FAUNA OF THE AUSTRALIAN ALPS

Traditional Aboriginal people have an excellent knowledge of the links between plants, animals and their surroundings. There are songs, stories, dances and ceremonies associated with many animals and there are strict protocols regarding killing animals. The black possum, platypus, raven, eagle and some other animals still have special significance to Aboriginal people of the Alps. The flesh of many mammals, fish, reptiles and birds provided food. Animal fat was smeared onto the skin to keep warm. Animal skins were sown together to make warm cloaks or blankets. Parts of some animals were used as medicines while some bones and teeth became useful tools.

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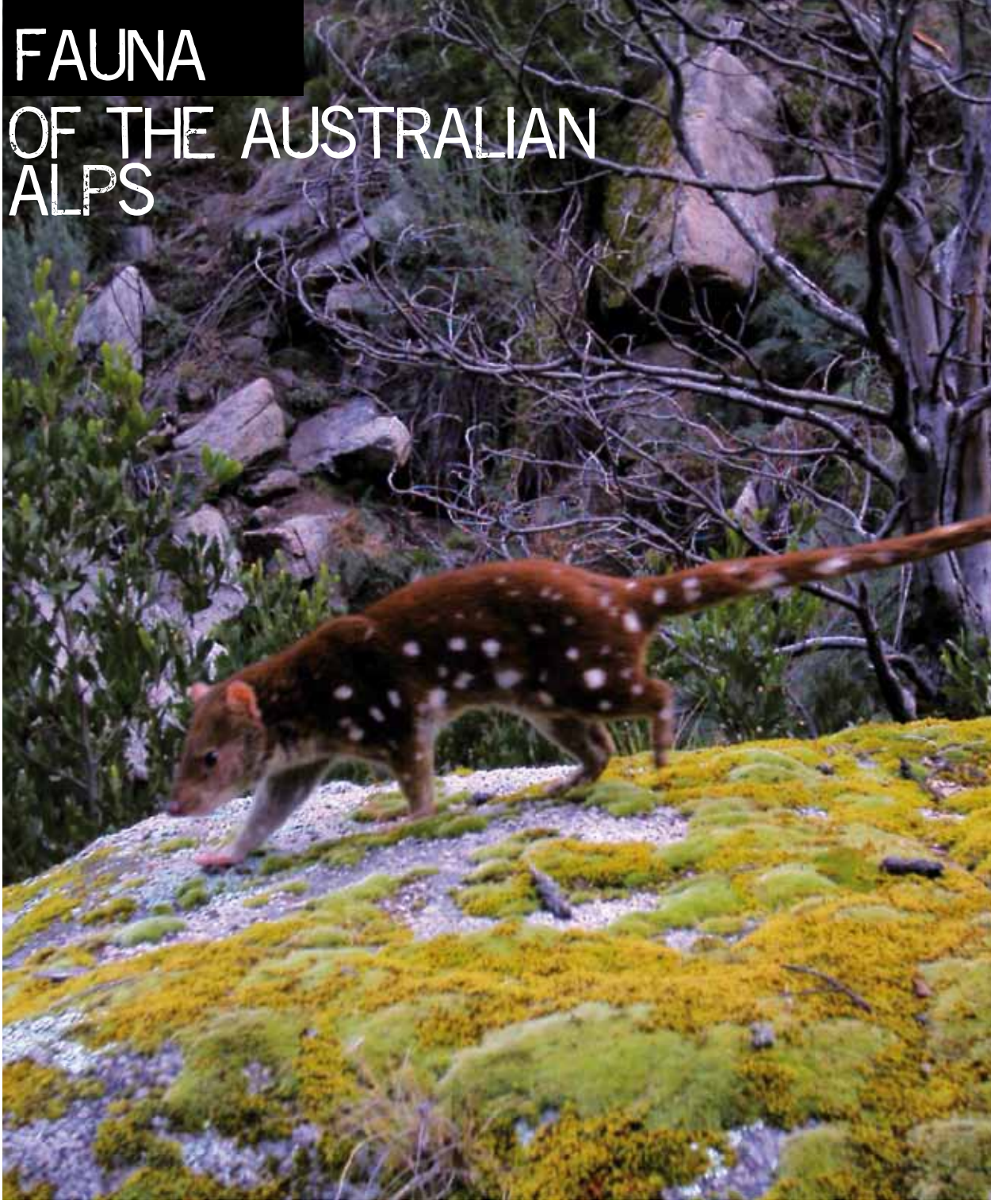

Tiger Quoll.

DIVERSITY IN THE MOUNTAINS

All the major animal groups are represented in the Australian Alps - more than 40 species of native mammals, 200 bird species, 30 reptiles species, 15 amphibians, 14 native fish species and many species of invertebrates. There are also many species of animals which are not native, but those that have been introduced, to the Alps - such as dogs, cats, pigs, horses, the House Mouse, the European Rabbit, the Black Rat and the Red Fox.

The distribution of a species, whether native or introduced, is relative to its habitat requirements, which are different for each species. Sometimes features such as scattered rock outcrops or decaying logs provide suitable habitat, or most importantly, the presence of vegetation necessary for food and shelter. Therefore those factors that determine the type of vegetation in an area (such as topography, soil type and temperature), these also help determine the distribution of animal populations.

ANIMALS OF THE ALPS

Mammals

Most types of mammals in the Alps are found in the forests and woodlands of the montane zone, the lower slopes and the tableland. Many are nocturnal so not often seen by visitors. The large, browsing and grazing marsupials such as the Common Wombat, Red-necked Wallaby, Swamp Wallaby and Eastern Grey Kangaroo are found here - all common throughout the Australian Alps. Except for wombats and echidnas, larger mammals are generally absent from the alpine zone. Smaller mammals living in the forests of the Alps include the rare Smoky Mouse, the Long-nosed Bandicoot and marsupial carnivores such as the Brown and Swainson's Antechinus and the Tiger Quoll.

Marsupials that live in trees include possums such as the Common Brushtail, the Bobuck or Mountain Brushtail, Ringtail, Eastern Pygmy Possum and some gliding possums. The Leadbeater's Possum is a rare species found only in old growth forests of Mountain Ash and Alpine Ash.

Only one mammal species, the Mountain Pygmy Possum, is restricted to the alpine and subalpine zones. This small, resilient creature lives in a special alpine community with three other small mammals: the Native Bush Rat, the Broad- toothed Rat and Swainson's Antechinus. Unlike the Mountain Pygmy Possum, these other three are more common although the Broad-toothed Rat, once widespread throughout southern and south-eastern Australia, is now restricted to scattered areas, including the Alps.

Bats are common in the high country. There are nine species of tree-dwelling, insect-eating bats, including Gould's Wattled Bat, the Lesser Long-eared Bat and the Chocolate Wattled Bat. Few colonies of cave dwelling bats are recorded for the area, and the only fruit- eating bats known in the high country are the summer visiting, Grey-headed Flying Foxes.

1: Leadbeater's Possum.
2: Common Wombat.
3: Grey-headed Flying Fox.

FAUNA

Birds

Many of the birds found in lowland grasslands and forests are commonly seen in the Alps during summer. Some of these are seen at the highest elevations and include: the Australian Kestrel, the Australian Pipit, the White-browed Scrub-wren, the Flame Robin, the Pied Currawong, the Grey Currawong and the Little Raven. Others are more common below the tree line, such as the Gang-gang Cockatoo, the Crimson Rosella, the Fan-tailed Cuckoo, the Grey Fantail, the Emu, the Superb Lyrebird and the Yellow-faced Honeyeater.

1: Flame Robin.
2: Water Skink.
3: Corroboree Frog.

Reptiles

Three main factors influence the distribution of reptiles in the Alps:

temperature;
the availability of sunshine and basking sites; and
protection from low temperatures in winter.

All reptiles need to bask in the sun to increase their body temperature to a level high enough to undertake activity. Some of the largest lizard densities recorded in Australia occur around alpine summits where it is not uncommon to see lizards basking on rocks in the heat of a summer day.

Reptiles found throughout the high country include the Tree Dragon, McCoy's Skink, the Grass Skink, the Water Skink, the Southern Blue Tongue and the Copperhead Snake. Two species in particular are found at high altitudes. These are the Alpine Water Skink, found in Sphagnum bogs, and the She-oak Skink, recorded in subalpine woodland.

Amphibians

The mountain country is an ideal habitat for many frogs as it is a moist environment with generally pollution-free water. As a result, half the frog species in Victoria are found in the high country. Species that are restricted to the alpine and subalpine zones include the Baw Baw Frog in Victoria and the brilliantly marked Southern and Northern Corroboree Frogs in NSW and the ACT. All are at risk of extinction from changes to their habitat.

Fish

The Mountain Galaxia is a native fish that was once found in waterways at all elevations. Galaxias slither over rocky ledges in shallow and warmer pools of water to regulate their body temperature. Following the introduction of Rainbow and Brown Trout, Mountain Galaxias are now only found in the alpine and subalpine waterways above the waterfalls which block the path of migrating trout.

Invertebrates

Invertebrates are a vital part of any ecosystem. They include crayfish and yabbies, cockroaches, insects, spiders and a number of micro-organisms. They are food for other animals, parasites to some animals, pollinators for plants and most significantly, consumers of dead plant and animal material, which gives them an important role in the formation of soils.

Alpine Silver Xenica Butterfly.

Some insects live in the alpine zone while others migrate there in summer. Most residents are inactive in winter but with summer they become active and join the summer migrants to form an abundant and varied community. Examples include the Flightless Mountain Grasshopper, the Wingless Cockroach, the snow grass feeding Alpine Case Moth, the Alpine Grass Caterpillar and the Alpine Silver Xenica Butterfly.

The Bogong Moth is one insect with an interesting association with the alpine environment. These moths migrate from the lowlands (where they breed and feed) to the high country in early summer. Here they cluster in rock crevices and caves and remain dormant over summer to escape the searing heat of the lowlands. This is called aestivation or summer hibernation. At dusk during migration the air can vibrate with the wing beats of hundreds of thousands of moths that fill the air in a moving black mass. Insect-eating animals such as the Mountain Pygmy Possum make the most of this rich food source, and build up fat reserves for the oncoming winter period.

FAUNA

SURVIVAL IN A COLD ENVIRONMENT

Animals living at the higher elevations have to contend with a long, cold winter season when food is scarce, temperatures are low and the ground is covered with snow. In addition there are not many trees to provide a suitable habitat. Animals have developed ways to cope with this harsh environment.

Living under a blanket of snow

One strategy is to live entirely under the snow during winter. As snow falls and covers the vegetation, particularly where there are shrubs, rocks and boulders, a space exists between the ground and the snow called the sub-nivean space in which small mammals can move and search for food. Temperatures remain constant under the snow even though they vary greatly in the open air. The Mountain Pygmy Possum, the native Bush Rat, the Broad-toothed Rat and Swainson's Antechinus all survive in this way.

Hibernation and torpor

During the coldest part of the season some animals hibernate or go into torpor. In both cases the animal's metabolism shuts down almost completely and only the essentials are kept functioning. The result is a much-reduced metabolic rate requiring very little energy and thus no food. Hibernation is long-term and induced by a seasonal trigger. Torpor is controlled by external temperatures and can be short or long term. Many animals living in the Alps, particularly reptiles and amphibians, become inactive. The Mountain Pygmy Possum hibernates during the coldest part of the season.

Communal living and nesting

Some species of lizards have been found hibernating in groups of more than a hundred in the centre of Snow Gum logs during winter. Most small mammals in the alpine and sub-alpine zones nest together to share body warmth.

Migration

This is a strategy mainly used by birds and flying insects. Studies show that less than half the species of birds found in the summer months stay during winter. Species such as the Pink Robin, the Flame Robin and the Pied Currawong move to lower altitude areas. This is called altitudinal migration. Other birds such as the Brush Cuckoo, the Satin Flycatcher and the Olive-backed Oriole migrate north to warmer latitudes. They all return to the high country in summer to feast on the abundant alpine vegetation and flowers that briefly appear, and on the Bogong Moths and other insects that are attracted to flowering plants.

L: Pied Currawong.
R: Pink Robin.

INTRODUCED ANIMALS

Non-native animals such as foxes, deer, hares, rabbits and trout were introduced for hunting and food. Others including horses, pigs, goats, cats and dogs were brought in with early settlers in the 1800s as livestock and work animals. All these animals are now feral, and they are causing damage to the Alps.

Introduced animals compete with native animals for food and shelter and they kill native plants and animals. Non-native animals may also introduce disease, such as the disease Toxoplasmosis passed on to native animals by cats.

Hard-hoofed animals and animals that dig, cause extensive soil erosion. Feral pigs, for example, upturn the soil to feed on roots and bulbs and also like to wallow in bogs. This damages the banks of bogs that shelter frogs and other animals. Muddy water reduces the visibility for animals, smothers eggs and gills and changes the oxygen levels in the water.

Foxes sniff out and eat small, ground-dwelling native mammals amongst rock piles and logs. Foxes also like to live in these places, taking up the available living spaces necessary for native mammals to shelter in.

Cattle were one of the first domestic animals introduced to the Alps. Cattle grazing has strong historical and economic links with the land and European settlements in the area but due to its negative impact, grazing has now been removed from all national parks in the Alps.

Feral horse numbers are increasing across the Australian Alps, and this is creating problems for park managers. Horses have cultural significance brought about through connections such as the A. B. Paterson poem, *The Man from Snowy River*. In large numbers, hard-hooved horses damage the fragile alpine and sub-alpine plants as well as cause disturbance around bogs and streams. Horses are being removed by luring them into yards although this is a difficult operation and is not overcoming the problem of increasing numbers.

Deer, particularly Fallo Deer (*Dama dama*) and Sambar (*Rusa unicolor*), have increased in massive numbers across the Alps. Controlling deer is very difficult and, like horses, many people do not approve of controlling them although in this case it is because they are a highly sought after game animal. While they are smaller than horses, they also have hard hooves . Fallow Deer are herd animals so they congregate in large numbers so that their impact is greater.

Feral horses and fox.

Controls against introduced animals

Managers of the parks and reserves in the Australian Alps are environmental stewards. Their responsibility is to protect the Alps and the surrounding areas from the negative effects of feral animals. To achieve this, they work with private landholders or lessees, relevant public and private authorities and the general community. Visitors can also play a part in feral animal control by not bringing any animals into the Australian Alps.

To protect the Alps, feral animal control programs are carried out alongside weed control, soil conservation and revegetation. Feral animal control programs are also coordinated between State agencies to make them more effective. For example, controlling foxes on the border in New South Wales is a waste of time and resources if the same process is not taking place on the other side of the border in Victoria. And if areas impacted by pigs are not revegetated following pig eradication programs, soil erosion will continue to destroy the area long after the pigs are gone.

Trapping Feral Pigs.

Control methods include fencing, trapping, shooting, poisoning, ripping rabbit burrows and, in some cases, relocating as in the case of some brumbies in NSW which have been successfully relocated to other areas.

Monitoring is an important part of feral animal control. Eradication strategies are more effective when managers of parks and reserves in the Australian Alps have understand the distribution, behaviour and numbers of feral animals they need to control.

LAND USE AND NATIVE ANIMALS

Human activity in the Australian Alps changes the environment. Any change can affect the quality of habitat for particular wildlife. Sometimes the habitat is so greatly changed that it no longer provides adequately for a particular community or individual species. This becomes critical for species that occur only in restricted areas.

Four such species confined to the alpine and subalpine zones–the Mountain Pygmy Possum, Northern and Southern Corroboree Frog and the Baw Baw Frog are particularly at risk from human activity and this is partly because they are restricted not just to these zones but also to particular vegetation communities within them. The protection of special habitats of these endemic species is, therefore, essential for their continued existence.

Baw Baw Frog.

Damage to vegetation and soils by introduced animals, resort development and the establishment of hydro-electricity schemes is widespread. Poor water quality in streams and rivers can be caused by the presence of hard hooved animals as well as careless waste disposal from sources such as resorts or campers.

Another threat is the changes to the natural flow regime of streams. A number of animals have adapted to live in streams and rivers and depend on a particular volume and cycle of water flowing in a stream for their life cycles. Many plants living on the banks of streams are also adapted to particular flow regimes. Damming of many of the rivers in the Alps has changed the natural flow regime.

PROTECTING NATIVE ANIMALS AND THEIR HABITAT

To protect species it is essential to protect the habitat in which they live. To do this well, scientific studies are carried out on the introduced and native animal populations to learn more about their behaviour and life cycles. With more knowledge, an effective management strategy can be put in place to protect an animal or control their distribution and impact on the environment.

Legislation is intended to protect native species and their habitats. Much of the Australian Alps has been proclaimed National Park in NSW, Victoria and the ACT. Acts such as the National Parks and Wildlife Act (1974) in NSW, the National Parks Act (1975) in Victoria and the Nature Conservation Act (1980) in the ACT protect habitats and individual species through their common aim – conservation of ecosystems. Other legislation such as the Flora and Fauna Guarantee Act passed in Victoria in 1988 and the Commonwealth's Environment Protection and Biodiversity Conservation (EPBC) Act (1999) also can help to protect species or habitats. Since February 2005, one community, the Natural Temperate Grassland of the Southern Tablelands of NSW and the ACT and the Alpine Sphagnum Bogs and Associated Fens have been listed as a 'threatened community' under the EPBC Act (1999).

In 2008 the Australian Alps were put on the National Heritage List. This listing documents many of the important values of the Alps, and these values are now protected under the EPBC Act. Any activity which may have a significant impact on these values must be referred to the Commonwealth Government.

Each of these Acts helps to protect species of plants and animals on both public and private land. Through the Acts: many of the earlier land uses are now restricted and all proposed developments need to submit environmental impact statements. Alps visitors and residents alike are educated on correct ways to minimise their impact. Staying on tracks, not trampling or removing vegetation, camping away from streams, bringing in their own water and fuel supplies and carrying out rubbish are just some of the ways the environment can be protected. With visitor numbers to the summits sometimes in the thousands on peak days in summer, it is vital to maintain active communication to all visitors and for them to participate in minimal impact behaviour while in the Alps.

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GLOSSARY

Aestivation: to hibernate in summer.

Alpine: elevation above the tree line with mean midsummer temperatures below 10°C and very high precipitation. Alpine zone landforms include rolling summits, exposed ridgelines and rocky outcrops. Vegetation includes herbfields, grasslands, bogs and fens.

Flow regime: the amount and velocity of water that flows through a stream and how that changes seasonally.

Habitat: the particular environment that a plant or animal species requires to exist and includes requirements for shelter, food and reproduction.

Hibernate: some animals hibernate during the coldest part of the year. The body metabolism of the animal shuts down almost completely and only the essentials are kept functioning. The result is a much reduced metabolic rate requiring very little energy and thus no food. Hibernation is long-term and induced by a seasonal trigger.

Marsupials: mammals that evolved primarily in Australia. Marsupials give birth to their young at a very early stage in the development. The young continue to grow and develop in their mother's pouch for many months.

Montane: high slopes with mean midwinter temperatures above 0°C, very high precipitation. Here snow falls but does not persist. Landform includes steep slopes dissected by deep gullies, escarpments, deep gorges and waterfalls. Vegetation comprises tall, wet, open forests, dry, open forests and rainforests.

Nocturnal animals: animals that are more active at night and sleep during the day.

Old growth forests: forests that have been relatively untouched by logging or fire for many years. They are rich in diversity, with vegetation ranging from young plants to very old trees and dead trees. They tend to provide the best habitat for tree-dwelling mammals and birds as the trees have often developed good holes or are completely hollow.

Subalpine: the zone immediately below the tree line with a mean midsummer temperature above 10°C, very high precipitation and snow persisting for one month or more. Landforms include undulated plateaus, shallow basins and rolling hills. Vegetation includes subalpine woodlands, mostly scattered Snow Gum with herbfield, grassland or heathland understorey.

Torpor: The body metabolism of the animal shuts down almost completely and only the essentials are kept functioning. Torpor is controlled by external temperatures and can be short or long-term.

PLANT AND ANIMAL SPECIES

Alpine Case Moth, *Lomera caespitosae (Oke)*
Alpine Grass Caterpillar *Anthela oressarcha*
Alpine Silver Xenica Butterfly, *Oreixenica latialis theddora*
Alpine Water Skink, *Sphenomorphus tympanum*
Australian (Nankeen) Kestral, *Falco cenchroides*
Australian Pipit, *Anthus novaeseelandiae*
Baw Baw Frog, *Philoria frosti*
Black Rat, *Rattus rattus*
Bogong Moth, *Agrostis infusa*
Broad–toothed Rat, *Mastacomys fuscus*
Brown Antechinus, *Antechinus stuartii*
Brown Bandicoot, *Isoodon obesulus*
Brown Trout, *Salmo trutta*
Brush Cuckoo, *Cacomantis variolosus*
Brush-tailed Rock Wallaby, *Petrogale penicillata*
Chocolate Wattled Bat, *Chalinolobus morio*
Common Brushtail Possum, *Trichosurus vulpecula*
Common Wombat, *Vombatus ursinus*
Copperhead Snake, *Australeps superbus*

Crimson Rosella, *Platycercus elegans*
Eastern Grey Kangaroo, *Macropus giganteus*
Eastern Pygmy Possum, *Cercartetus nanus*
Echidna, *Tachyglossus aculeatus*
Emu, *Dromaius novahollandiae*
European Rabbit, *Orictolagus cuniculus*
Fan-tailed Cuckoo, *Cuculus pyrrhophanus*
Flame Robin, *Petroica phoenica*
Flightless Mountain Grasshopper, *Acripeza reticulata*
Gang-gang Cockatoo, *Callocephalon fimbriatum*
Gould's Wattle Bat, *Chalinolobus gouldii*
Grass Skink, *Pseudemoia entrecasteauxii*
Grey Currawong, *Strepera versicolor*
Grey Fantail, *Rhipidura fuliginosa*
Grey-headed Flying Fox, *Pteropus poliocephalus*
House Mouse, *Mus musculus*
Leadbeater's Possum, *Gymnobelideus leadbeateri*
Lesser Long-eared Bat, *Nyctophilus geoffroyi*
Little Raven, *Corvus mellori*
McCoy's Skink, *Nannoscincus maccoyi*
Mountain Galaxias, *Galaxias olidus*
Mountain Possum Bobuck, *Trichosurus caninus*
Mountain Pygmy Possum, *Burramys parvus*
Native Bush Rat, *Rattus fuscipes*
Northern Corroberee Frog, *Pseudophryne pengilleyi*
Olive-backed Oriole, *Oriolus sagittatus*
Pied Currawong, *Strepera graculina*
Pink Robin, *Petroica rodinogaster*
Rainbow Trout, *Oncorhyncus mykiss*
Red Fox, *Vulpes vulpes*
Red-necked Wallaby, *Macropus rufogriseus*
Ringtail Possum, *Pseudocheirus peregrinus*
Satin Flycatcher, *Myiagra cyanoleuca*
She-oak Skink, *Tiliqua casuarinae*
Smoky Mouse, *Pseudomys fumeus*
Long-nosed Bandicoot, *Perameles nasuta*
Snow Gum, *Eucalyptus pauciflora*
Southern Blue Tongue, *Tiliqua scincoides*
Southern Corroberee Frog, *Pseudophryne corroboree*
Superb Lyrebird, *Menura novaehollandiae*
Swainson's Antechinus (Dusty Antechinus), *Antechinus awainsonii*
Swamp Wallaby, *Wallabia bicolor*
Tiger Quoll, Dasyurus *maculatus maculatus*
Tree Dragon, *Amphibolurus muricatus*
Water Skink, *Eulamprus quoyii*
White-browed Scrub-wren, *Sericornis frontalis*
Wingless Cockroach, *Calolampra elegans*
Yellow-faced Honeyeater, *Lichenostomus chrysops*