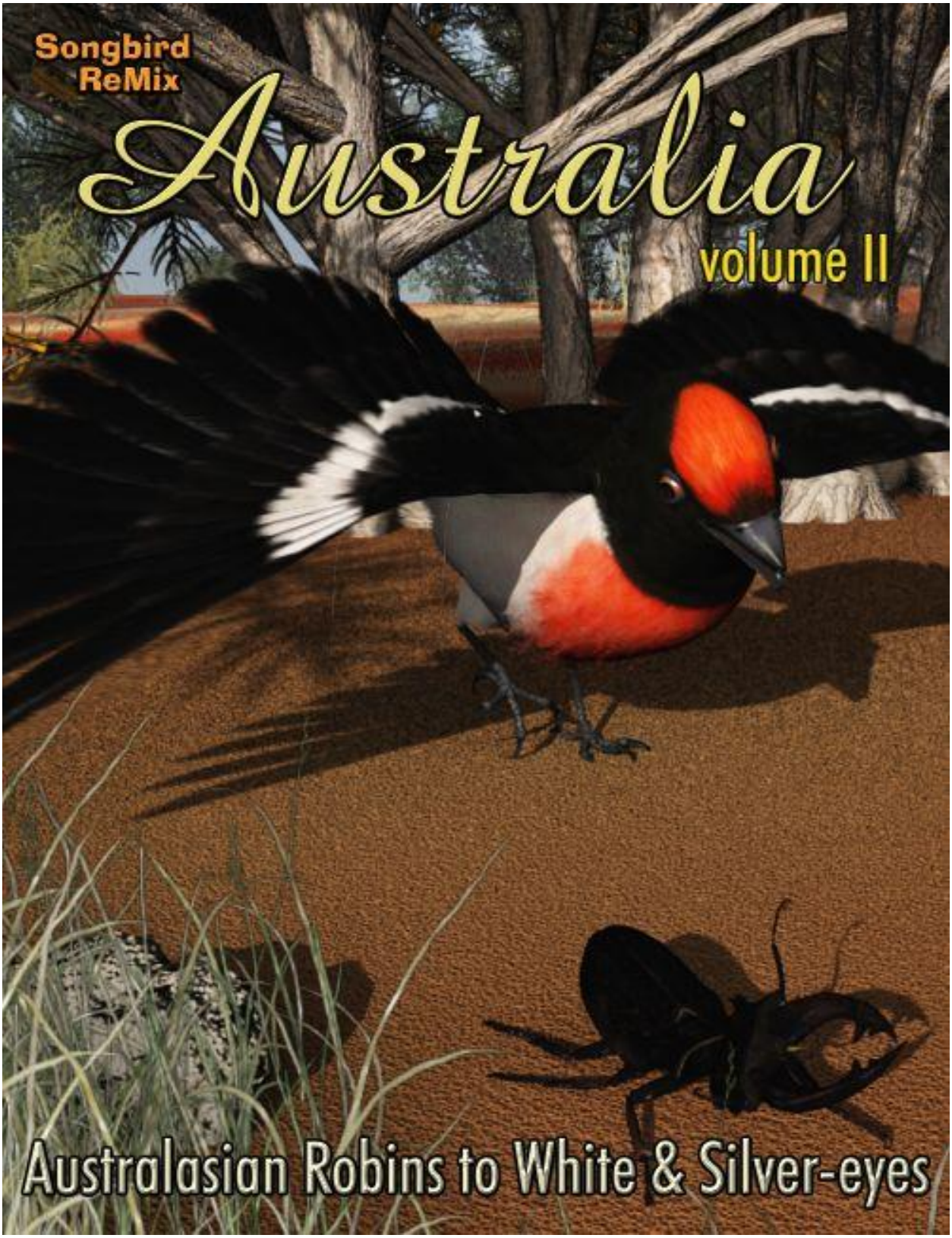


Avian Models for 3D Applications

Characters and Procedural Maps by Ken Gilliland

Songbird ReMix Australia Volume II

Contents

Manual

Field Guide

Field Guide (Continued)

Songbird ReMix Australia Volume II
Manual & Field Guide

Introduction

Songbird ReMix Australia Volume II contains the second half of Australian songbirds from “Australasian Robins” to “White-eyes”. Featured are such common Australian birds as the Australian Magpie, Jacky-winters and Willy-wagtails and iconic birds like the Apostlebird and Bowerbirds. As with all Songbird Remix volumes, more unusual and threatened birds are also included such as the stunning Star Finch and Hooded Robins.

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.
- **Conforming Parts**
  - **No conforming parts are needed for this volume.** It is possible that with future add-on volumes and/or future free download Birds that they ***may*** be needed. (All Conforming Crests have alphanumeric icons in the lower right corners such as “**C09**”, “**C22**” or “**T03**”. 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 Crests, which cover 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” or “Stretch”, you must also set its counterpart in the head part of the Conforming Crest.

Conforming Crest Quick Reference

Load Model(s)	To Create… (apply MAT/MOR files)
	• Hooded Robin • Red-capped Robin • Jacky-winter • Rufous Whistler • Wille-wagtail • Magpie-lark • Olive-back Oriole • Satin Bowerbird • Regent Bowerbird • Australian Magpie • Grey Currawong • Australian Raven • Apostlebird • Australasian Pipit • Australian Reed Warbler • Beautiful Firetail • Diamonded Firetail • Mistletoebird • Grey-backed Silvereye

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.

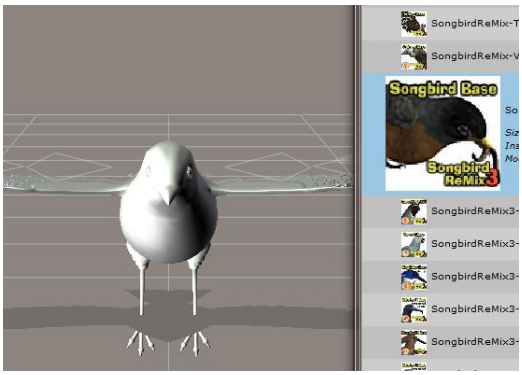
Scaling and Square Shadows in Poser

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.

without prop off screen

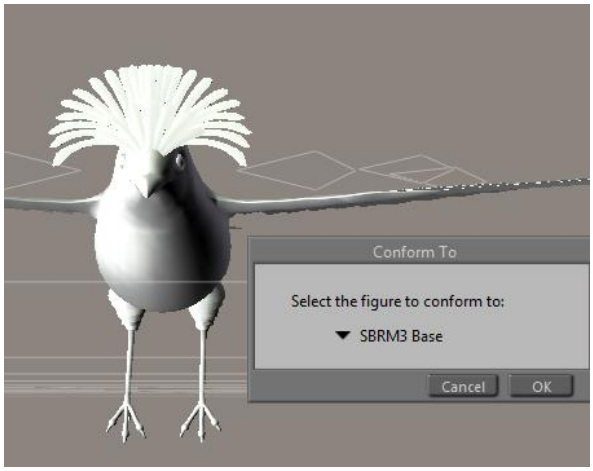
with prop off screen, lights/shadows will properly render

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

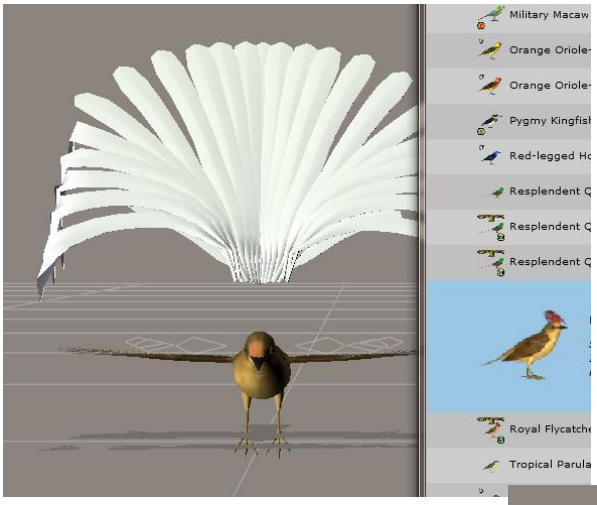


1. In the Figures section, load a Bird base Model. Then load the appropriate conforming part for the bird you're trying to create.

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.

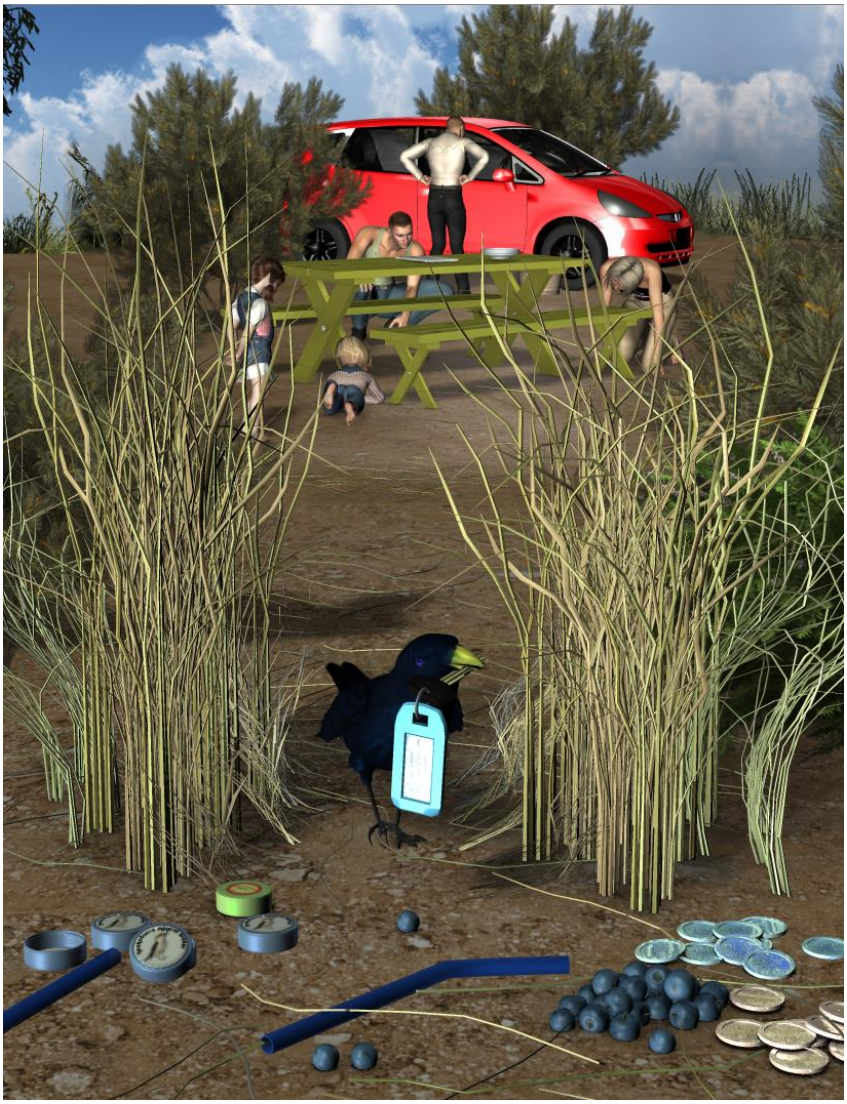
5. Voila! Your bird is done. Just remember to select the bird base when posing and often there are additional morphs in the conforming part you can use.

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.

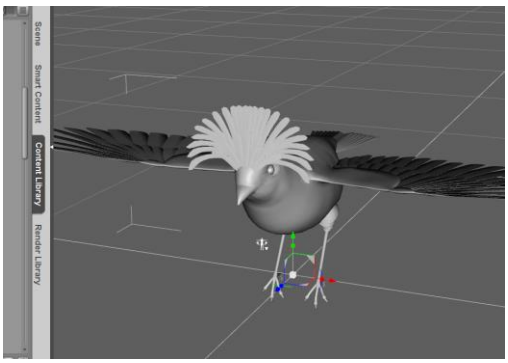
Songbirdremix.com always has the latest updates and additions to existing Songbird ReMix products (often months before they are updated at DAZ), plus the latest digital and real bird news, tutorials, videos, all the Field Guides, free bird characters, props and much more…

Songbird ReMix.com

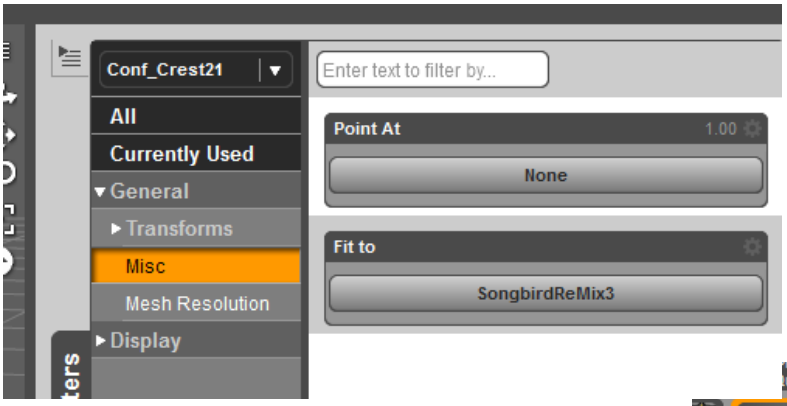


How to build a Songbird ReMix Character with a Conforming Crest in DAZ Studio

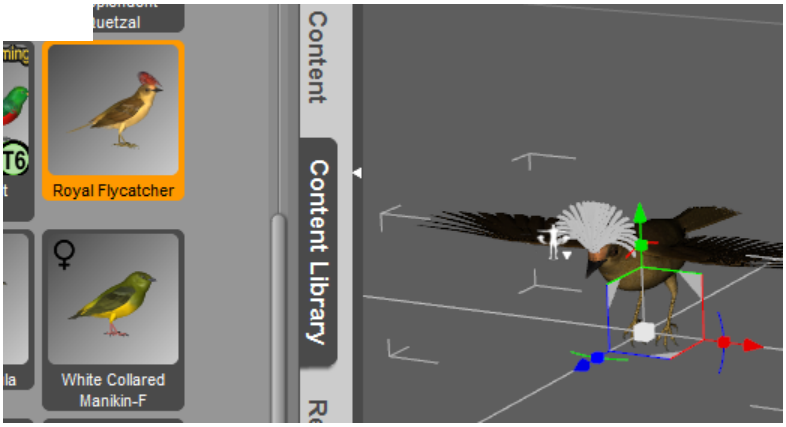
In the **Runtime** folder, select **Figures** and load the Songbird ReMix Model and the appropriate Conforming Crest in Studio. Select the Conforming Crest by selecting on the screen or in the **Scene** Tab.



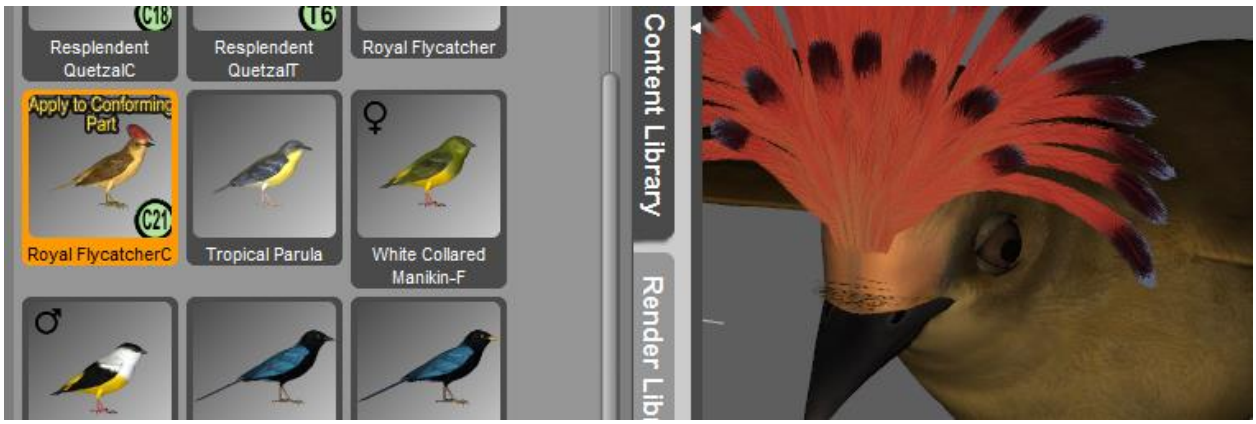
Now, using the “FIT TO” command in the Parameters Tab, Select the Songbird ReMix Model. Go back to the **Scene** Tab and select the Songbird ReMix Model.



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 Two

FIELD GUIDE

Australian Birds from Australasian Robins to White-eyes & their eco-regions

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 km2 Grampians National Park. Temperate woodlands also contain a high number of endangered plant species, including the button winklewort *(Rutidosis leptorrynchoides).*

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.

Distribution of Mallee Shrublands

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.

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	
Eucalyptus gracilis	Yorrel. A mallee eucalypt.
Eucalyptus oleosa	Giant Mallee. One of the larger mallee trees.
Eucalyptus socialis	Pointed Mallee. Very common species.
Eucalyptus anceps	Kangaroo Island Mallee. Somewhat uncommon.
Myoporum platycarpum	Sugarwood. Common leafy tree to about 6m with small white flowers often quite prolific and long lasting.
Santalum acuminatum	Quandong. Small tree with edible fruits.
Large Shrubs	
Acacia nyssophilla	Wait-a-while. Prickly wattle shrub with attractive globular golden-yellow flowers
Exocarpus aphylla	Leafless Ballart. Very shady but leafless large shrub.
Melaleuca lanceolata	Moonah. Dryland bottlebrush flowering plant.
Small Shrubs	
Dodonaea attenuata	Narrow-leaf hopbush. While not a true hop, the early settlers nevertheless did make beer from the fruits.
Eremophila glabra	Common Emu Bush. Very common attractive small shrub with red sigmoidal flowers.
Eremophila alternifolia	Poverty Bush. Uncommon attractive small shrub with mauve spotted or white sigmoidal flowers.
Scaevola spinescens	Spiny Fan-Flower. Unusual one-sided fan shaped flowers.
Senna eremophila	Cassia. Very common small shrub, very attractive when flowering. Yellow pea-like flowers very profuse in good years.
Westringia rigida	Very common low shrub to about 0.5m with small cylindrical leaves and small white spotted long lasting flowers.
Beyeria leschenaultii	Felted Wallaby-Bush.
Smaller Plants	
Atriplex stipitata	Kidney Saltbush. Small dome-shaped shrub with grey green leaves.
Maireana erioclada	Rosy Bluebush. Attractive wheel-shaped fruits green to pink when fresh.
Maireana brevifolia	Yanga Bush. Another bluebush with wheel-shaped fruits.
Olearia magniflora	Mangificent Daisy. Attractive, large purple daisy-like flowering bush
Rhagodia gaudichaudiana	Cottony Saltbush. Unusual spade shaped leaves.
Rhagodia nutans	Climbing Saltbush. Unusual lobed leaves but otherwise rather forgettable.
Teucreum racemosum	Grey Germander. Small plant with distinctive and prolific white flowers.
Thysanotus baueri	Mallee Fringe-lily. Small, short lived, mauve flowers with long fringes on the petal margins.
Zygophyllum apiculatum	Gall Weed. Very common low ground cover, large, brilliant green leaves with attractive yellow flowers and unusual ridged fruits. Doesn't deserve the name.
Zygophyllum aurantiacum	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 km2 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 “*bilabaŋ*”.

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 Two

Field Guide

Australasian Robins

Hooded Robin
Red-capped Robin

Shrike-tits, Bellbird, Shrike-thrushes and Whistlers

Jacky-winter
Rufous Whistler

Monarchs, Larks, Flycatchers, Fantails and Drongo

Wille-wagtail
Magpie-lark

Orioles and Figbirds

Olive-back Oriole

Birds of Paradise and Bowerbirds

Satin Bowerbird
Regent Bowerbird

Woodswallows, Butcherbirds and Currawongs

Australian Magpie
Grey Currawong

Ravens and Crows

Australian Raven

Mud-nesters, Swallows and Martins

Apostlebird

Pipits and Wagtails

Australasian Pipit

Old World Larks and Warblers

Australian Reed Warbler

Waxbills, Grass-Finches and Mannikins

Star Finch
Diamond Firetail

Sunbirds and Flowerpeckers

Mistletoebird

White-eyes

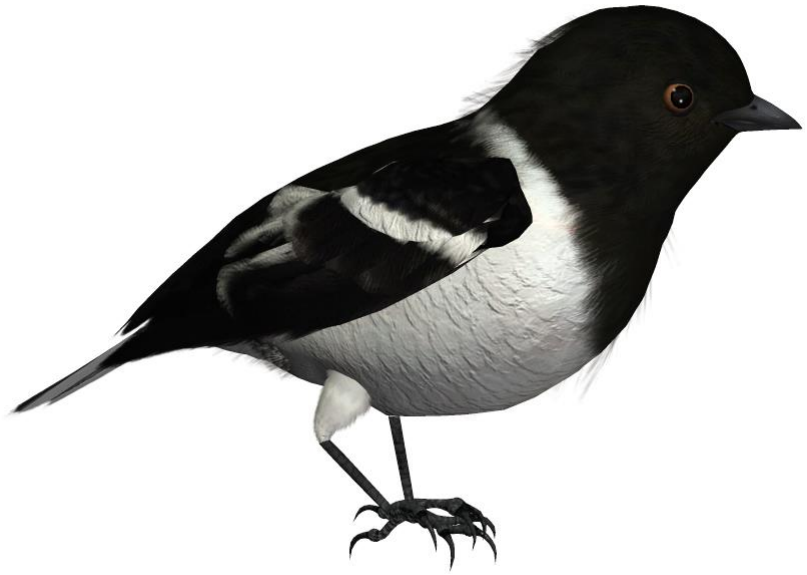
Grey-backed Silvereye

Common Name: Hooded Robin
Scientific Name: *Melanodryas cucullata*

Size: 6 inches (15-17 cm)

Habitat: Australia; Endemic-found all over mainland Australia, except Cape York and eastern Gulf of Carpentaria or inland around the Simpson Desert, on the Nullarbor Plain or south of the Kimberley Ranges. They are more commonly found in south-eastern Australia from Adelaide to Brisbane. Hooded Robins are found in lightly timbered woodland, mainly dominated by acacia and/or eucalypts.

Status: Least Concern to threatened. **Global population**: Unknown. Clearing of woodlands in south-eastern Australia has caused a decline in populations of the Hooded Robin. Young birds are taken by foxes. The Hooded Robin 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 not yet been prepared.



Diet: Insects; sits on exposed perches, such as dead branches and stumps and pounces on arthropods. It always forages on or near the ground.

Nesting: The male has a distinctive pied coloration; with a black head and neck ("hood"), white chest and under parts and black wings with white wing-bars. The eyes, bill and feet are also black. The female is an undistinguished grey-brown above with a pale grey throat and paler underneath with dark brown wings and white wing bars. Juveniles are similar to females.

Breeding season is July to November with one or two broods raised. The nest is a neat cup made of soft dry grass and bark. Spider webs, feathers and fur are used for binding/filling, generally in a tree crevice, hollow or fork. The clutch generally consists of two pale olive- or bluish-green eggs with darker spots and blotches measuring 21mm x 16 mm

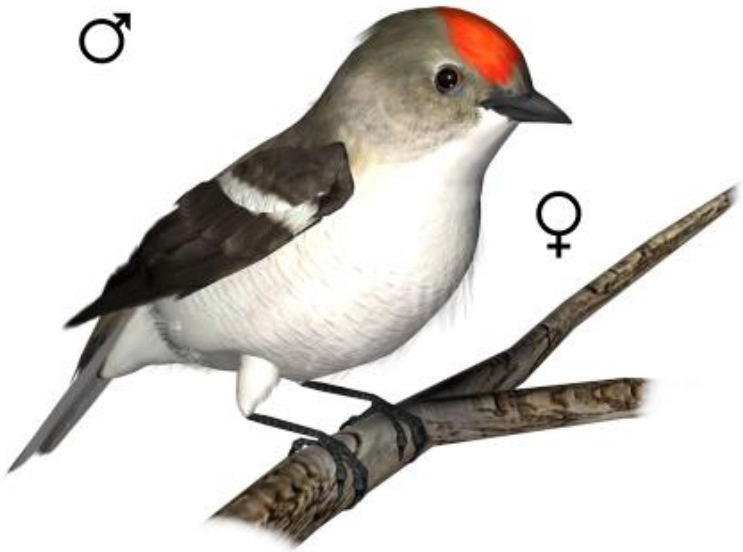
Cool Facts: Hooded Robins may have 'helpers' at their nest: other members of the group that help feed the nestlings and fledglings.

Common Name: Red-capped Robin
Scientific Name: *Petroica goodenovii*

Size: 4-5 inches (10.5-12.5 cm)

Habitat: Australia; Endemic--found from Queensland (rarely above latitude 20°S), through New South Wales, mainly west of the Great Dividing Range, to Victoria and South Australia. Also found in Western Australia in inland regions north to the Pilbara region, rarely being seen on south coast or far south-west. An isolated population occurs on Rottnest Island. Widespread in Northern Territory south of latitude 20°S. The Red-capped Robin will visit areas along the east coast during droughts.

The Red-capped Robin is found in most inland habitats that have tall trees or shrubs, such as eucalypt, acacia and cypress pine woodlands. It is mainly found in the arid and semi-arid zones, south of the Tropics, with some extension into coastal regions. The species is seen on farms with scattered trees, as well as vineyards and orchards. It is only occasionally reported in gardens.



Status: Least Concern. **Global population**: Unknown. Declining populations. The species has generally fared badly with human change to the landscape. Once common on the Cumberland Plain in Sydney's western suburbs, it has now almost disappeared from the Sydney Basin. It has also disappeared from the vicinity of Rockhampton in Queensland, and declined on Rottnest Island, and in the Wheatbelt region of Western Australia. Field studies in small patches of remnant vegetation indicate reduced survival rates there.

The feral cat is known to prey on the Red-capped Robin, and several bird species including the Australian Raven (Corvus coronoides), Grey Shrike-thrush (Colluricincla harmonica), Grey Butcherbird (Cracticus torquatus) and White-browed Babbler (Pomatostomus superciliosus) raid nests and take young. There is one record of a Brown-headed Honeyeater (Melithreptus brevirostris) feeding on an egg. Predation is the commonest cause of nest failure.

Diet: Mostly beetles, occasionally ants, spiders, moths and other insects. The Red-capped Robin mostly pounces on prey on the ground, half spreading the wing to flush out insects. Less often, it swoops and catches prey while airborne. It also may prey while perched in low-lying vegetation, almost always less than 3 m (10 ft) above the ground.

Nesting: The breeding season takes place over five months from August to January with up to three broods raised. The male proposes suitable nest sites to the female by rubbing his body over a suitable tree fork, all the while trilling continuously. He may indicate several sites before the female ultimately makes the decision where to build, at which point she constructs the nest alone. The nest is a neat, deep cup made of soft dry grass and bark. Spider webs, feathers and fur are used for binding or filling, and the nest is generally placed in a tree fork or even a mistletoe bush. It may be decorated with lichen and camouflaged to blend in with its surroundings. Two to three dull white eggs tinted bluish, grayish or brownish and splotched with dark grey-brown are laid on consecutive days, measuring 16 mm x 13 mm (0.6 x 0.5 in). Females alone develop brood patches and incubate, although both sexes feed the young. The male will keep lookout either on the nest or perched on a nearby branch, rather than brood while the female is foraging, and parents will feed young and dart off quickly if there are predators in the vicinity. Extra-pair mating and fertilization is fairly common, with 23% of nestlings and 37% of broods having a different father to the one rearing them, and there is some evidence that extra-pair couplings are more likely to produce male birds.

Cool Facts: The female has been reported as being fairly tame, while the male is more wary of human contact.

Both male and female Red-capped Robins respond strongly to playback of their species' song by flying to the source, flitting about in agitation, and sometimes replying with their own song.

Red-capped Robins rarely sit still for long. They dart to the ground flying up to a new vantage point only to duck to the ground again and back up. While perched they often give a quick flick of their tail and wings.

The Red-capped Robin is one of the most brightly colored birds in the Australian desert.

Common Name: Jacky-winter
Scientific Name: *Microeca fascinans*

Size: 4 ¾ - 5 ½ inches (12-14 cm)

Habitat: Australia; found in Australia and Papua New Guinea. Its natural habitats are open woodland with an open shrub layer and a lot of bare ground. They are often seen in farmland and parks.

Status: Least Concern to threatened. **Global population**: unknown. Numbers have declined substantially in some areas, particularly in the south, from clearing for farming or housing. Jacky-winters can be quite tame and familiar in some areas.

Diet: Flying insects; darting out from a perch to snatch flying insects, returning to the same perch again. They dive and twist in the air, hovering and grabbing at insects.

Nesting: During breeding, the Jacky-winter sings constantly and has high, slow song-flights. The cup-shaped nest is very small and made from grass and strips of bark, bound with spider's web on the fork of a dead branch. The female incubates the eggs. The brood is fed by the male. They may raise several broods in a season. Their nest is always in an exposed position, clear of leaves.

Cool Facts: It is also colloquially known as "Post sitter" for its habit of sitting on posts in paddocks and farms. It was previously known as the Brown Flycatcher but is more closely related to crows than to true flycatchers.

Common Name: Rufous Whistler
Scientific Name: *Pachycephala rufiventris*

Size: 6 ¼ - 7 inches (16-18 cm)

Habitat: Australiasia; New Caledonia, Papua New Guinea, and throughout Australia (with the exception of Tasmania). Found in forested areas, woodland and shrubland, but also in gardens and farmland. It migrates seasonally, moving south in the spring and north in the autumn. In New Caledonia the species does not undertake migrations but is instead resident in areas of open forest and savannah

Status: Least Concern. **Global population**: unknown. The Rufous Whistler is affected by land clearing and urban development.

Diet: Insects, they also eat seeds, fruit and occasionally, leaves and grasses. They never forage for food on the ground, which is unusual for whistlers, which typically do not forage at particularly high levels.

Nesting: The species is sexually dimorphic. While females are typically dull brown or grey with streaked underbodies, males are predominantly dark-grey with white throats and (in most cases) a black mask that covers most of their head and some of their neck.

Breeding in monogamous pairs, both males and females incubate their eggs and care for their young. The period of incubation is about 13 days on average. The female alone constructs the nest, which usually consists of a combination of twigs, vines, grass and other matter formed in a cup-like shape and attached to a tree branch using strands from spider webs. The breeding season for Rufous Whistlers is between the months of July and February.

Cool Facts: It gets its name from its melodic song.

Common Name: Willie-wagtail
Scientific Name: *Geopelia cuneata*

Size: 7 ½ - 8 ½ inches (19-21.5 cm)

Habitat: Australia; found across most of Australia and New Guinea, the Solomon Islands, the Bismarck Archipelago, and eastern Indonesia. It is sedentary across most of Australia, though some areas have recorded seasonal movements; it is an autumn and winter visitor to northeastern New South Wales and southeast Queensland, as well as the Gulf Country and parts of Cape York Peninsula in the far north. It is a vagrant to Tasmania, and on occasion reaches Lord Howe Island.

The Willie Wagtail is at home in a wide variety of habitats, but avoids densely forested areas such as rainforest. It prefers semi-open woodland or grassland with scattered trees, often near wetlands or bodies of water. In New Guinea, it inhabits manmade clearings and grasslands, as well as open forest and mangroves. On Guadalcanal, it was reported from open areas and coconut groves. It has responded well to human alteration of the landscape and can often be seen hunting in open, grassed areas such as lawns, gardens, parkland, and sporting grounds. The species spread into the Western Australian Wheatbelt after the original vegetation had been cleared for agriculture

Status: Least Concern.
Global population: unknown. Although it is active in defending its territory, the Willie Wagtail is very tolerant and tame around humans, often feeding and nesting in close proximity of houses and human activity.

Diet: Mostly Arthropods (including butterflies, moths, flies, beetles, dragonflies, bugs, spiders, centipedes, and millipedes). It perches on low branches, fences, posts, and the like, watching for insects and other small invertebrates in the air or on the ground. It usually hunts by hawking flying insects such as gnats, flies, and small moths, but will occasionally glean from the ground. It will often hop along the ground and flit behind

people and animals, such as cattle, sheep or horses, as they walk over grassed areas, to catch any creatures disturbed by their passing. It has been seen taking ticks off asleep lions at the zoo.

Nesting: Willie Wagtails usually pair for life. The breeding season lasts from July to December, more often occurring after rain in drier regions. Anywhere up to four broods may be raised during this time. It builds a cup-like nest on a tree branch away from leaves or cover, less than 5 m (16 ft) above the ground. Rafters and eaves may also be used. It has been observed to build its nest in the vicinity of those of the Magpie-lark (Grallina cyanoleuca), possibly taking advantage of the latter bird's territoriality and aggression toward intruders. Similarly, it is not afraid to build near human habitation.

The nest consists of grass stems, strips of bark, and other fibrous material which is bound and woven together with spider web. Even hair from pet dogs and cats may be used. The female lays two to four small cream-white eggs with brownish markings measuring 16 x 21 mm, and incubates them for 14 days. Like all passerines, the chicks are altricial and nidicolous; they are born naked and helpless with closed eyes, and remain in the nest. Both parents take part in feeding the young, and may continue to do so while embarking on another brood. Nestlings remain in the nest for around 14 days before fledging. Upon leaving, the fledglings will remain hidden in cover nearby for one or two days before venturing further afield, up to 20 m (60 ft) away by the third day. Parents will stop feeding their fledglings near the end of the second week, as the young birds increasingly forage for themselves, and soon afterwards drive them out of the territory.

Cool Facts: The Willie Wagtail was a feature in Australian aboriginal folklore. Aboriginal tribes in parts of southeastern Australia, such as the Ngarrindjeri of the Lower Murray River, and the Narrunga People of the Yorke Peninsula, regard the Willie Wagtail as the bearer of bad news. It was thought that the Willie Wagtail could steal a person's secrets while lingering around camps eavesdropping, so women would be tight-lipped in the presence of the Willie Wagtail. The people of the Kimberley held a similar belief that it would inform the spirit of the recently departed if living relatives spoke badly of them. They also venerated the Willie Wagtail as the most intelligent of all animals. Its cleverness is also seen in a Tinputz tale of Bougainville Island, where Singsing Tongereng (Willie Wagtail) wins a contest among all birds to see who can fly the highest by riding on the back of the eagle. However, the Gunwinggu in western Arnhem Land took a dimmer view and regarded it as a liar and a tattletale. He was held to have stolen fire and tried to extinguish it in the sea in a Dreaming story of the Yindjibarndi people of the central and western Pilbara, and was able to send a strong wind if frightened.

Willie Wagtail is also featured in the quintessential Australian children’s book “Blinky Bill grows up” by Dorothy Wall published in 1933.

While you would think the Willie’s tail would wag up and down, it usually wags side to side.

Common Name: Magpie-lark
Scientific Name: *Grallina cyanoleuca*

Size: 10½ - 11¾ inches (26-30 cm)

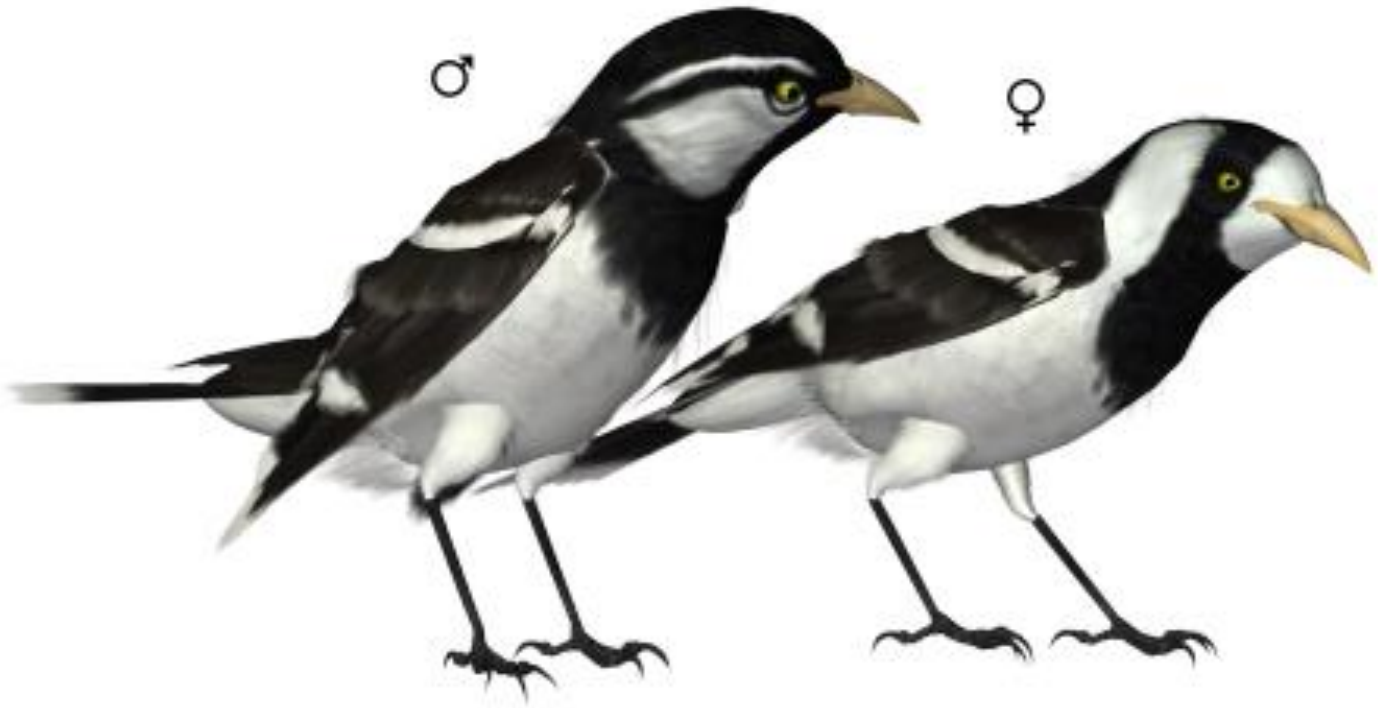
Habitat: Australia; common and very widespread bird both in urban and rural areas, occupying all parts of the continent except for Tasmania and some of the inland desert in the far north-west of Western Australia, and appears to have adapted well to the presence of humans. The Magpie-lark can adapt to an enormous range of different habitats, requiring only some soft, bare ground for foraging, a supply of mud for making a nest, and a tree to make it in. They have benefited greatly from agriculture: both the clearing of dense forest in fertile zones and the provision of artesian water in arid areas—although a disaster for other species—have been a boon for bare-ground and short-grass feeders like magpies and magpie-larks.

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

Diet: Primarily carnivorous, it eats all sorts of small creatures

Nesting: The sexes are similar from a distance but easy to tell apart: the female has a white throat, the male a black throat and a black eyestripe. Juveniles and immatures of either sex have the white throat of the female and the black eyestripe of the male.

Magpie-larks are one of the 200-odd species of bird around the world that are known to



sing in duet; each partner producing about one note a second, but a half-second apart, so that humans find it difficult to tell that there are actually two birds singing, not one.

Birds generally pair for life (though divorce is not unknown) and defend a territory together. The nest is round, about 150 mm in diameter, usually placed on a flat branch somewhere near water, made of grass and plant material thickly plastered together with mud, and generously lined with grass, feathers and fur. Breeding is opportunistic, usually from August to February in the fertile south, anytime after rain in drier areas, and multiple broods are common when conditions allow. Both parents incubate a clutch of between three and five eggs.

Cool Facts: Also known as the Mudlark in Victoria and Western Australia, the Murray Magpie in South Australia, and as the Peewee in New South Wales and Queensland.

The Magpie-lark is aggressively territorial, and will fearlessly defend its territory against larger species such as magpies, ravens, kookaburras, and even the Wedge-tailed Eagle. They are also known to attack people to defend their territory, such attacks occur usually within 60m of the nesting site.

The Magpie-lark's mud nest seems to link it closely with the mud-nest builders of the Family Corcoracidae, the White-winged Chough, and the Apostlebird. But it actually belongs in the Family Dicruridae (Monarchs, Fantails, and Drongos).

Common Name: Olive-backed Oriole
Scientific Name: *Oriolus sagittatus*

Size: 10½ - 11 inches (26-28 cm)

Habitat: Australia; occurs across coastal regions of northern and eastern Australia from the Kimberley region in Western Australia, right around the east coast to Adelaide in South Australia. Sedentary in the north of its range, but appears to be a summer migrant to the more southern part of its range. Small groups undertake nomadic movements, following fruiting trees during the autumn and winter.

The Olive-backed Oriole prefers forests, woodlands and rainforests, as well as well-treed urban areas, particularly parks and golf courses.

Status: Least Concern. **Global population**: unknown. Olive-backed Orioles are commonly encountered in urban parks and golf-courses, particularly those that have fruit-bearing trees.

Diet: Fruit and insects. Although they are sometimes seen in small groups, particularly in autumn and winter, they more often occur alone or in pairs, feeding on insects and fruit in canopy trees.

Nesting: Females have cinnamon-edged wings and both sexes have reddish bills and eyes.

The female Olive-backed Oriole builds a cup-shaped nest which is attached by its rim to a horizontal fork on the outer-edge of the foliage of a tree or tall shrub. Nests are usually around 10 m above the ground, and built of strips of bark and grass, bound with spider web. The male does not build the nest, or incubate the eggs, but he feeds the young after the eggs hatch.

Cool Facts: The most wide-ranging of the Australasian orioles, it is noisy and conspicuous. Olive-backed Orioles are excellent mimics of other birds, and are also 'ventriloquists', meaning they can 'throw' their voices to sound like they are calling from somewhere else.

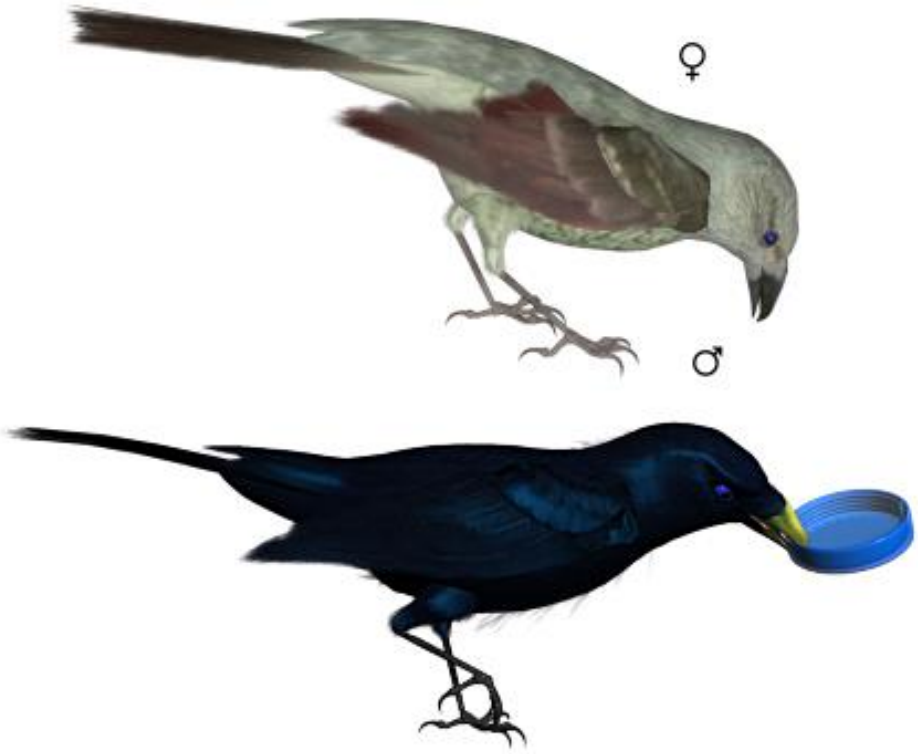
Common Name: Satin Bowerbird
Scientific Name: *Ptilonorhynchus violaceus*

Size: 10½ - 13 inches (27-33 cm)

Habitat: Australia; endemic--common in rainforest and tall wet sclerophyll forest in eastern Australia from southern Queensland to Victoria. There is also an isolated population in the Wet Tropics of north Queensland.

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

Diet: Fruit throughout the year. During summer (breeding) the diet is supplemented with a large number of insects, while leaves are often eaten during the winter months.



Nesting: Like all bowerbirds, the Satin Bowerbird shows highly complex courtship behavior. Mate choice in Satin Bowerbirds has been studied in detail by a group of researchers at the University of Maryland, College Park. Males build specialized stick structures, called bowers, which they decorate with blue, yellow, and shiny objects if these are available, including berries, flowers, and even ballpoint pens, drinking straws and other discarded plastic items. As the males mature they use more blue objects than other colors. Females visit these and choose which male they will allow to mate with them. In addition to building their bowers, males carry out intense behavioral displays called dances to woo their mates, but these can be treated as threat displays by the females. Nest building and incubation are carried out by the females alone. Recent research has shown that female mate choice takes place in three stages:

- Visits to the bowers, before nests have been built, while the males are absent

- Visits to the bowers, before nests have been built, while the males are present and displaying
- Visits to a selection of the bowers, after nests have been built, leading to copulation with (typically) a single male.

Experimental manipulations of the ornaments around the bowers have shown that the choices of young females (those in their first or second year of breeding) are mainly influenced by the appearance of the bowers, and hence by the first stage of this process. Older females, which are less affected by the threatening aspect of the males' displays, make their choices more on the basis of the males' dancing displays. It has been hypothesized that as males mature their color discrimination develops and they are able to select more blue objects for the bower.

It is not yet known whether this description would also hold good for other species of bowerbird. Males are uniformly colored in a deep shiny blue.

Cool Facts: A rare natural intergeneric hybrid between the Satin Bowerbird and the Regent Bowerbird is known as Rawnsley's Bowerbird.

Common Name: Regent Bowerbird
Scientific Name: *Sericulus chrysocephalus*

Size: 9¾ - 11¾ inches (25-30 cm)

Habitat: Australia; endemic to Australia, distributed to rainforests and margins of eastern Australia, from central Queensland to New South Wales.

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

Diet: Mainly fruits, berries and insects.

Nesting: The male bird is black with a golden orange-yellow crown, mantle and black-tipped wing feathers. It has yellow bill, black feet and yellow iris. The female is a brown bird with whitish or fawn markings, grey bill, black feet and crown.

The male builds an avenue-type bower consisting of two walls of twigs and is 15 cm - 20 cm long and 30 cm high. The bower is decorated with shells, seeds, leaves and berries. Grayish blue and Pea Green are its favorite colors.

The male does not participate in nest building nor feeding the young. The nest, constructed by the female, is a shallow saucer of twigs and leaves, lined with leaves. It is often placed in a clump of mistletoe or a thin fork. The nest may be well away from the male's bower. Only the female incubates and cares for the young.

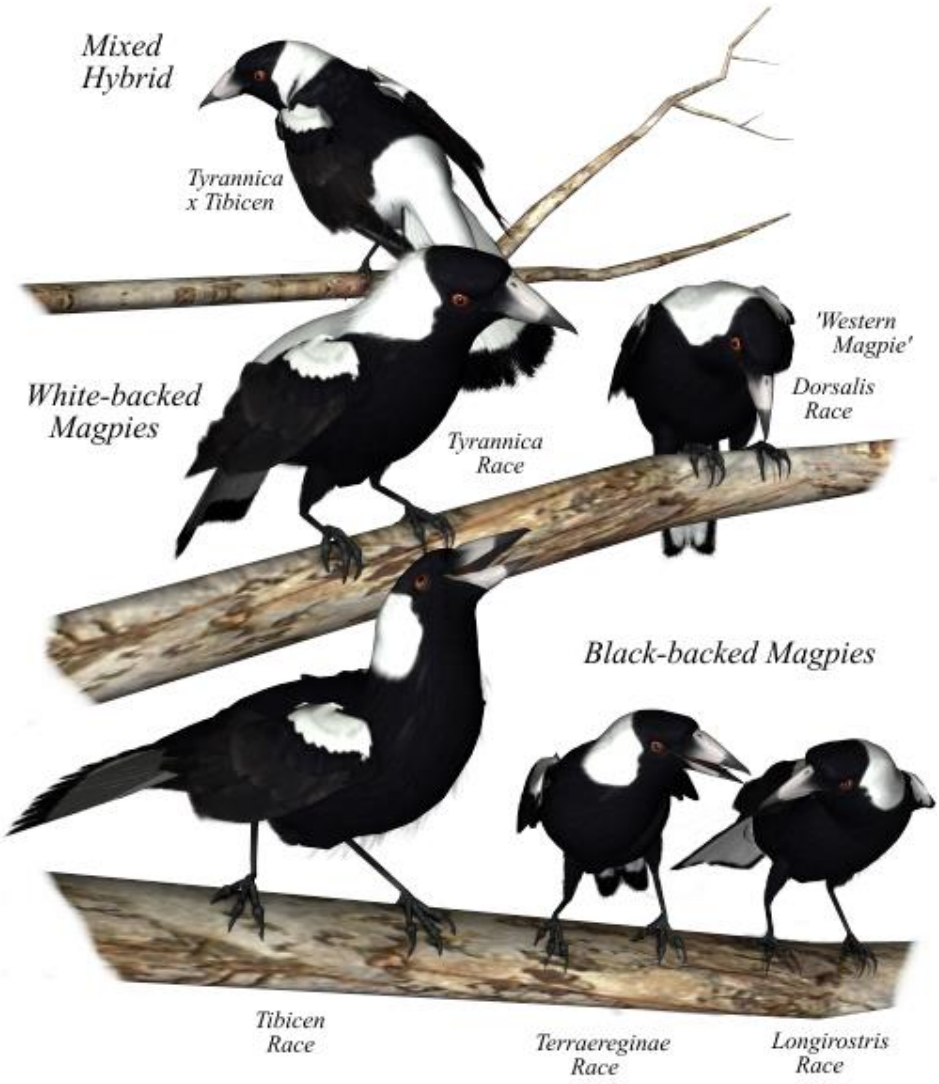
Cool Facts: While all male bowerbirds build bowers to attract female mates, the Regent bowerbird is unique in its ability to paint the objects in its bower. They mix a muddy grayish blue or pea green "saliva paint" in their mouths and use wads of greenish leaves as "paintbrushes" to help spread the substance. This is one of the few known instances of tools used by birds.

The male Regent Bowerbird's plumage can take from two to five years to develop to full maturity. The name commemorates the Prince Regent of the United Kingdom.

Common Name: Australian Magpie
Scientific Name: *Gymnorhina tibicen*

Size: 14 – 17¼ inches (36-44 cm)

Habitat: Australia; The Australian Magpie is found in the Trans-Fly region of southern New Guinea, between the Oriomo River and the Princess Mariane Strait, and across most of Australia, bar the tip of Cape York, the Gibson and Great Sandy Deserts, and southwest of Tasmania. Birds taken mainly from Tasmania and Victoria were introduced into New Zealand by local Acclimatization Societies of Otago and Canterbury in the 1860s, with the Wellington Acclimatization Society releasing 260 birds in 1874. White-backed forms are spread on both the North and eastern South Island, while Black-backed forms are found in the Hawke's Bay region. Magpies were introduced into New Zealand to control agricultural pests, and were therefore a protected species until 1951. They are thought to affect native New Zealand bird populations such as the tui and kererū, sometimes raiding nests for eggs and nestlings, although studies by Waikato University have cast doubt on this, and much blame on the Magpie as a predator in the past has been anecdotal only. Introductions also occurred in the Solomon Islands and Sri Lanka, although the species has failed to become established. It has



become established in western Taveuni in Fiji, however.

The Australian Magpie prefers open areas such as grassland, fields and residential areas such as parks, gardens, golf courses, and streets, with scattered trees or forest nearby.

Status: Least Concern. **Global population**: unknown. In general, evidence suggests the range and population of the Australian Magpie has increased with land-clearing, although local declines in Queensland due to a 1902 drought, and in Tasmania in the 1930s have been noted; the cause for the latter is unclear but rabbit baiting, pine tree removal, and spread of the Masked Lapwing (Vanellus miles) have been implicated.

Diet: Insects and their larvae. The Australian Magpie walks along the ground searching for insects and their larvae. Birds will also take handouts from humans and will often venture into open houses to beg for food.

Nesting: Although the Australian Magpie is generally quite tame, during the breeding season some individuals become aggressive towards any intruders, including humans, which venture too close to their nest sites. The nest is a platform of sticks and twigs (occasionally wire), with a small interior bowl lined with grass and hair. The nest is constructed in the outer branches of a tree, up to 15 m above the ground. Some Australian Magpies can be very aggressive during breeding season and attacks on humans and pets can occur.

Cool Facts: The Australian Magpie has one of the world's most complex bird songs.

Australian Magpies are common and conspicuous birds. Groups of up to 24 birds live year round in territories that are actively defended by all group members. The group depends on this territory for its feeding, roosting and nesting requirements.

There are currently thought to be nine subspecies of the Australian Magpie, however there are large zones of overlap with intermediate forms between the taxa. There is a tendency for birds to become larger with increasing latitude, the southern subspecies being larger than those further north the exception being the Tasmanian form which is small. The original form known as the Black-backed Magpie and classified as *Gymnorhina tibicen* has been split into four black-backed races:

- ***G. tibicen tibicen***, the nominate form, is a large subspecies found in southeastern Queensland, from the vicinity of Moreton Bay through eastern New South Wales to Moruya, New South Wales almost to the Victorian border. It is coastal or near-coastal and is restricted to east of the Great Dividing Range.
- ***G. tibicen terraereginae***, found from Cape York and the Gulf Country southwards across Queensland to the coast between Halifax Bay in the north and south to the Mary River, and central and western New South Wales and into northern South Australia, is a small to medium-sized subspecies. The plumage is the same as that of subspecies *tibicen*, although the female has a shorter black

tip to the tail. The wings and tarsus are shorter and the bill proportionally longer. It was originally described by Gregory Mathews in 1912, its subspecies name a Latin translation, terra "land" reginae "queen's" of "Queensland". Hybridization with the large white-backed subspecies *tyrannica* occurs in northern Victoria and southeastern New South Wales; intermediate forms have black bands of varying sizes in white-backed area. Three-way hybridization occurs between Bega and Batemans Bay on the New South Wales south coast.

- ***G. tibicen eylandtensis***, the Top End Magpie, is found from the Kimberley in northern Western Australia, across the Northern Territory through Arnhem Land and Groote Eylandt and into the Gulf Country. It is a small subspecies with a long and thinner bill, with birds of Groote Eylandt possibly even smaller than mainland birds. It has a narrow black terminal tailband, and a narrow black band; the male has a large white nape, the female pale grey. This form was initially described by H. L. White in 1922. It intergrades with subspecies *terraereginae* southeast of the Gulf of Carpentaria.
- ***G. tibicen longirostris***, the Long-billed Magpie, is found across northern Western Australia, from Shark Bay into the Pilbara. Named in 1903 by Alex Milligan, it is a medium-sized subspecies with a long thin bill. Milligan speculated the bill may have been adapted for the local conditions, slim fare meaning the birds had to pick at dangerous scorpions and spiders. There is a broad area of hybridization with the western dorsalis in southern central Western Australia from Shark Bay south to the Murchison River and east to the Great Victoria Desert.

The White-backed Magpie, originally described as *Gymnorhina hypoleuca* by John Gould in 1837, has also been split into races:

- ***G. tibicen tyrannica***, a very large white-backed form found from Twofold Bay on the New South Wales far south coast, across southern Victoria south of the Great Dividing Range through to the Coorong in southeastern South Australia. It was first described by Schodde and Mason in 1999. It has a broad black tail band.
- ***G. tibicen telonocua***, found from Cowell south into the Eyre and Yorke Peninsulas in southern South Australia, as well as the southwestern Gawler Ranges. Described by Schodde and Mason in 1999, its subspecific name is an anagram of leuconota "white-backed". It is very similar to *tyrannica*, differing in having a shorter wing and being lighter and smaller overall. The bill is relatively short compared with other magpie subspecies. Intermediate forms are found in the Mount Lofty Ranges and on Kangaroo Island.
- ***C. tibicen hypoleuca*** now refers to a small white-backed subspecies with a short compact bill and short wings, found on King and Flinders Islands, as well as Tasmania.

Other variations:

- ***C. tibicen dorsalis****,* The Western Magpie, was originally described as a separate species by A. J. Campbell in 1895 and is found in the fertile south-west corner of

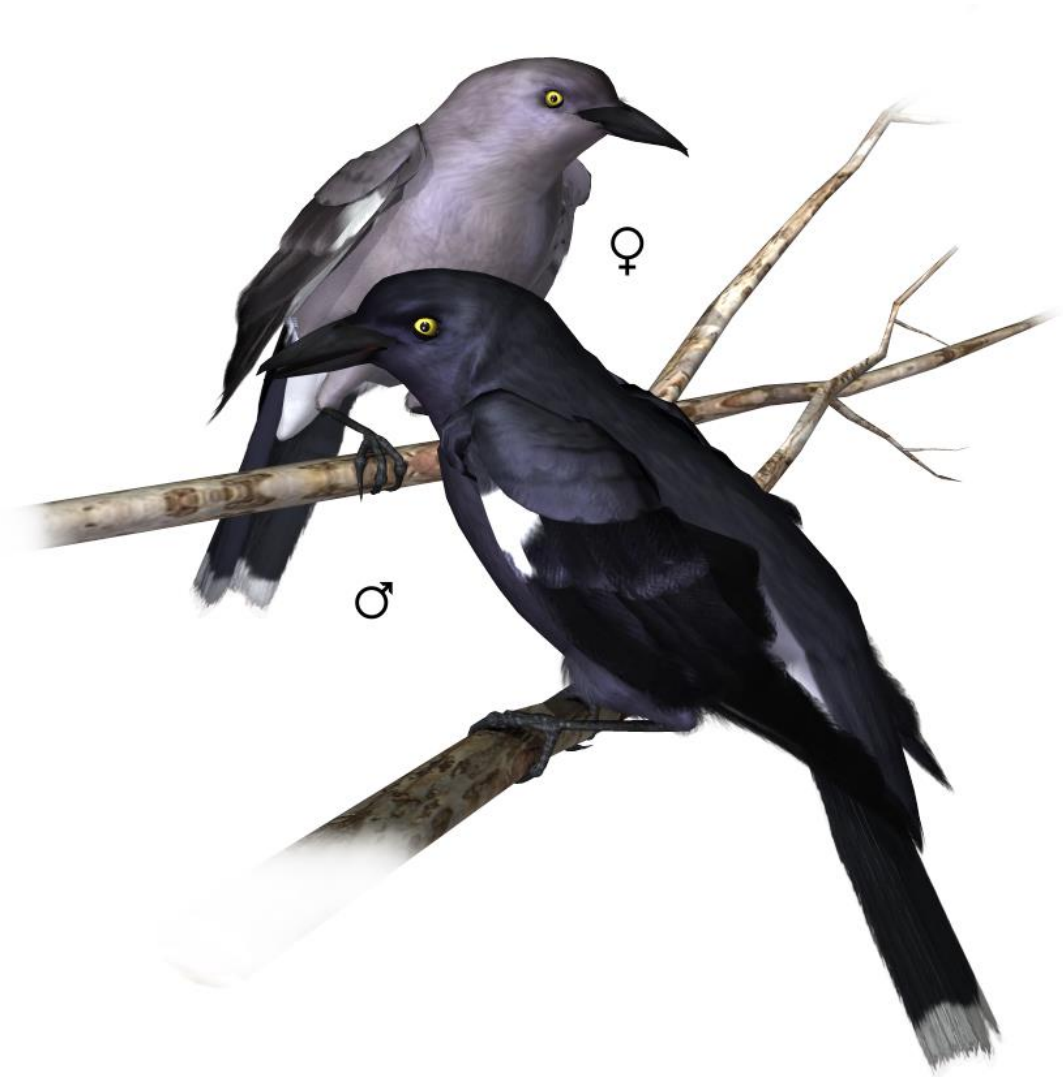
Western Australia. The adult male has a white back and most closely resembles subspecies telonocua, though it is a little larger with a longer bill and the black tip of its tail plumage is narrower. The female is unusual in that it has a scalloped black or brownish-black mantle and back; the dark feathers there are edged with white. This area appears a more uniform black as the plumage ages and the edges are worn away. Both sexes have black thighs.

- ***C. tibicen papuana***, The New Guinean Magpie, is a little-known subspecies found in southern New Guinea. The adult male has a mostly white back with a narrow black stripe, and the female a blackish back; the black feathers here are tipped with white similar to subspecies dorsalis. It has a long deep bill resembling that of subspecies *longirostris*.

Common Name: Grey Currawong
Scientific Name: *Strepera versicolor*

Size: 17-23 inches (44-57 cm)

Habitat: Australia; Endemic--found across the southern part of Australia from the Central Coast region of New South Wales, occurring south of latitude 32°S southwards and westwards, from the vicinity of Mudgee in the north and southwest to Temora and Albury onto the Riverina and across most of Victoria and southern South Australia to the fertile south-west corner of Western Australia and the semi-arid country surrounding it. Outlying populations are found on the east coast of Tasmania and in the arid area where the Northern Territory meets South Australia and Western Australia. It is absent from King and Flinders Islands in Bass Strait. In general, the Grey Currawong is sedentary throughout its range, although it appears to be resident in the cooler months only in south Gippsland in eastern Victoria and the far south coast of New South Wales.



Status: Least Concern to Critically Endangered. **Global population**: Unknown. Unlike its more common relative, it has adapted poorly to human impact and has declined in much of its range. The Grey Currawong appears to have declined across its distribution; formerly common, it became scarce in northern Victoria in the 1930s, and in northeastern Victoria in the 1960s. Habitat destruction has seen it decline in southeastern South Australia around Naracoorte and from many areas in the Western Australian wheat belt. It also became rare in the Margaret River and Cape Naturaliste regions after 1920, and vanished from much of the Swan Coastal Plain by the 1940s. One place which has seen an increase in numbers is the Mount Lofty Ranges in the 1960s. The species has never been common in the Sydney Basin and sightings have been uncommon and scattered since the time of John Gould in the early 19th century. The status of the species is uncertain in the Northern Territory, where it may be extinct. It has been classified as Critically Endangered there pending further information.

Diet: An omnivorous and opportunistic feeder, preying on many invertebrates, such as snails, spiders and woodlice, and a wide variety of insects including beetles, earwigs, cockroaches, wasps, ants and grasshoppers, and smaller vertebrates, including frogs, lizards such as the Bearded Dragon as well as skinks, rats, mice, and nestlings or young of Tasmanian Native-hen, Red Wattlebird, Eastern Spinebill, House Sparrow and Splendid Fairywren.

It also eats a wide variety of plant material is also consumed, including the fruit or berries of Ficus species, Leucopogon species, Exocarpos species, a cycad, a mistletoe, and Cotoneaster species. *A. pinifolium* is especially popular, and one observer noted that the normally noisy birds became quiet and sluggish when eating it, prompting him to wonder whether the plant had a narcotic effect on the birds.

Foraging takes place on the ground, or less commonly in trees or shrubs. Most commonly birds probe the ground for prey, but sometimes they chase more mobile animals. It has been recorded wedging its bill under a rock to overturn and lift it, as well as removing insects from parked cars. The Grey Currawong usually swallows prey whole, although one bird was observed impaling a rodent on a stick and eating parts of it, in the manner of a butcherbird.

Nesting: The male is on average slightly larger than the female, but the size and weight ranges mostly overlap. The breeding habits of the Grey Currawong are not well known, and the inaccessibility of its nests makes study difficult. The breeding season lasts from August to December. The Grey Currawong builds a large shallow nest of thin sticks lined with grass and bark high in trees; generally eucalypts are chosen.

Cool Facts: One of three currawong species in the genus Strepera, it is closely related to the butcherbirds and Australian Magpie of the family Artamidae. Six subspecies are recognized.

Common Name: Australian Raven
Scientific Name: *Corvus coronoides*

Size: 18-21 inches (46-53 cm)

Habitat: Australia; Endemic--not common throughout eastern, southern Australia and southern Western Australia (the populations being connected by a narrow strip across the Nullarbor Plain) but is found in the far north. It has adapted very well to human habitation in some cities and is a common bird in urban Sydney, and Rottnest Island. It is omnivorous and has adapted well to urban environments and is a common city bird in Sydney and Canberra.

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

Diet: Carrion, insects, seeds, fruit, small reptiles, nestlings and eggs. The preference ratio is 34% carrion, 42% invertebrates and 24% plant material. Food is taken mainly from the ground but will occasionally feed in trees. Ravens have adapted well to eating rubbish and scraps in urban areas, such as school playgrounds. In one isolated study they were observed feeding on nectar from eucalypt flowers.

Nesting: Breeding season is from July to September. Ravens always nest in tall trees, never near to the ground as some species do. Nests are generally large and untidy, consisting of a bowl or platform of sticks lined with grasses, barks, and feathers. A clutch can comprise 3–6 eggs, though usually 4 or 5 are laid. Measuring 45x30 mm (1¾ x 1¼ in), eggs are pale green or bluish-green splotched with darker olive, brown and blackish markings. Incubation of the eggs is done solely by the female over roughly 20 days. Only one brood is raised per year. Fledged by 45 days and staying with parents for about four months after that.

Cool Facts: One of three Australian species commonly known as ravens. It is a more slender bird than the Common Raven of the Northern Hemisphere but is otherwise similar.

Common Name: Apostlebird
Scientific Name: *Geopelia cuneata*

Size: 13 inches (33 cm)

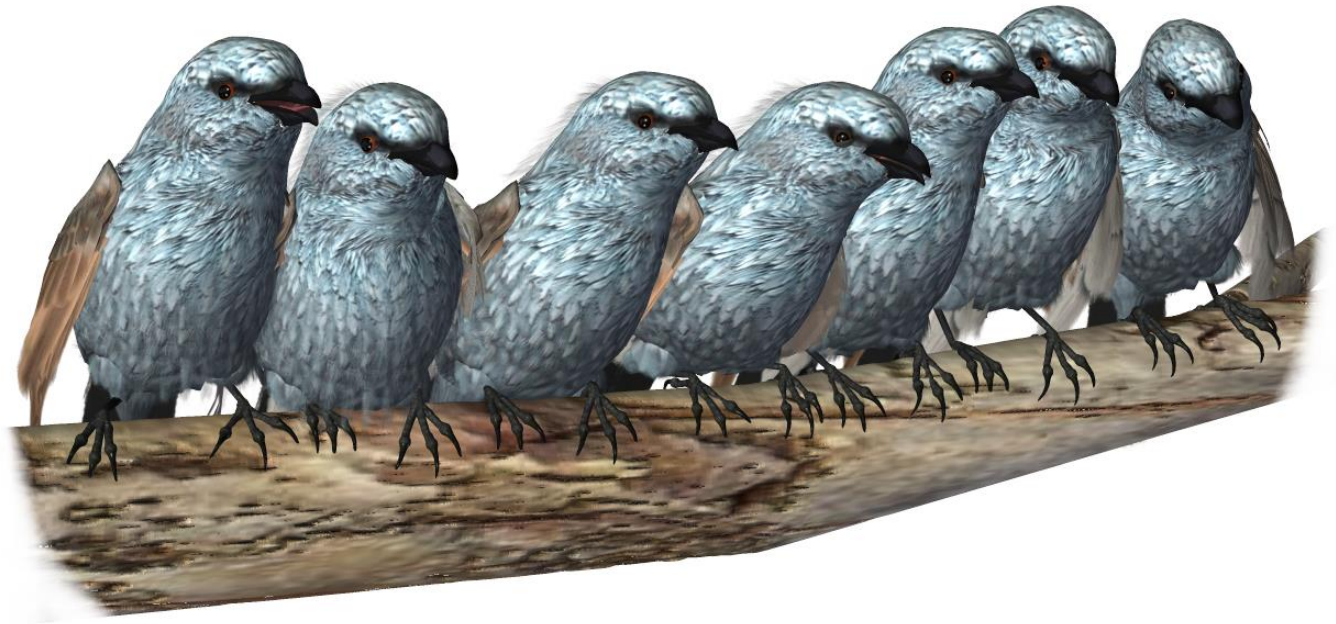
Habitat: Australia; Endemic--range is across inland eastern Australia, from the mallee regions of northern Victoria and eastern South Australia, north through New South Wales and central-western Queensland to the Gulf Country. There is an isolated population in the Northern Territory. Dry open woodland is the preferred habitat, especially Callitris in New South Wales and Casuarina in Queensland, and Lancewood-Bulwaddi communities in the Northern Territory.

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

Diet: Insects and seeds; eating them at, or near, ground level.

Nesting: Apostlebirds are a communal species with each family group generally containing only one breeding pair, the rest being their helper offspring. All family members help construct a mud nest, and share in incubation of the eggs. Once the eggs are hatched, all members of the family group also help feed the chicks and keep the nest clean.

Breeding season is from August to December. The nest is a deep cup-shaped structure made of grasses held together with mud or sometimes manure in a tree fork up to seven or eight meters above the ground. Three to five pale blue-white eggs sparsely



splotched with brown and lavender shades are laid measuring 22 mm x 29 mm. Thye are tapered oval in shape

Cool Facts: Apostlebirds often travel in groups of about 12; for this reason they were named after the Biblical apostles, the twelve chief followers of Jesus Christ. They also tend to perch closely to each other creating an avian version of DaVinci's" Last Supper". The species travel in family groups of between 6 and 20, which may coalesce with other family groups into large feeding flocks of over 40.

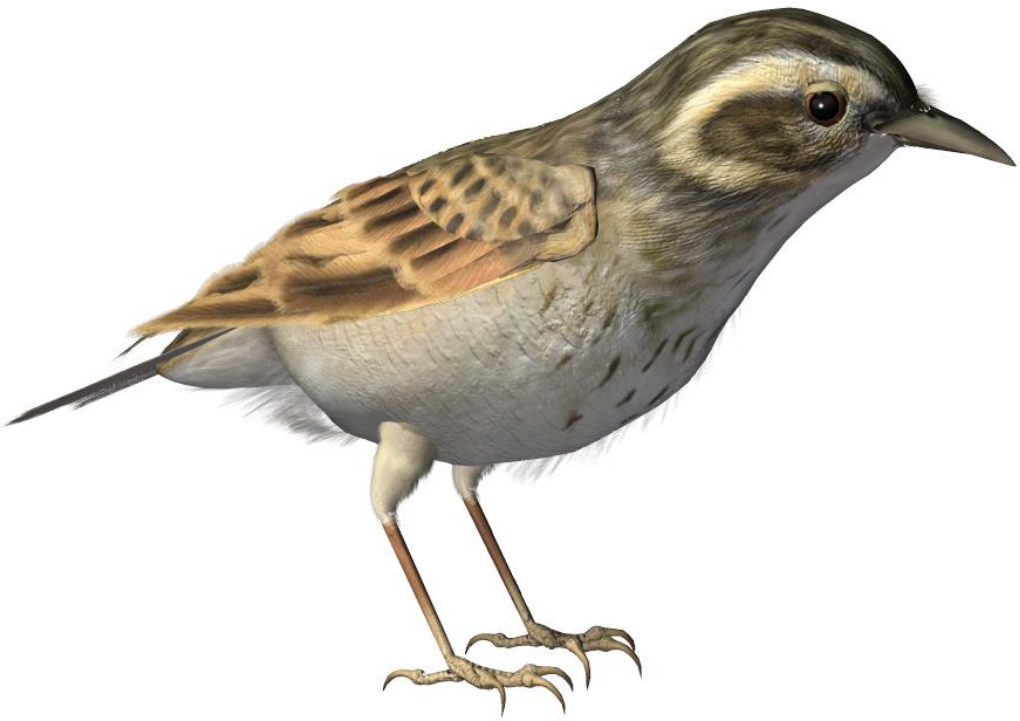
Due to their gregarious nature, and harsh scolding and grating calls, they have developed a plethora of other colloquial names. They are also known locally as "Lousy Jacks" (due to heavy louse infestations), "Happy Jacks", "Happy Families", "Grey Jumpers" and the "CWA Birds". The latter name is derogatory, referring to the supposed resemblance of the bird's constant chatter to a "Country Women's Association" meeting.

Common Name: Australasian Pipit
Scientific Name: *Anthus novaeseelandiae*

Size: 6¼ -7½ inches (16-19 cm)

Habitat: Australiasia; Australia, New Zealand and New Guinea. It is a bird of open habitats such as grassland, farmland, roadsides, dry river beds, sand dunes and open woodland.

Status: Least Concern. **Global population**: unknown. The birds' numbers have declined in parts of New Zealand due to the improvement of pastures, use of pesticides and predation by introduced species.



Diet: It forages on the ground for small invertebrates such as beetles, spiders and insect larvae. It will also eat seeds such as those of grasses.

Nesting: The breeding season begins in August. The cup-shaped nest is placed at the base of vegetation or in the shelter of a stone. It is made of grass and built by the female. Two to five eggs are laid, three or four being most common. They are buff-white with brown blotching and are incubated for 14 to 15 days. The young birds are fed by both parents and are able to fly after 14 to 16 days.

Cool Facts: It was formerly lumped together with the Richard's, African, Mountain and Paddyfield Pipits in a single species: Richard's Pipit, Anthus novaeseelandiae. Some authors split the Australasian Pipit further into two species: Australian Pipit (Anthus australis) in Australia and New Guinea and New Zealand Pipit (Anthus novaeseelandiae) in New Zealand.

Common Name: Australian Reed-warbler
Scientific Name: *Acrocephalus australis*

Size: 6¼ inches (16 cm)

Habitat: Australia; throughout Australia where there is suitable habitat and is also found from New Guinea to south-eastern Africa. Prefers dense vegetation alongside water, especially thick reed beds, as well as tall crops, bamboo thickets and lantana.

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

Diet: Insects

Nesting: The Australian Reed-Warbler builds a deep cup nest with a narrow top opening in among dense reeds. It is made from dry reeds and other water plants woven together and lined with fine dry grass and feathers. The female incubates the eggs.

Cool Facts: The Australian Reed-Warbler's nest, which is made from and attached to reeds, is designed to keep the eggs from rolling out even when the reeds are bent down by high winds.

Common Name: Star Finch
Scientific Name: *Neochmia ruficauda*

Size: 4 ½ inches (12 cm)

Habitat: Australia; Endemic to Northern Australia. They occur from Shark Bay to Northern New South Wales. They now have spread to the Gulf of Carpentaria, mostly on the western side. They inhabit tropical swamps, rice and sugar-cane fields, dense scrub, woodland, trees, and in tall grasses near water.

Status: Near Threatened to endangered in the wild. **Global population**: 100,000-499,999 with a decreasing trend. The habitats of Star Finch are threatened by overgrazing of grasslands, removing essential cover, as well as sources of food. Selective grazing of perennials during the dry season may also remove grasses that are needed for survival during the wet season. Burning of grassland during the dry season may reduce the fallen seed during the wet season and thus reduce the food supply needed by Star Finch. This species is also threatened by cage-bird trades. **Conservation measures underway**: Surveys were conducted to estimate the population and trends of the eastern subspecies clarescens. An understanding of the natural fire regime is being built up. All three subspecies are listed separately in the Action Plan for Australian Birds: *ruficauda* as possibly extinct, *clarescens* as endangered and *subclarescens* as near threatened.

Diet: Seeds, rich varieties of insects, and greens. When feeding, they tend to avoid landing on the ground preferring to grasp onto the seed heads of grasses. Their diet includes white ants, half-ripe and ripe grass seeds, fruit culture flies, and during the breeding season they prefer to eat seeds, rich varieties of insects, and greens. In captivity finches will feed on hard cooked chopped eggs, spray millet, soaked seed,

mature legumes, grated cheese, cooked rice, a variety of fresh fruits, chopped dark greens or fresh fortified canary seed.

Nesting: Mature Star Finches are similar in color but the females tend to be a bit duller than the males and the females have less red on their face. Immature Star Finches are olive-brown above and pale olive below.

During the breeding season males become territorial around the immediate nesting area. Compared to the Green Singing Finch, the Star Finch has a very cheerful song. Males perform a song and dance during courtship and while they are performing they are holding a grass stem in their bill. The males tend to ruff up the feathers on their head, flanks, and breast and have their tails twisted toward the female. A whole lot of bobbing is done during courtship and the males tend to sit close to the females to peer into her face.

Star Finches reach sexual maturity 12 months after hatching and can reproduce for up to five years. When in captivity they can produce three broods per year. The females lay three to six pure white eggs. The male and female incubate the eggs for about fourteen days. The fledglings color is a pale green on the underside, a dull green on the topside and dull gray on the tail. When the fledglings are 10-12 days old they begin to have their fist set of feathers. When they reach 21 days old they leave the nest for the first time but are still dependent on their parents. Thirty-five to forty-two days after hatching they will become fully independent.

Cool Facts: Despite the fact that the Star Finch has been listed as endangered in the wild, it is a common pet bird. This species has mutations such as the Yellow & Cinnamon varieties.

Star finches show aggression by throwing their young out of the nest when the fledglings refuse to eat the food given to them.

Common Name: Diamond Firetail
Scientific Name: *Stagonopleura guttata*

Size: 4-5 inches (10-13 cm)

Habitat: Australia; found in eastern Australia, from Eyre Peninsula, South Australia, to south-eastern Queensland, commonly found on the slopes of the Great Dividing Range. Eucalypt forest and woodland and mallee country. Will inhabit farmlands and grasslands

Status: Near threatened. **Global population**: 200,000. Much habitat has been cleared, with remaining fragments gradually becoming unsuitable as a result of competition with invasive species, predation of adults or young, alteration of vegetation structure through over-grazing, weed invasion, salinisation and other flow-on processes. Despite legislation to stop the large-scale clearing of habitat in New South Wales, 640,000 ha were approved for clearing in that state between 1998 and 2005 and, although not all of this will have been cleared, an unknown amount was cleared illegally. The severity of most degradation is correlated with the area of the fragment. Factors that have been postulated to be adversely affecting this species in particular include the loss of key food plants and habitat as a result of invasion by exotic grasses more suitable for flock-foraging Red-browed Finch Neochmia temporalis, whose expansion in some areas may have disadvantaged *S. guttata*. In the north of the range, a change in fire and grazing regimes may have played an important part in the decline. Isolated subpopulations may be susceptible to illegal trapping.

Diet: Ripe or partially ripe seeds; occasionally eat insects and their larvae. Feeding occurs on the ground in groups.

Nesting: The Diamond Firetail builds a nest with green grass blades and stems and lines it with fine grasses and feathers. The nest can be found in trees and shrubs with dense foliage and has sometimes been known to build in the base of a hawk's nest. The nest is built by both partners but only the female does the weaving. Both partners incubate the eggs and care for the young. Usually only one clutch is laid per season

Cool Facts: During courtship, the male Diamond Firetail holds a long piece of green grass in his bill, then flies to a branch where he sits near the female and begins to bob up and down. When she approaches, he twists his neck around and opens his bill just like young begging for food.

Common Name: Mistletoebird
Scientific Name: *Dicaeum hirundinaceum*

Size: 4-4 ½ inches (10-11 cm)

Habitat: Australasia; found throughout mainland Australia. It is also found in Papua New Guinea and eastern Indonesia. The Mistletoebird is found wherever mistletoe grows and is important in the dispersal of this plant species

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

Diet: Mistletoe berries. The Mistletoebird is highly adapted to its diet of mistletoe berries. It lacks the muscular gizzard (food-grinding organ) of other birds, instead having a simple digestive system through which the berries pass quickly, digesting the fleshy outer parts and excreting the sticky seeds onto branches. The seed can then germinate quickly into a new plant. In this way, the Mistletoebird ensures a constant supply of its main food. It will also catch insects, mainly to provide food for its young.

Nesting: The Mistletoebird builds a silky, pear-shaped nest with a slit-like entrance, made from matted plant down and spider web, which is suspended from a twig in the outer foliage of a tree. The female alone builds the nest and incubates the eggs, while both sexes feed the young.

Cool Facts: In cold weather, the Mistletoebird can undergo torpor, which is the slowing down of bodily functions to conserve energy.

Common Name: Grey-backed Silvereye
Scientific Name: *Zosterops lateralis*

Size: 4 - 4¾ inches (10-12cm)

Habitat: Australia; Endemic to Western Australia. Silvereyes frequent a diverse range of habitat types, including wet and dry sclerophyll forest and woodland, rainforest, mallee (e.g. *Eucalyptus diversifolia, E. rugosa*) shrubland, coastal heath, mangroves, farmlands, parks, gardens, orchards and vineyards. Some regional preferences are evident, with favored habitats including marri (*Corymbia calophylla*) and coastal heath in Western Australia; manna gum (*Eucalyptus viminalis*)/peppermint (*E. radiata*) associations and red ironbark (*E. sideroxylon*) in the eastern States; *Banksia spp.* and *Grevillea spp.* shrublands; and fruiting trees and shrubs from suburbia and horticultural areas. Open savannah and arid areas are avoided.

Status: Least Concern to Threatened. **Global population**: Unknown. Nationally protected, but locally unprotected in some States and regions due to the horticulture industry.

Diet: Insect prey and large amounts of fruit and nectar. They puncture fruit with their sharp bills, creating small diamond-shaped holes and they lap at the flesh with their brush-tipped tongues. This makes them occasional pests of commercial orchards. Birds are seen alone, in pairs or small flocks during the breeding season, but form large flocks in the winter months

Nesting: Silvereye pairs actively defend a small territory. The nest is a small, neatly woven cup of grasses, hair, and other fine vegetation, bound with spider web. It is placed in a horizontal tree fork up to 5m above the ground. The nest is constructed by

both sexes, who both also incubate the bluish-green eggs. If conditions are suitable two to three clutches will be raised in a season.

Cool Facts: Although one of Australia's smallest birds, the Silvereye is capable of travelling great distances during migration, with Silvereyes from the most southerly regions of Tasmania travelling all the way up to Southern Queensland.

Silvereyes probably cause the greatest damage to Australian horticulture of any native bird. They frequently damage wine and table grapes, cherries, peaches, nectarines, plums, blueberries, apricots, apples, pears, tropical fruit, olives, tomatoes and capsicum. Losses are particularly severe when native nectar sources are unavailable and during migration when high-energy food sources are sought. Nectar and native fruit are preferred over horticultural crops but are often in short supply due to clearing of native vegetation, during dry seasons through lack of flowers, or in excessive wet periods when nectar may become diluted. Although variable, higher nectar yields often occur following warm autumns and springs. Cooler temperatures during nectar production also increase nectar yields.

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 http://www.wikipedia.org
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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