Bush Mates

A GUIDE TO THE WILDLIFE OF NELSON BAY

Michael Smith

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Many events in nature occur with surprising predictability. Only by keeping records of what you see happening, will you become convinced of this regularity.

This book is based on 16 years of observations. It goes some of the way in documenting the annual bird and fish migrations, as well as the flowering of our plants and the life cycles of our animals.

There are many worthy arguments for keeping such records. A number of people from the Timelines Hunter Group are doing just that. One possible outcome is to discover a more meaningful set of seasons to replace the ones transported from England, those of summer, autumn, winter and spring. By all means organise and share your observations with others. In time you will be able to derive great satisfaction from being able to tell the date to within a few weeks just by observing the happenings in the bush. Watching the seasonal changes on your own patch of ground trains you to be observant. You will begin to live more attentively to place.

In his book *The Dreamtime*, Charles Mountford says, "The Aborigines have developed a calendar, based on the movement of the heavenly bodies, the flowering of certain trees and grasses, the mating of the local birds, and the arrival of migrant ones. All these signs are related to the food-cycles on which their living depends".

A century ago Alfred Howitt commented that the Bigambul people of the Macintyre and Gwydir River region measured seasonality by the flowering of trees. "The seasons are reckoned by the Bigambul according to the time of year in which the trees blossom. For instance, *yerra* is the name of a tree which blossoms in September hence that time is called *yerra-binda.* The Apple tree (Angophora) flowers about Christmas time, which is *niga-binda*. The ironbark tree flowers about the end of January which they call *wo-binda.* They also call this time, which is in the height of summer, *tinna-koge-alba*, that is to say the time when the ground burns the feet".

You can use this book outside the Port Stephens area by applying Hopkin's Law which states that any given phenological event differs by four days for every degree of latitude, one and a quarter days for each degree of longitude and one day for each 30 metres of altitude.

Bush Mates is designed to be a companion edition to my book *Bushwalks around Port Stephens.* It is hoped that the sketches and descriptions on the following pages will help stimulate an interest in the natural events, and characters of the bush.

Contents

January
1st-8th

* This is a month of moulting, the casting of fur, feathers, skin, leaves and bark.
* Gymea lily sends up flowering spikes. They will take months to form.
* January is the peak time for snake births, 90% will die in the first year.
* Scribbly gums have finished moulting and have clean snowy/creamy bark.
* Dragonflies mate.
* Toad fish are washed up on the beaches.
* Banksia flowers drip nectar on the ground.
* Suggested new year's resolution; keep a diary (like this one) of insects, birds, flowers, wind, rain and natural happenings.

HYACINTH ORCHID, *Dipodium punctatum* , an especially attractive orchid that chooses to flower, usually near the tops of our rocky hills, during this hot, dry time of year.

The flowers, which can number up to sixty blooms, are pink to dark-mauve with red spots. This orchid is a saprophyte which lives off a subterranean fungi which forms on buried leaves and other decaying vegetable matter. The thick, fleshy roots are edible and seem to get enough nourishment from the surrounding fungi to be able to dispense with having leaves.

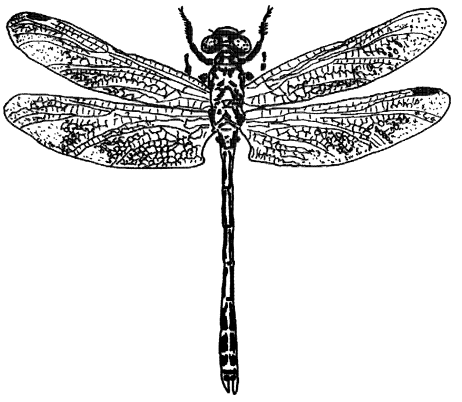
Thus the dark flower and stem are all you will see, giving the plant a stark appearance. The unusually large tuberous roots can be eaten raw but the flavour improves after baking.

DRAGONFLIES, *Anisopetra,* can be seen flying around, particularly near water. At this time of the year every dragonfly you see will be either coupled in flight, mating, or looking for a mate. The one on top is the male. After mating the female lays eggs in plant material, or on the water.

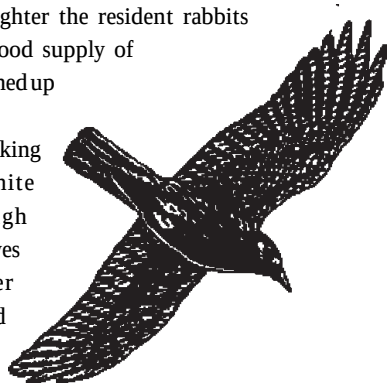
Young dragonflies are called nymphs and feed on freshwater invertebrates. Sometimes called "horse-stingers" or "devils darning needles" they are harmless to people. "Mosquito-hawk" is a better name for this merciless predator of the air. Adults, which live only a few weeks, prey on flying insects which they catch on the wing.

Dragonflies have large eyes, small antennae, long slender abdomens and 2 pair of wings. Damselflies hold their wings vertically when at rest, while dragonflies hold them horizontally.

When examining a dragonfly look at the huge eyes, lacework of veins on the wings and the spiny grasping legs. They also have three sets of jaws. The front pair are mandibles used for biting and chewing. The next set, the maxillae, contain the taste organs. The third pair are joined to form the lower lip.

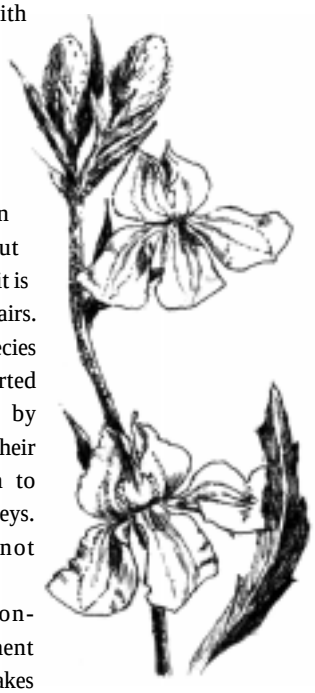


AUSTRALIAN RAVEN, *Corvus coronoides,* is a big black bird interested in carrion and insects. The mournful call is a characteristic aah-aah-aahaah, dropping in pitch at the end. Ravens pair off and stay together, in their territory, for life. The nest is a stick basket high in a tree overlooking the territory. Eggs are laid in July and the young leave the parent's territory by January to join a nomadic flock. A good place to see ravens is on the trees backing Stockton Beach. Each night, foxes cross the sandhills to slaughter the resident rabbits and there is a good supply of carrion from washed up birds and fish.



A similar looking bird is the white winged chough which has red eyes and a narrower down-turned beak.

STAR-HAIRED GOODENIA, spiked goodenia, *Goodenia stelligera*, lots of these low-growing, yellow-flowered plants can be seen in open, wet, sunny areas. The yellow, stalked, flowers are covered with rust coloured hairs on the outside. Long leaves form a rosette about the base of the plant. The flower compacts its pollen prior to squeezing it out onto the petals where it is held in place by stiff hairs.



One of the species of *Goodenia* was reported to be administered by Aboriginal women to their babies to help them to sleep on long journeys. Which species is not known.

It is the non-symmetrical arrangement of the petals that makes this yellow flower easy to recognise.

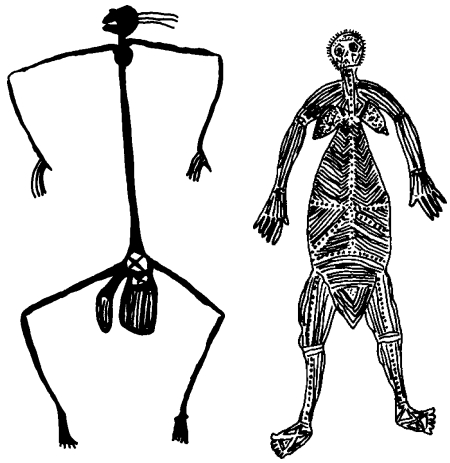
HUMAN BEING, *Homo sapiens sapiens.* Aboriginal names `koor-ee (man), kidn (woman).` This time of year there is a great migration of humans to the Nelson Bay area, increasing the population from about ten thousand permanent residents to over thirty thousand. They come here to rest and renew their spirits. All the food that they require for their stay has to be harvested elsewhere and brought in. This relative overcrowding could cause fights and social troubles, so they have evolved rules of behaviour.

Human beings have the most highly developed brain of any animal. They have the ability to speak, are highly adaptable and inquisitive. Human beings are mammals (they have a backbone, hair, four limbs, a constant body temperature and the females produce milk for their young). Humans, like apes and monkeys, are in the order of primates. They are the only living members of a genus called "Homo", the Latin word for "human being". The species is "sapiens", meaning wise.

Some characteristics of *Homo sapiens* are large eyes, large brain and the fingers have an opposing thumb. They stand and walk upright on two legs and are long lived (about 75 years). Appearing on earth about 450,000 years ago there has been virtually no change in the species in the last 40,000 years.

Courtship displays can be seen on Saturday night at the RSL Club. At play they are best observed at the sportsground, around Nelson Bay harbour and on Samurai Beach.

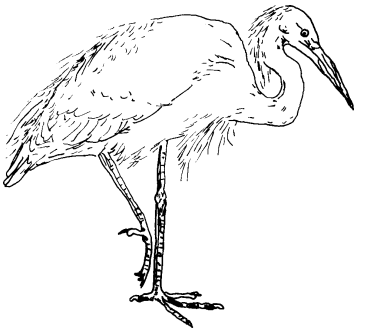
Observe, take notes and draw conclusions as this complex species is worthy of study. They care for their young and sometimes mate for life.



January
9th-16th.

* Mountain devils in flower.
* Young ravens leave their parents' territory to establish a territory of their own.
* Baby koalas are born.
* Sarsaparilla vine *Smilax glyciphylla* is in fruit (blue berries).
* Young sugar gliders leave their parents to fend for themselves.
* Eastern grey kangaroos give birth.
* Goannas lay eggs in termite nests in trees.
* Bluebottles wash up on the beaches.
* Tern and dotterel chicks can be seen running across the sand.
* Scorpion flies appear around flowers, the male offers the female a fly.

GOOSE BARNACLES, *Lepas anatifera,* can be found attached to any fixed or free moving object in salt water. If your boat has been moored for too long they will cover the underwater section of the hull. This is usually prevented by painting on a coat of toxic "anti fouling" paint. A walk along Stockton Beach will reveal logs and fishing floats with colonies of stalked goose barnacles attached. When undisturbed and underwater the barnacle rhythmically sweeps the water with a fan shaped mesh to catch floating food particles.



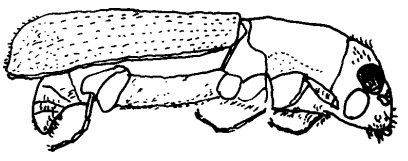
WHITE EGRET, *Egretta Aaba,* can be found around the edges of lakes, swamps, estuaries and mangroves. With stylishly long legs and neck it can be seen waiting in the shallows to stab its beak at any aquatic creature. Occasionally, they will land on moored fishing trawlers in Nelson Bay harbour to pick the nets clean or snaffle an undersized cast off. Egrets and all wetlands birds are being studied at the Shortland Wetland Centre.

In the breeding season this bird, also called the large egret, has long nuptial plumes which were once sought for ornaments on ladies' hats. The nearest breeding colonies are at Shortland and Seaham.

AMBROSIA BEETLE, *Astraplatapus, inkompertus* . This brown 6mm long insect attacks living trees. The ambrosia beetle tunnels into the heartwood of trees, and feeds on fungus on the tunnel walls that it creates (ambrosia - food of the gods). Both the beetle and the fungus depend on each other. One couldn't exist without the other. The tunnels are 2mm diameter and straight across the grain. It attacks the living tree which, in response, produces kino to protect its wounds.

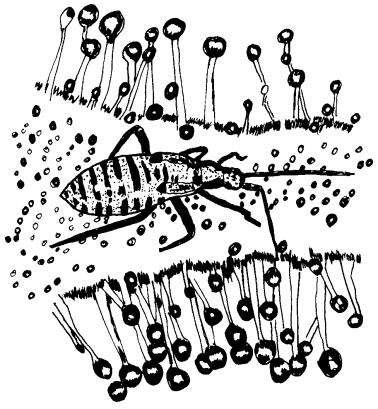
After 4 years an adult emerges from the trunk of the tree, takes flight and looks for a mate. At breeding time the male emerges first from each exit hole.

This horizontal borer causes flaws in sawn timber, and is one of our few "native pests".



EAR SUNDEW, *Drosera peltata.*

These carnivorous plants live in boggy, sandy areas with low nitrogen levels in the soil. To augment their diet they have developed sticky hairs to trap insects. The bodies of the insects provide the plant with nitrogen. The sticky secretions resemble dew drops, or nectar which attract the insects. Upon landing the insects becomes firmly stuck and struggling only enmeshes them further. The plant exudes a digestive enzyme to absorb nutrients from its victims.

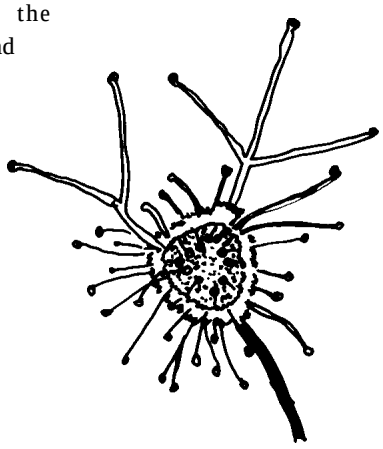


The mirid bug

The Mirid bug has adapted to wandering over the sundew plant without becoming stuck. It looks for entrapped struggling insects, inserts its piercing mouthparts into the now twice condemned victims, and extracts the body fluids. Despite being robbed, the sundew still gets some nitrogen for its efforts - from the droppings of the mirid bugs.

You will have to get your nose close to the ground to appreciate this hardy herb. Firstly enjoy the display of thousands of glistening diamonds that make up the lure. Examine the branches for victims both recent and old. Finally touch the sticky drops and slowly pull your finger away. The “dews” become fine, stringy "spider webs".

Ear sundew are probably our most common carnivorous plant. They can be seen in open, wet areas and are all over Stephens Peak.



Being low to the ground, green and brown, these curiosities are difficult to see unless you look specifically for them.

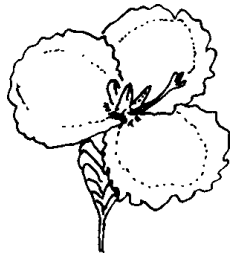
On the eared sundew, sticky globules on the end of thin stalks radiate out in a star pattern. The term “ear” comes from the two extra long forked hairs that emerge from the upper left and right sides. A small white flower is produced in the spring and summer.

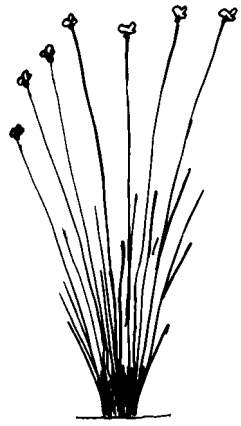
There is a lesson in life to be learned from this plant. It is perfectly at home in this tough environment. You cannot do it a favour by making its life easier. If you were to fertilize the ground it would die and other plants would take its place. All plants select their own patch of "paradise" that suits them perfectly.

The “dew” of this plant contains a protein-digesting enzyme. In India the leaves of this plant are mashed, sometimes with salt and applied to the skin to raise a blister as a counter irritant. This digesting ability of the juice has also been used to remove warts and corns.

TALL YELLOW EYE, *Xyris operculata,*

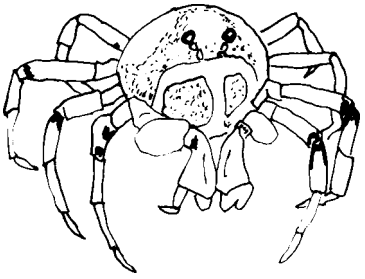
a slender erect herb with a 3-petalled flower, common to open moist areas. The large yellow petals are usually crinkled and ragged around the edges and emerge from a brown cone below. The leaves are slender sharp and grass-like, growing from the base of the plant. The word *xyris* is greek for “cutting knife”, from the sword-shaped leaves.





January
17th-24th

* Christmas bells flower in the wetlands.
* Big mud wasps fly about, building nests.
* Mutton bird chicks hatch on Broughton Island.
* A good time to take cuttings from native plants (except acacias or eucalypts). Cut just under the node on new growth.
* Green tree frog is breeding.
* Snakes escape the heat by hiding in deep crevices.
* Swifts feed on flying ants.
* Grebes build floating grass nests in the wetlands.
* Millions of pilchards died along the Australian east coast in 1999.



SOLDIER CRABS, *Mictyris longicarpus,* can be seen on exposed sand flats at low tide. They congregate in large numbers (armies).

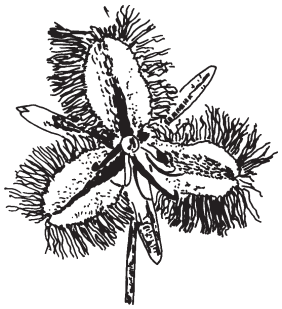
Corrie Island is a good place to watch their antics. They will suddenly pop up from under the sand and walk forwards, towards the water, feeding on surface organic fragments. If undisturbed they will wander up to half a kilometre.

When threatened they disappear by corkscrewing into the sand. They dig down with the legs on one side whilst walking backwards with the legs on the other side.

FRINGED VIOLET Common fringe lily, *Thysanotus tuberosus,* an erect herb with a dazzling pink, fringed flower. A violet only in colour, it is a member of the lily family. The three petals are finely fringed. The leaves are short and grass-like.

The stem is long and slender, further accentuating this superbly crafted flower.

After the flower is fertilised the fruit forms as a small round capsule, which eventually splits to release several black seeds. The roots of this lily are tuberous, and can be eaten.

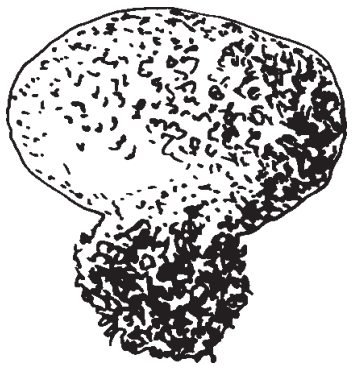


PUFF BALL, *Lycoperdon pratense.*

These odd, and faintly loathsome fungi just love to be stomped on. This is exactly what they need to send the millions of spores (green, powdery and spherical) to the wind for dispersal.

Puff balls start off spherical, white and cheesy and develop into a wrinkled olive brown, two to four centimetres across. A young plant is covered in powdery scales and at the other end of its life it develops a hole to release the spores.

These fungi grow on the ground and amongst grass. It is considered edible when young. It appears twice a year: December to January and April to July.



NATIVE STATTUS , *Burmannia disticha.* To find this unusual flower you will have to wander about, or in, the swamps. At such times you are more likely to see snakes than this little Aussie gem. Clusters of about five blue-purple flowers, each lipped with yellow, grow from the top of a slender stalk. These flowers are up to 6cm long and the whole plant is 60cm high. They can be found in the swamp behind Harbourside Haven, Shoal Bay.

DEATH ADDER, *Acanthopis antarcticus.*

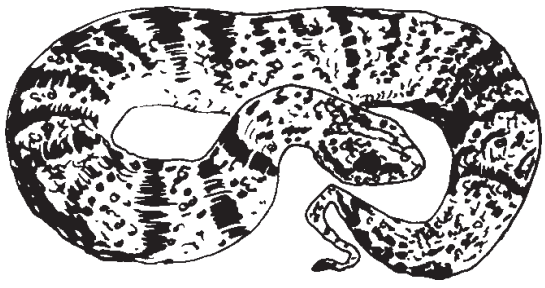
The Aboriginal name is moonulgook.

Summer nights can be steamy hot and shoes may be left off when walking about at night. The death adder is one of the few snakes that does not flee when you come near. You may unknowingly stand right next to one, and chances are it will not strike.

The death adder likes to snuggle down into the leaves and sand and wait for its victims (frogs, birds, lizards, mice and rats). To lure its prey closer it wriggles its wormlike tail tip. The death adder has fangs that average over 6mm in length and they produce large quantities of venom (average 85mg).

If you touch one it will bite, and its strike is low to the ground. In the days before antivenom half of its human victims died. This snake is rarely seen in Nelson Bay. Less than a metre long, it is light grey to reddish brown with bands of a darker colour. The death adder has a flat, fat look with a sharply tapering tail.

During the summer months 15-20 live young, each about 15cm long, are born.



BLACK CORMORANT, *Phalacrocorax carbo.* The Aborigional name is Gungulba. The largest member of the family and a bird that eats a significant amount of commercially valuable fish. Cormorants can be seen swimming and diving in the Bay, or drying out on a branch. Being a diving bird it has a low level of waterproofing in its feathers to reduce its buoyancy and allow it to stay submerged a long time with little effort.

After catching a fish it brings it to the surface to flip around before swallowing the fish, head first.

At breeding time the cormorant builds a small nest of sticks in a tree, over water and lays 2-5 bluish-white eggs.

THE LITTLE BLACK CORMORANT, *Phalacrocorax sulsirostris,* is another diving bird which lives locally. Large numbers can be seen roosting in trees at Glovers Swamp behind Harbourside Haven. From here they travel across to Jimmy's Beach and the Myall River for fishing.

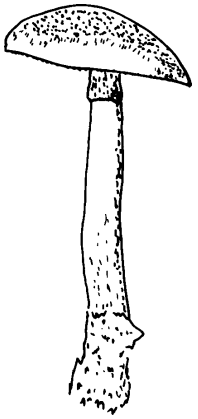
Another common cormorant, the pied cormorant, is black and white.

January 25th-31st.

* Mongolian dotterel arrives from its Siberian breeding grounds. Look for small birds moving rapidly on short legs over sand.
* Young foxes leave their mother's den to find their own territory.
* Breeding time for many species of lizard.
* January and February are the months of highest temperature (27° average), and highest humidity (70%)
* Wanderer butterflies and ladybird beetles about.
* Young channel billed cuckoos squawk in the trees, to be fed by currawongs.

DEATH CAP, *Amanita phalliodes.*

This deadly fungi has little taste, though an unpleasant smell and the toxic effect may take 2 days to develop. If eaten, immediate hospital treatment is essential.



The large slimy caps are up to 15cm across, convex and grey-green. Young plants have white, warty scales which soon disappear. The gills are white, close together and free from the stem.

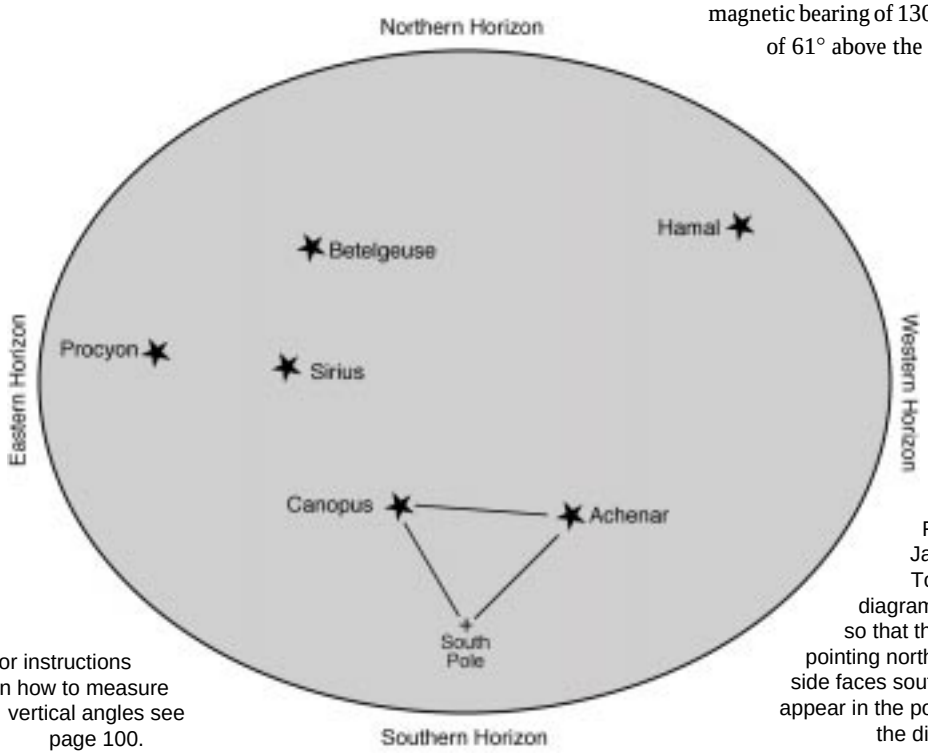
One of nature's little horrors, this fungi is safe to look at. They grow in summer and autumn on the ground under introduced trees.

THE NIGHT SKY

The diagram below shows some to the major stars visible at 9pm on the 25th January. At this time the Southern Cross, and the pointers, are close to the horizon and probably obscured by trees or the dense atmosphere. The stars Achernar and Canopus form an equilateral triangle with the south celestial pole. These two stars are high in the night sky and are best seen at this time of year.

Achernar (a-ker-nar) is Arabic and means "end of the river", being at the edge of the constellation *Eridanus*, the river. It is one of the brightest stars of the southern hemisphere. It can be found on a magnetic bearing of 204° and an elevation of 52°.

Canopus (ka-no-pus) was named after Canopus, chief pilot in Menelaus' fleet, which destroyed Troy in 1184BC. It is the second brightest star in the sky (after Sirius). Canopus (a yellowish star) can be found on a magnetic bearing of 130° and an elevation of 61° above the horizon.



The Night Sky
For the evening of January 25th, *9pm.*
To use, hold this diagram above your head so that the northern side is pointing north and the southern side faces south. The stars will appear in the positions shown on the diagram.

For instructions on how to measure vertical angles see page 100.

CONESTICKS, *Petrophile pulchella.*

The word "petrophile" means rock-loving, but in the Nelson Bay district no such preference is shown. They grow anywhere. The flower and leaves are very similar to its cousin, drumsticks.

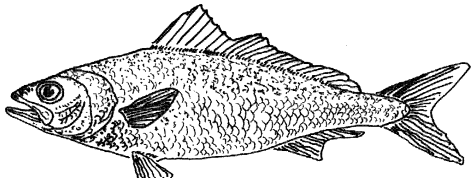
The plant grows to three metres high. The leaves are forked and forked again. The small tubular yellow/white flowers grow in profusion from an egg shaped "cone" about 5cm long, from the top of the stem. The second name *pulchella* comes from the Latin *pulcher* meaning beautiful.

AUSTRALIAN SALMON, *Arripis trutta.*

In January great schools of salmon gather along the southern coast to migrate to Western Australia, and the eastern states. This run coincides with the massing of blue pilchards in the Great Australian Bight during autumn.

Salmon spawn at sea and then move along the coast, enter the bays and estuaries to feed on small baitfish like hardyheads, pilchards and whitebait. Heavy netting for canning has reduced their numbers in NSW. Salmon are steel-blue above the lateral line, silver below and have a forked tail.

Salmon are still abundant in South Australia and Victoria, but it seems that we sometimes put too many in cans to be able to watch the salmon run that once saw these fish, starting in February, swim up the east coast as far as Coffs Harbour.



AUSTRALIAN PELICAN, *Pelecanus conspicillatus.*

The Aborigional name is Doongera. Soaring overhead, waterskiing to a stop on the water and formation fishing, it's hard to ignore the pelican. You only have to start to clean a fish and one of these big birds will appear for the leftovers.

Pelicans live everywhere in Australia, wherever there is fresh or salt water. They breed any time of the year. Look to see if our local pelicans are breeding. When pelicans are courting the front two thirds of the pouch (bill) turns scarlet and the remaining third pink, with a dark line on each side. If you have a canoe you can get into the remote swamps and estuaries where they nest. Curiously, after the chicks have been fed they display violent convulsions biting everything in sight, and a minute later they collapse. Chicks are fed for 100 days. The nearest known breeding colony is on Wallis Lake near Forster.

Pelicans like to get their meal the easy way. They frequent fish-cleaning tables and professional fisherman's nets. Their diet consists mostly of fish and occasionally some crustaceans, insects, tadpoles and ducklings.

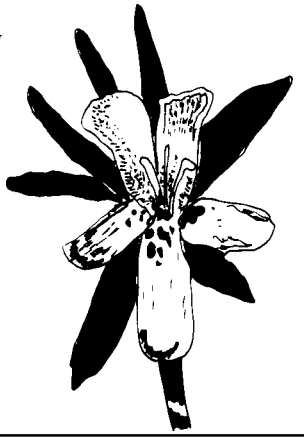
Pelicans are very large, up to 1.9m and with a wingspan of up to 2.6m. The distinctive beak is half as long as its body and is capable of holding 6 litres of water.

February 1st-7th.

* Ring tail possums have babies in the pouch.
* Planets visible on the eastern and western horizons at night.
* *Angophera costata*, (smooth barked apple) "gumnuts", litter the ground.
* Sunshine wattle in bloom.
* Snakes on Broughton Island prey upon the newly hatched mutton bird chicks.
* Hover flies about.
* Huntsman spiders lay their eggs.
* Harvester ants collect Golden Wattle seeds.

COAST ROSEMARY, *Westringia fruticosa.* Walk towards the water on any part of our coastline and the last plant you pass will be this one. Coast rosemary is extremely salt-tolerant, even to the extent of being clobbered by waves occasionally. We have many stunted, wind-pruned and twisted specimens growing from cracks in the rock, seemingly quite happy in their austerity.

Coast rosemary flowers most of the year. The flower is white with orange dots, having a long narrow throat, suggesting that they may be pollinated by moths. The grey-green leaves are recurved and in whorls of 4.

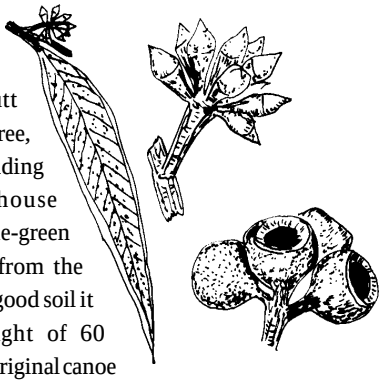


PEEWEE, *Grallina cyanoleuca.* Looking a lot like minature magpies these black and white birds stick to their territory. They like to be near permanent water and their nest is made of mud and plant fibres. In asserting their territory the male and female perch side by side and alternately cry *pee-wee, pee-wee.*

Found all over Australia this insect-eater is also known as the magpie lark.

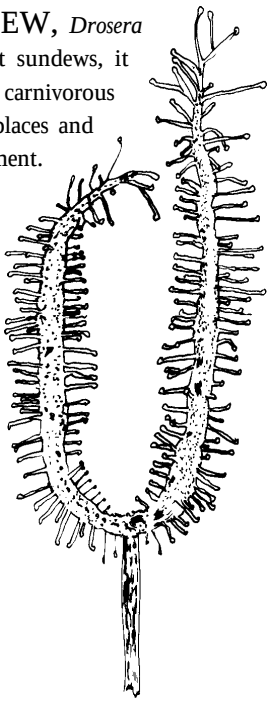
They spend a lot of time on the ground where they walk with their head jerking back and forth in time with the legs. Watch out for them on the side of the road into Newcastle.

BLACKBUTT, *Eucalyptus pilularis.* The term "blackbutt" refers to the rough bark on the lower half of the tree that remains charred after a bushfire. It is distinguished from bloodwood by having rough, stringy bark on its lower half only, the upper branches being a smooth creamy-yellow. (If the rough bark persists to the ends of the branches then you are looking at a bloodwood.)



The blackbutt is a koala food tree, as well as providing timber for house framing. A blue-green dye can be had from the wood chips. On good soil it grows to a height of 60 metres. Most aboriginal canoe tree scars occur in this area on blackbutt trees.

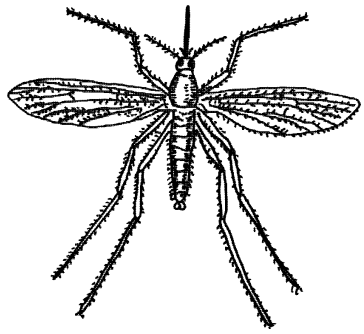
FORKED SUNDEW, *Drosera binata*. One of the largest sundews, it grows up to 60cm tall. A carnivorous plant, it lives only in wet places and traps insects for extra nourishment. The sticky blobs on the end of short 'hairs' are both the bait and the trap. The plant is best viewed with the sun behind it.



Looking over this plant you will find various insects stuck, or in a state of decay. These sticky hairs fold around any insect that lands on the plant. In the summer a cluster of small white flowers grow from a stem that emerges from the base of the plant.

MOSQUITO. The Aborigional name is Dooping. Hot days and warm nights are a mosquito's paradise. Nelson Bay has plenty of mosquitos. The larvae of one species, *Aedes australis*, lives in saline water in rock pools above the normal high tide level. The *Anopheles* larvae live on the top film of water while other kinds of mosquito lavae hang from the surface film and filter the water around them with their mouth brushes.

The larvae of *Monsonia* mosquitos extract air from aquatic plants by inserting their breathing syphons into the stem, thus saving them the need to make a risky trip to the surface.



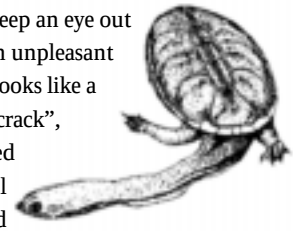
Mosquitos will breed in tree hollows, rock pools, ground pools, water tanks, septic tanks, gutters, drains and freshwater swamps. The larvae feed on any minute particle of organic matter, like algae and bacteria. The female of most mosquitos suck blood and the males feed on nectar. Most feed at night when their host is likely to be asleep, or at least unable to see them. Male mosquitos will gather in swarms and emit sounds, making it easier for the female to find them.

The mosquito that hides behind your picture frame and bites you at night is the *Culex fatigans*. Another domestic species is *Aedes aegypti*, a proven vector for dengue fever. Other mosquitos carry malaria, Murray Valley encephalitis, myxomatosis, yellow fever, Ross River fever and filariasis.

Mosquitos lay eggs on the surface of water. Within a day the eggs hatch into larvae, which have a breathing tube at one end and a moustache-like feeding apparatus at the other. Larvae are preyed upon by fish, dragon flies and water beetles. After a week of wriggling the larva is mature. The lighter-than-water pupa spend three days turning into mosquitos. Floating on the water the pupa case splits and the mosquito emerges, dry. The male lives only a few days as a vegetarian. The "blood-thirsty" female can live for eight months. There are 27 species of mosquito living in this area.

The Black one, *Aedes vigilax*, is the most common (57%). The big Hexham grey is *Aedes alternans.*

LONG-NECKED TORTOISE , *Chelodina longicollis.* It is not unusual to see this tortoise wandering about in your back yard or along a road in the middle of the day. Driving along Gan Gan Road, or Stockton Street keep an eye out for this amphibian. It is an unpleasant feeling to drive over what looks like a rock, but after a sickening "crack", proves to be a now deceased tortoise. The top of the shell is a dark blackish-brown and the undershell is a creamy yellow. The shell is 25cm long and the neck 20cm.



Always a popular pet with boys, it has glands on its legs that ooze a foul-smelling liquid. Not happy in captivity, it always wants to wander about in search of aquatic plants and animals, as well as new and interesting places to live.

The white-bellied sea-eagle is a keen predator of this harmless scrap of Australiana. Empty shells can be sometimes found under the eagle's favourite feeding tree.

The long-necked tortoise lays about 10 eggs in a hole in the bank of its favourite wetland home. The young emerge 2-3 months later and walk to water. It has webbed feet and short claws for climbing banks, and eats insect

BUSHFIRE. Birds can escape from fire and so can wallabies, dingoes and large goannas. Koalas, possums and other climbers scramble higher to meet certain death from burning or asphyxiation. All tree and surface-dwelling reptiles, insects and spiders are wiped out along with stupefied bats, birds, nestlings and eggs.

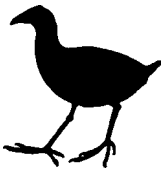
Wombats and other burrowing animals like lizards, echidnas, snakes, ants and insect larvae are likely to survive the blaze. Fire annihilates the populations of mice, rats and antechinus. It will take between three and seven years for the normal population of animals to re-establish after a fire.

February 8th-14th.

* Mullet start to run up the N.S.W. coast for the next three months.
* Bluebottles found washed up on our beaches.
* Geebungs are in flower.
* Blackbutt in flower.
* The first strong wind scatters the flowers of the christmas bush.
* Blueberry ash is fruiting.
* Jelly blubbers appear on beaches.
* Young preying mantis emerge.
* Mangrove seeds wash up on the beach.
* Ringtail possum road-kills from now until mid-April.

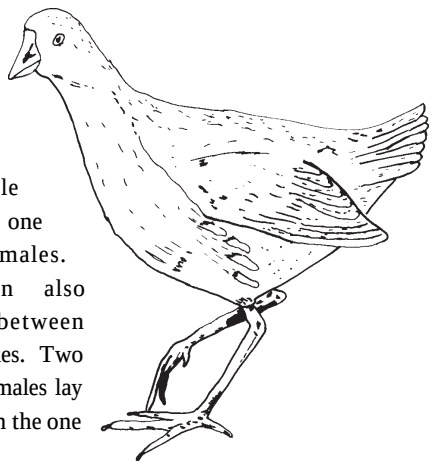
BLACK-TAILED NATIVE HEN

Gallinula ventralis. Bright yellow eyes, red legs and a large black tail, this moorhen is very common in the swamps of Salamander and Anna Bay. When disturbed it runs into the water, although it can fly. It eats just about anything that lives in the swamps, particularly soft juicy plant stems and in wet seasons it migrates to new areas, retreating to the coastal wetlands when these areas dry up.



Another similar looking bird is the DUSKY MOORHEN called the Pukeko in New Zealand; which has white patches on the sides of the tail, brown eyes and a red shield on the forehead.

When running away the moorhen flashes its white tail to warn others of danger. Lots of birds help with nest building. Copulation occurs between various members of the clan. The dominant male often supervises when a junior male mates with one of the females. Copulation also occurs between various males. Two or three females lay their eggs in the one nest, and incubation is shared between a number of males and females.



This shore-hugging bird is easy prey to feral cats and foxes. Due to regular feeding, a resident population can be viewed easily at Sandpiper Reserve, Salamander.

LADIES' TRESSES, *Spiranthes sinesis,*

is the only species of this genus found in Australia. This ground orchid prefers wet areas and grows to 45 cm high. There are about four insignificant leaves, each about 8 cm long, growing from the base of the plant. Dozens of small pink and white flowers spiral up the stem.

It is thought that pollination is carried out by a small native bee, or the meadow angus butterfly. Each plant may produce as many as 400 000 seeds each year. It flowers October to March.

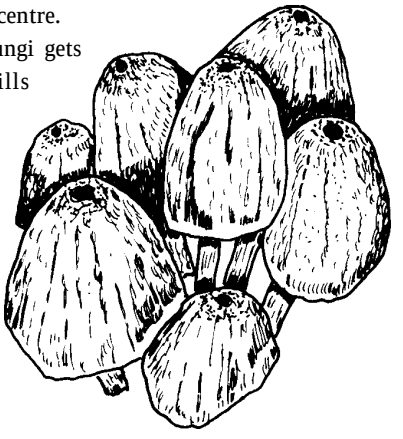
INKY CAP, *Coprinus atramentarius.*

In all but winter months these fungi grow in dense clusters in cool places amongst grass, or on rotted wood.

The plant is considered edible when young, the taste being good. It should not be consumed 12 hours either before or after consuming alcohol. There are, however, many similar-looking fungi that are poisonous.

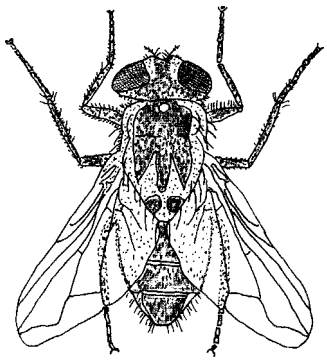
The cap is egg-shaped, 2-8 cm across, with obvious vertical lines and grooves, pale grey with a darker centre.

As the fungi gets older the gills dissolve into a thick black liquid which drips down. The stem is 10 cm tall, slender, white and hollow.



FLIES. The Aboriginal name is barella.

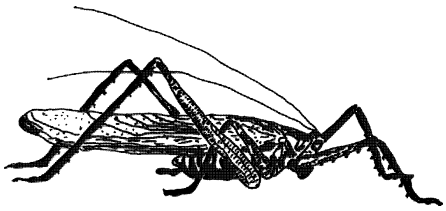
Fruit flies live in your tomatoes, peaches and compost. Other flies, "hunting" for protein, are responsible for filling dead creatures with maggots.



Adult flies are only able to ingest liquid foods. To do this they regurgitate or salivate enzymes onto their meal and slurp it up through their sucking mouthparts.

Flies generally mate on the wing. Egg production usually requires a meal of blood or protein. Depending on the species, eggs are laid in the soil, organic matter, water, plant tissue or animal tissue. The larva lives in its food, as a maggot.

This is one insect you will not have to look for, it will find you. The bush fly is preyed upon by spiders, birds and insects, but so outnumbers them that they have little effect on the population.



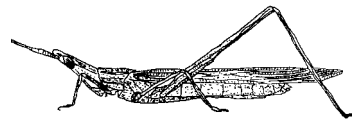
GRASSHOPPERS range in size from 1/2 cm to over 10 cm in length. They have large hind legs for hopping, and wings. They can be easily caught by sweeping a fine "butterfly" net through the grass.

If you are looking after an injured pee wee, grasshoppers by the sackful will keep it happy. They make good bait for trout and bass. You can toss them into spider webs and watch the action. Your pet gecko will appreciate them also.

Grasshoppers feed on plant material. Put one in a glass jar and watch him munch through a blade of grass.

Male grasshoppers produce a sound by rubbing their wings against their hind legs. This is to warn off other males and to attract females. This sounds like "*Katy did; O she did; Katy did; she did*".

February 8th-14th.



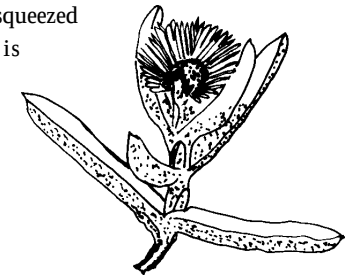
Females have a 'gardening device' at the end of their abdomen used for laying eggs in the soil. A hole is bored in the ground and 30-40 eggs deposited. In an "outbreak area" as many as one thousand million eggs can be laid per hectare. When these hatch they move as a mob and become a locust plague eating everything green in their path.

PIGFACE, *Corpobrotus glaucescens*.

This plant chooses to live in one of the toughest environments of all. If it is dry and sandy then there is a good chance that pigface will be somewhere around.

This creeping herb has succulent, triangular "leaves" up to 7cm long. The colour of this "foliage" ranges from green to blue to orange. The bright pink and yellow daisy-like flowers bloom all year round.

After the flower has died off a reddish fruit forms. The pulp and seeds from this fruit can be squeezed out and is surprisingly good eating. The thick triangular leaves can also be eaten although it is better if you steam them in the fire first. The juice of the leaves gives relief to the stings of bluebottles and biting midges (sandflies). This leaf juice is also useful as a lotion for burns and scalds.

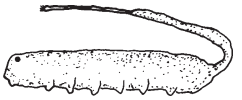


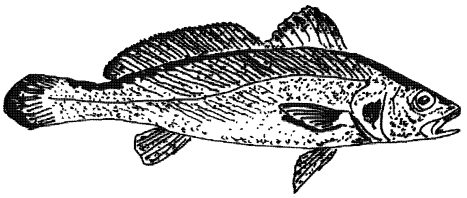
February 15th-21st.

* Leopard slugs mate.
* Time to plant out natives (grown from the seeds you have collected) to harden for winter.
* Painted acacia moth caterpillars appear on wattle trees.
* Feral cats breed.
* Wallaby births reach their peak.
* Longicorn beetles emerge from wattles.
* This is the time of seed production for many species, following the rush of spring.
* Time to collect gymea lily seeds.
* Sunshine wattle starts flowering.

DRONE FLY, *Eristalis tenax*. Because of its yellow and black stripes this innocent hover fly is often mistaken for a bee or wasp. In flight it can remain motionless in space, then quickly move off to 'hover' somewhere else.

They are harmless, although their babies take some liking. The young drone fly is known as the 'rat-tailed maggot'. It lives in rotten organic matter that has decomposed to the stage of producing a putrid liquid. The maggot's long tail is actually its breathing apparatus, allowing it to lie at the bottom of the muck and still breathe air from the surface.





JEWFISH, *Johnius antarctica,* is also known as mulloway, jewie and soapy. The Aborigional name is Gurra wurra. They grow to 60 kg and 2 metres in length.

During September and October jewfish are found in open waters and between the months of March and September they inhabit the beaches. Jewfish feed on squid, octopus, fish, beach worms, pippis and mussels. Most catches of this fish are made between dusk and 3 hours after dark. Fish the holes and channels of the rivers and estuary on the high tide.

During the day jewfish are believed to rest and sleep in caves, under ledges, or in potholes and crevices around the reefs.

ACT Parks and Conservation Service

WOOLLY FROGMOUTH, *Philydrum lanuginosum*. This most unusual flower can be seen beside the bicycle path that runs from Shoal Bay to Fingal Bay. This plant, which grows to 1m high, is covered with grey woolly hairs. The crowded leaves are filled with hollow chambers.

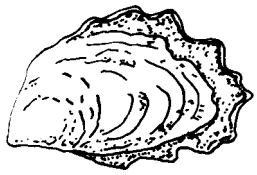
The two-petalled yellow flower is 12 mm long and 10 mm wide. The shape of the flower is reminiscent of the gape of a frog. The woolly frogmouth flowers from November to March and lives in the water or around wet places.

SYDNEY ROCK OYSTER, *Crassostrea commercialis.* The Aboriginal name is Dhirrabwee.

They say that the bravest person to have ever lived was the person who first ate an oyster. The country's hunger for this tasty mollusc is catered for by the farmers of hundreds of oyster leases.

It takes 3 years to grow an oyster to marketable size. Oysters spawn between February and May and they taste best in the pre-spawning period of November to February. Oysters spawn for the first time as a male, but change to female later on.

Oysters are fussy about when they spawn. The water temperature has to be 22°C, the salinity just right and the tide ebbing. One oyster spawning stimulates the others to start and in no time the water turns a milky cloud. Each female oyster produces up to 10 million eggs of which only 0.01% survive.



Port Stephens has reached the level of pollution where all oysters have to be 'purified' by spending some time in clean water so that they can rid themselves of bacteria and sewage contamination. Oysters also concentrate heavy metals and this has resulted in the banning of paints containing tributyl tin, used on the hulls of boats. You are therefore taking some risk eating oysters fresh off the rocks. There are, however, public oyster leases where you may do this. Ask the Fisheries Inspector.

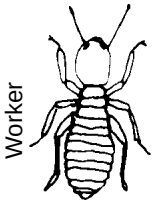
The Sydney rock oysters can spend up to 2 weeks out of the water if kept cool. Oysters will open when they are dead and these should not be eaten. Apart from people, oysters are preyed upon by bream, stingray, octopus, toadfish, starfish and mud worms.

Oyster spat is collected on bundles of sticks where they feed for a time on microscopic plankton brought to them on the tide.

Six months later they have grown to 1 cm in size. The sticks are then moved onto a lease for further growth, thus ensuring that all oysters on these sticks are of the same age. These small oysters prefer to live under the sticks, but at 15 months old the sticks are turned over to the light and their growth increases dramatically.

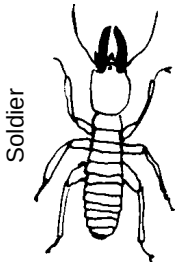
In the past, Aborigines made fish hooks by grinding down oyster shells. The piles of oyster shells left in Aboriginal shell middens were mined by early settlers as a source of lime for mortar.

TERMITES. The Aboriginal name is Butteeyuk.



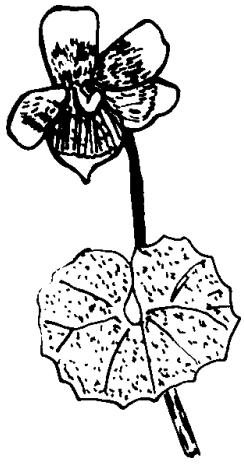
Termites are a food source for skinks and echidna. They break down dead wood and help return nutrients to the soil. When termites make a nest in a tree, kookaburras like to peck a hole in it and move in. The termites seal off the intrusion and both species happily coexist.

Termite nests can also be found in ground mounds, in the soil and in dry wood and branches. Termites can be a pest if they decide to eat the timber frame of your house. Despite decades of poisoning, the termite is everywhere in Nelson Bay. Look for winged reproductives taking to the air on dispersal flights. Not all new colonies will survive and it takes a single pair 3 to 5 years to become potentially destructive.



A queen termite can lay a thousand eggs each day and both king and queen can live for 20 years. Turn over dead wood and look for sawdust trails up trees. Scratch them open and look at the workers. Soon the soldiers will turn up spitting chemical secretions or snapping their large jaws. They are all quite harmless and fragile. Termites live and work in the dark and they control the humidity of their environment by fully enclosing their living space.

NATIVE VIOLET, *Viola hederacea*, is a creeping herb that forms a carpet on the ground in wet, shady areas, particularly under casuarinas. This is our one violet that has a scent, especially on warm humid days.



The kidney-shaped leaves are toothed, hairless and paler below. The flowers are pale violet to white, and blotched with purple. The peak flowering time is in the spring, although some will be in flower most of the year.

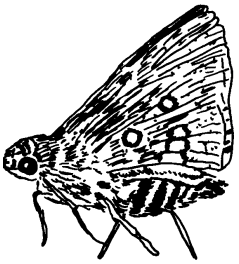
February 22nd-29th.

* "Spitfires" mass on branches.
* Gamefish competition puts pressure on sharks and marlin.
* Broad-leafed paperbark, *Melaleuca quinquenervia* comes into flower.
* Young birds fly around, in family groups, with their parents.
* Hairy caterpillar trains appear across paths.

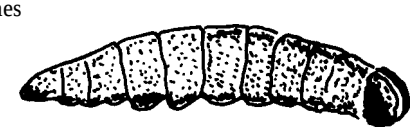
SYMMOMUS SKIPPER BUTTERFLY

, *Trapezites symmomus*, is a fussy eater and the caterpillar larvae will only eat a tufted plant with firm grass-like leaves, *Lomandra longifolia*.

First find the plant, then look for the butterfly. Lomandra is widespread and occurs along gullies and

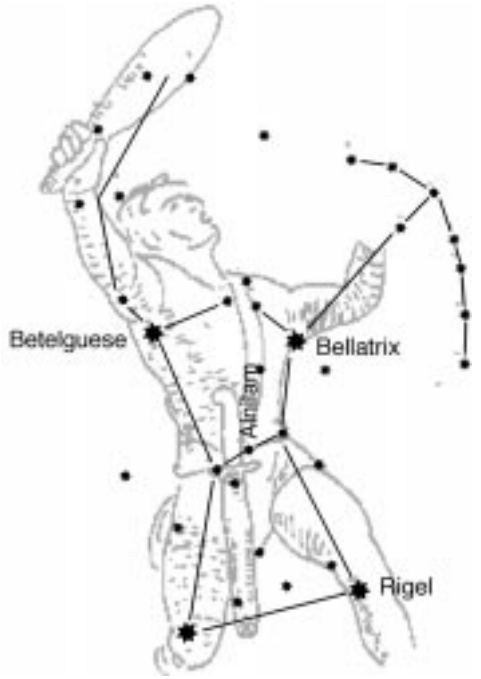


creeks. Known also as the spiny-headed mat-rush, it spreads by underground stems. The straw-coloured flowers are perfumed and form dense clusters on a spiky stem and are edible. The leaves have a notched tip and are frequently broken off. The tender white bases of these leaves are good to nibble and the leaves themselves were used by aborigines for basket making.



The butterfly larvae feed exclusively on mat rush at night. By day the larvae hide from predators in shelters made from silk and dead leaves. The butterfly is best seen between January and March as they tend to disperse after they emerge from their pupae.

ORION



THE NIGHT SKY

The great constellation that dominates the summer nights is Orion.

In and around Orion are some of the brightest and most colourful stars, the brilliant blue-white Rigel, warm-orange Betelguese, whitish-green Castor, sun-yellow Pollux and Capella, red-orange Aledebaran and pale-yellow Procyon.

Each star in Orion's belt has a name. Mintaka, the western-most lies on the celestial equator. This means that when it rises above the horizon it lies due east and where it sets is due west. Alnilam the centre star is one of the hottest known, about 45,000° Kelvin. And the third star is Alnitak.

Betelgeuese (bet-el-juz) is Arabic for "the arm pit" of Orion. Betelgeuese is a red giant, brighter than ten thousand of our suns, and shrinks and swells from 700 to 1000 sun diameters. On the night of the 25th of February it can be seen on a magnetic bearing of 335° and an elevation of 49°.