Bioregion resources

Naracoorte Coastal Plain

The Naracoorte Coastal Plain bioregion is located along the coast of south-eastern South Australia and extends into Victoria. It has a cool, moist Mediterranean climate in most parts of the bioregion, with less rainfall in the northern areas. The northern section of the bioregion has an average yearly rainfall of 400mm, while some areas in the south receive up to 800mm of rain per year.

The cleared land in this bioregion is mostly used for grazing cattle and sheep, growing cereals and other crops. Forestry, wine grapes and dairying are also important land uses in the region.

Biodiversity and habitat

This bioregion is characterised by broad rolling plains separated by low ranges. Coastal landforms include sand ridges, sand dunes and limestone cliffs. Around 90% of the bioregion has been cleared for agriculture.

Major vegetation types include mallee shrublands and woodlands, heath and other shrublands, sedgelands, chenopod and samphire shrublands and eucalypt woodlands and open woodlands.

There are many different habitats in the bioregion, providing homes for a large variety of species. The bioregion has saline and freshwater wetlands which provide habitat for waterfowl and migratory wading birds. During the winter, the bioregion provides important overwintering habitat for the Endangered Orange-bellied Parrot.

Photo ©SATC/Ken Stepnell Naracoorte Caves
The bioregion is also the only known location of the Sand Ixodia which is a nationally vulnerable plant species. Other rare or threatened species include the Southern Bent-wing Bat, Heath Rat, Glossy Grass Skink, Striped Legless Lizard, Magpie Goose, Little Dip Spider-orchid and Metallic Sun-orchid.

**Threats**

Threats to the Naracoorte Coastal Plain bioregion and its dependent species include:

- drainage of wetlands
- salinity
- invasion of weeds such as Bridal Creeper, African Boxthorn and Radiata Pine
- non-native species such as foxes, cats and deer.

Prior to large drainage programs, much of the Naracoorte Coastal Plain was under water every winter.

**Conservation**

There are several major reserves in the bioregion including Canunda National Park, Coorong National Park, Piccaninnie Ponds Conservation Park and Gurn Lagoon Conservation Park. The Coorong and Bool Lagoon have been listed as Ramsar sites. You can help conserve the Naracoorte Coastal Plain bioregion and its dependent species by:

- Participating in special events, information sessions, tree planting days and weed eradication programs in your local area
- Spreading the word – tell other people about the plight of the Orange-bellied Parrot.

For further information

**Public enquiries**

For more local information on any of the species in this resource please contact your nearest Natural Resource Centre office on:

- **Eastwood**: (08) 8273 9100
- **Gawler**: (08) 8523 7700
- **Lobethal**: (08) 8389 5900
- **Willunga**: (08) 8550 3400

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Australian Bustard

Ardeotis australis

One of Australia’s largest birds, the Australian Bustard is up to one metre tall with a wingspan of up to 2.3 metres! Heavy bodied, ground-dwelling birds, males (5-10 kilograms) are up to three times heavier than females (2-3 kilograms). An upright posture, long legs and a black cap of feathers on their heads make them easy to recognise. This bird has the distinction of being Australia’s heaviest flying bird. When disturbed these birds walk away slowly (looking quite superior with their heads in the air!). They are strong in flight and sometimes move from one area to another.

Diet

The Australian Bustard is omnivorous, foraging on insects, young birds, lizards, mice, leaves, seeds and fruit. In the arid parts of their range, Australian Bustards are primarily nomadic, tracking rainfall and food sources opportunistically across the landscape.

Breeding

Australian Bustards breed once a year using what is called a ‘lek’ mating system. This means that when mating, each male uses a ‘display site’ to try and attract a female. Males put on a show by inflating a large throat sac and strutting around with their tails up making a loud, deep, roaring noise. Females then choose which male to mate with on the basis of their size and display. In the drier arid areas of SA they may not use the lek system, some being more solitary and even monogamous.

From September to November, eggs are laid in a hollow on the ground where the female has a good view of approaching threats while being well camouflaged. Females incubate one to two, rarely three, eggs for around 24 days. After mating males play no further part in raising the chicks.

Habitat

The Australian Bustard lives on dry plains, grasslands and open woodlands, and they favour tussock and hummock grasslands. Occasionally they are seen in modified habitat areas such as farmlands and golf courses.
Fire followers! Groups of Australian Bustards have been seen flocking to fires to eat animals flushed out or killed by them.

**Threats**
Past hunting reduced their populations and illegal hunting continues. Predation by cats and foxes, habitat degradation from overgrazing rabbits and stock, and habitat clearance and alteration are other major threats to the Australian Bustard. Secondary poisoning from rabbit baiting can also pose a threat to them. These threats have seen a large scale decline in their population in south-east Australia. They are largely now found in northern Australia and southern New Guinea.

**Conservation**
You can help the Australian Bustard by:

- keeping our wildlife wild! Bustards could become more vulnerable to illegal hunters if they are fed or tamed and if disturbed their nests could fail
- being a responsible pet owner – desex your pets, keep them inside at night and don’t take them into national parks.

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Bush Stone-curlew

*Burhinus grallarius*

Bush Stone-curlews are ground-dwelling birds; this means that they roost, feed and nest on the ground. Their big yellow eyes and long legs with knobbly knees allow them to be easily distinguished from other birds. They can live more than 20 years and grow to 50–60 cm tall.

Bush Stone-curlews are nocturnal, and are famous for the wailing sound they make at night. They are such secretive birds that sometimes this call is the only way to know that they are around. During the day they rest crouching down, head outstretched. When disturbed they tend to freeze instead of flying away, which can make them especially vulnerable to predators. Historically they travelled in groups of 50–100 but it is now rare to see more than four birds together.

**Diet**

These birds eat insects, small frogs, lizards and snakes.

**Breeding**

Bush Stone-curlews nest from August to February and usually lay two eggs in a scrape (small bare patch) on the ground. These eggs are mottled brown and grey for camouflage and are incubated by both parents. Unfortunately, only 15 per cent of nesting attempts in the South East of SA are successful.

**Habitat**

Bush Stone-curlews prefer "untidy" landscapes covered in fallen timber and debris. The mottled grey-brown colour of their feathers makes them well camouflaged amongst the woody debris of their habitat. These unique birds have disappeared from around 90 per cent of their former habitat on the South Australian mainland.

**Threats**

Foxes and cats are the Bush Stone-curlew’s main predators. The clearance of open woodlands has led to the fragmentation and destruction of suitable habitat. The removal of timber makes them vulnerable to predation from feral animals. Other threats include eggs being trampled by stock and nest disturbance from pets and people.
Aboriginal People associated the curlews with ghosts because of the wailing cries they make at night!

**Conservation**

You can help protect the Bush Stone-curlew by:

- avoiding taking firewood from woodland environments; these are an important part of the curlew’s habitat
- keeping pets inside at night and walk dogs on a lead in woody areas – cats and dogs can kill native birds like the curlew
- trying not to disturb Bush Stone-curlews if you come across them.

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Heath Goanna
Varanus rosenbergi

Also known as Rosenberg’s Goannas, Heath Goannas are powerful reptiles with strong limbs, sharp curved claws and long muscular tails. They reach up to 1.5 metres in length. Large curved teeth make it easier for them to hang onto their prey. Like all reptiles, Heath Goannas have limited ability to control their own body temperatures via their own metabolism and need to bask in the sun for at least half an hour each day before being active.

Diet
Their diet includes carrion, insects, birds, eggs, reptiles and small mammals. They sense prey by flicking their forked tongues and transferring the scent to sensory organs (Jacobson’s organ). This organ is a common feature of many reptiles.

Breeding
Heath Goannas lay their eggs in active termite mounds. In mid to late summer the pregnant female will dig a tunnel into their chosen mound and lay 10–17 eggs. They then seal the nest and both the male and female guard the mound to ward off potential predators. Decaying material within the mound and the activity of the termites creates a warm, humid atmosphere, perfect for incubation. The eggs hatch in eight months after which the young slowly dig an escape tunnel. This can take them weeks, and they continue to use the mound as shelter for several months as they grow.

Habitat
Heath Goannas live in a variety of habitats from coastal and desert heaths to humid woodlands and sclerophyll forests. Kangaroo Island is an important refuge for Heath Goanna as they have become quite rare on the mainland. They are the largest land predator on the island. They find shelter in burrows, hollow logs and rock crevices at night. Several goannas might use the same burrow; they usually have connected tunnels and several exits.

Threats
Habitat loss and fragmentation is a major problem for these goannas. The removal of woody debris necessary for termite nesting can impact their ability to nest. The juveniles especially are threatened by predation by cats, dogs and native predators. Fast moving vehicles, illegal hunting and collection, poisoning/toxic pesticides, lack of recruitment, and fire are other problems.
Natural Pest Control! Rabbits were introduced to Kangaroo Island early last century and Heath Goannas are credited with eating them all. They are happy to burrow to find prey, and considering the damage rabbits have done to the mainland, KI is fortunate to have these reptiles.

**Conservation**

You can help the Heath Goanna by:

- being a responsible pet owner – desex your cats and dogs, keep them inside at night and don’t take them into national parks
- not collecting fallen timber or destroying termite mounds if you live in the Heath Goanna’s neighbourhood, as they need these to survive
- driving slowly if you are visiting Kangaroo Island as goannas may not be able to avoid fast cars.

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Hooded Plover
Thinornis rubricollis

Hooded Plovers are small-to-medium sized coastal shorebirds. They can be active during the day and night time, and are non-migratory. Also known as the Hooded Dotterels, these plovers bob their heads continually when alert and standing still. A distinctive black hood and throat give them their name; they also have a red ring around their eyes, a black-tipped orange bill and orange legs.

Pairs of Hooded Plovers establish territories to live and breed in, that they defend from other plovers. When approached by humans they run or fly away and are quite vocal as they do so! They will only leave these areas if they are persistently disturbed.

Diet
They forage on the beach and can usually be seen in pairs or small groups finding food at the waters edge as the waves recede. Some Hooded Plovers also forage around salt water lagoons, salt pans and coastal lakes. They feed on insects, small bivalves, crustaceans, marine worms, water plants and seeds.

Breeding
Hooded Plovers breed from August to March in eastern Australia on wide, sandy, seaweed strewn beaches. They make their nests in small scrapes on the beach between the high tide line and the sand dunes during spring and summer. They line these nests with pebbles, seaweed or other materials they find on the beach. An average clutch size is one to three eggs, and these are incubated by both parents for around 28 days. There is a very low success rate for chicks hatching and making it to maturity.

Habitat
These birds are found along the southern sandy coasts of Australia.

Threats
Coastal development and increased human activity on the coasts is a major threat to the Hooded Plovers, especially as they nest in summer when people like to visit the beach. Vehicles on the beach destroy nests, eggs and chicks. Dogs kill chicks and destroy nests as well as chasing adults away from their nests. This often leads to the death of the chicks. Disturbance and trampling by humans and stock, and predation by foxes are other threats these birds face. Unfortunately, only 700–800 of these birds remain in SA. Nationally, it has been estimated that a population of around 7,000 Hooded Plovers are alive today.
Although they move around during the non-breeding season and sometimes flock with other birds, Hooded Plovers usually return to the same breeding area with the same partner to lay their eggs each year.

**Conservation**

You can help the Hooded Plover by:

- preferably keeping your dog on a leash (at least) when at the beach - especially during spring and summer
- only walking within the intertidal zone during the nesting season
- refraining from driving on the beach or dune areas
- moving away quietly when you see Hooded Plovers – parents will abandon their nests if they feel threatened.

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Mallee comes from an Aboriginal name for a group of eucalypts that grow two to nine metres high. They are multi-stemmed and grow from underground woody bases called lignotubers. Mallee is also the name for the vegetation communities in which Mallee eucalypts grow. These communities usually include several layers of vegetation from large shrubs to small grasses and ephemerals. Mallee support a wide range of biodiversity, including the Malleefowl.

Leaf litter is slow to decompose in Mallee areas because of the dry conditions, so there is often plenty of fuel for a fire. Mallee eucalypts have adapted to cope well with fire. They grow vigorously from dormant shoots under the bark of the branches, the trunks, or the lignotuber. This is called epicormic growth.

Lignotubers store water and nutrients so new branches can grow if they have been damaged or cut to the ground. This has been very annoying for farmers trying to cut them down. They are also very difficult to remove from the ground and used to break a lot of ploughs as they are solid and rock-like. Large-scale clearance started in SA around 1900 when the stump-jump plough was invented. Farmers then conquered the Mallee, but when the trees were gone there were problems with the soil becoming too salty and eroding away. It was realised too late that plant cover is very important for keeping the soil stable and stopping salt water from rising to the surface.

Habitat

Mallee eucalypts grow in the semi-arid parts of southern Australia, and have many adaptations that help them survive the hot, dry conditions. Like most eucalypts, they close the pores of their leaves (stomates) during the heat of the day so they lose less moisture through evaporation.

Threats

Being cleared for agriculture is the biggest threat to Mallees both historically and today. Drought caused by climatic change and too frequent and intense bushfires put pressure on populations of these trees. Their understorey is often grazed on by sheep, cattle and goats. Rabbits also graze on new shoots which can make it more difficult for them to grow. Salinity and habitat fragmentation are other problems Mallee plants face.
Musical Mallees! Didgeridoos are made from the stems of Mallee eucalypts that have been hollowed out by termites.

**Conservation**

You can help Mallee eucalypts by:

- preserving these trees on your property
- being waterwise at home and helping ease the strain on our limited water sources
- getting involved with revegetation projects like the Million Trees Project.

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Malleefowl
Leipoa ocellata

Malleefowl are shy, ground-dwelling birds about the size of a domestic chicken. Malleefowl are Australia’s largest megapodes and are also known as mound builders.

**Diet**
They feed on a variety of seeds, flowers, fruits, tubers, fungi, herbs and invertebrates.

**Breeding**
Malleefowl usually mate with the same partner for life, and pairs spend most of their time together. Nest building and maintenance take about 11 months of the year so they are usually found in the vicinity of the nest. Malleefowl mounds are approximately four metres across and 75cm high, made of leaves and sandy earth. They incubate their eggs inside these mounds, and warmth is produced by the heating of the sand by the sun and the decomposition of vegetation (like compost). They control the temperature of the nest by adding or removing vegetation to the mound. They begin laying their eggs when the nest temperature reaches around 33°C; the female then lays an egg every five to seven days until the end of summer. They can lay up to 30 eggs in one season. Males stay near the mounds, repeatedly checking the temperature with their tongues. Many eggs hatch but few chicks survive as the camouflage of their mottled feathers is their only defence and they are easy prey for foxes.

**Habitat**
Once common over most of the southern half of Australia, they are now only sparsely distributed from southern Western Australia to central New South Wales. They occupy semi-arid to arid shrublands and woodlands but are found mainly in mallee woodland habitat that has not recently been burnt.

**Threats**
Malleefowl are threatened by the fact that their population is small and isolated. Habitat destruction is another threat. Being ground-dwelling birds they are preyed upon by foxes and feral cats. Rabbit, goat, deer and stock grazing impacts on their habitat and stock, feral goats and deer can trample their nests. Increased incidences of bushfire destroy leaf litter they need for nest building as well as habitat.
Digging up out of the mound (nest) can take newly hatched chicks up to 15 hours, and they can fly within hours of hatching!

**Conservation**

Current management strategies for Malleefowl include the fencing of areas of habitat to keep out stock and feral deer, controlling rabbits and foxes, undertaking monitoring surveys and captive breeding programs.

You can help the Malleefowl by:

- being a responsible pet owner – desex your cats and dogs, keep them inside at night and don’t take them into national parks
- avoiding taking firewood from Malleefowl habitat areas
- joining a conservation group to help look after Malleefowl habitat.

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The Monarto Mintbush is endemic to South Australia. They are spreading shrubs approximately one metre high, with clustered leaves which are thick and hairless. The flowers of this shrub are green with a red tinge at the base, with light purple petals. The petals are partly fused together, 10–12mm long with dark purple and orange dots on the inside.

This shrub is now endangered and limited to only two areas in South Australia. Fewer than two thousand plants grow naturally in the wild. The population at Mount Monster is healthier than the other at Monarto. This is thought to be because there is less rainfall at Monarto and the area has been affected by drought. There are many other threats to the plants in both populations which are discussed below.

**Reproduction**

Monarto Mintbushes are in flower from September to November.

**Habitat**

These plants grow in sandy-loam and loam soils and can be found in tall shrublands or open woodlands associated with rocky granite outcrops. They often grow under mallee shrubs and/or broombush and wattles, while typical understorey plants (ones that grow under it) include native grasses, lilies and herbs.

**Threats**

Altered fire regimes leading to broad-scale and severe fires are a threat to the survival of Monarto Mintbush populations. Grazing by rabbits, kangaroos and stock may be reducing the number of seeds and seedlings. Weed invasion is another problem as weeds compete for space and nutrients with native plants. Illegal collection of plants from the wild can be a problem, especially due to the small population size and restricted distribution of this plant.
Mount Monster Conservation Park and within the proximity of Monarto, are the only areas in the world you can see this plant growing in the wild.

**Conservation**

Measures have been put in place to try and help this native survive. These include rabbit and weed control in areas where the Monarto Mintbush is known to still occur; the propagation and planting of seedlings; and the protection of existing sites with heritage agreements. Around 1000 seedlings have been grown by conservation groups and replanted in the wild! The long term storage of seeds can also help to ensure it never disappears completely.

You can help the Monarto Mintbush by:

- not collecting plants from the wild; they could be endangered
- volunteering with ‘Mallee Minders’ at Monarto Zoo and helping care for the mintbush’s native habitat
- contacting a Threatened Species Officer if you see it out of its current range.

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Orange-bellied Parrot

*Neophema chrysogaster*

The Orange-bellied Parrot is one of the rarest birds in Australia, with around only 50 individuals left in the wild. They feed on, and near, the ground. As adults the birds reach about 21cm in length. Their distinctive alarm call, an orange spot on their bellies and their bright grass-green colours help to identify them against other *Neophema* parrots like the Blue-winged or Elegant Parrots.

**Diet**

They forage in saltmarshes on low shrubs and groundcovers. They eat mainly seeds, fruits, flowers and berries of saline vegetation e.g. chenopods (salt bushes), Sea Rocket (*Cakile maritima*) and Bidgee-widgee (*Acaena novae-zelandiae*).

**Breeding**

These birds breed in November-December only in south-western Tasmania. They nest on a bed of rotten wood chips in the hollows of living eucalypts. They lay four to six eggs each season that are incubated for about 20 days by the female. Young parrots are then fed by both parents.

**Habitat**

Orange-bellied Parrots live in coastal areas and migrate every year, flying from their breeding grounds in Tasmania to as far west as Gulf St Vincent, though most South Australian records are from the South East and Coorong. When in South Australia, dune systems, coastal wetlands, saline depressions, and sheltered beaches are their preferred habitat areas.

**Threats**

Loss of habitat (wintering grounds in north-western Tasmania and saltmarshes along coastal south-west Victoria and south-east South Australia including the Coorong) is the major threat to the Orange-bellied Parrot. Predation by cats and foxes of their already small population is a threat, as well as the declining quality of saltmarshes due to water diversion and/or drought.
There are only three species of migratory parrots in the world and the Orange-bellied Parrot is one of them! They are also one of the world’s most endangered species.

**Conservation**

The Orange-bellied Parrot Recovery Project aims to protect and restore foraging and roosting habitat for this endangered bird in SA through a range of on-ground management activities. Some of these activities include weed control, rabbit control, revegetation with foraging/roosting plants, and breeding them in captivity (e.g. at Adelaide Zoo).

You can help the Orange-bellied Parrot by:

- volunteering with a local conservation group to help monitor their population or restore their habitats
- spreading the word about the Orange-bellied Parrot – tell your family and friends all about it or do some more research and give a talk to your class
- being a responsible pet owner – desex your cats and dogs, keep them inside at night and don’t take them into national parks.

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Plains-wanderer
Pedionomus torquatus

Plains-wanderers are small, long-legged birds. They have an upright alert posture and are about 18cm tall. Females are larger and more brightly coloured than the males. While they look similar to some quail species, Plains-wanderers can be distinguished by the distinctive patterns on their wings, as well as their slimmer necks and longer legs. They are the sole member of a genus of birds found only in eastern Australia.

When disturbed, Plains-wanderers usually run and, if they do fly, they leave their long yellow legs dangling. There are now possibly fewer than 8,000 Plains-wanderers left in the wild.

Diet
These birds are omnivorous and feed on a wide range of seeds, insects and spiders.

Breeding
Plains-wanderers nest in depressions known as scrapes that the female scratches out under bushes or grass tufts and are then lined with grass. They have three to four spotty eggs at one time, and chicks are usually independent after two months. Females lay their first clutch from late August to early November and may lay another in January if summer rain occurs (and ample food is available). The male Plains-wanderer does most of the work incubating the eggs and rearing the chicks, so the female is free to mate with another male.

Habitat
These birds are found in eastern Australia. As ground-dwelling birds, Plains-wanderers live on open plains with sparse lowland native grasses. They prefer areas of around half bare ground and half low, widely spaced plants, and do not require regular access to water as they obtain water from their food, dew and rain.

Threats
Loss and fragmentation of habitat is a major threat to the Plains-wanderer. Much of the lowland native grasslands in which they live have been cleared and used for growing crops or as pasture for stock.

Being ground-dwelling birds they are vulnerable to predation by cats, foxes and birds of prey. In drought years, when overgrazing of their habitat occurs, the population of Plains-wanderers may become more than halved.
The Plains-wanderer is thought to be an ancient bird, present in Australia for more than 60 million years. It may have been in Australia when it was a part of the Gondwanan supercontinent!

**Conservation**

Nation-wide surveys of the Plains-wanderers have been done and management actions, like reducing stock grazing in their habitat areas, are being developed.

You can help the Plains-wanderer by:

- being a responsible pet owner – desex your cats and dogs, keep them inside at night and don’t take them into national parks
- protecting remnant areas of native bush in your area or on your land for native species like the Plains-wanderer
- being careful when bushwalking in spring – don’t trample or disturb nests.

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**Lobethal:** (08) 8389 5900  
**Willunga:** (08) 8550 3400

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Red-necked Stint  
*Calidris ruficollis*

Red-necked Stints are migratory wading birds. When migrating, they travel by the East Asian-Australasian flyway and flocks of thousands of these birds travel together. Their breeding plumage gives the Red-necked Stints their name. After breeding they moult, and throughout the rest of the year their plumage provides good camouflage for their habitat in Australia, with a grey back and white underneath.

The smallest of Australia’s migratory birds, the Red-necked Stint weighs just 30 grams and is small enough to fit inside a wine glass. Red-necked Stints are sandpipers; they have short straight bills, short legs and are quite plump in shape. Because of their short legs they can only walk in shallow water, and prefer to forage without getting their legs wet.

**Diet**

These birds are omnivorous – they eat seeds, worms, insects, small vertebrates, plants in salt marshes, molluscs, and crustaceans. Once they arrive in South Australia these birds start fattening themselves up for the long journey north, and a healthy bird can increase its weight by 50 per cent in the months it spends here. Unlike humans they can instantly convert this fat to energy. Their favourite food at the Coorong is midge (chironomid) larvae, and they find these on the surface of saturated mudflats.

**Breeding**

Despite their small size they still manage to make the annual journey north to breed, which is a distance of approximately 15,000 km one way. They breed in eastern Siberia and western Alaska and visit Australia only in summer.

**Habitat**

When in South Australia they choose mudflats within estuarine wetlands, sand flats and inland salt lakes as their habitats.

**Threats**

The destruction and degradation of their wetland habitats is the greatest threat to Red-necked Stints. This can be caused by coastal development, changed water regimes, drought and pollution. Flocks of migrating birds rely on a series of three to four stopovers so they can rest and find food on the journey from their breeding sites to their ‘wintering’ sites. If any one of these places becomes unsafe or degraded, it can be disastrous for them. These birds are also sometimes the victims of hunting.
In its lifetime (approximately 20 years) the Red-necked Stint flies further than the distance between the Earth and the Moon!

**Conservation**

Australia has signed the migratory bird agreements with China and Japan to protect birds crossing international boundaries, and more international agreements are being developed.

You can help the Red-necked Stint by:

- being waterwise at home and helping save our Coorong
- Not polluting – anything washed down a stormwater drain goes straight out to sea
- checking out the book (and link) *Rusty Loses His Loop* and understanding the Murray Darling System and how vital it is for creatures like the Red-necked Stint.

For further information

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Red-tailed Black-Cockatoo (South Eastern)
Calyptorhynchus banksii graptogyne

There are five subspecies of Red-tailed Black-Cockatoo in Australia and the south eastern variety is the smallest. It is estimated that there are less than 1,500 of this subspecies surviving, which means that they are in real danger of extinction.

Males and females of this species look quite different. The male’s feathers are glossy black except for their bright red tail feathers. Females have duller brown-black plumage, yellow spots on their heads and necks and yellow-orange tail panels. Juveniles look like females until they reach three years of age, when males moult to their adult appearance. These birds are 50–60cm long.

**Diet**
Red-tailed Black-Cockatoos feed on seeds of brown and desert stringybark (Eucalyptus baxteri and E. arenacea respectively) and buloke trees (Allocasuarina luehmannii).

**Breeding**
They nest from spring to autumn in deep hollows in large eucalypts. The female lays only one egg per season and incubates it herself while her male partner brings her food. When hatched a chick needs to be cared for at the nest for three months before it can make its first flight, and, in this time, it is fed by the female with food collected mostly by the male. During the nesting season, Red-tailed Black-Cockatoos are usually seen alone or in family groups of two to three birds, but at other times of the year they may gather in flocks of up to 200.

**Habitat**
They are only found in south-eastern SA and south-western Victoria.

**Threats**
Loss of feeding habitat is the biggest threat Red-tailed Black-Cockatoos currently face. Hollows for nesting and preferred food trees have been cleared for agriculture, forestry and development. The fact that their feeding and nesting habits are so specialised makes it difficult for them to adapt when their habitat is changed.

Fuel reduction burns can also lead to less seeds being available for them to eat. This means females have to leave the nest to find enough food which leads to higher rates of nest failure. Nest predators (e.g. possums) can also be a danger to these birds.
Fussy eaters! Red-tailed Black-Cockatoos will only eat the seeds of 3 tree species.

**Conservation**

The Red-tailed Black-Cockatoo Recovery team are taking steps to protect these birds through actions such as replanting food trees, protecting old gum trees with hollows, and working with fire managers to minimise impact of controlled burns and wildfires on the cockatoo’s food resources.

You can help the Red-tailed Black-Cockatoo by:

- getting involved in replanting trees
- protecting dead and live trees with hollows
- planting locally indigenous food plants on your property
- participating in the annual cocky count in May.

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Southern Bell Frog
*Litoria raniformis*

Southern Bell Frogs are also called Golden Bell Frogs, Green and Golden Grass Frogs or Growling Grass Frogs because they make loud growling calls. Comparatively large, they grow up to 10cm long and have warty green skin with gold and bronze markings. They have webbed hind feet, but no webbing on their front legs. They are most active in spring and summer and can be seen basking in the sun or in groups under reeds at the edge of wetlands.

**Diet**
Southern Bell Frogs feed at night on insect larvae, bugs, beetles and termites. They are opportunistic predators and hunt by being still and waiting for prey to come within their reach.

**Breeding**
During spring and summer, males call with a repeated ‘crawark, crawaaark crok crok’ to attract a mate while floating in open water or under vegetation. Females lay jelly-like masses of up to 4,000 eggs usually after a local rain or flooding. Tadpoles hatch two days later and hide in vegetation near the water’s edge where it is shallower and warmer, then metamorphose into frogs in summer or autumn.

**Habitat**
Their habitat includes a variety of still to slow-flowing natural and artificial wetlands, including swamps, lakes, streams, riverine floodplains, farm dams, garden ponds, quarries and irrigation channels.

**Threats**
Southern Bell Frogs exist mostly in small and isolated populations. This makes it difficult for them to breed. Exotic fish prey on tadpoles and compete for habitat and food sources with this frog. The drainage and salinisation of wetlands, changes to the flow of the River Murray and prolonged drought have greatly reduced their habitat areas. Disease, pollution, the removal of aquatic vegetation, and trampling by grazing stock are other threats.

Map courtesy of Mapping Unit, Customer and Commercial Services. Map is not intended to indicate spatial distribution of the species, only the bioregions in which the species is found.
Cannibals! Southern Bell Frogs have been known to eat other frogs, even small ones of their own species.

Conservation

The Frog Atlas Program (part of Zoos SA) is helping to improve knowledge of their distribution and abundance in SA. A regional recovery plan is taking action to help the recovery of the species in the River Murray corridor.

You can help the Southern Bell Frog by:

- keeping stock and pollution out of waterways, preserving and replanting native aquatic vegetation and stopping the spread of introduced fish, if you are a landowner
- not polluting our waterways – pick up your litter and remember to recycle
- being careful where you step if you are walking near a waterway!

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Southern Bent-wing Bat
Miniopterus schreibersii bassanii

One of four critically endangered mammals in Australia, Southern Bent-wing Bats (also known as the Large Bent-wing Bat) can be distinguished from other bats in SA by the long third finger that folds back, creating a ‘bent wing’ appearance when they fly. They are medium-sized bats with reddish-dark brown fur on their backs and lighter coloured bellies. Populations of Southern Bent-wing Bats have been steadily declining in the last 40 years.

Diet
These bats feed on insects such as moths and beetles and eat whilst in flight, catching insects in their tails and wings (like a baseball mitt!) or directly with their mouths. Like other bats they use echolocation to find their way around in the dark and hunt for insects.

Breeding
Baby Bent-wing Bats are called pups, and females give birth to one pup between October and January. To give birth, females migrate in late August to special maternity caves, which have the right structure and microclimate for nursing the young. There are only two nursery caves that these bats use, and the most popular of these, Bat Cave, is in South Australia. Pups are born naked but soon after grow their fur. They attempt their first flight at four to five weeks.

Habitat
Southern Bent-wing Bats have a highly restricted range across the south-east of South Australia and western Victoria. They hunt in a range of environments, from wetlands to vineyards and woodlands. They are cave dwelling animals and hibernate and rest during the winter months in caves in the south-east, as there are fewer insects around to eat. Over 50 caves are known to be used for hibernation.

Threats
Drought and the drainage of wetlands are threatening their survival by providing less food and water. Disturbance during hibernation and the degradation of cave habitats are other threats, and possible indirect poisoning from insect spray (eating insects that have been poisoned).
Natural insect control! It is estimated the Southern Bent-wing Bat can consume about 25% of its body weight per meal! One bat may eat two or three meals per night; so a population of 1000 bats could consume several kilograms of insects per night.

Conservation
Bat Cave (their maternity cave) is protected within Naracoorte Caves National Park which has World Heritage status. A recovery plan has been developed for this bat species. You can help the Southern Bent-wing Bat by:

- taking part in local efforts to preserve habitats for wildlife
- raising awareness of this species in your local community
- visiting the Naracoorte Visitor Information Centre to learn more!

For further information

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Southern Brown Bandicoot
*Isoodon obesulus obesulus*

Southern Brown Bandicoots are medium-sized marsupials with long snouts, small rounded ears and large rumps. They are solitary animals that live for two to three years.

**Diet**
Southern Brown Bandicoots are omnivorous and forage for food under leaf litter and, in the soil, by digging distinctive cone-shaped holes. They stay close to cover when they search for food and eat ants, insects and worms (both adults and larvae), fungi, fruits and other plant material. When vegetation becomes more mature and fully grown there may be fewer food resources available for the bandicoot, whereas after fire, there are abundant insects in the revegetation areas which provide food, and the new, diverse vegetation provides habitat. Therefore, in some habitats there is evidence that they prefer areas that are burnt from time to time.

**Breeding**
Breeding takes place from winter through to summer and females usually give birth from two to four young per litter. They can have several litters per breeding season, but less than half of their young survive to maturity.

**Habitat**
Southern Brown Bandicoots can be found in the Mount Lofty Ranges, Kangaroo Island and the South East of South Australia. This eastern subspecies is one of five subspecies of Southern Brown Bandicoot, two of which live in South Australia. The Southern Brown Bandicoot lives in dense scrubby habitats or areas with dense, low ground cover.

They sleep in nests made of grass and other plant material that may be mixed with earth. These can be very well hidden in dense vegetation or among debris. Dense understorey vegetation is vital to the bandicoots’ survival as it protects them from predators.

**Threats**
Threats to the Southern Brown Bandicoot include: vegetation clearing, inappropriate fire regimes (too many fires are also harmful to their habitat) and predation by foxes and cats. Habitat loss and fragmentation leads to isolated populations which are more vulnerable to chance events and other threats.
Making do! Where their native habitat has been disturbed or destroyed, bandicoots sometimes use the dense cover of weedy blackberry thickets as a substitute.

Conservation

Regional and National Recovery Plans have been developed to maintain, protect and improve Southern Brown Bandicoot populations in Australia.

You can help the Southern Brown Bandicoot by:

- being a responsible pet owner – desex your cats and dogs, keep them inside at night and don't take them into national parks as dogs and cats can kill bandicoots. Keep dogs on a leash in areas where bandicoots live.
- getting involved with a conservation group near you
- educating your community about Southern Brown Bandicoots and other local species, and encourage councils and community groups to protect even small patches of native bush.

For further information

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White-bellied Sea-Eagle
*Haliaeetus leucogaster*

White-bellied Sea-Eagles are large birds of prey. They are graceful in flight and spend their time soaring over the surface of the sea, or perching on rocks or branches beside the water. They live for up to 30 years in the wild.

**Diet**

These birds hunt fish, tortoises, sea-snakes, waterfowl, reptiles, nesting birds, rabbits and also eat carrion. They are aggressive and skilled hunters both at sea and on the land. Their large talons and powerful curved beaks help them to grab and kill their prey. Thick scales on their legs protect them like armour. Excellent eyesight makes it easy for them to target their next meal. Occasionally, they harass other birds such as ospreys and terns until they drop their prey which the eagles then collect.

**Breeding**

These eagles mate for life and share the same hunting range. In the morning and evening they roost and sometimes sing together. When breeding begins, sometime from May to October, White-bellied Sea-Eagles put on great aerial displays. They soar and call, loop-the-loop, drop fish from a height and then dive to catch it in midair. Nests are built on cliffs or in trees, and sometimes on the ground on treeless islands. Both sexes help with the construction and repair of a nest. Nests are made of sticks, and are huge structures up to four metres deep and 2.5m wide. Nests are lined with stems and green leaves and females lay a clutch of two eggs. Eggs are incubated for around six weeks, mostly by the female. One egg is laid several days before the other, and it is usually only the chick with the head start that survives because the parents feed the noisiest, most active chick first. If the first egg is infertile, or the chick is weak and dies, the second chick has a better chance of survival.

**Habitat**

White-bellied Sea-Eagles are found throughout Australia along coasts and beside lowland rivers and lakes. They also occur in south-east Asia and India.

**Threats**

The loss of nesting sites due to development is a major threat to the White-bellied Sea-Eagles. Disturbance of nesting pairs by human activity can cause them to abandon their nests. Deterioration of inland water sources and over-fishing in the ocean makes it harder for them to find food. Competition for food and nesting sites with Wedge-tailed Eagles (*Aquila audax*) is a potential problem.
Big birds! White-bellied Sea-Eagles have a wingspan of up to 2.2 metres. Their home ranges can be up to 100 square kilometres.

**Conservation**
You can help the White-bellied Sea-Eagle by:
- always keeping your distance from eagles and their nests as they are easily disturbed by human activity
- protecting areas of native vegetation in your local area
- reporting anyone you see interfering with nests or disturbing sea eagles.

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Yellow-tailed Black-Cockatoo
Calyptorhynchus funereus

Yellow-tailed Black-Cockatoos are easy to identify due to their large size and distinctive markings. They are the largest Australian cockatoo and are 55-65cm long. They are black with yellow patches and yellow panels in their tail feathers. These birds have a distinctive call that can be heard as they fly over the tree tops. They are known to gather in large flocks of up to one hundred.

Diet
Their diet is varied but consists mainly of seeds of native trees, particularly the native sheoaks (Allocasuarina spp.) but also Eucalyptus, Acacia, Banksia, Xanthorrhoea and Hakea species. They also strip the bark from the trees to find tree-boring beetles and moth larvae. Yellow-tailed Black-Cockatoos have large, powerful bills for biting into the cones of pines and banksias. The upper part of the beak pierces the cone and hooks in while the lower part cuts through.

They have also adapted to feed on seeds of introduced Radiata (Pinus radiata) or Aleppo Pine (Pinus halepensis) often in commercial plantations because many of their native food sources have been cleared.

Breeding
Nests are made in large hollows in old trees. Females incubate the egg(s) and it takes four weeks for the hatchling to emerge. Males provide food while the females are incubating and rearing the chicks. Females usually lay two eggs, but almost always only feed one chick, so that only one chick survives. The nestling fledges in about three months but does not become independent until just before the next breeding season (around six months).

Habitat
Yellow-tailed Black-Cockatoos are found throughout south-eastern Australia, and are not listed as nationally threatened. The population on Eyre Peninsula, is considered critically endangered. This is because it is isolated from other mainland and island populations and has undergone dramatic decline since European settlement.

Threats
Loss of habitat (clearance of food and nesting trees), competition for nesting hollows with bees and other birds and animals and, predation (e.g. by Wedge-tailed Eagles) due to lack of cover, are the major threats to the Yellow-tailed Black-Cockatoo. Predation of eggs by Common Brushtail Possums (Trichosurus vulpecula) can also be a problem.
A distinctive local! Yellow-tailed Black-Cockatoos can be sighted in many Adelaide Hills conservation parks and visit the city parklands.

**Conservation**

Conservation of the wild population and its habitats, replanting of native food sources and habitat trees in this area, and a captive breeding program, are some of the positive actions being taken to help this population recover.

You can help the Yellow-tailed Black-Cockatoo by:

- keeping an eye and ear out if you go walking in the Adelaide Hills – you might see or hear a group of Yellow-tailed Black-Cockatoos flying around
- finding out about revegetation or other conservation programs in your local area
- helping out on community revegetation activities and projects
- making sure you save food and habitat trees for the Yellow-tailed Black-Cockatoos, and other threatened species, if you live on a property.

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