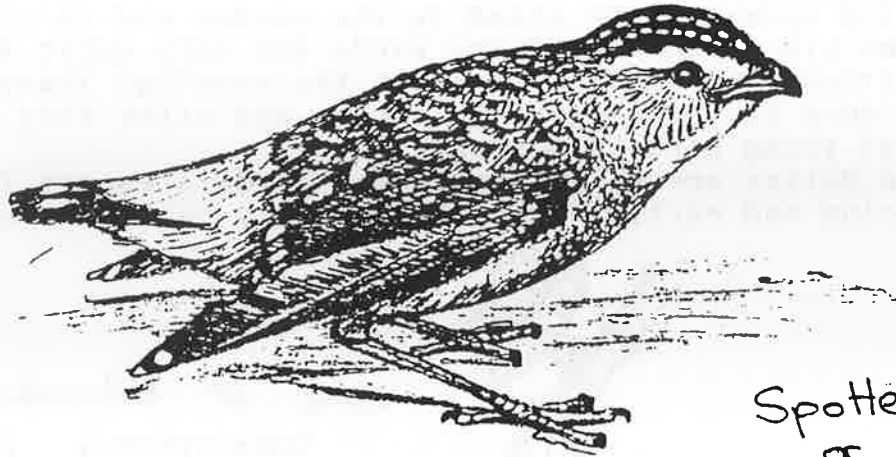


STUDY GROUP

Newsletter No.10 SEPTEMBER 1986



Spotted Pardalote
or Diamond Bird
(Colleen Werner)

PARDALOTES - THEIR FEEDING BEHAVIOR

The pardalotes belong to the band of small birds which feed by gleaning from foliage. Unlike most foliage gleaners they are generally brightly coloured. Five species of pardalotes are recognised:-

Striated - occurs in forests and woodlands throughout Australia

Red-browed - typically found in trees lining watercourses in inland northern Australia

Spotted - in forests and woodlands of southern Australia

Yellow-rumped - in the drier country, considered by some to be a variety of spotted pardalote

Forty-spotted - coastal forests of S-E Tasmania.

The pardalotes tend to specialise in feeding on lerps, the sugary, carbohydrate rich covering of small arthropods called psyllids. The pardalotes stout bill enables them to peck lerps from the leaf surface. The psyllids themselves are relatively host specific. They occur mainly on the Eucalyptus genus. Eucalypts in the subgenus Symphomyrtus (gums, boxes and ironbarks) harbour more psyllids than eucalypts in the subgenus Monocalyptus (peppermints and stringybarks). Thus pardalotes are found only where eucalypts are the dominant species.

For some reason the abundance of psyllids tends to fluctuate dramatically. Some frequently form massive outbreaks, often resulting in extensive loss of foliage and death of trees. Pardalotes must cope with these changes in abundance of food. They have been termed a "boom-bust" species, having a high reproductive rate allowing them to build up rapidly in the good times and crashing in poor times. Flocks of up to 1000 individuals have been reported for spotted and striated pardalotes, drifting in search of lerp outbreaks. The drifting flocks may be able to recognise psyllid damaged trees and then home in on psyllid outbreaks.

who do not feed on the lerps to any extent, in relative peace.

PARDALOTES OF ROTO, NSW

from Janet Houghton

Striated pardalotes are always present, both in the garden and in the district. They are usually seen on Red Box Trees (Eucalyptus intertexta) and sometimes on mallee. For many years they have nested under a tank stand in the garden and in cracks in the wall of the old stone house. The birds are very quiet and often sit on the clothes-line while I hang out the washing! There seem to be more birds here in the winter and spring and after they have nested a lot of young birds are seen.

In the Mallee areas, yellow-rumped pardalotes are found. During the spring and early summer their lovely calls are heard often.



Cone of *Allocasuarina luehmannii* (Colleen Werner)

TASMANIA'S FORTY-SPOTTED PARDALOTE

The forty-spotted pardalote deserves special attention. It was thought to have been rare and its distribution restricted even prior to European settlement. It is now one of Australia's rarest birds - only about 2500 - 3000 individuals are known.

All known colonies of the forty-spotted pardalote are in dry sclerophyll forests in S-E Tasmania where manna gum (Eucalyptus viminalis) is a dominant plant. Most foraging is in manna gums, although other species are used occasionally.

Nests are almost always in mature trees with hollows, or in old stumps. Thus, the clearing of old trees for agriculture, forestry or firewood may be a contributing factor in the species' decline.

All colonies are located on islands and peninsulas; a curious circumstance, the significance of which is not yet understood.

The forty-spotted pardalote competes with striated and spotted pardalotes for lerps and insects and with striated pardalotes for nest sites.

Forty-spotted pardalotes form loose colonies on permanently occupied, traditional sites. The current status of the known colonies is as follows:-

Maria Island (national park): 500 birds

North Bruny Island/Waterview Hill (private farm land):
1800 -2000 birds

Cape Queen Elizabeth (game reserve): 6 -10 birds

Tinderbox Peninsula (major colony on private land, another in a council reserve): 75 birds (total two colonies)

Channel district (private land and reserve): 30+ birds

Partridge Island (reserve): 30 birds

Tasman Peninsula (Saltwater River Nature Reserve): 20 -40 birds

Mount Faulkner (private land): 2+ up to 20 birds

Flinders Island (national park and private land): population size unknown.

Both the range and population size of the Forty-spotted pardalote is declining. Why the Striated and Spotted pardalotes are surviving in Tasmania but not the Forty-spotted is something not fully understood. The Forty-spotted appear to prefer relatively unmodified forests, Spotted pardalotes slightly disturbed forests and Striateds show no preference.

BANKSIAS AND THE QUEENSLAND BLOSSOM BAT (*Syconycteris australis*)

An expedition was made recently by Taronga Zoo to northern NSW to collect some Blossom bats with which to, hopefully, establish a Blossom bat colony at the zoo.

The following account is from the Royal Zoological Society of NSW, Mammal Section, September 1986 newsletter:-

"The Queensland Blossom Bat is an animal of the littoral rainforest areas of eastern Australia, formerly occurring as far south as the Myall Lakes.

The bats are nectar feeders with long brush tongues, large ears and big eyes. They are sexually dimorphic with females weighing 14 - 17g and males 15 - 20g. The males have larger faces and deeper voices. The bats are clumsy fliers; not quite able to hover, they usually land on or near the flowers they are feeding on. Hence they tend to feed on distal inflorescences.

The bats were caught in mist nets at a site of mixed Banksia integrifolia and B. ericifolia close to littoral rainforest stands. Initial catches were of adult males, the same individuals being recaptured several times. Eventually the males were removed and temporarily housed for later return. Soon after this, adult females and juveniles were caught at the study site. All were feeding on B. integrifolia blossoms, although a large percentage had eaten rainforest fruits even though their teeth are reduced to mere pegs. It appears that the animals are territorial, with the adult males excluding other bats from their feeding areas. Consequently the zoo animals will have to be housed so as to prevent or reduce fighting.

The area contains five species of Banksia, plus Eucalyptus and Melaleuca. These have overlapping flowering periods resulting in a year round supply of nectar and pollen. Faecal analysis indicates that the bats are capable of digesting pollen although the method of digestion is not known. If it is microbial digestion then the bats in captivity will require a continuous pollen supply to maintain the microbes in their intestine.

When feeding on the Banksia flowers, the bats actually land on them. This results in pollen loads, even after the bats have groomed themselves, several orders of magnitude greater than honeyeaters carry. The bats are unable to land on the Melaleuca flowers and hence have a far lower pollen load from these plants than the Banksias.

The production of pollen and nectar in B. integrifolia was investigated. It takes approximately 60 inflorescences to supply enough nectar for one adult bat. Since nectar production is a prolonged process in Banksias, the establishment of a territory around a number of productive bushes would guarantee a food supply for a bat. Both pollen and nectar production reach their peak of a night time, indicating a strong relationship between the bat and plant. However, exclusion trials would be required to determine exactly how important the bat is as a pollinator.

The nectar supply was a 25% sugar solution. An artificial nectar has been produced for use in the zoo and the animals are doing well, although they require access to free water and had to be taught to drink. The results so far are eight healthy animals that really know how to bite their handlers.

BIRDS USING DOMESTIC ANIMALS

A plea for information regarding birds using domestic animals. Examples which come to my mind include white-eared honey-eaters taking hair (human and dog) to line nests, cattle egrets shadowing cattle to obtain upturned food and willywagtails feeding on the backs of cattle and horses. Can you contribute any other instances of birds thus interacting with domestic animals?

Anyone can participate in the scheme, whether RAOU (Royal Australasian Ornithologists Union) members or not. The scheme aims to provide comprehensive data on the breeding of Australian birds.

Volunteers are asked to fill out Nest Record Sheets for active nests or cases where evidence suggests birds are currently breeding eg birds seen building a nest or feeding dependent young. Observers are encouraged, when possible, to follow nests up, as a series of visits provides far more data.

Five main facts can be derived from the Nest Record Sheets for a species:-

1. The timing and peaks of each breeding season.
2. Variation in breeding biology over a species' geographic range.
2. Intervals between laying of eggs; incubation and fledging periods.
4. Breeding success ie young fledged from eggs laid, or more broadly the successful or partially successful nests.
5. Nest site and breeding habitat.

Nest Record Sheets are not hard to fill out and volunteers are provided with pads of sheets by the RAOU. If you would like to participate in this scheme contact the Nest Record Scheme organiser:- Mike Clarke,

Royal Australasian Ornithologists Union,
21 Gladstone St,
Moonee Ponds 3039.

FOOTNOTE The RAOU holds an annual conference. The theme of this years conference, to be held in Adelaide, is

BIRDS AND PLANTS

The following extract describing the coming gathering may interest study group members:-

Once a year, Australians gather to exchange ideas and discuss recent research on Australian birds, first in a formal setting (the Congress) and second in an informal environment (the Campout). In 1986, South Australia will host the Annual Congress in Adelaide (December 13-14), and the Campout in the Coorong (December 14 p.m. — 19 a.m.). Professional ornithologists to humble bird-watchers are invited to participate in either the Congress, the Campout or both.

People interested in presenting a paper at the Congress should fill in and return the attached coupon.

The theme for the 1986 Congress and Campout is birds and plants. This theme should be broadly interpreted to include topics like: pollination and seed dispersal by birds; birds and agricultural crops; habitat requirements of birds; use of plants as feeding sites, perches, nesting sites or nest material for birds; use of plants to attract birds to suburban gardens; and so on. Papers within this broad theme are welcomed, as are papers on any other topics dealing with Australian birds, from historical to cultural accounts to taxonomic, physiological and behavioural studies.

The Coorong is approximately 150 km SE of Adelaide, and consists of a long, narrow lagoon surrounded by coastal vegetation. The area has the reputation of being a wilderness and is regarded as a Wetland of International Importance for Waterfowl. As many as two million ducks may use the Coorong as a refuge in some years, not to mention some 200,000 migratory waders. Most of these birds feed on the abundant seeds and turions produced by the aquatic plants inhabiting the lagoon. The terrestrial environment is equally fascinating, being dominated by plants that produce fleshy fruits for birds. Large numbers of silveryeyes and honeyeaters consume these fruits, and many seem to move along the coastal vegetation that lines the lagoon. The main activity of the Campout will be trying to document the movements of these birds, and participants will have the opportunity to assist with banding and counting birds, as well as observing the many waterbirds and perhaps the elusive rufous bristlebird.

SOME NEST / PLANT RECORDS FROM CENTRAL AUSTRALIA

The following records were gathered in August/September of this year by Lola Smith. Most of the records are centred about Coopers Creek and paint a picture of activity:-

- 1) 80km west of Innamincka, SA.

Black-breasted buzzard - nest built in fork in dead branch of live River Red Gum (Eucalyptus camaldulensis) growing on bank of Coopers

Little eagle - large stick nest built in fork of River Red Gum growing beside Coopers Ck.

Blue bonnet - in area of scattered low trees and shrubs on sand ridge near Coopers Ck. Nest in hollow in trunk of dead tree - trunk 40cm diameter.

Jacky winter - nest on dead horizontal branch of live Bauhinia sp. growing on sandy ridge near Coopers Ck. amongst scattered low trees and shrubs.

Rufous songlark - nest of fine dead grass like material on ground amidst 20cm high green herbage. Nest was near base of multi-stemmed dead tree.

Crimson chat - nest deep cup of fine grasslike material, no lining, suspended in grey burr bush in area of herbs on slight sand ridge.

Red-browed pardalote - nest in hole in side of eroded gully being lined with fine short dead grass.

White-browed woodswallow - nest built in junction of three pieces of dead branches near top of dead stump, no lining, in scattered low trees and shrubs.

White-browed woodswallow - nest on top of bend in branch (half dead with live section growing over dead wood) of River Red Gum on bank of Coopers Ck.

3) 8km W of Innamincka, SA

Grey falcon - large stick nest built in fork of live River Red Gum growing on banks of Coopers Ck.

Fairy martin - birds beginning nest on undersurface of rough barked branch of Coolibah tree (Eucalyptus microtheca) standing in water in full lagoon. Diameter of branch 45cm.

Ground cuckoo-shrike - in area of few scattered rough barked eucalypts and low shrubs beside shallow lagoon. Nest tree a Coolibah. Nest was built in old magpie-lark's nest.

Australian magpie-lark - nest built in horizontal branch of Coolibah tree standing in water in full lagoon.

4) 13 km E of Eulo, Queensland

Red-capped robin - nest built in upright fork of Acacia sp. Mulga type vegetation.

5) Tibooburra, NSW

White-winged fairy-wren - nest located in dead uprooted shrub. Area of disturbed vegetation on vacant lot in Tibooburra. Nest was a neat oval of dead grass suspended amongst dead twigs.

Southern whiteface - bird building into top of metal post supporting a speed advisory sign.

6) Fort Grey (Sturt National Park), NSW

Spiny-cheeked honeyeater - nest in Acacia sp. growing near top of sand dune. Nest a suspended deep cup, soft fluffy material and fine twigs on outside - lined with soft, white fluffy material.

Singing honeyeater - nest built in clump of live mistletoe in Acacia sp growing in clump of low trees, mostly acacias, on flat area at base of sanddune.

Pied honeyeater - nest in clump of mistletoe growing on an Acacia. Nest cup-shaped suspended amongst fine twigs of mistletoe. Made of fine grasses, very sparse, see-through bottom, no lining, one egg easily seen.

CASUARINAS IN THE ROTO AREA

from Janet Houghton

we have white-browed Tree Creepers in one area of thick Casuarina cristata and they stay in that area. The trees were quite badly burnt in January 1986 but most are recovering. Yellow thornbills and Varied sitellas seem to like these trees. Some trees have a lot of Harlequin Mistletoe (Lysiana exocarpi) and this attracts all sorts of honeyeaters to the trees when flowering or bearing seeds.

Along the rocky Kejinny Ranges are a few Casuarina stricta trees. Most of these are old, so I have planted a couple of new trees in the garden with some C. cunninghamiana. They are growing well but are too small to attract birds yet. The very pretty but destructive Pink cockatoos have taken the top from one tree.

"CASUARINAS"

- named from the Latin "cassuarius" meaning cassowary, derived from a supposed resemblance of the foliage to the bird's feathers.



Cone of
Allocasuarina
torulosa.

The members of the family Casuarinaceae are a distinctive looking bunch. Ranging from shrubs to large trees they are characterised by their needle-like "foliage". This foliage is actually branchlets and the leaves are reduced to rings of small teeth-like scales occurring at intervals along the branchlets.

Until 1982 life was relatively simple and all members of the family belonged to the one genus Casuarina. In 1982 this family was rather drastically revised and

is now divided into four genera - Gymnostoma, Casuarina and Allocasuarina which occur in Australia and a still to be described "Genus C" which is confined to Malesia. So while I still talk about Casuarinas I am also now referring to Gymnostomas and Allocasuarinas as well.

To avoid confusion I shall refer to them by their common name of "she-oaks". They were thus named by early settlers who used their timber to make shingles and bullock yokes and felt their timber resembled that of oak but was of inferior quality. (This common name, I feel, leaves a lot to be desired.)



Cone of
Casuarina glauca
(Colleen Werner)

Taxonomy aside the she-oaks are delightful plants - one of my favourites. The 45 species in Australia cover a wide range of habitats, for example C. equisetifolia grows coastally almost to the waters edge, C. torulosa (Forest Oak) in moist forests and C. cristata (Belah) in the arid inland. Species can be selected to suit particular conditions in the garden.

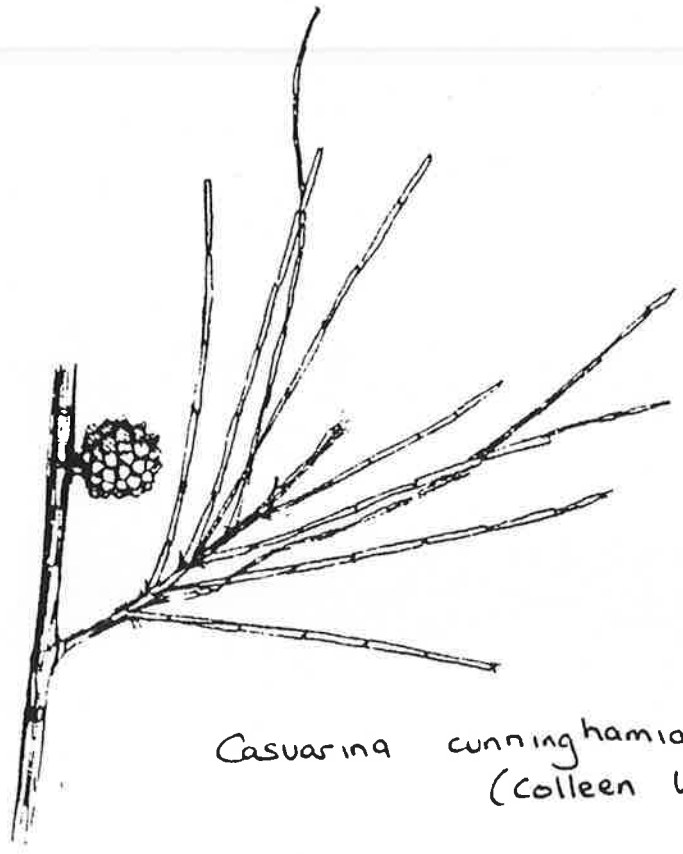
Propagation is from seeds. Seeds germinate readily and for coastal species at least rapidly (about two weeks). Male and female flowers are distinct. Male flowers are reduced to whorls of stamens and are held at the end of branchlets. When flowering en masse they can give the tree a brown or reddish appearance. Female flowers are small globular heads and are held on older wood on short lateral branches. Most species are dioecious, that is male and female flowers are held on separate plants but some are monoecious with both male and female flowers on the one plant. Flowers are wind pollinated. Fruits are the distinctive she-oak cones.

With the aid of a hand lens the different she-oak species may be determined. Characteristics which distinguish the different species include the number of "teeth" in each whorl and shape of the fruiting cone. The branchlets are jointed with as many longitudinal ridges as there are teeth. The ridges are separated by

The she-oaks' reduced leaves mean that they can tolerate dry, difficult conditions. They make good street plantings. In the Canberra region *C. stricta* is used to colonise bare overgrazed slopes. *C. equisetifolia* is used to stabilise sand dunes and *C. cunninghamiana* plays a role in stabilising stream banks. On the slopes of NSW the tall dark *C. cunninghamiana* (River Oak) lines many rivers and is a very characteristic part of the landscape. As one passes from the slopes to the western plains it is replaced by the River Red Gum. The River Oak is popular in Canberra as a street planting.

The she-oaks are probably on the decline. They are killed by strong fires and so need at least an eight to ten year interval between fires if they are to survive in the longterm. Seedlings do not withstand grazing.

The she-oak's branches are popular with small insect eaters such as thornbills, yellow robins and silvereyes. Their seed is also a popular item. The Glossy Black Cockatoos (also known as Casuarina Cockatoos) feed almost exclusively on them. Where she-oak stands are extensive the Glossy Blacks are resident, elsewhere they are nomadic. Glossy Black Cockatoos are considered an endangered species. Where the she-oaks decline so too do the magnificent Glossy Blacks. The Glossy Blacks take the cones before their valves open to release the seed. Holding the cones in one foot they steadily and wastefully chomp through them. The much smaller Red-browed finches are also very keen on she-oak seeds and congregate about trees at a later stage, just as the cone valves open to release the seed.



Casuarina cunninghamiana
(Colleen Warner)

NEXT NEWSLETTER

The next newsletter will be in JANUARY 1987.

The bird of the newsletter will be SILVEREYES and the plant will be WATTLES.

Any contributions regarding either of these would be most welcome. In what plants do silvereyes feed, nest or shelter? What birds are found in wattles, what has attracted them to come?

Similarly any notes of nests and related vegetation found during the breeding season would be of interest.

A plea from myself, can anyone recommend any ground which they have found to be good bird attractors? Having done