cm long. Typically the Black She-oak has 6 to 8 'teeth' (rarely 5 or 9) per whorl. Counting the number of teeth per whorl using a hand lens can help to distinguish this species from other She-oaks.

The other features that can be used to distinguish this species from other She-oaks used by the Glossy Black-Cockatoo are:

- Habitat – grows on sandy or low nutrient soils predominantly near the coast;
- The shape of the cones - ovoid to cylindrical;
- The colour and texture of the bark – dark grey and deeply furrowed; and
- The fine foliage – only Forest Oak has similar foliage. Coastal, River and Swamp She-oak all have coarser foliage.

LIVING WITH GLOSSY BLACKS:

Forest She-oak
Allocasuarina torulosa

Habitat and distribution

The Forest She-oak typically occurs as an understorey tree in open forest to tall open forest. It occurs on moister, higher nutrient soils on hillslopes than the Black She-oak.

Plate 1 Stand of Forest She-oak trees, North-eastern NSW (T. Fountain)

Description

The Forest She-oak typically grows between 15-20m in height, although can grow to 30m on more favourable sites.

Similar to the Black She-oak, the Forest She-oak is dioecious (separate male and female trees) and flowers in autumn.

Cones are warty, ovoid to globular (although can be irregular in shape) and are 15 to 33mm in length and 12 to 25mm in diameter. New, unripe cones are furry and orange in colour. Old cones are dark grey-brown (Plates 2 and 3).

The Forest She-oak has spongy, corky bark of a light orange colour (Plate 4).

Plate 2 Unripened fruit of the Forest She-oak (T. Fountain)

Plate 3 Old woody cones of the Forest She-oak.

Plate 4 Forest She-oak bark is orange and corky (T. Fountain)

The Forest She-oak has very fine foliage with branchlets to 14cm long. The Forest She-oak has 4 to 5 erect teeth per whorl. Counting the number of teeth per whorl using a hand lens can help to distinguish this species from other She-oaks.

The other features that can be used to identify this species from other She-oaks used by the Glossy Black-Cockatoo are:

- Habitat – grows on higher nutrient soils on hillslopes and mountains;
- The shape of the cones - ovoid to globular;
- The colour and texture of the bark – light orange and corky; and
- The fine foliage – only Black She-oak has similar foliage.

LIVING WITH GLOSSY BLACKS:

Coastal She-oak
Casuarina equisetifolia

Habitat and Distribution

The Coastal She-oak grows on rocky headlands and coastal sand dunes. As it is effective in preventing sand erosion, it has been planted extensively on coastal dunes that have been historically sand mined.

Plate 1 Coastal She-oak stand, North-eastern NSW (T. Fountain)

Description

The Coastal She-oak grows to a height of between 6 and 12m. The tree canopy is spreading and open. Unlike most species in this family, the Coastal She-oak is monoecious, meaning that male and female flowers are produced on the same tree.

The Coastal She-oak flowers in spring/summer, with cones forming and maturing in summer/autumn. Cones are small and circular and are 10 to 24mm in length and 9 to 13mm in diameter with valves large and protruding (Plate 2).

Plate 2 An unripened cone (right) and a ripe cone releasing seeds (left) (T. Fountain)

The Coastal She-oak has mid grey bark, which is smooth on young trees but becomes rough, thick and slightly furrowed in older trees. On older trees the bark often comes off the tree in plates (Plate 3).

Plate 3 The bark of the Coastal She-oak is mid-grey and rough (T. Fountain)

The Coastal She-oak has coarse grey-green foliage, which can be densely hairy when young. Branchlets are long and drooping, having prominent angular ribs and are to 38cm in length. The Coastal She-oak has 6 to 8 erect teeth per whorl.

Other features that can be used to identify this species from other She-oaks used by the Glossy Black-Cockatoo are:

- Habitat – found predominantly on fore and hind dunes and occasionally on headlands;
- The shape of the cones - small and circular with protruding valves;
- The colour and texture of the bark – mid-grey and smooth on young trees, rough and flaking on older trees; and
- The long grey-green drooping foliage.

LIVING WITH GLOSSY BLACKS:

Belah
Casuarina cristata

Habitat and Distribution

The Belah grows on clayey heavier soils or sandy calcareous soils, and is found mostly inland of the Great Dividing Range ranging from south east Queensland to central NSW. It may be found as scattered trees, in dense pure stands or growing together with a number of other tree and shrub species like Brigalow and Poplar Box. It can reproduce by suckering from its root system.

Plate 1 A woodland stand of Belah, Queensland (M. Cant).

Description

The Belah grows to a height of between 10 and 20m and is typically dioecious, but sometimes monoecious, with both male and female flowers found on the same plant.

Cones of the Belah are rusty coloured and softly hairy when young but are nearly hairless at maturity. They are small and oblong in shape and between 13 to 18mm in length, occasionally growing to 25mm. They are 10 to 16mm in diameter, with valves having a sharp, protruding point (Plate 2).

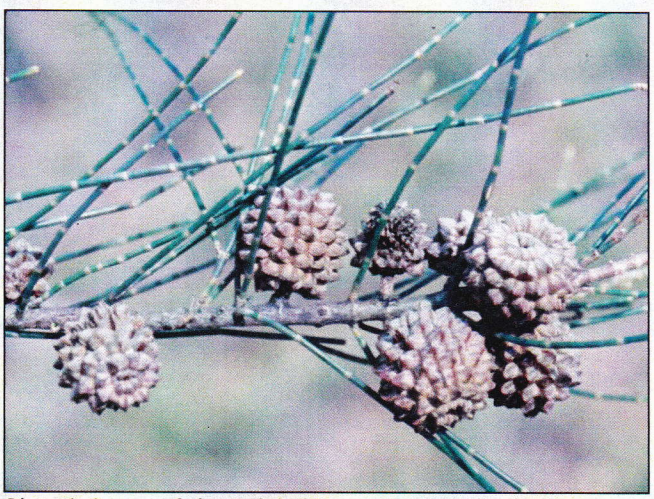

Plate 2 Cones of the Belah (Queensland Herbarium).

The bark of the Belah is finely fissured or scaly, having a regular pattern, and is grey-brown to almost black in colour (Plate 3).

Plate 3 The grey-brown finely fissured bark of the Belah (M. Cant)

Branchlets of the Belah may be drooping in healthy trees or spreading in poorer trees, with branchlets growing to 25cm in length.

The Belah has 8 to 12 teeth per whorl. Counting the number of teeth per whorl using a hand lens can help to distinguish this species from other She-oaks.

Other features that can be used to identify this species are:

- Habitat – Not found on the coast or coastal ranges. More common west of the Great Dividing Range but does occur east of the Great Dividing Range in Queensland;
- The shape of the cones - small and oblong with sharp protruding points;
- The colour and texture of the bark – regular and finely fissured; and
- Drooping branches, with coarse dark green branchlets having a waxy bloom.