

**Avian Models for 3D Applications**  
Characters and Procedural Maps by Ken Gilliland

# Songbird ReMix Australia Volume III

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# Songbird ReMix Australia Volume III

## Manual & Field Guide

### Introduction

Songbird ReMix Australia Volume 3 contains all previously released Australian Songbird Remix format songbirds, parrots and pigeons together for the first time in one package. Included are the iconic Kookaburras from the “Second Edition” package, as well as the mix of Gouldian and Zebra finches, Budgies and Cockatiels from “Pet Shop”, the Wompoo and Crested doves from “Game Birds”, the cockatoos and lorikeets from “Parrots” and many others.

All of these older format birds have been refitted to use the latest versions of the Songbird ReMix base models and access all of its enhanced features. All of the birds use Songbird Remix technology which means you can animate them from a standing pose to full flight, plus have scores of morphs for customization. Any of the birds from this package are worthy centerpieces in any form of imagery.

### Overview and Use











Select **Figures** in Runtime Folder and go to the **Songbird ReMix** folder. Here you’ll find an assortment of files that are easily broken into 2 groups: **Conforming Parts** and **Bird Base models**. Let’s look at what they are and how you use them:

- **Bird Base Models included in this volume:**
  - **Songbird ReMix3 Base** - This model is used with all songbirds.
  - **Songbird ReMix3 Gamebird Base** – This model is used with all Doves, Pigeons and other Gamebirds and is identified with the “**G**” icon.
  - **Songbird ReMix3 Parrots Base** – This model is used with all Parrots and Cockatoos and is identified with the “**P**” icon
  - **Songbird ReMix3 Syndactyl Base** – This model is used with all Kingfishers and Kookaburras and is identified with the “**S**” icon
  - **Pelican Base.** This model is specifically for Pelicans and nothing else.
  - **Waterfowl 2 Base Model** - This model is used with totipalmate (4 front webbed toes) footed birds and is identified with the “**WF2**” icon.
  - **Waterfowl 4 “Egret” Base Model** - This model is used with long-necked semi-palmate (partially webbed) footed birds and is identified with the “**WF4**” icon.
  - **Waterfowl 7 “Small Shorebirds” Base Model** - This model is used with small Shorebirds and is identified with the “**WF7**” icon.
  - **Jacana Base.** This model is specifically for Jacanas and nothing else.
  - **Owl Base.** This model is specifically for Owls and nothing else.

- Conforming Parts** (All Conforming Crests have alpha-numeric icons in the lower right corners such as “C02”, “C07” or “T4”. This corresponds with characters in the Pose folders. All MAT/MOR files with the same icon use that particular Conforming Part. **Be sure to read this:** Most conforming parts are Crest which covers the head part. When posing the Base Model, the Conforming Part will follow any Bend, Twist or Rotate Commands. It will not obey any **SCALE** or **MORPH** commands you give the Base Model. You must manually scale the Conforming Part and with morphs such as “OpenBeak” you must also set its counterpart in the head part of the Conforming Crest. So Now let’s look at what’s included in Conforming Parts:
  - Crest 06.** This model is used for low crested Cockatoos mostly. It contains several crest shaping morphs in the HEAD section. It is identified with the “**C6**” icon.
  - Crest 20.** This model is used for the Cockatiel in this volume. It contains several crest shaping and control morphs in the HEAD section. It is identified with the “**C20**” icon.
  - Crest 28.** This model is used for the Crested Dove in this volume. It contains several crest shaping morphs in the HEAD section. It is identified with the “**C28**” icon.
  - Crest 29.** This model is used for tall crested Cockatoos mostly. It contains several crest shaping morphs in the HEAD section. It is identified with the “**C29**” icon.

## Conforming Crest Quick Reference

Load Model(s)	To Create... (apply MAT/MOR files)
	<ul style="list-style-type: none"> <li>Black-eared Miner</li> <li>Zebra Finch</li> <li>Gouldian Finch</li> <li>Robust Silvereye (extinct)</li> </ul>
	<ul style="list-style-type: none"> <li>Wompoo Fruit Dove</li> </ul>
	<ul style="list-style-type: none"> <li>Crested Dove</li> </ul>
	<ul style="list-style-type: none"> <li>Budgerigar</li> <li>Coxen’s Fig Parrot</li> <li>Double-eyed Fig Parrot</li> <li>Night Parrot (extinct)</li> <li>Crimson Rosella</li> </ul>

	<ul style="list-style-type: none"> <li>• Rainbow Lorikeet</li> <li>• Australian King-Parrot</li> </ul>
	<ul style="list-style-type: none"> <li>• Greater Sulfur-crested Cockatoo</li> </ul>
	<ul style="list-style-type: none"> <li>• Little Corella</li> <li>• Galah Cockatoo</li> <li>• Red-tailed Black Cockatoo</li> </ul>
	<ul style="list-style-type: none"> <li>• Cockatiel</li> </ul>
	<ul style="list-style-type: none"> <li>• Blue-winged Kookaburra</li> <li>• Laughing Kookaburra</li> </ul>
	<ul style="list-style-type: none"> <li>• Australian Pelican</li> </ul>
	<ul style="list-style-type: none"> <li>• Masked Booby</li> </ul>
	<ul style="list-style-type: none"> <li>• Brolga</li> <li>• Australian Bustard</li> <li>• Australasian Bittern</li> <li>• Royal Spoonbill</li> </ul>
	<ul style="list-style-type: none"> <li>• Banded Stilt</li> </ul>
	<ul style="list-style-type: none"> <li>• Comb-crested Jacana</li> </ul>
	<ul style="list-style-type: none"> <li>• Powerful or Great Hawk-Owl</li> </ul>

## Creating a Songbird ReMix Bird

### Here's a step by step to create a bird:

1. Choose what you want to load. For this example, we'll create a "Robin".
2. Load Poser and select **FIGURES** and the Songbird ReMix folder. Because the "Robin" uses the basic "Songbird" base model we'll load that.
3. Go to the **POSES** folder and select the appropriate Songbird Remix library. In this case, we'll select the "Robin" pose and apply it to our loaded Songbird ReMix base model. This pose contains morph and texture settings to turn the generic model into an "Robin". As explained earlier in the Character Base Section, the Alphabet letter appearing on the base of a bird's Icon refers to what model it expects to adhere to. Thus the "Parrot" character is going to want the <P> Parrot Base Songbird ReMix Model. Birds with no icon usually want the Songbird Base.

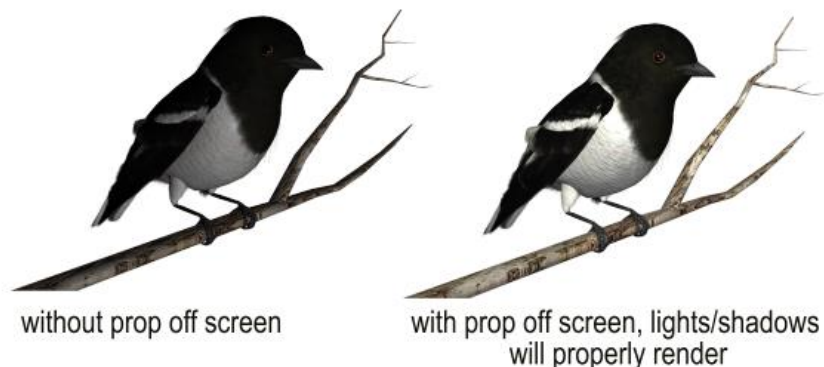
## Displacement in Poser 5+

In Poser, several settings will help to bring out the best in this bird set.

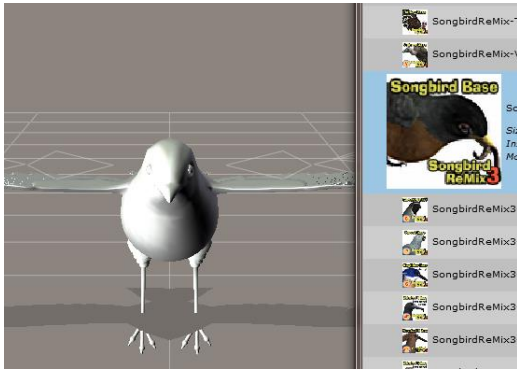
Under "Render Settings" (CTRL+Y) make sure you check "**Use Displacement Maps**" and (in some rare cases) the "**Remove Backfacing Polys**" boxes. In some poses, the wing morphs will expose backfacing polygons which tend to render black. Clicking the "Remove Backfacing Polys" fixes this.

## Scaling and Square Shadows in Poser

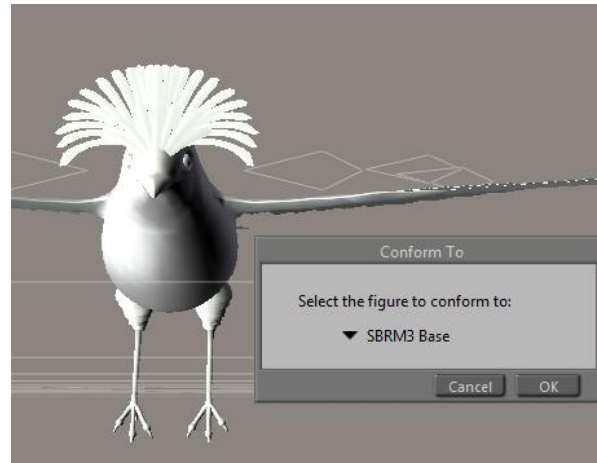
All the birds in this package have to scaled proportionally to DAZ 3D's Victoria and Michael models. The smallest of the included birds (such as the Robins) **MAY** render with a Square shadow or improper lighting. This is a bug in Poser. Poser can't figure out how to render a shadow for something really small, so it creates a square shadow. The solution is to put a larger item that casts a normal Poser shadow in the scene (even if it is off camera) and the square shadows will be fixed or **BODY** scale the bird to a larger size.



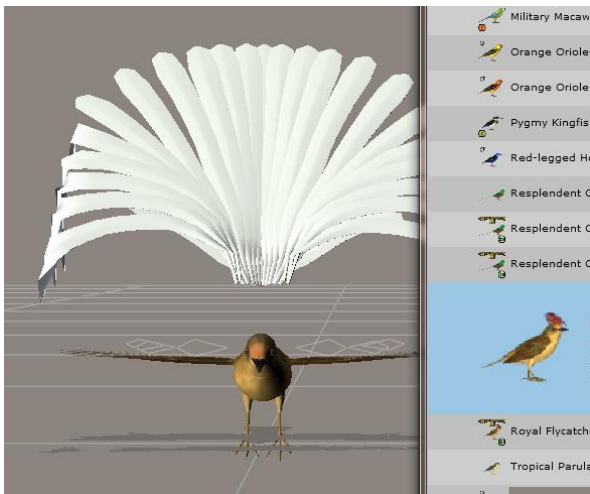
# How to build a Songbird ReMix Character with a Conforming Crest in Poser



1. In the Figures section, load a Bird base Model. Then load the appropriate conforming part for the bird you're trying to create.
2. **Conform** it to the bird base model.



3. Select the Base Model and go to **POSES**. Select and apply the appropriate Character/Material pose setting for the bird you're creating.



4. The Conforming part will look wrong. That's okay—we're going to fix that now. Select the conforming part and apply appropriate Character/Material pose for the part.

5. Voila! Your bird is done. Just remember to select the bird base when posing and often there are additional morphs in the conforming part you can use.





## Updates and Freebies

The Songbird ReMix series is constantly growing and improving. New morphs and additions to upcoming and future products often end up benefiting existing sets with new geometry, morphs and textures.

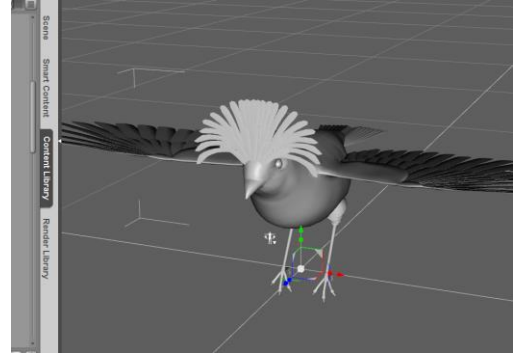
Songbirdremix.com always has the latest updates and additions to existing Songbird ReMix products (often months before they are updated at DAZ), plus the latest digital and real bird news, tutorials, videos, all the Field Guides, free bird characters, props and much more...



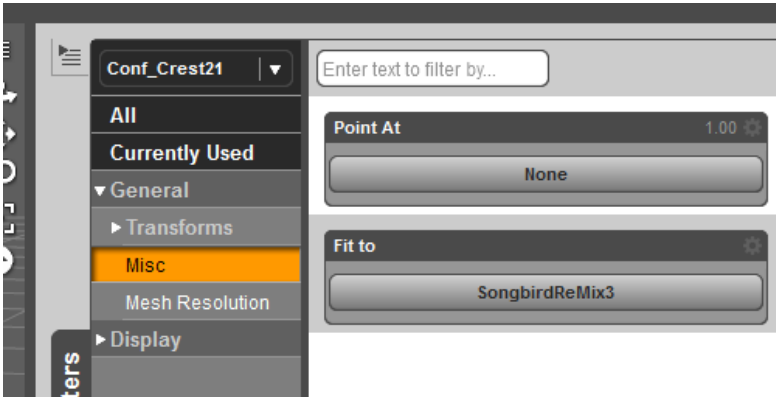
**Songbird ReMix.com**

## How to build a Songbird ReMix Character with a Conforming Crest in DAZ Studio

In the **Runtime** folder, select **Figures** and load the Songbird ReMix Model and the appropriate Conforming Crest in Studio. Select the Conforming Crest by selecting on the screen or in the **Scene** Tab.



Now, using the "FIT TO" command in the Parameters Tab, Select the Songbird ReMix Model. Go back to the **Scene** Tab and select the Songbird ReMix Model.

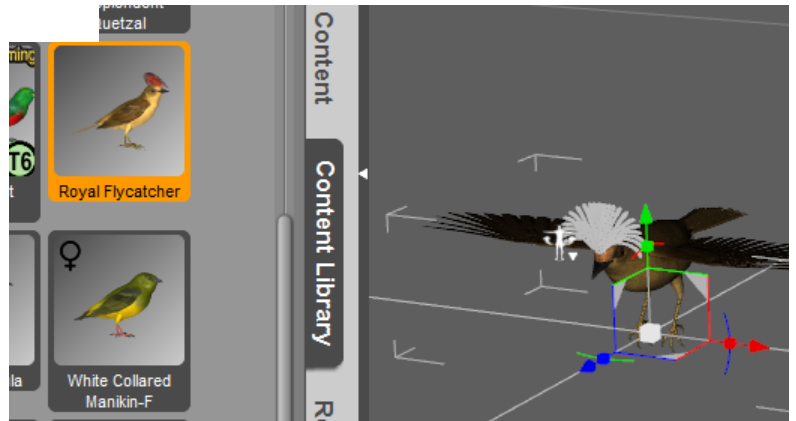


Select the Studio **Content** Folder and go to the **Animals : SBRM :** **!CreateYour Own : Characters** folder and select the appropriate Songbird Remix library. Apply the Character setting to the bird base. It will probably reduce the size significantly and change the shape of the bird.

Now that the bird is sized, select the

conforming part and apply the conforming part character settings.

Voila! Your bird is done. Just remember to select the bird base when posing and often there are additional morphs in the conforming part you can use.



# Rendering & Posing Tips

## Working with “Creation” morphs

Because birds in the Songbird ReMix series use generic bird bases and morphs, adding morphs upon morphs more often than not will create undesirable results. Case in point is the Parrot base which defaults with the “Parrot” morph be loaded found in the HEAD section (*Creations morphs : Specific Bird morphs*). Adding the other creation morphs on top of that will be a hit and miss experience. Press **CTRL + E** to clear all the morphs in that section.

The reason why I have chosen to leave non-parrot morphs on for instance the parrot base is for experimentation and creating unique and imaginary species. In some cases, such as with a parakeet, it’s better to shape the parakeet head from the standard Songbird ReMix head than the default parrot morphs.

## Songbird Remix and Vue

Vue has trouble with back-facing polygons which tend to show-up in certain wing and “Fluff” poses. The easiest and fast solution is to limit the amount of bending in the Forearm, Hand and Feather controllers and the hide or limit the ‘Fluff’ used

**Bake it!** The better (but much slower solution) is to in “Polygon Mesh Options”, **bake the model**. You might also click “Force double-sided baking” as well as playing with the Max smoothing angle and checking Dynamic Subdivison. Put Quality boost into the + area. Then bake it—“baking” will take hours on most computers.

The “Eye” material uses a Poser reflection map; since Vue has a built-in environment, it’s better to use the Vue one and cut down the reflection to 20-50% depending on light in the scene.

I also often find in better to also cut down the “Highlight Global Intensity” to 40% and “Highlight Global Size” to 50% on Plumage, Wings and Beak materials in the “Highlights” section.

**Songbird ReMix Australia Volume Three**

# **FIELD GUIDE**



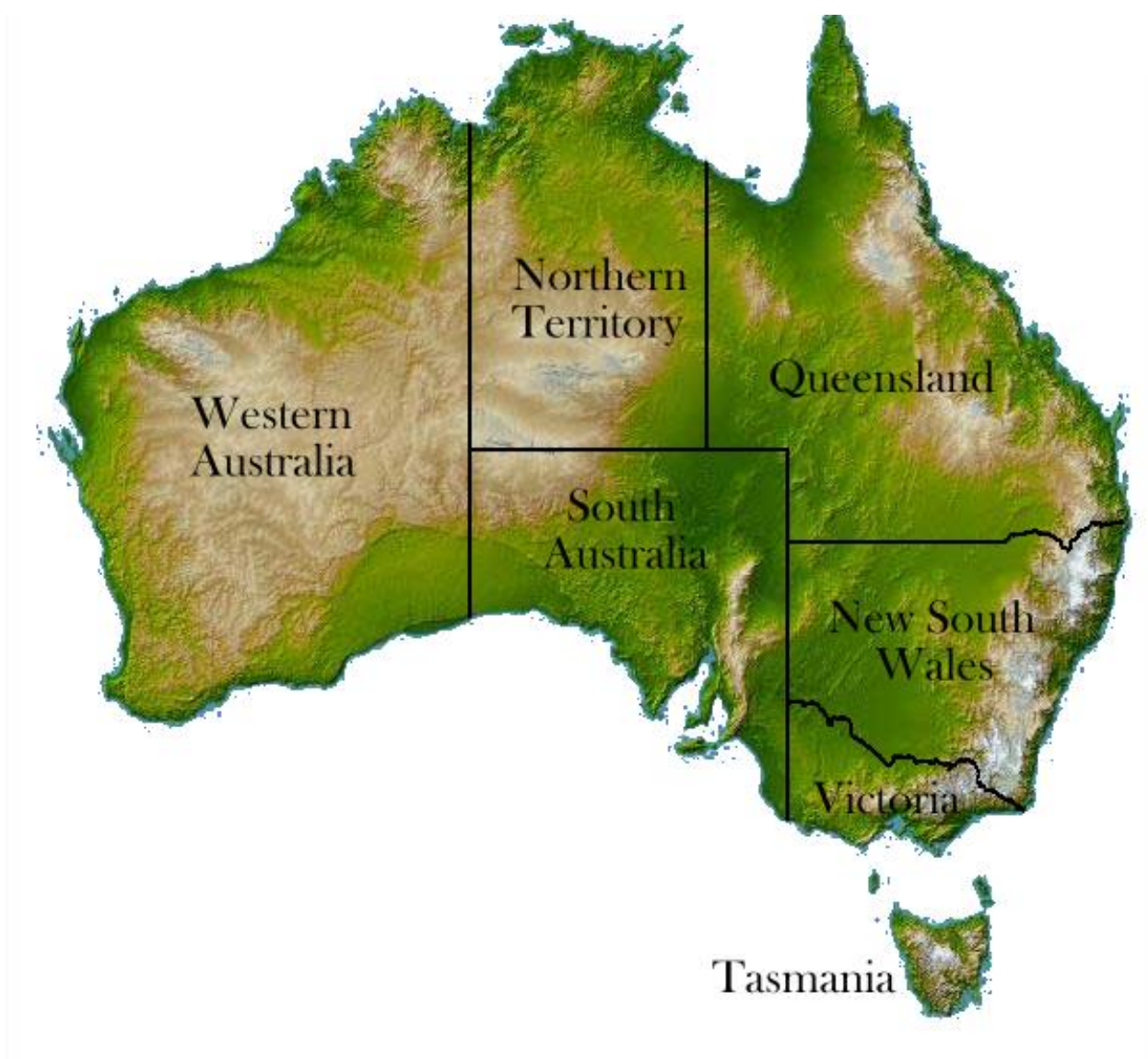
**Australian Birds from Other  
Songbird ReMix Releases**

# Australia

Edited from Wikipedia and other sources by Ken Gilliland

In approaching Songbird ReMix Australia, I knew a very little about Australia other than that's the place where Kangaroos, Kookaburras and Koalas come from. As I started the project and writing the manual it came apparent that I needed a crash course in Australian geography and environmental science to accurately create images using my Australian birds. I decided to include this information in the field guides so you too can have an instant reference source when using Songbird ReMix Australia.

The field guide refers to various regions within Australia, so here's a topographical map to help pin point the regions mentioned in the Field Guide.



# Environment History

The world is also split into 14 terrestrial habitats of which eight are shared by Australia. The Australian land mass is divided into 85 bioregions and 403 subregions. Each region is a land area made up of a group of interacting ecosystems that are repeated in similar form across the landscape.

Although most of Australia is semi-arid or desert, it includes a diverse range of habitats from alpine heaths to tropical rainforests, and is recognized as a megadiverse country. Because of the continent's great age, extremely variable weather patterns, and long-term geographic isolation, much of Australia's flora and fauna is unique and diverse. About 85% of flowering plants, 84% of mammals, more than 45% of birds, and 89% of in-shore, temperate-zone fish are endemic. Australia has the greatest number of reptiles of any country, with 755 species.

Australian forests often contain a wide variety of eucalyptus trees and are mostly located in higher rainfall regions. Most Australian woody plant species are evergreen and many are adapted to fire and drought, including many eucalypts and acacias. Australia has a rich variety of endemic legume species that thrive in nutrient-poor soils because of their symbiosis with rhizobia bacteria and mycorrhizal fungi. Among well-known Australian fauna are the monotremes (the platypus and echidna); a host of marsupials, including the kangaroo, koala, and wombat; the saltwater and freshwater crocodiles; and birds such as the emu and the kookaburra. Australia is home to many dangerous animals including some of the most venomous snakes in the world. The dingo was introduced by Austronesian people who traded with Indigenous Australians around 3000 BCE. Many plant and animal species became extinct soon after first human settlement, including the Australian megafauna; others have become extinct since European settlement, among them the Tasmanian tiger (thylacine).

Many of Australia's ecoregions, and the species within those regions, are threatened by human activities and introduced plant and animal species. The federal Environment Protection and Biodiversity Conservation Act 1999 is a legal framework for the protection of threatened species. Numerous protected areas have been created under the national Biodiversity Action Plan to protect and preserve unique ecosystems; 64 wetlands are registered under the Ramsar Convention, and 15 natural World Heritage Sites have been established. Australia was ranked 46th of 149 countries in the world on the 2008 Environmental Performance Index.

Climate change has become an increasing concern in Australia in recent years, with many Australians considering protection of the environment to be the most important issue facing the country. The Australian Government initiated several emission reduction activities. This new awareness led Prime Minister Rudd to his first official act, on his first day in office, ratifying of the Kyoto Environmental Treaty in December 2007. Nevertheless, Australia's carbon dioxide emissions per capita are among the highest in the world, lower than those of only a few other industrialized nations. Rainfall in

Australia has slightly decreased over the past century, both nationwide and for two quadrants of the nation, while annual mean temperatures increased significantly over the past decades. Water restrictions are currently in place in many regions and cities of Australia in response to chronic shortages due to urban population increases and localized drought.

## **Ecoregions of Australia**

Ecoregions in Australia are geographically distinct plant and animal communities, defined by the World Wide Fund for Nature based on geology, soils, climate, and predominant vegetation. They are based heavily upon the Interim Biogeographic Regionalization for Australia (IBRA) regionalization. Like the IBRA, it was developed for use as a planning tool for conservation science, with the goal of establishing a system of nature reserves in each of the ecoregions or bioregions sufficient to preserve biodiversity.

### **Tropical and subtropical moist broadleaf forests**

- Lord Howe Island subtropical forests
- Norfolk Island subtropical forests
- Queensland tropical rain forests

### **Temperate broadleaf and mixed forests**

- Eastern Australian temperate forests
- Southeast Australia temperate forests
- Tasmanian Central Highland forests
- Tasmanian temperate forests
- Tasmanian temperate rain forests

### **Tropical and subtropical grasslands, savannas, and shrublands**

- Arnhem Land tropical savanna
- Brigalow tropical savanna
- Cape York tropical savanna
- Carpentaria tropical savanna
- Einasleigh upland savanna
- Kimberly tropical savanna
- Mitchell grass downs
- Victoria Plains tropical savanna

### **Temperate grasslands, savannas, and shrublands**

- Eastern Australia mulga shrublands
- Southeast Australia temperate savanna

### **Montane grasslands and shrublands**

- Australian Alps montane grasslands

## **Tundra**

- Antipodes Subantarctic Islands tundra (Australia, New Zealand)

## **Mediterranean forests, woodlands, and scrub**

- Coolgardie woodlands
- Esperance mallee
- Eyre and York mallee
- Jarrah-Karri forest and shrublands
- Kwongan heathlands
- Mount Lofty woodlands
- Murray-Darling woodlands and mallee
- Naracoorte woodlands
- Southwest Australia savanna
- Southwest Australia woodlands

## **Deserts and xeric shrublands**

- Carnarvon xeric shrublands
- Central Ranges xeric scrub
- Gibson Desert
- Great Sandy-Tanami Desert
- Great Victoria Desert
- Nullarbor Plain xeric shrublands
- Pilbara shrublands
- Simpson Desert
- Tirari-Sturt Stony Desert
- Western Australian mulga shrublands

# **Victoria Plains Tropical Savanna**

This is an area of large plains of dry grassland lying between the Tanami Desert to the south and the wetter, greener grassland to the north towards the coast. Sandstone outcrops rise from the grassland, the most famous of which is the Bungle Bungle Range in Purnululu National Park. The grasslands have long been used for cattle grazing. The climate is wetter in the north (average annual rainfall 1200mm) which receives some coastal monsoonal rain, and drier in the south (average 600mm). The rainy season is between November and March and the whole area is almost completely dry for the rest of the year and the climate is hot with maximum temperatures between 25°C and 35°C year round.

The plain is largely covered with Mitchell Grass scattered with bloodwood eucalyptus trees and large patches of lancewood acacia (*Acacia shirleyi*) woodland. The sandstone outcrops have thinner cover of eucalyptus over hummock grass or heathland scattered with Grevillea and Acacia trees.

There are few endemic species as these grasslands are typical of much of northern Australia at this latitude but the grasslands are nonetheless largely intact and rich in



wildlife. Mammals include the large Eastern Wallaroo, Northern Nail-tail Wallaby (*Onychogalea unguifera*), and the Long-tailed Planigale which is the smallest marsupial in the world. The lancewoods are home to the Spectacled Hare-wallaby (*Lagorchestes conspicillatus*), while the Bungle Bungle has some unique plants and an endemic Lerista skink lizard.

Birds include Australian Bustards, Singing Bushlark, and Red-backed Fairy-wren while there are important populations of Purple-crowned Fairywren (*Malurus coronatus*) along the rivers especially the Victoria. The eucalyptus trees are habitat for Lorikeets, Friarbirds, and Honeyeaters. Termites are a source of food for many of these birds and animals.

## Southeast Temperate Forests

Comprising the lowland temperate forests around the Great Dividing Range, the Southeast Australian Temperate Forests comprise a wide variety of vegetation. Unlike the rest of mainland Australia, this region is well-watered with a temperate climate. Wet forest grows along the coast and dry forest and woodland is found inland of the Dividing Range. Avian and mammalian richness is high in this ecoregion, but human impact has been severe. Logging operations and pine plantations dot the wet forests, and farming and grazing has modified the drier vegetation. The major urban centers of Canberra and Melbourne are also located in this ecoregion.

The quintessential Australian genus, Eucalyptus dominates in all better-watered regions of Australia, including the Southeast Australia Temperate Forests. There are approximately 700 species of Eucalyptus, and only seven are found outside Australia. Unlike the rest of mainland Australia, soils here are moderately fertile with a cool temperate climate. Australian temperate eucalyptus forests exhibit a long evolutionary history compared with other continents where glaciation was repeated and extensive. Plant diversity is exceptionally high in the sandstone Grampians Ranges in Victoria, where approximately 1,100 plants, or one-third of Victoria's flora are found in the 1,700 km<sup>2</sup> Grampians National Park. Temperate woodlands also contain a high number of endangered plant species, including the button winklewort (*Rutidosia leptorhynchoides*).

Warm-temperate rainforest replaces subtropical rainforest on poorer soils or with increasing altitude and latitude in NSW and Victoria. Cool-temperate rainforests are widespread in Tasmania (Tasmanian temperate rain forests ecoregion) and they can be found scattered from the World Heritage listed Border Ranges National Park and Lamington National Park on the NSW/Queensland border to Otway Ranges, Strzelecki Ranges, Dandenong Ranges and Tarra Bulga in Victoria. In the northern NSW they are usually dominated by Antarctic Beech (*Nothofagus moorei*), in the southern NSW by Pinkwood (*Eucryphia moorei*) and Coachwood (*Ceratopetalum apetalum*) and in Victoria and Tasmania by Myrtle Beech (*Nothofagus cunninghamii*), Southern Sassafras (*Atherosperma moschatum*) and Mountain Ash (*Eucalyptus regnans*). The montane rainforests of Tasmania are dominated by Tasmanian endemic conifers (mainly

*Athrotaxis spp.*). They are dominated by ferns such as *Cyathea cooperi*, *Cyathea australis*, *Dicksonia Antarctica*, *Cyathea cunninghamii* and *Cyathea leichhardtiana*

## Mallee Woodlands and Shrublands

Mallee is an Aboriginal name for a group of eucalypts which grow to a height of 2 - 9 m and have many stems arising from a swollen woody base known as a lignotuber. They have an umbrella-like leaf canopy and the trees shade 30-70% of the ground.

Several layers of vegetation grow in association with Mallee eucalypts, from large shrubs up to 3 m high to very small grasses and forbs, and ephemerals. There is a lot of bare ground and any leaf litter decomposes slowly in the dry conditions.

Mallee is also a name given to the type of vegetation community in which the Mallee eucalypts grow. Mallee areas are generally very flat, and without hills or tall trees it is very easy to become lost. Some areas of Mallee have expanses of vegetated sand dunes. This probably accounts for the fear of the Mallee felt by many early explorers and settlers.

The Mallee is a complex and sensitive environment. It contains a great diversity of organisms many of which are under threat. Since European settlement one third of all mammal species have disappeared from the Mallee of south-eastern Australia more than a dozen plant species are now considered threatened or rare as a result of clearing and grazing.



*Distribution of Mallee Shrublands*

Mallee soil is generally sandy and in some areas contains a high proportion of lime. In other areas the soil is quite salty and/or very shallow. It is often covered by a 'crust' of lichens and algae.

In 2001, the area covered by this vegetation group was estimated to be 65% of its pre-1788 coverage. The most extensive extant area of this group in Australia today is found in the Great Victoria Desert. Prior to 1788, the largest area occurred in the Murray-Darling Basin.

## Plants of the Murray-Darling woodlands and mallee

Trees	
<i>Eucalyptus gracilis</i>	Yorrel. A mallee eucalypt.
<i>Eucalyptus oleosa</i>	Giant Mallee. One of the larger mallee trees.
<i>Eucalyptus socialis</i>	Pointed Mallee. Very common species.
<i>Eucalyptus anceps</i>	Kangaroo Island Mallee. Somewhat uncommon.
<i>Myoporum platycarpum</i>	Sugarwood. Common leafy tree to about 6m with small white flowers often quite prolific and long lasting.
<i>Santalum acuminatum</i>	Quandong. Small tree with edible fruits.
Large Shrubs	
<i>Acacia nyssophilla</i>	Wait-a-while. Prickly wattle shrub with attractive globular golden-yellow flowers
<i>Exocarpus aphylla</i>	Leafless Ballart. Very shady but leafless large shrub.
<i>Melaleuca lanceolata</i>	Moonah. Dryland bottlebrush flowering plant.
Small Shrubs	
<i>Dodonaea attenuata</i>	Narrow-leaf hopbush. While not a true hop, the early settlers nevertheless did make beer from the fruits.
<i>Eremophila glabra</i>	Common Emu Bush. Very common attractive small shrub with red sigmoidal flowers.
<i>Eremophila alternifolia</i>	Poverty Bush. Uncommon attractive small shrub with mauve spotted or white sigmoidal flowers.
<i>Scaevola spinescens</i>	Spiny Fan-Flower. Unusual one-sided fan shaped flowers.
<i>Senna eremophila</i>	Cassia. Very common small shrub, very attractive when flowering. Yellow pea-like flowers very profuse in good years.
<i>Westringia rigida</i>	Very common low shrub to about 0.5m with small cylindrical leaves and small white spotted long lasting flowers.
<i>Beyeria leschenaultii</i>	Felted Wallaby-Bush.
Smaller Plants	
<i>Atriplex stipitata</i>	Kidney Saltbush. Small dome-shaped shrub with grey green leaves.
<i>Maireana erioclada</i>	Rosy Bluebush. Attractive wheel-shaped fruits green to pink when fresh.
<i>Maireana brevifolia</i>	Yanga Bush. Another bluebush with wheel-shaped fruits.
<i>Olearia magniflora</i>	Mangificent Daisy. Attractive, large purple daisy-like flowering bush
<i>Rhagodia gaudichaudiana</i>	Cottony Saltbush. Unusual spade shaped leaves.
<i>Rhagodia nutans</i>	Climbing Saltbush. Unusual lobed leaves but otherwise rather forgettable.
<i>Teucreum racemosum</i>	Grey Germander. Small plant with distinctive and prolific white flowers.
<i>Thysanotus baueri</i>	Mallee Fringe-lily. Small, short lived, mauve flowers with long fringes on the petal margins.
<i>Zygophyllum apiculatum</i>	Gall Weed. Very common low ground cover, large, brilliant green leaves with attractive yellow flowers and unusual ridged fruits. Doesn't deserve the name.
<i>Zygophyllum aurantiacum</i>	Shrubby Twinleaf. Very common small woody shrub, small twinned leaves with attractive yellow flowers and four-winged fruits.



The Australian bustards and endangered black-eared miners live within the Mallee forests.

## Western Mallee

Western Mallee is roughly defined as the western half of the Mallee biogeographic region. It has an area of 47,636 square kilometres, which is only lightly populated. The main towns are Hyden, Gnowangerup and Lake Grace; lesser towns include Kulin, Ongerup, Duggan, Newdegate, Lake King and Kondinin.

The subregion contains many endemic plant species in the Eucalyptus, Acacia, Proteaceae such as Grevillea, Hakea and Banksia; and various Asteraceae.

It also supports a number of rare or endangered fauna, including some that fall within the critical weight range for predation by foxes. The Pig-footed Bandicoot (*Chaeropus ecaudatus*) and Crescent Nailtail Wallaby (*Onychogalea lunata*) previously occurred in the subregion, but both are now extinct. The Rufous Hare-wallaby (*Lagorchestes hirsutus*) is now extinct in the wild, and a further ten species of mammal are extinct in the subregion. The endangered Red-tailed Phascogale (*Phascogale calura*) still occurs in the region, as do the vulnerable Black-flanked Rock-wallaby (*Petrogale lateralis*) and Heath Rat (*Pseudomys shortridgei*), and the Western Brush Wallaby (*Macropus irma*).

More information of Mallee plants is [available](#) from the Australian government.

## **Mangroves**

Mangroves are trees and shrubs that grow in saline coastal habitats in the tropics and subtropics – mainly between latitudes 25° N and 25° S. The saline conditions tolerated by various species range from brackish water, through pure seawater (30 to 40%), to water of over twice the salinity of ocean seawater, where the salt becomes concentrated by evaporation (up to 90%).

There are many species of trees and shrubs adapted to saline conditions. Not all are closely related, and the term "mangrove" may be used for all of them, or more narrowly only for the mangrove family of plants, the Rhizophoraceae, or even more specifically just for mangrove trees of the genus Rhizophora.

Mangroves form a characteristic saline woodland or shrubland habitat, called mangrove swamp, mangrove forest, mangrove or mangal. Mangals are found in depositional coastal environments where fine sediments (often with high organic content) collect in areas protected from high energy wave action. They occur both in estuaries and along open coastlines. Mangroves dominate three quarters of tropical coastlines.

More than fifty species of Rhizophoraceae (Red Mangrove) grow in Australasia with particularly high biodiversity on the island of New Guinea and northern Australia.

Australia has approximately 11,500 km<sup>2</sup> of mangroves primarily on the northern and eastern coasts of the continent, with occurrences as far south as Miller's Landing in Wilson's Promontory, Victoria (38°54'S) and Barker Inlet in Adelaide, South Australia.

## **The Great Victoria Desert**

The Great Victoria is the biggest desert in Australia and consists of many small sandhills, grassland plains, areas with a closely packed surface of pebbles (called desert pavement or gibber plains) and salt lakes. It is over 700 km (430 mi) wide (from west to east) and covers an area of 424,400 square km (163,900 sq mi) from the Eastern Goldfields region of Western Australia to the Gawler Ranges in South Australia. The Western Australia Mallee shrub ecoregion lies to the west, the Little Sandy Desert to the northwest, the Gibson Desert and the Central Ranges xeric shrublands to the north, the Tirari and Sturt Stony deserts to the east, while the Nullarbor Plain to the south separates it from the Southern Ocean. Average annual rainfall is low and irregular, ranging from 200 to 250 mm (7.9 to 9.8 in) per year. Thunderstorms are relatively common in the Great Victoria Desert, with an average of 15 - 20 thunderstorms per annum. Summer daytime temperatures range from 32 to 40 °C (90 to 104 °F) while in winter, this falls to 18 to 23 °C (64 to 73 °F).

As this area has never been used for agriculture habitats remain largely undisturbed while parts of the desert are protected areas including Mamungari Conservation Park

(formerly known as Unnamed Conservation Park) in South Australia, a large area of pristine arid zone wilderness which possesses cultural significance and is one of the fourteen World Biosphere Reserves in Australia. Habitat is also preserved in the large Aboriginal local government area of Anangu Pitjantjatjara Yankunytjatjara in South Australia and in the Great Victoria Desert Nature Reserve of Western Australia.

Only the hardiest of plants can survive in much of this environment. Between the sand ridges there are areas of wooded steppe consisting of *Eucalyptus gongylocarpa*, *eucalyptus youngiana* and mulga (*Acacia aneura*) shrubs scattered over areas of resilient spinifex grasses particularly *Triodia basedownii*.

Wildlife adapted to these harsh conditions includes few large birds or mammals but the desert does sustain many types of lizard including the vulnerable great desert skink (*Egernia kintorei*) and a number of small marsupials including the Sandhill Dunnart (*Sminthopsis psammophila*) and the vulnerable Crest-tailed Mulgara (*Dasycercus cristicauda*). One way to survive here is to bury into the sands and there are a number of animals doing that including the endangered Southern Marsupial Mole (*Notoryctes typhlops*), and the Water-holding Frog. Birds include the Chestnut-breasted Whiteface (*Aphelocephala pectoralis*) found on the eastern edge of the desert and the malleefowl of Mamungari Conservation Park. Predators of the desert include the dingo (as the desert is north of the Dingo Fence) and two large monitor lizards, the perentie (*Varanus giganteus*) and the sand goanna (*Varanus gouldii*).

The nuclear weapons trials carried out by the United Kingdom at Maralinga and Emu Field in the 1950s and early 1960s has left areas contaminated with plutonium-239 and other radioactive material.

## Billabongs

While not an eco-region, billabongs are important areas and are a term familiar even to those outside Australia. Billabong is an Australian word meaning a small lake, specifically an oxbow lake. An oxbow lake or billabong, is a section of still water adjacent to a river, cut off by a change in the watercourse. Billabongs are usually formed when the path of a creek or river changes, leaving the former branch with a dead end. The word, *Billabong*, most likely from the Wiradjuri term "*bilabanj*".

Billabongs appear relatively often in Australian literature. One of the most prominent references is in the opening line of Banjo Paterson's famous folk song "Waltzing Matilda".

Plant life in billabongs varying from region to region but certain plants types are usually found there such as Eucalypts, Salix, Typhia, Grevilleas and Banksias.

# Songbird ReMix Australia Volume Three

## Field Guide

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Australian Pelican

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Zebra Finch  
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### White-eyes

Robust Silvereye (**extinct**)

**Common Name:** Masked Booby  
**Scientific Name:** *Sula dactylatra*

**Size:** 29-34 inches (74-86 cm)

**Habitat:** Tropical Oceans; from the Caribbean, across the Pacific Ocean, to Hawaii, Australia, and Indonesia-- a rare visitor to the United States.

**Status:** Not threatened. At least some mortality from tangling in fishing gear, but this problem is not known to be significant. It probably has frequent interactions with purse-seining tuna fisheries, as the fisheries often use Masked Boobies and other seabirds to locate tuna schools, but no scientific data exists.

**Diet:** Fish and squid. Plunge-dives from various heights up to 30 meters (100 feet) into schools of fish.

**Nesting:** Sexes are similar. Female slightly larger. Nests are a slight depression on ground, surrounded by circle of pebbles or other debris, often near a breezy cliff edge or other take-off feature. One to two light blue eggs are laid. Although the Masked Booby regularly lays two eggs, it never raises two young. The first egg is laid four to nine days before the second, and the older chick always ejects the second from the nest. The parents do not protect or feed the ejected chick, and it is quickly scavenged by a host of associated crabs, landbirds, and frigatebirds.

**Cool Facts:** The population of Masked Boobies breeding along the Pacific Coast of northern South America, including the Galapagos, was recently recognized as a separate species, the Nazca Booby. The Nazca Booby has an orange, not yellow, bill and is smaller with a significantly shorter, shallower bill. Whereas the Masked Booby usually nests on low, flat areas, the Nazca Booby uses cliffs and steep slopes.





**Common Name:** Australian Pelican

**Scientific Name:** *Pelecanus conspicillatus*

**Size:** 60-70 inches (160-180 cm)

**Habitat:** Australia, Papua New Guinea and western Indonesia, with occasional reports in New Zealand and Sulawesi. Any area with a large body of standing water is a potential pelican habitat. Though normally associated with the coast, the Australian pelican can also be seen inland at times of high rainfall, particularly near freshwater,

estuarine and marine wetlands and waterways including lakes, swamps, rivers, coastal islands and shores.

**Status:** Not threatened. This species has a large range and is widespread however there have been significant population declines; Hhabitat destruction, introduced predators, oil spills, and pesticide poisonings (dieldrin in particular) have killed many birds.

**Diet:** Fish and some marine invertebrates. In addition to small fish, they will eat crustaceans, tadpoles, turtles, ducklings and sea gulls. Prey is caught by fishing from the water surface.

**Nesting:** The Australian Pelican begins breeding at two or three years of age. Breeding season

varies, occurring in winter in tropical areas and late spring in parts of southern Australia. Any time after rainfall is usual in inland areas. The nest is a shallow depression in earth or sand, sometimes with some grass lining. Grassy platforms are constructed at Lake



Alexandrina in South Australia. Nesting is communal, with colonies located on islands or sheltered areas in the vicinity of lakes or the sea.

Breeding Australian pelicans will lay one or three chalky-white eggs. After they hatch, the larger one will be fed more, and the smaller one will eventually die of starvation. For the first two weeks the chicks will be fed regurgitated liquid, but for the remaining two months they will be fed fish such as goldfish or the introduced European carp, and some invertebrates.

**Cool Facts:** Australian pelicans may live 25 years or longer. They mostly feed in groups, cooperating to herd and enclose schools of fish, then swoop down on their trapped prey. They can eat up to 9 kilograms of food per day. They have been known to follow humans homes, hoping to be feed.



**Common Name:** Australasian Bittern

**Scientific Name:** *Botaurus poiciloptilus*

**Size:** 27 inches (71 cm)

**Habitat:** Asia and Australia; occurs in the wetlands of southern Australia, New Zealand and New Caledonia. Found in freshwater swamps and marshes.

**Status:** **Endangered.** **Global population:** 1,000-2,499. In Australia and New Zealand, the main threats are wetland drainage for agriculture, as well as changes brought about by high levels of grazing and salinisation of swamps. In Australia, the species appears able to adapt to the availability of ephemeral wetlands, but is likely to be particularly sensitive to the destruction of drought refugia. Loss of these habitats may explain its dramatic decline in Western and South Australia. The Murray-Darling basin, a former stronghold of the species, has suffered consecutive droughts in recent years and over-extraction of water is an ongoing problem. Shooting and flying into power lines are

additional contributory causes, but hunting pressure is very low. In Australia, Bool Lagoon and Lake Muir are managed specifically for the species.

**Diet:** Frogs, eels and freshwater crustaceans.

**Nesting:** It is a solitary nester on the ground in dense wetland vegetation on trampled reeds and other plants.

**Cool Facts:** It is a cryptic and partly nocturnal species that inhabits densely

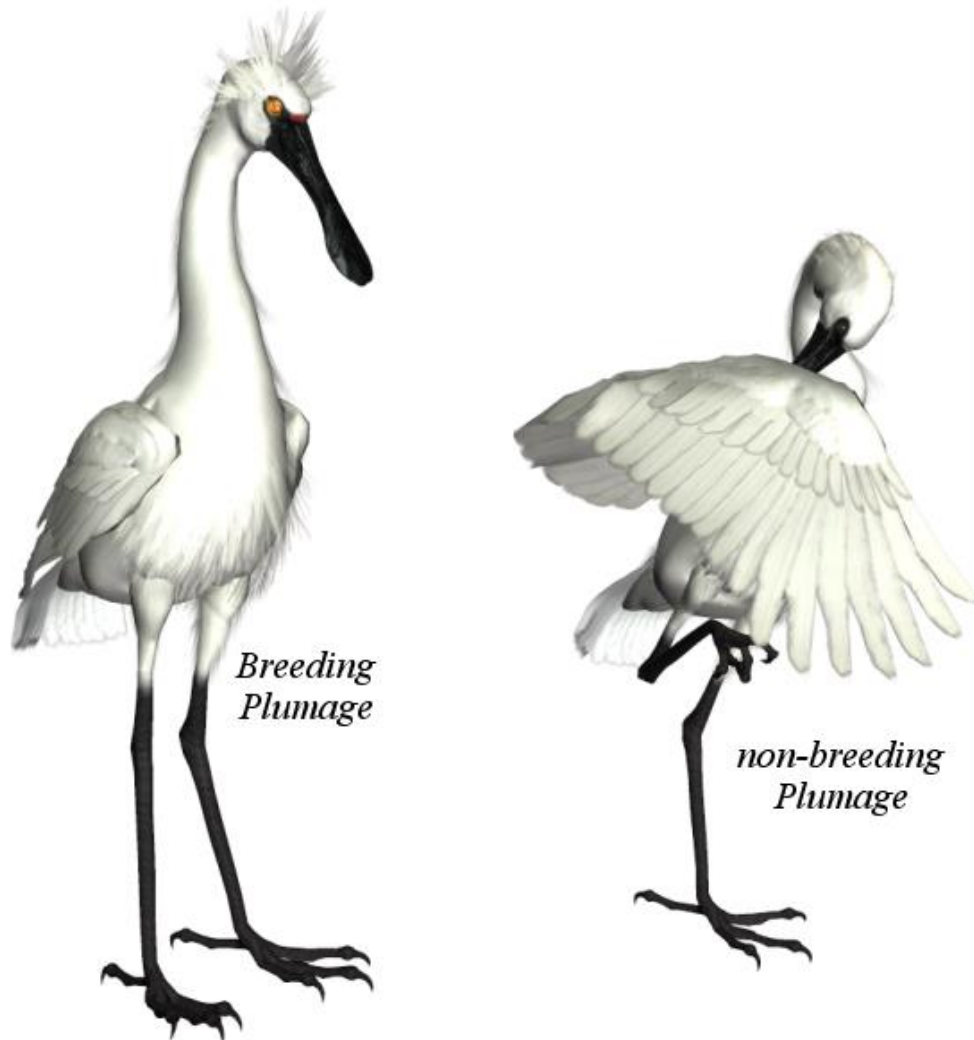


vegetated wetlands. It has a distinctive booming voice and may be heard more often than seen.

**Common Name:** Royal Spoonbill  
**Scientific Name:** *Platalea regia*

**Size:** 30 ¼ inches (77 cm)

**Habitat:** Australia & South-east Asia; found throughout eastern and northern mainland Australia from the Kimberley region of Western Australia across the Top End and through Queensland, New South Wales and Victoria, to south-eastern South Australia. It is only a rare visitor to Tasmania and it is not found south-west of Broome, Western Australia through to the Spencer Gulf, South Australia or in central Australia. It is also found in New Zealand, Indonesia, Papua New Guinea and on some south-western



Pacific islands. Found in shallow freshwater and saltwater wetlands, intertidal mud flats and wet grasslands. Both permanent and temporary inland waters are used when available in the arid zone. They will also use artificial wetlands such as sewage lagoons, salt fields, dams and reservoirs.

**Status:** Least Concern. **Global population:** 25,000 - 100,000. Royal Spoonbills are not tolerant of disturbances, especially when breeding, and destruction of habitat by land-clearing, drainage, increased salinity or flooding and weed invasion are all detrimental to both feeding and breeding. However, it has benefited from artificial wetlands in some areas. In the Australian Northern Territory, the introduced Water Buffalo threaten freshwater wetland habitats by breaking down levees and allowing salt water to flow in.

**Diet:** Fish, shrimp, crabs and amphibians. It catches its prey by making a side-to-side movement with its bill.

**Nesting:** They form monogamous pairs for the duration of the breeding season and nest in colonies alongside many other water birds, including Yellow-billed Spoonbills, ibises, herons and cormorants. When they are breeding, long white plumes grow from the back of their heads and colored patches appear on the face. The nest is an open platform of sticks in a tree in which the female lays two or three eggs. The chicks hatch after 21 days. The birds are highly sensitive to disturbance in the breeding season. In Australia, whole colonies have been known to desert their eggs after a minor upset.

**Cool Facts:** They are also known as the Black-billed Spoonbill; in New Zealand they are called “kotuku ngutu papa” by the Maori.

**Common Name:** Brolga  
**Scientific Name:** *Grus rubicunda*

**Size:** 27 ½ - 51 inches (70-130 cm)

**Habitat:** Australia; Found in tropical and eastern Australia and New Guinea. Found in shallow fresh and saltwater wetlands.

**Status:** Least Concern. Global population: 26,000 - 100,000. Brolga are not listed as threatened on the Australian Environment Protection and Biodiversity Conservation Act



1999. However, their conservation status varies from state to state within Australia. The Brolga is listed as threatened on the Victorian Flora and Fauna Guarantee Act (1988). Under this Act, an Action Statement for the recovery and future management of this species has been prepared. On the 2007 advisory list of threatened vertebrate fauna in Victoria, the Brolga is listed as vulnerable

**Diet:** Wetland and upland plants, seeds, mollusks, and crustaceans. Northern Australian populations of Brolga are fond of the tubers of the bulkuru sedge which they dig holes to extract but this is not available south of Brisbane

**Nesting:** Brolgas are well known for their intricate mating dances. The dance begins with a bird picking up some grass and tossing it into the air, catching it in its bill, and then progresses to jumping a meter into the air with outstretched wings, then

stretching, bowing, walking, calling, and bobbing its head. Sometimes just one Brolga dances for its mate; often they dance in pairs; and sometimes a whole group of about a dozen dance together, lining up roughly opposite each other before starting.

The brolga breeds throughout its range in Australia and New Guinea. The time of breeding is largely determined by rainfall rather than the time of year; thus the season is February to May after the rainy season in the monsoonal areas, and September to December in southern Australia. The flocks split up and pairs establish nesting territories in wetlands. In good habitat, nests can be quite close together, and are often found in the same area as those of the closely related but slightly larger Sarus Crane. The nest is a raised mound, built by both sexes, of sticks, uprooted grass, and other plant material sited on a small island, standing in shallow water, or occasionally floating. If no grasses are available, mud or roots unearthed from marsh beds are employed. Sometimes they make barely any nest at all, take over a disused swan nest, or simply lay on bare ground.

There is one brood produced a year, with clutch size usually two; the dull white eggs and are sparsely spotted or blotched with reddish brown. The markings are denser at the larger end of the egg. Occasionally one or three are laid about two days apart. Both birds incubate and guard the young. Hatching is not synchronized, and takes about 30 days. The chicks hatch covered in grey down and weighing about 100 g. They can leave the nest within a day or two, have body feathers within 4 or 5 weeks, and are fully feathered after three months, and able to fly about two weeks after that. When threatened, chicks hide and stay quiet while the parents perform a broken-wing display. The parents continue to guard the young for up to 11 months, or almost two years if they do not re-nest.

**Cool Facts:** The bird has also been given the name "Australian Crane", a term coined in 1865 by well-known ornithological artist John Gould in his *Birds of Australia*. It can easily be confused with the Sarus Crane, however the latter's red head coloring extends partly down the neck while the Brolga's is confined to the head. Additionally, in Australia the range of the Sarus is limited to a few scattered localities in northern Australia, compared to the more widespread distribution of the Brolga.

Brolgas are gregarious creatures; the basic social unit is a pair or small family group of about 3 or 4 birds, usually parents together with juvenile offspring, though some such groups are non-familial. In the non-breeding season, they gather into large flocks, which appear to be many self-contained individual groups rather than a single social unit. Within the flock, families tend to remain separate and to coordinate their activities with one another rather than with the flock as a whole.

It is the official bird emblem of the state of Queensland. In the US, there is a drink called the "Brolga" which consists of gin, Sprite (or 7 Up), and a few drops of Angostura bitters.

**Common Name:** Australian Bustard  
**Scientific Name:** *Ardeotis australis*

**Size:** 43.3- 47.3 inches (110-120 cm)

**Habitat:** Australia; found across continental Australia and occasionally in southern Papua New Guinea and Papua (formerly Irian Jaya), Indonesia. It has all but disappeared from south-eastern Australia, and is less abundant elsewhere, particularly south of the tropics. Local population size varies strongly with rainfall making assessment of trends difficult.

It inhabits grassland, including tussock grassland, Triodia hummock grassland, grassy woodland, low shrublands, and structurally similar artificial habitats, such as croplands and golf-courses. It will also use denser vegetation, when this has been temporarily opened up by recent burning. In northern Australia it may disperse widely to follow recently-burnt grounds

**Status:** Near Threatened. Global population: 10,000 - 99,999. This bird remains relatively common and widespread across most of northern Australia, but its range



*Dream Stance*



appears to have contracted in the south-east of the continent during the last century, perhaps due to hunting (now illegal except for indigenous Australians), feral predators such as pigs and foxes and habitat destruction. Its nomadic habits make it difficult to assess.

The Australian Bustard is not listed as threatened on the Environment Protection and Biodiversity Conservation Act 1999. The Australian Bustard is listed as threatened on the Victorian Flora and Fauna Guarantee Act 1988. Under this Act, an Action Statement for the recovery and future management of this species has been prepared. On the 2007 advisory list of threatened vertebrate fauna in Victoria, this species is listed as critically endangered.

**Diet:** Seeds, fruit, centipedes, insects, mollusks, lizards, young birds and small rodents.

**Nesting:** The male is up to 1.2 m (47 in) tall with a 2.3 m (7 ft 7 in) wingspan. The average weight for males is 7.5 kg (17 lb). The female is quite a bit smaller at 80 cm (31 in) tall and 3 kg (6.6 lb) in weight but is similarly colored.

It lays one, or occasionally two, eggs on the ground, where possible along a boundary between open grasslands and more protective shrubland or woodlands.

**Cool Facts:** When disturbed, Australian Bustards often adopt a cryptic pose with neck erect and bill pointed skywards. They may stalk gradually away or run if alarmed, taking flight as a last resort.

It is also commonly referred to in Central Australia as the 'Bush Turkey', particularly by Aboriginal people. It is an important food source for Aboriginal people from Central Australia, and is still eaten today. The white feathers of the bird are used for ceremonial purposes.

The Arrernte name for this bird is kere artewe. The Luritja name is kipara. The Larrakia name for this bird is danimila. There are important "Dreaming" stories associated with the Bush Turkey. A number of artists painting in the desert today paint bush turkey "Dreaming". This means they have been given stories of the origins of the turkey in the Dreamtime and are entitled to tell this story and paint about it

**Common Name:** Comb-crested Jacana  
**Scientific Name:** *Irediparra gallinacea*

**Size:** 7 ¾ - 9 inches (20-23 cm)

**Habitat:** Australiasia; distributed in coastal and sub-coastal regions from the Kimberleys, Western Australia, through northern Australia to about Grafton, New South Wales. They are more common in the north of their range. The species also occurs in New Guinea, Indonesia and the Philippines. Found in tropical and subtropical freshwater wetlands, including lagoons, billabongs, swamps, lakes, rivers, sewage ponds and dams, providing there is adequate floating vegetation.

**Status:** Least Concern. **Global population:** 25,000 to 1,000,000. The species is locally threatened by wetland degradation and loss through flooding, drainage and overgrazing.

**Diet:** Aquatic insects, which it seizes from floating vegetation or the surface of the water. It also feeds on seeds and aquatic plants. Birds rarely come to shore. When searching for food, the Comb-crested Jacana bobs its head and flicks its tailed continuously.



**Nesting:** Both sexes are similar in appearance, but the female is larger than the male, and slightly brighter in color. In flight, the long legs and toes trail behind the body. Young Jacanas resemble the adult birds, but are rufous to black on the head and nape, and have a rufous-black breast band. The red fleshy comb is much smaller and darker.

The female Comb-crested Jacana may mate with several males, while the male alone builds the nest, incubates the eggs and cares for the young. If danger threatens the young birds, the male has the curious habit of picking the chicks up under his wings and carrying them off to safety.

**Cool Facts:** In Australia, the Comb-crested Jacana, also known as the “Lotusbird”. Comb-crested Jacanas will move to new locations, particularly in response to changes in their current habitat, such as droughts or excessive flooding.

**Common Name:** Banded Stilt

**Scientific Name:** *Cladorhynchus leucocephalus*

**Size:** 13 ¾ -17 inches (35-43 cm)

**Habitat:** Australia. Found along the edges of shallow water in open country at Shallow fresh and saltwater wetlands, including salt ponds, rice fields, shallow lagoons, and mangrove swamps.

**Status:** Least Concern. Global population: 210,000.

**Diet:** Mainly crustaceans and other arthropods, and mollusks – and small fish, tadpoles

and very rarely plant seeds. Feeds in shallow water, while wading or swimming. Locates food by sight and snaps it up, sometimes sticking head completely underwater, or swipes the head and bill through water.



**Nesting:** Breeding Adults have the banded chest, but this is mottled or entirely absent in non-breeding adults and juveniles. They breed whenever the water conditions are suitable and lay 3-4 white, brown or black eggs on a scrape.

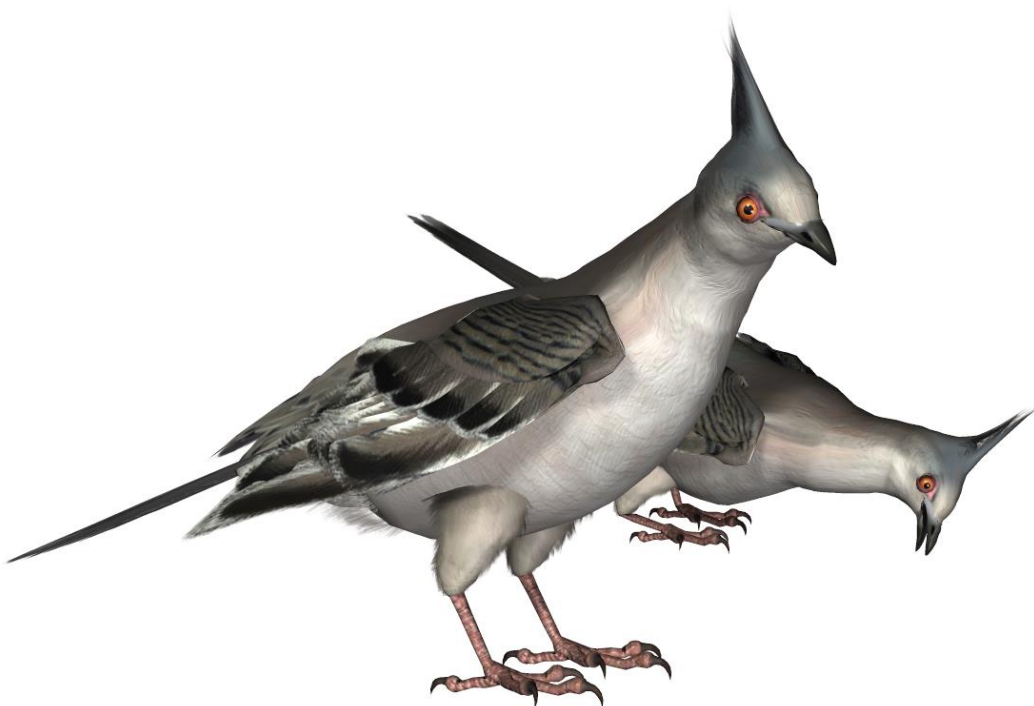
**Cool Facts:** This is a nomadic species and known locally as the Rottnest snipe on Rottnest Island, though not related to true snipes.

**Common Name:** Crested Dove or Pigeon

**Scientific Name:** *Ocyphaps lophotes*

**Size:** 12 to 13 ½ inches (30-34 cm)

**Habitat:** Australia; found widely throughout mainland Australia except for far tropical north areas. Habitat is grasslands, brush and wooded areas but they can also be seen at watercourses, homestead gardens, pastoral areas, sports grounds, and golf courses. Their habitat has expanded since settlement has produced pastoral lands (previously they were only found in inland and Western Australia).



**Status:** Least Concern. **Global Population:** unknown.

**Diet:** Seed. They have adapted to feeding on grain in farming areas and are often feeding on the noxious weed of Salvation Jane.

**Breeding:** Nesting usually occurs in shrubs or trees. Nests usually consist of a platform of twigs with two oval, white and glossy eggs.

**Cool Facts:** Their most distinctive behavior is the beating and whistling sound their wings make when they take off. This is most likely to draw the attention of predators to birds on the wing, and away from any birds remaining on the ground.

There are only two Australian pigeon species that possess an erect crest, the Spinifex Pigeon and the Crested Dove. The Crested Dove is the larger of the two species.

**Common Name:** Wompoo Fruit-dove  
**Scientific Name:** *Ptilinopus magnificus*

**Size:** 16-18 inches (37-45cm)

**Habitat:** Australia; the eastern coast from central New South Wales to the tip of Cape York Peninsula. In Australia, it inhabits almost exclusively the lowland tropical rainforests along the eastern coast, from central New South Wales to the tip of Cape York Peninsula. The abundance of the birds increase in a northerly direction.

**Status:** Near threatened. **Global Population:** unknown. Endangered due to demands placed on their habitat by an expanding human population.

**Diet:** Fruits (primarily figs), flowers and occasionally seed.

**Breeding:** Nests are sturdily constructed from forked twigs not high from the ground.



Both genders help in the construction of the nest. One white egg is laid and the parents share the incubation and care of the chick. In the event, that the chick dies, the doves will attempt to have a second offspring in the same season.

**Cool Facts:** The Wompoo Fruit-dove is the largest Fruit-dove native to Australia. It can be seen in large flocks where food is abundant. The birds feed off fruit-bearing trees in rainforests. They can eat large fruits, such as figs, and are able to acrobatically collect fruit of trees and vines.

They do not travel long distances preferring to stay in their local area.

**Common Name:** Cockatiel

**Scientific Name:** *Nymphicus hollandicus*

**Size:** 12-13 inches (30-33cm)

**Habitat:** Australia; widespread throughout mainland Australia, but is uncommon in Tasmania, with only a few sightings being reported to date. Throughout its range, the Cockatiel is strongly nomadic, moving around in response to the availability of food and water.

**Status:** Least Concern.

**Global Population:** unknown.

**Diet:** Grass seeds, nuts, berries and grain. They may feed either on the ground or in trees, and always in groups of either small to large numbers.

**Breeding:** Cockatiels can breed at any time, usually in response to availability of water. Both sexes share the incubation of the eggs, which are laid in a hollow, high up in trees. Suitable nesting areas



are close to water. Cockatiels enter the nest hollow tail first.

**Cool facts:** The cockatiel's scientific name "*Nymphicus hollandicus*" comes from one of the earliest groups of Europeans to see cockatiels in their native habitat. Travellers from Holland thought they were so beautiful that they named them after the mythical creatures, the nymphs. The species name refers to New Holland, an old name for Australia where they were found.

Cockatiels are more closely related to the Calyptorhynchinae family (black cockatoos) than to the Cacatuinae family (white cockatoos).

Cockatiels are one of the most popular companion birds due to their size, and mild temperament. While capable of speech, cockatiels are much better at mimicking whistles. The average lifespan of a cockatiel in captivity is generally 12-20 years.

**Common Name:** Little Corella  
**Scientific Name:** *Cacatua sanguinea*

**Size:** 14-15¼ inches (36-39cm)

**Habitat:** Australia; widespread throughout Australia, although large gaps separate some populations. The Little Corella is the most widely distributed of the three corella species found in Australia. The Western Corella is confined the extreme south-west of Western Australia, and the Long-billed Corella is found in the south-east. Little Corellas often form large flocks, especially along watercourses and where seeding grasses are found.

**Status:** Least Concern. **Global Population:** unknown. The Little Corella's range is expanding with land clearing and increased sources of water. The increase in agricultural crops has so increased the birds' numbers in some areas they may become pests. Escaped or deliberately released cage birds have also helped numbers in the east of Australia.



**Diet:** Feed in large noisy flocks. The birds feed mainly on the ground, and have to drink on a daily basis. The most common foods are grains and grass seeds. Some bulbs and fruits may also be eaten

**Breeding:** Cockatoos become sexually mature after two to four years. Two to five eggs are laid in September through October. Nesting takes place in hidden areas. Eggs incubate for about three and half to four weeks and the fledgling period lasts eight to ten weeks.

**Cool Facts:** The scientific name for Little Corella, *Cacatua sanguinea*, means 'Blood-stained Cockatoo' and refers to the dark pink markings between the eye and the bill.

Little Corellas congregate in flocks of up to several thousand birds, which often include many Galahs. They roost in trees overnight, and fly off to feed in the early morning with an almost deafening screeching. It mostly feeds on the ground, eating seeds including cereal crops such as wheat and barley. It is so common that it has become something of a pest throughout much of Australia, and can be destructive to the trees in which it perches, by chewing the bark off smaller twigs.



**Common Name:** Galah

**Scientific Name:** *Cacatua roseicapilla*

**Size:** 12 ¼ to 15 inches (31-38cm)

**Habitat:** Australia; one of the most abundant and familiar of the Australian parrots, occurring over most of Australia, including some offshore islands. Found in large flocks in a variety of timbered habitats, usually near water.

**Status:** Least Concern. **Global Population:** unknown. The Galah is becoming more abundant around areas of human habitation, with the growth in population largely a result of increasing availability of food and water. Escaped aviary birds have also contributed to these numbers.



**Diet:** Form huge, noisy flocks, which feed on seeds, mostly from the ground. Seeds of grasses and cultivated crops are eaten, making these birds agricultural pests in some areas. Birds may travel large distances in search of favorable feeding grounds.

**Breeding:** Galahs form permanent pair bonds, although a bird will take a new partner if the other one dies. The nest is a tree hollow or similar location, lined with leaves. Both sexes incubate the eggs and care for the young. There is high chick mortality in Galahs, with up to 50 % of chicks dying in the first six months. Males have a light brown colored iris; females are pink.

**Cool Facts:** The Galah is becoming more abundant around areas of human habitation, with the growth in population largely a result of increasing availability of food and water. Escaped aviary

birds have also contributed to these numbers.

Galahs have been recorded breeding with other members of the cockatoo family, both in the wild and captivity. These include the Sulfur-crested Cockatoo.

**Common Name:** Sulfur-crested Cockatoo

**Scientific Name:** *Cacatua galerita*

**Size:** 17 ½ -19 ½ inches (45-50 cm)

**Habitat:** Australasia; range extends throughout the northern and eastern mainland, and Tasmania. A small population has become established around Perth, Western Australia. The species also occurs in New Guinea and the Aru Islands, and has been introduced into New Zealand and Indonesia. Found in a variety of timbered habitats and are common around human settlements. The birds stay in the same area all year round.

**Status:** Least concern. **Global Population:** Unknown. The popularity of the Sulfur-crested Cockatoo as a cage bird has increased its range, as these birds either escape or are released deliberately in areas where they do not already occur. The species has



become a pest around urban areas, where it uses its powerful bill to destroy timber decking and paneling on houses. Sulfur-crested Cockatoos are poisoned as a crop pest.

**Diet:** Seeds, buds, fruits, nuts and herbaceous plants. Feeding normally takes place in small to large groups, with one or more members of the group watching for danger from a nearby perch. When not feeding, birds will bite off smaller branches and leaves from trees. These items are not eaten, however. The activity may help to keep the bill trimmed and from growing too large.

**Breeding:** Cockatoo become sexually mature after two to four years. The female lays two to three eggs in a tree hole. Both parents incubate the eggs for about 27 days.

**Cool Facts:** Cockatoo eat clay in the morning to detoxify any dangerous food they might eat. Sulfur-crested cockatoos are popular pets, however they may no longer be imported into the United States as a result of the Wild Bird Conservation Act. They are now bred in captivity. The potential owner should be aware of the bird's needs, as well as how loud these birds can be and their natural desire to chew.

A sulfur-crested by the name of "Cocky" Bennett lived to the age of 120 years in Sydney.

There are two other yellow-crested Cockatoos in the world; the lesser Sulfur-crested Cockatoo and the lesser Citron-crested Cockatoo. Both are found in Indonesian and wild populations are critically endangered.

**Common Name:** Red-tailed Black Cockatoo

**Scientific Name:** *Calyptorhynchus banksii*

**Size:** 19 ¾ to 26 ¾ inches (50-68cm)

**Habitat:** Australia; In Victoria, the South-eastern Red-tailed Black-Cockatoo occurs from Portland in south-east to just north of the Little Desert, while in South Australia it is

found from Bangham-Frances to Mt Gambier. Its former distribution may never have been much greater than this, but the extent of occurrence within this range has declined significantly due to habitat loss (c. 60% of habitat in Victoria and 80% in Southern Australia has been destroyed).

**Status:** **Endangered.** **Global population:** 250-999.

Populations of the south-east region of Australia are threatened by clearing of native habitat. Much of the feeding habitat used by these birds is protected in State Forests. However, nesting habitat on private land is disappearing rapidly as a consequence of tree dieback, felling of potential nest trees for firewood, and the general intensification of farming (i.e. change from grazing to farm forestry, cropping etc).

In Australia they are a protected species and a permit is required to keep them.

There is an export ban on live,

dead or parts of the bird, including feathers. According to the Action Plan for Australian Birds 2000, the south-eastern subspecies of the Red-tailed Black-Cockatoo is endangered.



**Diet:** Feed on the seeds of Brown Stringybarks (*Eucalyptus baxteri* /*E.arenacea*) and Bulokes (*Allocasuarina leuhmannii*).

**Breeding:** For nesting, the Cockatoo's require old River Red Gums or Yellow Gums with large hollows. Most nest trees are within 2km of suitable feeding habitat. A clutch consists of 1-2 eggs, though if a second egg is laid the chick is neglected and quickly perishes.

**Cool Facts:** They are one of the rarest and most expensive cage birds, usually costing over \$20,000 USD.

“Karak”, the Red-tailed Black Cockatoo was the official mascot of the 2006 Commonwealth Games, held in Melbourne, Australia.

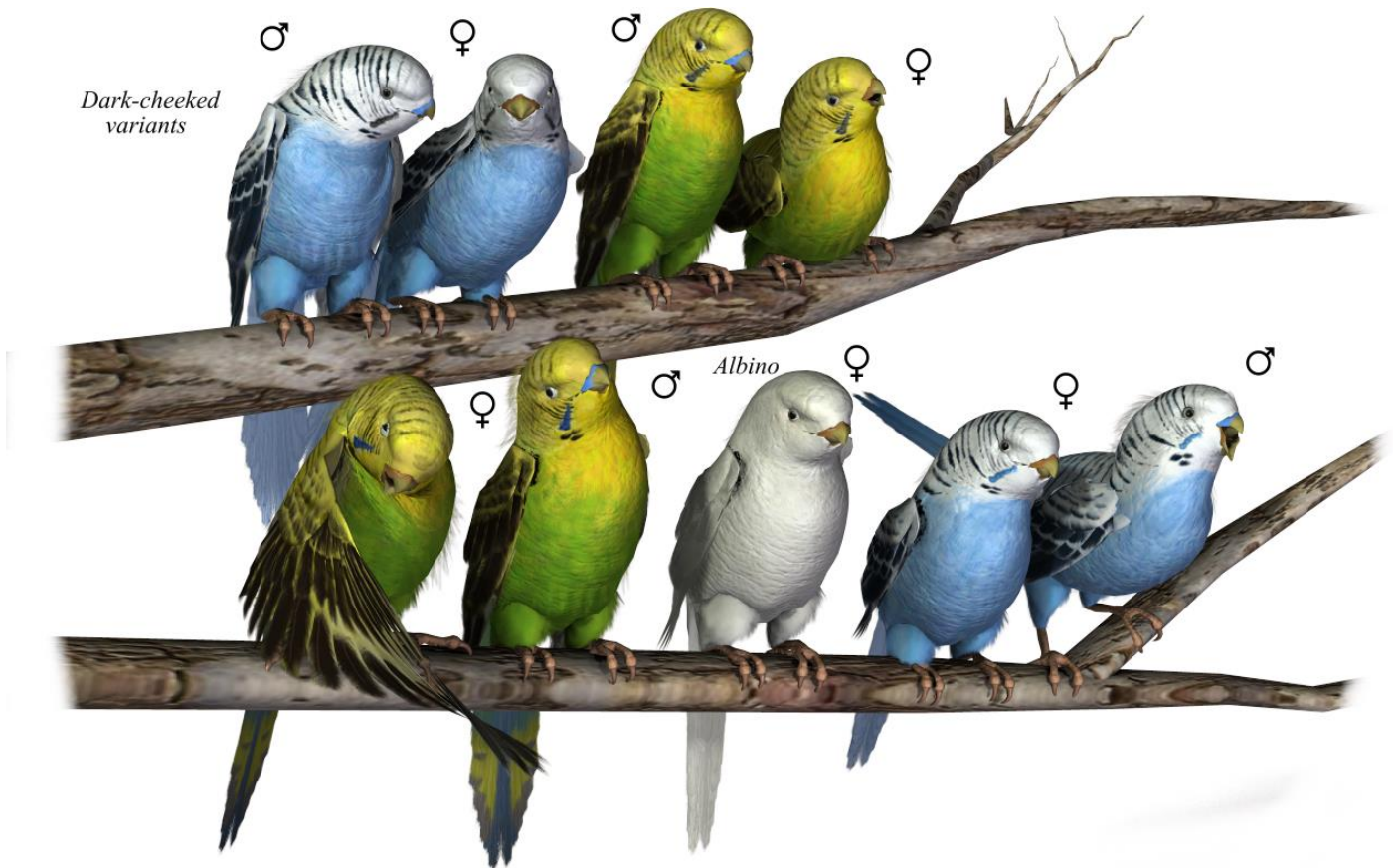
**Common Name:** Budgerigar

**Scientific Name:** *Melopsittacus undulatus*

**Size:** 7 inches (18 cm) **Note:** Budgerigars have been bred down and up in sizes from American Parakeet (5-6 inches (13-15cm)) to the English Budgie (10 inches (25.5cm)).

**Habitat:** Australia; occurs naturally throughout much of mainland Australia, but is absent from the far south-west, the north of the Northern Territory, Tasmania and the majority of the east coast. Budgerigars are nomadic and large flocks of birds can be seen in most open habitat types, but seldom far from water. Very large flocks, numbering occasionally in the tens of thousands, are seen after a season of abundant rainfall and food. Flocks are usually much smaller, however, and range from as few as three birds up to 100 or more. Birds in a flock fly in a characteristic undulating manner

**Status:** Least Concern. **Global Population:** Unknown.



**Diet:** Spinifex seeds, grass seeds, and ripening wheat. Birds in captivity also eat fruits and vegetables such as apples, oranges, bananas, strawberries, carrots, unsprayed lettuces, parsley, peaches and spinach.

**Breeding:** Breeding generally takes place between June and September in the North and between August and January in the South. The nesting takes place in a tree cavity, fence post or even a log laying on the ground. 4-6 eggs are incubated for 17-19 days, with the young fledging about 30 days after hatching.

**Cool Facts:** While many Americans refer to the Budgerigar as a parakeet, the term “Budgie” is more common. The term “Parakeet” refers to a number of small parrots with long flat tails. I’m sure much to the Budgies’ dismay, the term “Budgerigar” comes from an Aborigine phrase that means "good to eat". It is believed to be the most common pet parrot in the world, and it has been bred in captivity since the 1850s.

There are currently over 32 primary mutations in the Budgerigar Parakeet enabling hundreds of possible secondary mutations (stable combined primary mutations) & color varieties (unstable combined mutations). Breeders have worked over the decades to produce a wide range of color and feather mutations. Feather mutations can produce crests or very long shaggy feathers.

Both male and female budgerigars sing and can learn to mimic sounds, however it is much more pronounced in males. Budgies are, as are all parrots, intelligent and very social animals. They need and enjoy interaction with humans or other budgerigars and the stimulation of toys. A common behavior is the chewing of material such as wood, especially for female budgerigars.

Budgerigars in the wild are nomadic birds found in open habitats, primarily in scrublands, open woodlands and grasslands of Australia. The birds are normally found in small flocks, but can form very large flocks if the conditions are right. Flock movement is tied to the availability of food and water, and drought conditions will drive flocks into wooded habitats or coastal areas.

**Hazards in the house:** Common household hazards include fumes from the kitchen (**especially fumes from non-stick pans**) – Companion birds should never be kept in a kitchen for this reason. They are also sensitive to smoke from cigarettes, aerosol sprays such as deodorant, air freshener and polish. Plug in air fresheners/ stand-alone fan fresheners can be very toxic, as are some scented candles. Chocolate and avocado is very poisonous to most birds.

**Common Name:** Double-eyed Fig Parrot  
**Scientific Name:** *Cyclopsitta diophthalma*

**Size:** 5 - 6 inches (13-15 cm)

**Habitat:** Australia and New Guinea; primarily inhabits forests on New Guinea and nearby islands, but is also found in isolated communities along the tropical Australian coast, east of the Great Dividing Range. They are found in lowland coastal rainforests (which have mostly been cleared), and in a range of remnant vegetation types - as long as they contain fruiting fig trees.



**Status:** Not Threatened. **Global population:** unknown.

**Diet:** Seeds of near ripe or ripe figs, berries, seeds, nectar, and the grubs of wood-boring insects. This foraging is done in pairs or in a flock of only a few individuals.

**Nesting:** Most subspecies of the Double-eyed Fig Parrot are sexually dimorphic, with males having more red (less silvery and blue) to the face than the females. It is predominantly green with a very short tail, a disproportionately large head and bill, and red and blue facial markings.



Unlike most parrots which use existing holes in trees for nests, Double-eyed Fig Parrots excavate their own nest cavities, usually in a rotten tree. Nests are excavated from the dead limbs of tall trees in, or close to rainforests. Nest construction is thought to begin in August and breeding occurs from October to December or January. The normal clutch size is probably two.

**Cool Facts:** Its' name is derived from the cheek patches of some subspecies that vaguely resemble eyes. This parrot is also known as the Blue-faced Fig Parrot, Red-faced Fig Parrot, Dwarf Fig Parrot, and the Two-eyed Fig Parrot.

The Double-eyed Fig Parrot is the smallest parrot found in Australia.

There are eight described subspecies of the Double-eyed Fig Parrot. The first five are restricted to New Guinea and associated islands; the last three are restricted to Australia.

- *Cyclopsitta diophthalma diophthalma*
- *Cyclopsitta diophthalma coccineifrons*
- *Cyclopsitta diophthalma aruensis*
- *Cyclopsitta diophthalma virago*
- *Cyclopsitta diophthalma inseparabilis*
- *Cyclopsitta diophthalma marshalli* (Marshall's Fig Parrot)
- *Cyclopsitta diophthalma macleayana* (Macleay's Fig Parrot or Red-browed Fig Parrot)
- *Cyclopsitta diophthalma coxeni* ([Coxen's Fig Parrot](#))

**Common Name:** Coxen's Fig Parrot

**Scientific Name:** *Cyclopsitta diophthalma coxeni*

**Size:** 6 inches (15 cm)

**Habitat:** Australia. East of the Great Dividing Range between Port Macquarie in New South Wales and near Gladstone in Queensland. However, within this small range it is fragmented into even smaller populations. They are found in lowland coastal rainforests (which have mostly been cleared), and in a range of remnant vegetation types - as long as they contain fruiting fig trees.

**Status:** **Critically endangered.** **Global population:** >100. Endangered due to demands placed on their habitat by an expanding human population. It is estimated that no more than 100 mature individuals remain. Recovery is threatened by loss of and fragmentation of the birds' preferred. A captive recovery program has been in place for

a number of years and is actively supported by the Currumbin Wildlife Sanctuary situated at the Gold Coast, Queensland.

**Diet:** Seeds of near ripe or ripe fruits of native figs, and/or insect larvae.

**Nesting:** Nests are excavated from the dead limbs of tall trees in, or close to rainforests. Nest construction is thought to begin in August and breeding occurs from October to December or January. The normal clutch



size is probably two.

**Cool Facts:** Coxen's fig-parrot is one of Australia's rarest and least known birds. It has been recorded on just over 200 occasions since Gould described it in 1867. Confirmed or credible sighting reports continue to be made in both range states, including about 30 records in north-east New South Wales since 1970 and twice this number in south-east Queensland over the last decade alone.

Coxen's fig-parrot is cryptic and extremely difficult to see in its habitat and may therefore be more common than the number of sightings suggest.

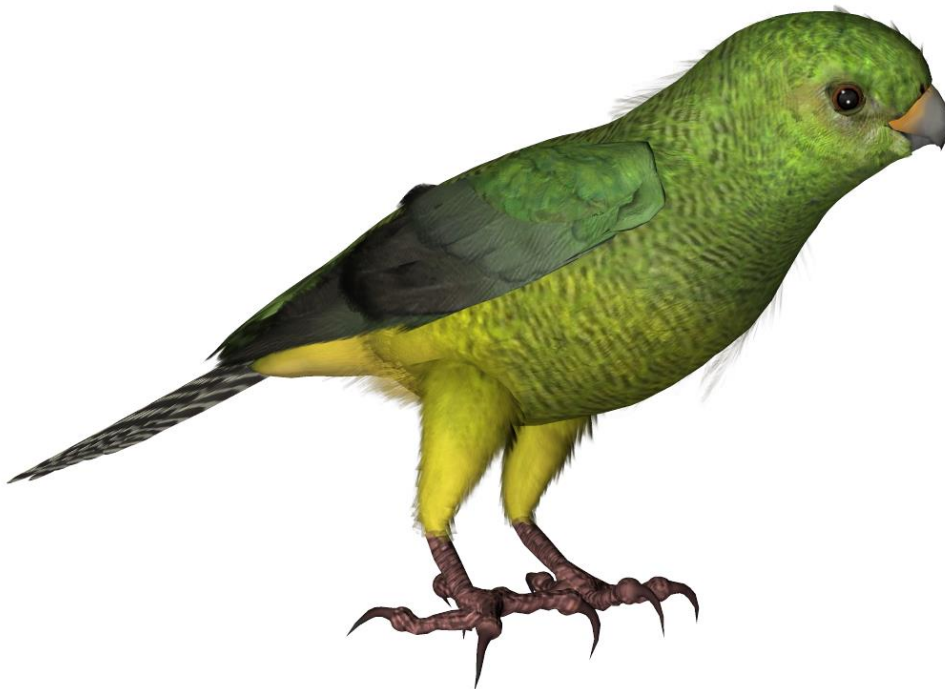
**Common Name:** Night Parrot

**Scientific Name:** *Pezoporus occidentalis*

**Size:** 8 ½ to 10 ¼ inches (22-26cm)

**Habitat:** Found throughout inland Australia. Arid areas where there is dense, low vegetation, which provides shelter during the day.

**Status:** **Presumed extinct** due to habitat loss from land clearance, loss of water and predation.



**Diet:** Porcupine grass (*Triodia*), saltbush, bluebush, Mitchell grass (*Astrelba*) seeds.

**Breeding:** Nest is a layer of small sticks in an expanded cavity at the end of a tunnel under a clump of *Triodia* or a samphire bush. A four to six egg clutch has been reported.

**Cool Facts:** This is one of four ground-dwelling parrots in the world. This species closely resembles the Ground Parrot

(*Pezoporus wallicus*) of coastal southeastern and southwestern Australia and Tasmania. It differs by lacking the orange band on the forehead across the base of the upper mandible, a noticeably shorter tail, and shorter, straighter claws on the toes.

The first known specimen of the Night Parrot was collected by John McDouall Stuart in October 1845, north of Coopers Creek, far northern South Australia, as part of an expedition led by Charles Sturt. The Night Parrot was not formally named until 1861, when John Gould described it as *Geopsittacus occidentalis*, based on a bird collected in 1854 near Mount Farmer in Western Australia.

Until the 1870s, sightings appeared to be very occasional. The period between 1870 and 1890 was the most productive known, with numerous sightings and another 20 specimens being collected. Of the 22 museum specimens collected last century, F. W.

Andrews, working for the South Australian Museum, collected 16, all during this period. Following this period of abundance, there was a marked decline in confirmed sightings.

Of the few sightings of Night Parrots between 1890 and the 1930s, the only identifiable specimen was one accidentally shot in Western Australia in 1912.

There were a number of reported sightings in the 1960s and early 1970s, but none could be confirmed. In 1979, a team from the South Australian Museum saw a several birds in the far northwest of South Australia.

In 1990, the last identifiable Night Parrot was found—road kill in southwestern Queensland. Since then, sightings have been claimed, but none substantiated. Publicity campaigns in several states have gathered awareness, but despite organized searches, no birds could be found.

The species was secretive and almost all confirmed sightings of feeding or drinking birds have come after dark. In the 1800s, Aboriginal people familiar with the bird referred to its nocturnal behavior, and early observers reported birds flying to water once night has fallen. A number of reports have been of birds flushed by traveling stock at night. A captive bird in a London zoo was active throughout the night. Sightings during the day almost always have been of birds flushed from hiding places by herds of stock, dogs or fire. A bird would sit tight, flushing only if the disturbance was very close, actually affecting the clump of vegetation in which it was hiding. Early observers stressed the dependence of the parrot upon dense spinifex or samphire for daytime roosting spots and for nesting. Although the Night Parrot is capable of flight, it prefers to spend most of its time on the ground. Some reports indicated that it runs between shelters when possible, in preference to flying. When it flies, it usually goes only a short distance, flying close low, before landing and escaping on foot.

**Common Name:** Crimson Rosella  
**Scientific Name:** *Platycercus elegans*

**Size:** 12 ½ to 14 ½ inches (32-37cm)

**Habitat:** Australia; There are several populations of the Crimson Rosella. Red (crimson) birds occur in northern Queensland, in southern Queensland to south-eastern South Australia and on Kangaroo Island. Orange birds are restricted to the Flinders Ranges region of South Australia, while yellow ones are found along the Murray, Murrumbidgee and neighboring rivers (where yellow birds meet red birds they hybridize, producing orange offspring). Red birds have been introduced to Norfolk Island and New Zealand.

Throughout its range, the Crimson Rosella is commonly associated with tall eucalypt and wetter forests.

**Status:** Least Concern.  
**Global Population:**  
Unknown.

**Diet:** Eucalyptus seeds, grasses and shrubs, insects and some tree blossoms.

**Breeding:** Nests are in tree hollows, located high in a tree, and lined with wood shavings and dust. The female alone incubates the white eggs, but both sexes care for the young. The chicks remain dependent on their parents for a further 35 days after leaving the nest.



**Cool Facts:** There are several color forms of the Crimson Rosella. The form it is named for has mostly crimson (red) plumage and bright blue cheeks. The feathers of the back and wing coverts are black broadly edged with red. The flight feathers of the wings have broad blue edges and the tail is blue above and pale blue below and on the outer feathers. Birds from northern Queensland are generally smaller and darker than southern birds. The 'Yellow Rosella' has the crimson areas replaced with light yellow and the tail more greenish. The 'Adelaide Rosella' is intermediate in color, ranging from yellow with a reddish wash to dark orange. Otherwise, all the forms are similar in pattern. Young Crimson Rosellas have the characteristic blue cheeks, but the remainder of the body plumage is green-olive to yellowish olive (occasionally red in some areas). The young bird gradually attains the adult plumage over a period of 15 months

**Common Name:** Rainbow Lorikeet

**Scientific Name:** *Trichoglossus haematodus*

**Size:** 10 to 12 inches (25-30 cm)

**Habitat:** Australia; found in Coastal Eastern Australia, from Queensland to South Australia; also in northwest Tasmania. Found in rainforests, coastal bush and woodland areas.

**Status:** Least Concern. **Global Population:** Unknown. The Rainbow Lorikeet appears to have benefited from artificial feeding stations and prolific-fruiting and flowering trees and shrubs.

**Diet:** Mostly pollen and nectar, occasional fruit and seed. They can be frequent visitors at bird feeders that supply store-bought nectar, sunflower seeds, and fruits such as apricots, plums, apples and pears.

**Breeding:** Breeding usually occurs during September to December, and mated pairs nest in eucalyptus tree hollows. The eggs of the Rainbow Lorikeet

are laid on chewed, decayed wood, usually in a hollow limb of a eucalypt tree. Both sexes prepare the nest cavity and feed the young, but only the female incubates the eggs. Both parents feed the young. They are very loving to their mate and seem to pair for life, but the males being males, do look to other females if given the chance.

**Cool Facts:** Lorikeets possess a brush-like tongue that is adapted especially for their particular diet of pollens and nectar. They often feed on flowers (especially from the Grevillea tree). Fruit trees are also favorites. Lorikeets often strip fruit trees bare when the new fruit ripens, such as Apricots, plums or peaches.

Captive lorikeets have a long lifespan, often in excess of 20 years. In the wild, they congregate in flocks and are very active, noisy, gregarious and at times will fight each other. When the fracas dies down, all is well again. On the ground, they appear to hop and are very swift flyers.



**Common Name:** Australian King-Parrot  
**Scientific Name:** *Alisterus scapularis*

**Size:** 16 - 17 inches (41-43 cm)

**Habitat:** Australia; found along the east coast and ranges of Australia, ranging from Cooktown in Queensland through to Port Campbell in Victoria. Found in humid and heavily forested upland regions of the eastern portion of the continent, including eucalyptus wooded areas in and directly adjacent to subtropical and temperate rainforest.

**Status:** Least Concern. **Global Population:** Unknown. The King-Parrot appears to be increasing in abundance in well-treed suburbs. In urban areas it feeds at artificial feeding stations and fruiting trees.

**Diet:** Forages in trees for seeds and fruit.

**Breeding:** Males are the only Australian parrots with a completely red head. Females are similar to males except that they have a completely green head and breast. Both sexes have a red belly and a green back, with green wings and a long green tail. King parrots are normally encountered in pairs or family groups. They lay their eggs on a bed of decayed wood-dust at the bottom of a deep hollow in the trunk of a tree. Often the entrance is high in the tree (10 m) but the eggs are near the ground (0.5 m).



**Cool Facts:** They are frequently seen in small groups with various species of Rosella. They are occasionally bred in aviaries and kept as calm and relatively quiet household pets if hand-raised, but are relatively unknown outside Australia. As pets, they have limited "talking" ability and normally prefer not to be handled, but do bond readily to people and can be very devoted. Life expectancy in the wild is unknown, but some pets have been known to live up to 25 years. However, some King Parrots are known to develop lung diseases as a result of living indoors as household pets.

**Common Name:** Powerful or Great Hawk Owl

**Scientific Name:** *Ninox strenua*

**Size:** Males 19 - 25 ½ inches (48-65 cm) Wingspan: 45 - 53 inches (115-135 cm)

**Habitat:** Australia. This species occurs in open forest and woodlands in eastern Australia, from south-west Victoria to at least Eungella, and possibly Bowen, Queensland. Large areas of the species' range are now unsuitable as a result of clearing for agriculture and pastures, although the species now occupies suburban Brisbane, Sydney and Melbourne.

Found in typically wet and hilly sclerophyll forest with dense gullies adjacent to more open forest. Will also occur in smaller, drier forest, provided that there are some large tree hollows and an adequate supply of prey.

**Status:** Least Concern. **Global population:** 3,300 to 4,250. Although densities in remaining forest may eventually be affected by a reduction in the availability of suitable

nest hollows and den sites as a result of intensive forestry practices, studies indicate birds persist in mosaics of unlogged forest, in which they nest, and logged forest, in which they forage. There was no difference in density between heavily logged, lightly logged and unlogged forest. Intense wildfire can result in local loss but, if suitable habitat remains nearby, they may return to forage. Poisoning, disturbance and predation by foxes may also cause nest failure and some mortality, but are unlikely to be significant. The Powerful Owl is listed as threatened on the Victorian Flora and Fauna Guarantee Act (1988) and listed as "Vulnerable" on the list of threatened vertebrate fauna in Victoria.

**Diet:** Slow-moving arboreal mammals and large birds. Most hunting is done at dusk and dawn from perches. Large prey





is often not eaten until the night after capture and Owl roosts with one foot on prey which is draped over branch.

**Nesting:** Males are larger than females. Breeds during winter, with each female typically laying on almost the same date each year. Most eggs are laid from the second week in May to the third week June. Males begin calling in late February or early March. Around this time, pairs begin to roost closer together, at first in same tree and then on same branch, often still some distance from the potential nest site. The nest is a large hollow, nearly always in the trunk or broken off top of a big eucalypt. In tall forest this is usually at the head of a gully or on a hillside at heights from 20-45 metres (65.5-147.5 feet). Where tall trees are not available, the nest may be in open forest or among part-cleared timber at levels as low as 6 metres (19.5 feet). Usually 2 eggs, rarely 1, are laid at 4 day intervals. They are almost spherical and are dull white, measuring 49-56mm (1.9-2.2") by 43-46mm (1.7-1.8"). Incubation is about 38 days with the male rarely visiting the nest after laying - the female leaves the hollow to take food from him. The young have first and second downs of white, becoming stained in the nest. The Beak and feet seem disproportionately huge in early weeks. They are brooded constantly by the female until about 4 weeks when she abruptly ceases to brood by day and her visits become progressively shorter at night. First flight is at 7 to 8 weeks while still partially downy. After fledging, the young remain with their parents for weeks or months, roosting near or with one of them, sometimes remaining with parents in late autumn and this may inhibit them from breeding in the following season.

Powerful Owls have always been thought to be shy and not aggressive at the nest but this needs considerable qualification. Females are certainly shy and may desert a nest after minimal human disturbance, particularly early in the season. Some males, however, may be extremely aggressive in the breeding season, attacking humans with great ferocity even at a considerable distance from the nest. This is most likely when there are young in the nest but may occur even before laying and occasionally when juveniles are roosting nearby.

**Cool Facts:** Lives permanently in pairs. Roosts by day singly, in pairs or in family groups of 3-4, in foliage or open tree in forest or woodland. They will often roost with the remains of prey clutched in their talons. May be easily approached during the day, but is shy and difficult to observe at night.

**Common Name:** Laughing Kookaburra  
**Scientific Name:** *Dacelo novaeguineae*

**Size:** 17 inches (40-45 cm)

**Habitat:** Australia; found throughout eastern Australia. They have been introduced to Tasmania. There is some overlap in Queensland with the Blue-winged kookaburra, although this species is more coastal. Common habitat includes open forests, woodlands and coastal scrub.

**Status:** Least Concern. **Global population:** 65,000,000.

**Diet:** Insects, worms and crustaceans, although small snakes, mammals, frogs and birds may also be eaten. Prey is seized by pouncing from a suitable perch. Small prey is eaten whole, but larger prey is killed by bashing it against the ground or tree branch



**Breeding:**

Laughing Kookaburras are believed to pair for life. The nest is a bare chamber in a naturally occurring tree hollow or in a burrow excavated in an arboreal (tree-dwelling) termite mound. Both sexes share the incubation duties and both care for the young. Other Laughing Kookaburras,

usually offspring of the previous one to two years, act as 'helpers' during the breeding season. Every bird in the group shares all parenting duties. Two to four white eggs are laid in September through January.

**Cool Facts:** If you've ever seen a "Jungle" movie you've heard the characteristic call of the Laughing Kookaburra. Hollywood has made the Kookaburra almost synonymous

with what you expect to hear in the jungle. The laugh is actually a warning call to other Kookaburras.

C. H. Eden in 1872 described the Kookaburra by its other, more “colorful” common name, *"At daylight came a hideous chorus of fiendish laughter, as if the infernal regions had been broken loose- this was the song of another feathered innocent, the laughing jackass- not half a bad sort of fellow when you come to know him, for he kills snakes, and is an infallible sign of the vicinity of fresh water..."*

The Kookaburra is also the star of a popular Australian nursery rhyme written by Marion Sinclair, “Kookaburra sits in the old gum tree”.

*Kookaburra sits in the old gum tree  
Merry, merry king of the bush is he  
Laugh, Kookaburra! Laugh!  
Gay your life must be*

*Kookaburra sits in the old gum tree  
Eating all the gum drops he can see  
Stop, Kookaburra! Stop!  
Leave some there for me!*

*Kookaburra sits in the old gum tree  
Counting all the monkeys he can see  
Stop, Kookaburra! Stop!  
That's not a monkey that's me*

*Kookaburra sits on a rusty nail  
Gets a boo-boo in his tail  
Cry, Kookaburra! Cry!  
Oh how life can be!*

Kookaburras method of parenting is unique among birds and is only found with two others species within the animal kingdom, primates and humans. Once their young have fledged, they stay around the nest and help the parents with the next clutch. In fact, if a parent dies, one of its children will take up its responsibilities. Most other birds will leave the nest to mate and start their own families.

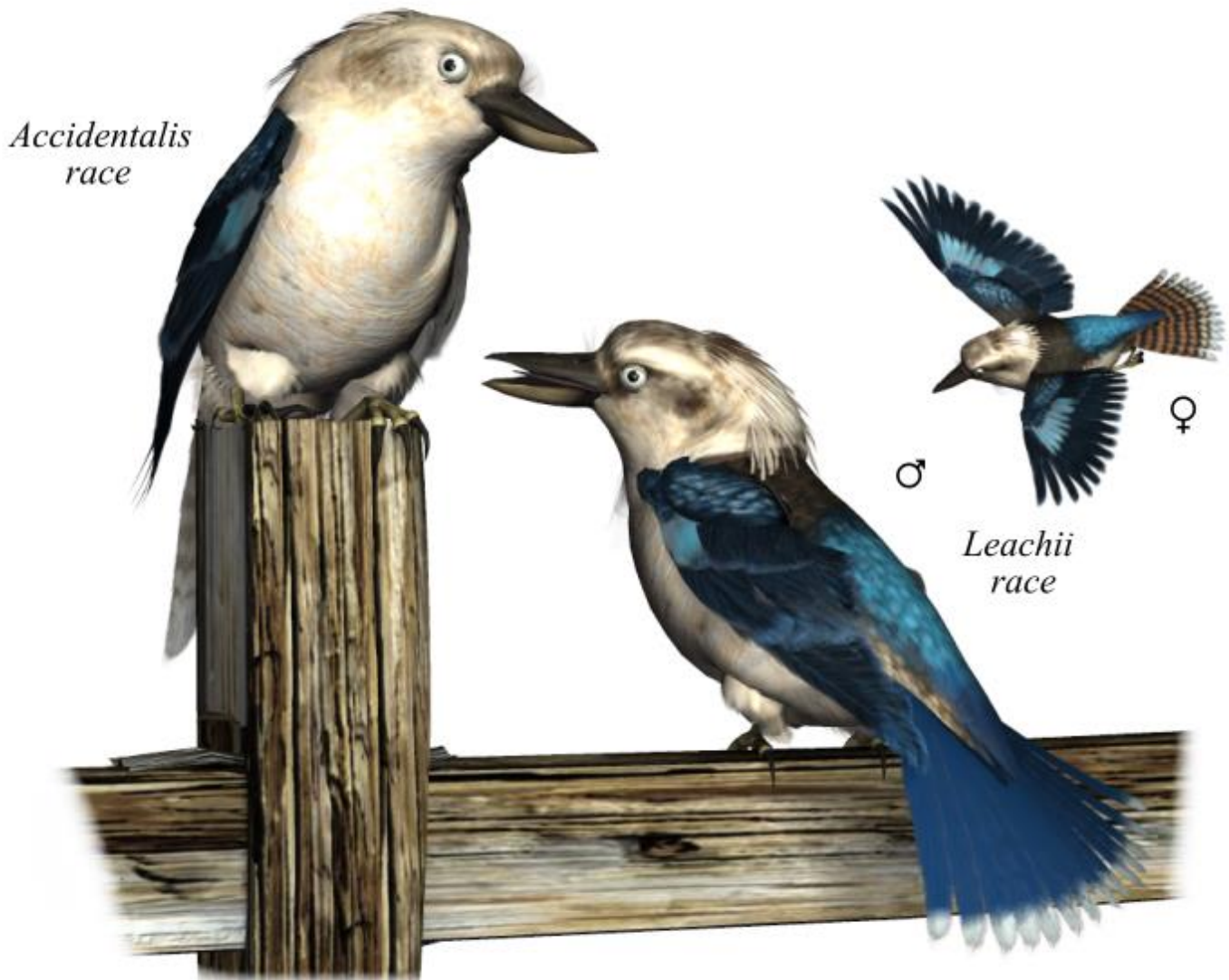
Kookaburras are also known for their adaptation skills, surviving on what foodstuffs are available. Being in the Kingfisher family, of course it displays similar behaviors such as hovering above water, searching for its prey and dive-bombing it. It also catches snakes and lizards by the head and drops them from great heights or beats them on tree limbs before consuming them. Many Kookaburras have learned to interact with humans and have become “tame” as their habitats give way to human populations.

**Common Name:** Blue-winged Kookaburra  
**Scientific Name:** *Dacelo leachii*

**Size:** 15 ½ inches (38-42 cm)

**Habitat:** Australia; endemic to coastal and subcoastal areas in northwest and northeast Australia, Torres Strait and Southern New Guinea. It is widespread in the Gulf Country of Queensland extending South to about Toowoomba. It is also widespread in the top end of Northern Territory. It is absent from the Eighty Mile beach area in Western Australia separating the Pilbara population. Typically found in tropical and subtropical open woodlands, paperbark swamps, timber on watercourses, clearings, canefields and farmlands

**Status:** Least Concern. **Global population:** Unknown. Blue-winged Kookaburras have suffered from loss of habitat resulting from land clearing, and are often killed on roads



**Diet:** Mainly insects, reptiles and frogs in the wetter months, and fish, crayfish, scorpions, spiders, snakes, earthworms and small birds and mammals at other times. After a controlled dive with their bill open, food is grabbed from the ground. The bill has a special groove near the end of the upper mandible which helps in holding prey. After returning to a perch, the prey is beaten and then swallowed. They show extra care when snakes are the prey. Pellets of undigested items are regurgitated and found beneath daytime perches, roosting sites and nests.

**Breeding:** The nest site of the Blue-winged Kookaburra is mostly high (to about 25 m) up in natural tree hollows, sometimes in tree termite nests, or in a hole cut into the soft wood of a baobab tree. Typically, the floor of the chamber is lower than the entrance, with an overall length of 50 cm. The breeding pair share the incubation of the eggs and subsequent feeding, which extends for one to two months, and are often assisted by auxiliaries (helpers), mainly from the previous year's clutch. Two to four white eggs are laid in September through January.

**Cool Facts:** The scientific name commemorates the British zoologist William Elford Leach. Blue-winged Kookaburra family groups are often larger than those of the Laughing Kookaburra, with up to 12 members.

Their call is a loud maniacal screeching cackle developing into loud trills and then ending abruptly. Also a variety of trills, 'ow' notes, barks and hoarse screeches. Often call in groups from a high perch.

**Common Name:** Black-eared Miner  
**Scientific Name:** *Manorina melanotis*

**Size:** 9 - 10 ¼ inches (23-26 cm)

**Habitat:** Australia. Murray Mallee region of South Australia, Victoria and New South Wales. It requires large blocks of long, unburnt and uncleared (older than 50 years), 5-8 meter tall mallee type forest, with an understory of small bushes, shrubs and chenopods. Its distribution in Victoria is positively correlated with stable dune fields with a relatively high loam level, amount of decortivating bark (from which it obtains much of its insect food), tree density, stem density, canopy cover and litter cover.

**Status:** Endangered. **Global Population:** 250 to 999 with a decreasing trend. This species has a very small population; numbers have declined and several locations have been lost. If present intensive conservation efforts are unable to stop the extirpation of the tiny subpopulations, then the species will be uplisted to Critically Endangered.



However, if the early success of conservation actions is confirmed, the status of the species may improve. The fundamental reason for its decline is the clearance of the majority of favorable habitat. Although European settlers reached the Murray Mallee region in 1860s, it was not until the early 20th century that widespread clearing for cropping and pasture began, and in the 1930s pastoralists dug dams and drains and cleared vegetation to increase water flow. This has resulted in displacement of *M.*

*melanotis* in habitat remnants by *M. flavigula*, and interbreeding between the two species is now the greatest threat to *M. melanotis*.

In reaction to the species's very low numbers in the mid-1990s, a colony of seven males and two females was taken into captivity in order to establish a captive breeding colony. Management actions completed or underway include genetic studies, regular surveys and monitoring, the study of habitat preference in Victoria, the purchase of leases within Bookmark BR, the adoption of a policy of rapid fire suppression within mallee in Victoria and South Australia, research into reproductive biology and ecology, establishment of a captive population, colony translocations, generation of community support and the establishment of a recovery team<sup>1</sup>. The threat of *M. flavigula* is tackled by the closure and revegetation of dams, and strategic removal of colonies.

**Diet:** Invertebrates and lerp.

**Nesting:** Monogamous and pairs appear to remain together for life, only re-pairing upon the loss of a mate. Breeding males within a colony are close relatives, whereas females, the dispersing sex, are not. Nests have been found in all months. Nests are usually built in mallee eucalypts, either in upright forks, amongst small twigs and foliage, or on epicormic shoots, between 1.5-4.5m above ground.

**Cool Facts:** For years there has been controversy over the taxonomic status of the Black-eared Miner. Various authors have considered it a species, a subspecies or morphological variant of the Yellow-throated Miner and a subspecies of the Western Australian 'Dusky Miner'. There are morphological and behavioral differences between Black-eared and Yellow-throated Miners and evidence for marked ecological separation exists. DNA evidence finally brought the Black-eared Miner in to its own.

Black-eared Miners can interbreed with Yellow-throated Miners, resulting in fertile hybrids that display a range of intermediate plumages.

Like other Miners, the Black-eared is social and nest and roosts in small colonies.

**Common Name:** Zebra Finch

**Scientific Name:** *Taeniopygia guttata castanotis*

**Size:** 4 to 4 ½ inches (10-12cm)

**Habitat:** Australia; found across the Australian mainland, with the exception of Cape York Peninsula and some coastal areas. They are also found in Timor and the Lesser Sunda Islands. Most commonly found in the drier areas of Australia, living year round in social flocks of up to 100 or more birds. They can be found in a variety of habitats, mainly dry wooded grasslands, bordering watercourses.



**Status:** Least Concern. **Global Population:** Unknown. The introduction of artificial dams and water tanks has actually increased the Zebra Finch's natural range, as the birds need to drink on a regular basis.

**Diet:** Seeds, primarily millet; occasionally fruit and insects. Feeding takes place on the ground in large flocks, and, unlike some other grassfinches, birds never pull seed heads down with their feet.



**Breeding:** Zebra Finch breeds after substantial rains in its native habitat, which can occur at any time of the year. Birds in captivity breed year-round. Wild birds are adaptable and varied in their nesting habits, with nests being found in cavities, scrub, low trees, bushes, on the ground, in termite hills, rabbit burrows, nests of other birds, and the in cracks, crevices, and ledges of human structures. 3-12 eggs are laid. Outside of the breeding time, brood nests are constructed for sleeping.

**Cool Facts:** Zebra Finches are sometimes used as avian model organisms. They are commonly used to study the auditory processing capabilities of the brain, due to their ability to recognize and process other Zebra Finches' songs. Their popularity as model organisms is also related to their prolific breeding, an adaptation to their usually dry environment. This ability also makes them popular as pet songbirds, and they are usually found at relatively inexpensive prices.

Zebra Finches also need a lot of calcium, especially as pets. Lack of calcium can be fatal to females when laying eggs. A cuttlebone in a cage helps to provide a healthier diet. Zebra finches can be tamed with patience when it's the only bird in the cage.

**Common Name:** Gouldian Finch

**Scientific Name:** *Chloebia gouldiae*

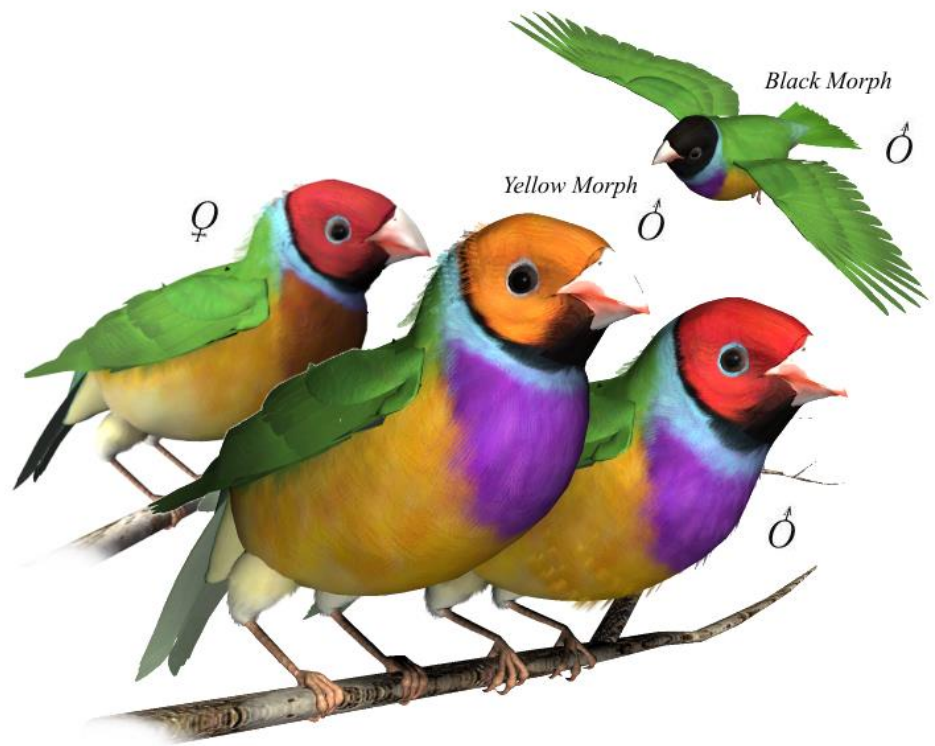
**Size:** 5 to 5 ½ inches (11-12.5 cm)

**Habitat:** Australia; patchily distributed in tropical northern sub-coastal areas from Derby, Western Australia, to the Gulf of Carpentaria and thinly to central Cape York Peninsula, but is locally common in the north and north-western parts of its range. Seldom found far from water. Throughout its range the species inhabits the edges of mangroves and thickets, and savannas dotted with trees.

**Status:** Endangered (in the wild) **Global population:** 2,000 to 10,000 with a decreasing trend. Grazing and altered fire regimes are thought to be the main threats. Cattle and other livestock cause changes in grass species composition and phenology, with the most severe impact probably due to a reduction in the abundance of grass species that set seed earliest in the wet season. Also illegal trapping for the Pet Trade, along with the susceptibility of the species to the parasitic air-sac mite, *Sternastoma tracheacolum* has reduced its numbers alarmingly.

**Diet:** Ripe or half-ripe grass seeds. During the breeding season, however, the diet consists almost entirely of insects. Insects are rich in protein and help satisfy the demanding appetite of the young birds. Birds feed in small to large groups, and food may be taken on the ground or in flight..

**Breeding:** Gouldian Finches breed readily both in colonies and as a pair in captivity. They use either open or covered nests. Both birds will build the nest. The female will lay a clutch of 4 to 8 eggs and they will hatch in 14 to 15 days. The young leave the nest about 18 to 21 days after they hatch and in 6 to 8 weeks will be on their own, after their first molt. Their adult plumage comes in between 6 and 12 months.



**Cool Facts:** This finch, sometimes called the “Lady Gouldian Finch”, was named for Elizabeth Gould, wife of the British ornithological artist John Gould. Since Gould was neither a lord nor a knight, Mrs Gould did not hold the title 'Lady', so this name is a modern misnomer. 'Gouldian Finch' is the more common and accepted name which is used internationally.

Gouldian Finches are the stars in the Viewsonic Corporation logos.

The Gouldian Finch is the only grassfinch that nests exclusively in tree hollows or holes in termite mounds.

Gouldian Finches are social and live in large groups all year long in the wild. They are friendly with other finches and do well when kept in groups. If you wish to mix bird types, they do very well in aviaries with Zebra Finches and Society Finches.

**Common Name:** Robust Silvereye  
**Scientific Name:** *Zosterops strenuus*

**Size:** 4½ to 6 inches (10-15 cm)

**Habitat:** Australia. Lord Howe Island. Found in woodland areas and forest edges.

**Status:** **Extinct** due to the release of an invasive non-native species, the black rat (*Rattus rattus*) on the island, which fed on eggs and nestlings.

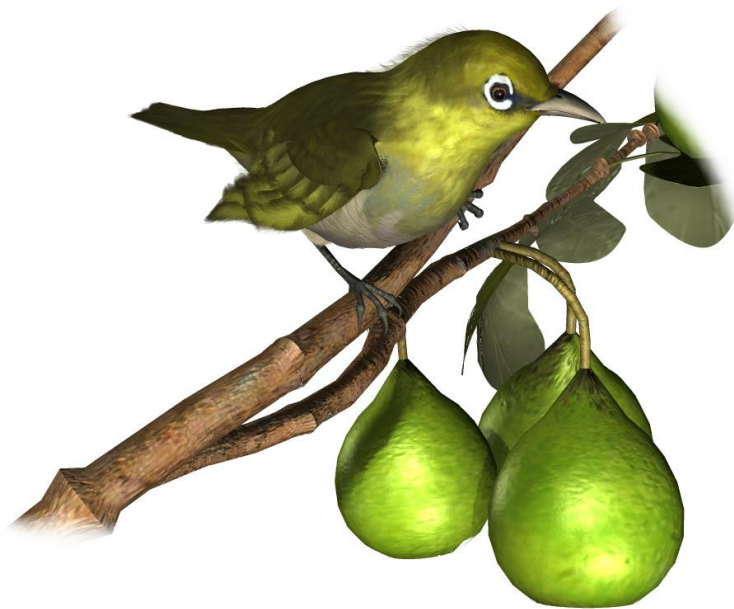
**Diet:** Silvereyes are highly flexible foragers. Foliage gleaning is the most common mode of foraging, but they also hawk, snap prey from a substrate (even small insects caught in spiders' webs), probe small clefts in clumps of leaves, bark, buds, flowers, and nests of other birds by forcefully opening the bill to widen the clefts in search of arthropod prey, and scavenge on the ground. Flocking in winter helps to locate sources of food in woodlands as well as to detect predators. They collect nectar with a brush-tipped tongue, peck succulent fruit, and swallow berries. They are known to disperse figs and other seeds of trees and shrubs.

**Breeding:** The nest is cup-shaped and mostly made of plant fibers. It is usually slung in a slender fork under cover of vegetation at any height.

**Cool Facts:** Silver or White-Eyes get their names from rings of white feathers around their eyes.

The Robust Silvereye was a common bird to Lord Howe Island until 1918. In that year, a shipwreck occurred on the island releasing the non-native black rat onto the island. Within three years, the Robust Silvereye went extinct due to nest predation.

John Gould, the famed Australian ornithologist wrote of the Silvereyes in 1865 'The present new species is the largest member yet discovered of a group of birds comprising numerous species'.



# Special Thanks to...

....my beta testers (Bea, FlintHawk, Kelvin, Jan, Nancy, Sandra and Walter) and Kat (QA) and Rhonda (my wife)

## Species Accuracy and Reference Materials

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants.

The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.

## Field Guide Sources:

Wikipedia

Birds in the Backyard <http://birdsinbackyards.net>

OZ Animals <http://www.ozanimals.com>

Jigger Juice: Plants of the Murray Mallee <http://www.jiggerjuice.net/plants/index.html>

FloraBase: Western Australian Flora <http://florabase.calm.wa.gov.au/>

WWF <http://www.worldwildlife.org>

## Plant model resources:

### Obj Format:

Greenworks/X-frog has some Australian plants available in their plant libraries; most notable is from their [Oceania libraries](#). Many of their plants are also available through TurboSquid [individually](#).

### Vue:

Cornucopia has some resources; most notably is RealmArt's [Australian Outback Terrain](#) which has some Mallee eco-systems. Martin Frost has an excellent [Mangrove eco-system set](#) and [Eucalyptus set](#).

Mangroves and eucalyptus trees are also available by searches on Cornucopia

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