

Wildlife and Native Plants Study Group Newsletter



SPRING 2001

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WELCOME to the Spring edition of Wildlife & Native Plants.

Welcome to all these new study group members who have joined / re-joined over the past two issues: ASGAP, SGAP QLD, WSWA, APS Tas., SGAP Canberra Region, APS SA Region, Rosemary Blemings, Leigh Murray (NSW), PJ & GM Sanders (Vic), NJ & BA Cross (NSW), Joan Wallace (NSW), Hugo Phillipps / Birds Australia (VIC), SGAP Caboolture Daytime Branch (QLD), APS NSW, Joanna McLachlan (NSW), Jeff Jones (SA), APS Maroondah (VIC), Alan Baker (NZ), Rosalie Sharpe (SA), SGAP Victoria and Maureen & Norm Webb (NSW).

Please read, enjoy, think, act and contribute to the newsletter if you so feel inclined.

Thankyou to all those regulars who have sent me articles, and for all your good wishes during my recent bout of illness. Both are very much appreciated.

I have recently read 'Beyond the Bitumen' by W.A. Winter-Irving. (1971) It's a biography about life in the Victorian countryside and on cattle and sheep stations in Queensland in the first half of the 20th century. Colourful stories of the author's life experiences, in a great wild land, its challenges and rewards. He shares an intense interest and love of wildlife and tells of many journeys to havens of nesting birds. I found most interesting the final chapter titled "An Appeal" where he shares his philosophy about wildlife protection, and the need for conservation. I'd love to reprint it all here, but I'll just have to leave you with a taste of what he says: See what you think?

SPECIAL BIODIVERSITY & THREATENED SPECIES ISSUE

"Australia seems determined to wipe out its absolutely unique wildlife. Most of us crowd into the coastal strip in eastern Australia to live, and we neither know, care nor see, the persistent rape of our natural wildlife, while its conservation appears to receive insufficient interest from our State Governments....."

Habitat is also important. Swamps are drained, imported birds monopolise nesting sites in the few remaining hollow trees, imported foxes and feral cats, both of whom rear many young, the most dangerous of enemies, have penetrated to the far North, and the motor-car carries the 'undesirable' sportsman to the remaining far away secret spots to continue the slaughter freely and uncontrolled....."

Most Australians do, or did at one time, understand the attractions of our wonderful wildlife. Let us try to keep it that way."

(Ed. Note: one must wonder - for it would seem little has changed in a hundred years.)



- A Few Proven Magnets by Leigh Murray
- Sweet Bursaria by Phil Watson
- Birds - Pests and Problems Birds Australia
- Earth Alive Action Guide CBN
- Commercial Use of Australian Wildlife
- Phytophthora Cinnomomi
- Book Reviews
- Your Letters
- Threatened Species - Signaling an Unbalanced Environment TSN
- What's so Important About Habitat TSN

A Few Proven Magnets by Leigh Murray

A few native plants have proven to have a magnetic attraction for birds, butterflies and bees at both our home in Queanbeyan (near Canberra) and our newish holiday house at Tuross Head (on the NSW South Coast). I've found that the most effective drawcards are those that not only have highly attractive flowers but also are long flowering.

Birds

Anigozanthos flavidus must be one of the most powerful of all magnets for wattlebirds. We have 4 sizeable *A. flavidus* plants at Tuross Head (planted as tubestock a year ago), and when these plants flowered last summer we had birds repeatedly crossing back and forth over a busy road to get to the flowers. And what a sight it was: birds dangling from flowers at the ends of 2-metre stems (well clear of the half-metre high foliage). So far, neither of the hybrid Kangaroo Paws I've tried (Bush Gold and Bush Ranger, both of which have *A. flavidus* in their parentage) have had anything like the bird-attractive quality of the plain-vanilla *Anigozanthos flavidus*. The flowers of the hybrids certainly look more striking (with stronger, clearer colours) but they attract only the odd diner - whereas with the plain 'Anigo flavus', it's dangling room only.

Eucalyptus leucoxylon megalocarpa is a humdinger of a tree at attracting birds. And it looks terrific too. It has beautiful and abundant cerise flowers for many months starting in autumn and going right through winter into spring. Our tree at Tuross was planted less than 3 years ago yet it's already proving very attractive to birds. Throughout its long flowering season, Red and Little Wattlebirds pop back and forth all day and Eastern Spinebills zip in for quick snacks. Even when the tree isn't flowering, Crimson and Eastern Rosellas hold regular afternoon Happy Hour sessions in it, chewing the leaves and tittering.

Grevillea arenaria is a great bird magnet. One just came up beside our Queanbeyan mailbox, in bare rocky ground. This straggly and not very prepossessing plant (it had never been pruned until recently) has proven one of the best bird magnets we've got. Of all our many and various grevilleas, this one is Top of the Pops. A prominent

birdsound at our place each spring is a noise like the creak of a rusty gate, emitted by a Red Wattlebird that seems to spend almost all day every day in that straggly bush. Eastern Spinebills also fancy the flowers, and drop in for a feast whenever they get the chance. Our mailbox *G. arenaria* (which is now about 1.5m high and wide) is the oval-leaf form. It is frost hardy and very drought tolerant. It withstands the coastal conditions at Tuross (with strong, occasionally salt-laden winds), and it pulls in the birds there too.

Grevillea 'Coastal Glow' (G. barklyana ssp. macleayana x either G. asplenifolia or G. longifolia) is a great favourite with the birds. This shrub has been a raging success at Tuross and it also grows well in Queanbeyan (where it came through last winter's frosty minus 7s with nary a blink). Coastal Glow grows quickly into a large shrub of about 3m x 3m. With plenty of tip-pruning, ours have already formed a dense screen at Tuross where they've proven very attractive to wattlebirds and spinebills. And last spring this bank of 4 Coastal Glows also attracted the only Noisy Friarbirds in the area - several of these wonderful characters were practically resident in the Coastal Glows for weeks, sipping from flower after flower and chortling their dear little bald heads off.

Grevillea jephcottii is very popular with Crimson Rosellas. They nip off the flowers to get to the nectar. Wattlebirds and spinebills love the flowers too. *G. jephcottii* forms a rather open, grey-foliaged bush of less than 2m x 2m, with inconspicuous greenish spider flowers that the birds adore.

Banksia spinulosa is an excellent bird attracter, in flower for months during autumn and winter. Wattlebirds and spinebills are the chief diners, but rosellas visit occasionally too.

None of our *Banksia ericifolia* or *Banksia integrifolia* plants are big enough yet to have magnetic properties. But I've got high hopes that they will, because the mature plants on the golf course opposite our place at Tuross are heavily patronised by honeyeaters, and a *B. integrifolia* there has also been blessed with Yellow-Tailed Black Cockatoos from time to time (I think they eat the seeds).



ANIGOZANTHUS FLAVIDUS

Butterflies

Westringia 'Wynyabbie Gem' (*W. eremicola* x *W. fruticosa*) has proved highly attractive to butterflies at both Queanbeyan and Tuross. A shrub of about 1.5 - 2m high with a similar spread, it is remarkably hardy to frost, drought and sea air. And it is unusually long flowering for a westringia; unlike its parents, it bears its lilac flowers virtually all year round. (In our gardens, it outperforms its parents in all respects.) To maintain a neat, dense appearance, it's a good idea to tip-prune Wynyabbie Gem regularly; this also increases the number of flowers (a good tip-prune is positively inspirational!) which, of course, is better for the butterflies.

Phyla nodiflora is a tough, low, dense ground cover (often used as a lawn-substitute). *Phyla* attracts small grass butterflies as well as larger butterflies and moths to its pink clover-like flowers which are borne in summer and autumn. *Phyla* is frost and drought hardy. At our Tuross place, it is standing up well to foot traffic. (I've heard that it will even withstand vehicle traffic but can't vouch for this myself.)

A few plants that are often mentioned as attracting butterflies but which have not yet done so for me are *Olearia phlogopappa*, *Helichrysum semipapposum*, *Pultenea pedunculata*, and *Hardenbergia violacea*. (Graham Pizzey, the bird bloke, described this hardenbergia as a top class attractant. Perhaps it is butterfly-attractive in Victoria but not in NSW - some plants are like that.)

Bees

Grevillea 'Poorinda Jennifer Joy' is a very attractive little hybrid grevillea (*G. linearifolia* x *G. speciosa* ssp *speciosa*) which has beautiful pinky-mauve spider flowers almost all of the year, and the bushes are usually alive with bees. *Grevillea sericea* also attracts bees - but birds have shown no interest at all in either of these grevilleas.

Ed.Note. I guess birds and bees are a bit like people and have their favourites! And with so many plants to choose from there's plenty of variety for even the most discerning feeder. You may find also that if one of these plants didn't produce one year then some of the others may be visited by birds and bees. Thanks Leigh for the great article! Much appreciated.



BANKSIA INTEGRIFOLIA

So What's Interesting About The Sweet Bursaria? An article sent in by Phil Watson

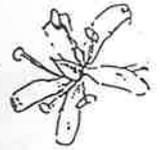
Walkers wandering through their favourite woodland patches throughout the year, mostly pass *Bursaria spinosa* or "Sweet Bursaria" without giving it a second glance. However, around Christmas time, when the woodland's spring flower colour parade is but a withering memory, it tends to attract their attention. This is a response to its sweet "pittosporum" like scent and the attractive panicles of small star like white flowers blanketing the bushes. The botanical inquisitiveness of the walkers is subsequently prompted enough to engage in a closer inspection. This often leads to the muttering of the name "Christmas Bush" amongst the group. Commonly at this point, little further interest is shown.

Consequently, the profusion of insect and bird life humming around these plants remains undisturbed, as the walkers continue on their merry way, decidedly disinterested in any further examples of this "take it for granted" shrub.

The following summary explores some of the reasons why this shrub should be considered anything but uninteresting!

Common Names Galore!

Its abundance across the southern Australia has resulted in a variety of common names. These include "Christmas Bush" and "Sweet Bursaria" which were discussed earlier. However the names, "Blackthorn" and "Prickly Box" were initially used by the early graziers, who were frustrated by its persistence in snagging the wool of passing sheep or bloodying browsing cattle with its sharp spines. The name "Native Box" relates to colonial pastoralists' using it as a hedging plant often as a substitute to the more sinister invasive weed species "Boxthorn" (*Lycium ferosissima*). "Boxwood" is another common name, which has been applied to the small tree specimens of this plant that, not only have an attractive box-like bark, but also provides a source of quality, attractively figured, craft wood.



Why the *Bursaria spinosa*?

"*Bursaria*" derives from the Greek word "*bursa*". This word was used to describe a sac, pouch or purse-like structure. The applicability of this word to this plant is obvious, given the many purse like seed capsules that are prominently displayed from late summer onwards.

Children are intrigued when they can relate this plant to the professions of "Ship's *Bursar* or School's *Bursar*". They are often amused with the knowledge that these jobs relate to this botanical name. The implication is that these positions control the "purse" or the financial matters, for a boat or a school respectively.

"*Spinosa*" refers to the spiny/thorny nature of the most common subspecies, namely *Bursaria spinosa* var *spinosa*, which is typically located in harsher conditions. *Bursaria spinosa* var *macrophylla* is a broader leaved, non-spiny subspecies growing in moister less demanding woodland environments.

Horticultural Attributes

English and Californian horticulturalists have landscaped with "Sweet *Bursaria*" for more than a hundred years, describing it as "charming" and "delightful". This is in recognition of its pleasant summer floral display, coupled with its handsome tessellated box-like bark. These attributes make it a useful specimen plant or alternatively, a hedging plant. A row of closely planted "*Bursaria*" seedlings will produce an impenetrable formal hedge, if regularly clipped. A natural, taller and more open hedge results if they are allowed to grow unchecked. This informal hedge provides excellent bird nesting sites and spider webbing locations.

Indigenous plantings of "*Bursaria*" can perform "anti-personnel" functions. Their spiny nature directs pedestrian movement in the landscape, assists in minimising the vandalism of new plantings and protects the native feathered and furry creatures from marauding domestic pets. Following weeding activities, targeting the vicious "boxthorn" weeds that are often located in open paddocks and grassy communities, "*Bursaria*" has proven to be the ideal replacement plant. Its tight, spiny form,

similar to "boxthorn", provides a reasonable habitat substitute for the many creatures that would have adapted to the earlier protection offered by the "boxthorn" bushes.

Ecological Considerations

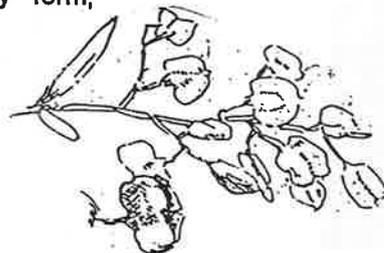
Sheep and cattle browsing in degraded woodland communities "bush runs", cause the demise of many native shrubs, herbs, grasses and groundcovers. This is a consequence of the persistent grazing of the foliage in the native understorey and any young succulent seedlings that may germinate. Depending on the stocking rates and how long the grazing continues unabated, the ecological values of the woodland community may diminish rapidly.

At a stage just prior to when natural regeneration loses its ability to heal the land, the degradation signs are typically, browsed "*Bursaria*" shrubs standing as solitary sentinels amongst a plethora of introduced pasture weeds and erosion scars. However, all is not lost! With a little education and attitudinal change by the land manager, accompanied by an effective stock control fence, installed after the de-stocking of the bush run, natural regeneration can begin to operate to restore the original woodland community.

Important in this natural regeneration process, is the role of the tolerant "*Bursaria*" remnants. These not only provide critical habitat for the re colonisation by insects and birds, but also provide a protective framework for young native seedlings to germinate and grow from the native seed stored in the soil. Each "*Bursaria*" bush offers a nectar and larval food source for birds, beetles, butterflies, moths, wasps, bees, ants, etc. This in turn, allows pollination, seed dispersal and nutrient cycling processes to be initiated. These are the building blocks for successful natural regeneration of degraded woodland communities.

Hill topping Sites

Hill topping sites have recently been recognised for their role as foci for mating of butterflies. They provide sites, proud of the lower sea of exotic pastures, for butterfly mating. This mating process brings together



a mixture of genetic material from sparse and frequently isolated butterfly populations.

These degraded rocky outcrop remnants, often consist of only a framework of hardy *Acacia spp.* and "*Bursaria*" trees and shrubs along with a few species of native grasses, sedges and groundcovers. However, degraded as they are, they still provide a stable set of physical and botanical features recognisable by the male butterflies, which will comfortably use these sites to attract passing females for mating.

This stability is essential, as the male butterflies will otherwise abandon these sites, if rapid changes, such as further clearing or extensive revegetation activities occur.

Local butterfly extinctions and the subsequent loss of pollinators for local provenance plants are the obvious negative outcomes.

The Bright Copper Butterfly

This butterfly relies on "*Bursaria*" for its larval food. It is often seen in the upper suburbs of Hobart following the pupation of its caterpillars. This butterfly has a symbiotic relationship with black ants that attend its caterpillars protecting them from predators, in exchange for their honey-like fluid secretions.

Spider Web Sites

"*Bursaria*" bushes provide an intricate architecture of thorns and twiggly foliage, which is much sort after by numerous species of spiders for constructing their webs. When the bushes are flowering, their sweet nectar attracts a myriad of insects, only to be entrapped in these 3 dimensional spider snares. These spider webs also have an important role in attracting a diversity of indigenous birds. In order for successful nest building to be completed by a number of our native birds, such as Grey Fantails, Crescent, Black Headed and New Holland Honeyeaters, Tasmanian and Brown Thornbills, all our Robins etc, they are reliant on the collection of spider web remnants to knit their nests together. *Bursaria* not only offers a safe location for nest building, but also supplies source of essential ingredients.



"Aesculin" An extract from the leaves

The glycoside named Aesculin found only in sufficiently high concentrations within the leaves of "*Bursaria*" proved very important to the World War 2 military forces. Originally, before the W.W. 2, Aesculin was only extracted in very low concentrations from the bark of the English "Horse Chestnut" trees (*Aesculus hippocastaneum*) following the felling of the tree. This destructive process was curtailed when it was discovered that this active agent could be extracted from the dried "*Bursaria*" leaves, after hammer milling and solvent extraction.

Aesculin provided the active ingredient for a sun screening lotion for the fully exposed allied turret gunners during their numerous bombing raids over Europe. It also proved a valuable bacteriological reagent in the testing for tropical diseases for Australian Forces in the tropics. It also was used for effective treatment of blood vessel disorders of our servicemen including its use as an agent to manage haemorrhoids.

Ed. Note: *Thanks Phil.*



BOOK REVIEWS

INSECTS OF AUSTRALIA by *George Hangay and Pavel German* is a creepy crawly softcover nature guide/ reference book that you'll turn to again and again. It includes classifications, descriptions, background information and clear colour photographs of some of the insects of Australia. It is a softcover of 128 pages

DANGEROUS AUSTRALIAN ANIMALS by *Guy Nolch* is an informative and entertaining family reference guide - ideal to take with you on family holidays. It has descriptions, pictures, distribution maps, and notes on first aid in case of bites and stings. It tells how to avoid creepy crawlies- from the bluebottle to the red backed spider. It represents a fascinating guide to the appearance and behaviour of dangerous Australian wildlife. Colour photos, softcover edition of 200 pages.



YOUR LETTERS

Bev Cross has forwarded an article that husband Nev wrote for their branch newsletter on the experiences of attracting wildlife.

"When we came to Moruya nearly five years ago, we were chuffed at the amount of native wildlife here. Kangaroos, wallabies, birds, frogs, lizards, possums- you name it, we had it. Bev set about creating an environment to attract these native animals to our house. A dam for the waterfowl, ponds for frogs, rockeries for lizards and a large native garden for the birds.

It worked wonderfully, the dam filled, the garden flourished and lo and behold, the wallabies discovered the smorgasbord. Now, every morning, I listen to Bev doing her morning patrol of the garden and shouting something to the tune of "the rotten little....have eaten all the Leschenaultias (Eremophilas, Stylidium etc) again!" Our garden now has more wire netting than a large prison and an electric fence that would not be out of place in Jurassic Park. The only thing missing is the armed guard in the tower (I'm sure she had thought about this though).

The frog ponds were a great success also. Now all summer we need earplugs to sleep at night and we can hardly see out of our windows for the tacky little footprints all over them. They find their way into the house but can never find their way back out and we are forever finding deceased frogs in the house. They die in the most grotesque of positions and we had the finest collection of mummified frogs on the South Coast until the dog ate them, but that's another story. Now as if the noise, icky windows, mummified frogs in the house, frog poop on the window sills and deck are not enough, the frogs have attracted their own wildlife to the house: Snakes! We have become adept at catching and relocating Red-bellied Blacks that have come to the house and ponds in search of dinner.

The birds? Another success story. From the first flowering of Grevillea, the red wattle birds moved in and flatly refused to share with any other bird less aggressive than themselves. The magpies and butcher birds were grudgingly accepted but we have few small birds yet, as the garden has not established enough to provide shelter for them. About eighteen months ago, a couple of king parrots paid us a visit and they seemed quite tame. What beautiful birds! We thought, let's put seed out for them. They moved in with

their kids and now we have up to six pushy king parrots patrolling our back deck everyday and along with the crimson rosellas, galahs, lorikeets, cockatoos and our resident magpie 'Mags' all expect a ration of seed.

The lizards accepted the garden very well, now Bev spends half her time yelling at the dogs to stop them wrecking the garden as they chase them. We also have our resident yellow bellied glider. When I first heard it I thought someone was being murdered in the back yard outside our bedroom window.

There are plenty of books available on How To Attract Native Animals to Your Garden, but I think that I might write one entitled "How to get Rid of the Buggers Once You've Attracted Them." I reckon it would be a best seller!

Ed. Note. Sounds like you both had wonderful successes in bringing the native animals into the area, and I'm sure we all sympathise with your loss of plants, and over-abundance of fauna species (which I might add is not dissimilar to keeping dogs, cats, poultry, pets or farm animals). You have obviously learnt about the pleasures and pitfalls - like the feeding of wild birds, the problems with dogs and lizards, and the enticement of feral pests. But I don't think you should look at these experiences so negatively. Nature is adept at controlling, and with the right balance of species, nature will maintain that control and win out in the end.

We have problems here with what we plant - the plants bring a return of certain species, and the introductions of others that we could do without. But we also have been partly responsible because we made available supplies of water and easy pickings of seed from our aviaries and yards, which has seen an increase in the ferals, as well as galahs, pigeons and raptors. We had an influx of crows and starlings when some farmers introduced olives, and we have had an increase in foxes and wild cats, when composting works commenced nearby to the detriment of our vulnerable malleefowl. This is progress and change caused by humans. However over a period of a couple of years the native species came and went, and now some are returning such as the wedge tailed eagles, and the grey currawongs. We probably never will rid ourselves of the sparrows, starlings and crows, but we can manage the habitat we have created and the natural environment to ensure the survival of rare, vulnerable and endangered species.

I used to feel very guilty when we extended areas around our house and erected fences to keep animals in (not out). Particularly knowing that native species

such as the western grey kangaroo, the dunnart and the echidna, and a variety of reptiles and ground birds such as quail would effectively be restricted over an area that was once theirs entirely. But the native animals are still here, they still visit - kangaroos particularly, still come right up to the house, and feed outside the bedroom window at night; echidnas dig holes around our mallée trees, competing with the rabbits and mice, but they have a special place in maintaining control over ants, and it is the hidden connections and inter-relatedness in the natural world that we should wonder at. We have restricted the natives that's all, and we have netting and fences too that resembles a prison yard. The fact that the fauna is here is very positive, particularly as we have had our fair share of cats and dogs over the years. We must unfortunately, put up with the loss of plants broken or pulled out by some species, (and yes we know just how frustrating that is!) and continue to plant and protect our seedlings and plants the best way we can.

Perhaps too, we should focus on the bigger picture and the positive values, rather than the negative losses in our local backyard. Nev, it may be a great book, but I don't think I'll be getting a copy! Sorry!

Hugo Phillips, Birds Australia wrote....

'...good to see the material from the 'Birds on Farms' Supplement in the newsletter.'

Ed.Note Thanks Hugo - praise always welcome!

Birds Australia have been preparing some information sheets (about 20?) on a number of topics, which will be reviewed and updated over time. Some of these may appear from time to time in the newsletter. Some examples include: Birds in Backyards, Birding - What does it all mean? Pests and Problems, Helping Birds in Trouble, and Nestboxes for Natives.

Info. Sheet No.14 'Birds- Pests and Problems' appears in this issue.

📖 BOOK REVIEWS

FLORA OF MELBOURNE: A Guide to the Indigenous Plants of the Greater Melbourne Area by APS Maroondah (2001)

This is the 3rd edition of a very comprehensive guide to the native plants of the Greater Melbourne area. It describes more than 1300 species and contains information on cultivation and propagation. A worthy aid to identification, with line drawings and colour plates. 395pp RRP \$54.95 pb



PLATYPUS by Ann Moyal (2001)

"In this remote part of the earth, nature (having made horses, oxen, ducks, geese, oaks, elms and all regular productions for the rest of the world) seems determined to have a bit of a play, and to amuse herself as she pleases." - Rev. Sydney Smith, 1819.

When the platypus arrived in England in 1799 it was greeted with astonishment and disbelief. This book is an extraordinary story of how one creature has baffled the world. RRP \$29.95 226pp hb



GARDENING DOWN UNDER by Kevin Handreck (2001) revised edition

This revised edition contains a wealth of information for practical gardeners. Improve the worst of soils, choose the best fertiliser for particular plants and minimise water use. Contains a comprehensive guide to managing potted plants and also covers the basics of composting, fertilisers and potting mixes, as well as simple tests and colour guides to nutrient deficiencies. RRP \$34.95 292pp hb



SUCCULENTS FOR THE GARDEN by Attila Kapitany and Rudolf Schulz (2001)

This new release looks at succulents, and how have succulents have the upper hand over traditional garden plants. It highlights that succulents require less maintenance, especially watering, weeding and pruning and they can cope with considerable neglect, and still look good. The authors suggest that succulents are the ideal plants for a water wise garden, adding form, texture and colour to any outdoor space. RRP \$21.95 96pp. Pb

Ed. Note: I have not as yet seen this book which may/may not deal with Australian natives, however it certainly opens our ideas to using native succulents in any garden. Australian has a wealth of chenopods and ground covers suited to this purpose. Perhaps members might like to share their experiences with using these plants in the garden, or their sightings in the bush.

QUOTE:

Plants are to the designer what words are to the conversationalist. Anyone can use words. Anyone can use plants; but the fastidious will make them sparkle with aptness. - James Rose 1938



Drosera
whittakeri

Have you seen the Black-striped Wallaby?

Morée Champion - Border News 21/8/01

HAVE YOU seen the Black-striped Wallaby in your backyard?

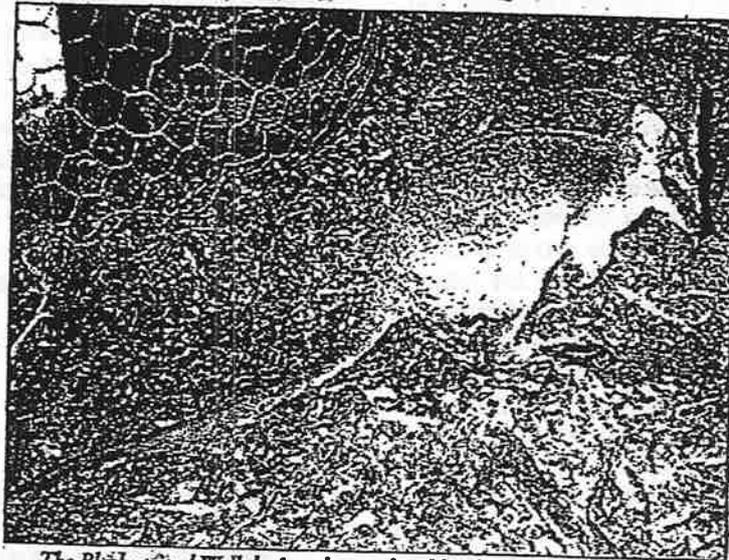
This little wallaby has grey to brown fur on its back, a distinctive dark stripe down the back, white spots on the cheeks and a white stripe across the top of the thighs.

Over 790 species of Australian plants and animals in NSW are considered either Endangered (in danger of extinction) or Vulnerable (likely to become endangered unless the threats to its survival are stopped).

The Black-striped Wallaby is considered Endangered under the Threatened Species Conservation Act, 1995.

The Black-striped Wallaby (*Macropus dorsalis*), is more common in Queensland than NSW but the populations and distributions have been reduced to a critical level. Now this wallaby is only recorded in isolated patches south-west of Narrabri and north-east of Moree.

The Black-striped wallaby prefers to forage and shelter in dense woodland areas particularly in Brigalow, *Acacia harpophylla*. This association of animal and habitat is precious as the preferred Brigalow habitat is only



The Black-striped Wallaby is endangered and has been recorded in isolated patches south-west of Narrabri and north-east of Moree.

found in isolated patches in NSW.

There is a complication to the recovery and future survival of this wallaby species. The dense areas of Brigalow that the wallabies prefer as habitat, under the federal legislation of the Environmental Protection and Biodiversity Conservation Act, 1999, is considered an Endangered Ecological Community throughout Australia.

This means that the Black-striped wallaby and the habitat it depends on are both in danger of becoming extinct.

So why is the Black-striped wallaby endangered? The clearing of the Brigalow trees and grasslands where the wallaby feeds has limited both the distributions of the species and population sizes.

This wallaby species grazes on grasses and sedges near the dense Brigalow. Other threats to the survival of the Black-striped Wallaby is predation by foxes, grazing by rabbits, sheep and cattle which may destroy the shrub layers which is used for shelter and fire regimes which also re-

move the dense understorey layers of the habitat and removal of the wallaby itself.

So what can you do? Help do something to save our biodiversity by retaining patches of Brigalow, participate in cooperative baiting programs with National Parks or Rural Lands Protection Boards and keep an eye out for this small elusive wallaby. If you have seen this wallaby, let the Narrabri Area Office know how many, where and when. Remember it is Threatened Species Day on September 7.

ANNUALS

This term is commonly used to describe a plant which completes its life cycle within a single season. The variance in time can be from a few weeks (strictly called ephemerals), to several months. During this period a seed germinates, the plant grows, matures, flowers and sets seed, then finally dies.

Australia does not have a large number of species of indigenous annuals, however several are worthy of cultivation. The availability of seed is the main limitation to their wider use. At present, not many species have been thoroughly tested in cultivation. Those grown to date include *Helipterum manglesii*, *H. roseum*, *Trachymene caerulea*. Worthy of cultivation are other *Helipterum* spp., *Helichrysum* spp., *Myriocephalus* spp., and *Waitzia* spp.



At this stage, there is much to learn regarding the use of Australian annuals in gardens. Of the methods employed for growing annuals, the two most commonly used are —

- (i) Direct sowing of fresh seed into cultivated soil during autumn and spring, amongst other plants, or in specific areas set aside solely for annuals. Provided the soil is kept moist, germination is rapid. Best results are achieved in light soils rich in organic matter.
- (ii) Sowing in seedling trays and transplanting to pots or gardens when large enough to handle. For strong growth, moist soils are required and applications of fertilizer are usually beneficial. In containers, water-soluble fertilizers are suitable. *Helipterum* spp. are ideal as container plants, with a number in the same pot, depending on the size of the container.

Regeneration may occur in gardens during the following season if the weather is conducive to germination, thus affording a pleasant sight, with annuals scattered informally throughout other plants.

To ensure a supply of seed for future use, it can be gathered from spent flowers as it is being dispersed. This is usually shortly before the death of the plant, although plants watered artificially may shed seed over a period of 1-2 months.

Main pests are aphids and leaf-eating caterpillars. These can be controlled by using a pyrethrum based spray.

Birds - Pests and Problems

What to do about some birds which can cause problems for you or your property

Although most Australian birds are completely harmless as far as human activities are concerned, there are a few species which can pose various kinds of problems to your property or business. Some may even threaten your health. Please remember, however, that the birds are only following their instincts and taking advantage of opportunities in the same way that all of us do. With most problems, some forethought or lateral thinking can avoid or solve them with minimal inconvenience to you. If the problem is minor or only occasional and does not seriously threaten your health or livelihood, consider tolerating it as a small price to pay for the pleasure of living with wildlife around you. There is also a distinction between native and introduced birds; in general, native birds are protected by law while introduced species are not. However, if native birds continue to be pests despite all the preventative measures that you take, you may need to talk to your local council or state government conservation department officers about further control possibilities.

Diggers and scratchers in the garden

A variety of birds are considered at times to be garden pests because of their habit of searching for food in the leaf litter and upper layers of the soil by scratching and digging. In your garden this may mean that your mulch gets thrown around everywhere, your sprinkler system disturbed and newly planted seedlings uprooted. The introduced **Common Blackbird** and the native **Superb Lyrebird**, **Australian Brush-turkey** and the **Orange-footed Scrubfowl** can all cause trouble in this way – and the bigger the bird, the heavier the objects they can kick around. Where you have problems, it is recommended that you use a suitably coarse and heavy mulch, such as pebbles or crushed rock, to protect the ground surface, as well as placing logs or bricks around newly planted seedlings and over sprinkler lines. Seedlings can also be covered temporarily with plastic or metal mesh.

Swoopers and swipers

Many people have experienced attacks by **Australian Magpies** and **Masked Lapwings** (Spur-winged Plovers) that may happen when breeding pairs of these birds are trying to nest and protect their eggs and chicks from the humans and dogs that are seen as potential predators. **Kookaburras** and **butcherbirds** have also been known to swoop in the same way. Such attacks are usually very seasonal and will normally cease. Remedies include wearing hats or helmets with big eyes painted or glued on the back, carrying sticks or flags to hold or wave above your head when in the swoop zone and simply choosing a different route to avoid the birds while the swooping occurs. A supply of decorated sticks with flags on can be stocked where, for example, schoolchildren have to cross swoop-prone open spaces. Staring at the birds when they swoop may also deter them, but it is not recommended that this be tried without wearing eye-protection such as safety goggles. Cyclists should dismount and walk through the swoop zone.

Chewers and chompers

"Help! Cockatoos are eating my house!" This seemingly bizarre cry for help is heard every year. **Cockatoos**, especially **Sulphur-crested Cockatoos**, like to chew on materials of certain textures and hardness. These materials include the softwoods such as **Western Red Cedar** used extensively for window-frames and other non-structural house timbers, including weatherboards. If the cockatoos are not stopped, over a period of weeks they can cause considerable damage. The best solution lies at the architectural design stage of the building – vulnerable softwoods should never be used externally in buildings where cockatoo chewing damage is likely. With existing buildings, it may be possible to hang out sacrificial pieces of softwood for the cockies to chew on in peace, while deterring them from attacking your house by spraying them with a hose whenever they try. If the house is not constantly attended, however, the solution may be to cover the wood with wire-mesh or metal flashing. Alternatively, shade cloth or bird netting can be hung on a roller, attached to the eaves, so that it can be rolled up when the house is occupied. Very often, house chewing by cockatoos seems to be associated with somebody in the neighbourhood providing food for the birds, thereby attracting them close to houses. Feeding of birds in these circumstances is not recommended. Chewing of houses is only one of the problems generated by providing food for birds.

Berry bludgers

Whether you have just one tree and a couple of fruit bushes in your back garden or own a large commercial orchard or vineyard, you will probably have found that some birds just love the energy-rich berries and fruits produced. **Parrots**, **lorikeets**, **bowerbirds**, **Blackbirds**, **Starlings**, **Pied Currawongs** and **Silvereyes** may try to harvest some of your fruit before you can. The best remedy for this is the use of bird-proof netting to stop the birds getting access to the fruit in the first place, combined with leaving a tree un-netted for the birds, to keep them away from the rest of the orchard.

Fish filchers

If you enjoy fish and fishing, you can find yourself sometimes at odds with birds that share your interest. A backyard fishpond, filled with delectable goldfish, may come under the scrutiny of a **heron**, **kookaburra** or other **kingfisher** which will keep returning to a good source of food until it has cleaned it out. Apart from providing plenty of shelter for your fish within the pond, you could also try stringing bright-coloured plastic-coated wires across the pond just below the water surface. The same solution may be applicable to larger areas of water, such as farm dams and aquaculture ponds, which may attract **cormorants**. However, aquaculture ponds can be protected more securely by netting them over to exclude fishing birds completely.

Grain gobblers

Birds which receive a lot of bad press as being devourers and despoilers of grain crops include the white cockatoos – the corellas and Sulphur-crested Cockatoo – as well as the Galah. In northern Australia Red-tailed Black-Cockatoos have been implicated as pests of peanut crops. However, damage caused early in a growing season is not easy to quantify as a proportion of the final harvest; crop plants can recover from early losses. Moreover, because of patchy impact regional losses may be trivial even though some individual farmers may be more seriously affected. Effective measures to eliminate or reduce damage include the use of decoy crops or decoy food dumps, the development of regionally integrated crop management and the use of scare tactics occasionally reinforced by selective shooting. A long-term remedy would be a compensation or insurance scheme to recompense badly affected individual farmers. *The unsupervised use of poisons to kill birds is an irresponsible, dangerous and illegal technique that threatens other wildlife, human health and the environment.*

Droppings, dirt and disease

In our constant quest for tidiness and order we can sometimes be frustrated by the tendencies of some birds to mess up the place – with their droppings, their nesting activities and their foraging behaviour. Ducks, Black Swans, Dusky Moorhens, Eurasian Coots and other herbivorous waterbirds can leave slippery green droppings on paths and driveways close to ornamental lakes and other waterways. Public feeding of these birds in problem areas should be discouraged, and areas of succulent vegetation – such as well watered and fertilised lawns – could be replanted with less tasty shrubs and ground-cover plants.

If you find ducks (often Pacific Black Ducks or Australian Wood Ducks) in your swimming pool, they may move on quickly in the absence of appropriate food. Small ducklings should be removed immediately as they may not be able to do so themselves. Regular incursions suggest the acquisition of a good pool cover. Alternatively, visual screens designed to prevent birds on the pool seeing the approach of potential predators have been effective in some situations. Such screens may be made with hessian, shadecloth or similar material, approximately one metre high, close to the edge of the pool.

Silver Gulls and cormorants may roost on boats, with predictable consequences. The best solution is to use detachable (and washable) covers for all affected surfaces. Welcome Swallows often try to build nests beneath overhangs such as the roofs of verandahs where droppings and nest debris accumulate on the floor beneath. This problem can usually be solved simply by attaching a small platform or tray immediately beneath the nest to catch the debris, which can be removed at the end of the breeding season. If nesting by swallows is definitely not wanted, placing a tennis ball in the completed nest prevents use of that nest, and that site, by swallows. You can also spray or paint the attempted attachment areas for swallow or Fairy Martin nests with vegetable oil, or smear them with petroleum jelly, to hinder attachment.

Swallows and Rock Doves (feral pigeons) can cause trouble by roosting on the ledges and girders beneath the ceilings of warehouses, and in other places where their droppings cover everything beneath. If it is impossible to stop the birds entering the building, try lengths of nylon fishing line strung tautly along, and a few centimetres above, the roosting ledges to prevent the birds from settling there. Welcome Swallows can be prevented from roosting beneath the ceiling by stretching nylon fishing line along the length of the building, at 12 cm spacing, attached to the underside of roof support beams. The swallows have difficulty flying up past the lines to perch. *When removing accumulations of dried droppings from covered places, wear a dust mask to help prevent possible disease from inhalation of dust particles.*

Noisy birds

We are familiar with bird-song in the background to our lives, to the extent that it is routinely used to add atmosphere to films and TV shows. However, some people who are sensitive to certain sounds may be irritated by the calls of particular birds around their houses. The caws of corvids (ravens and crows), the cries of currawongs and Channel-billed Cuckoos, the tinkling of Bell Miner (bellbird) colonies and even the repeated cooing of pigeons and turtle-doves have all been known to upset someone at some time. Neighbours who feed birds and thereby attract greater numbers of them may exacerbate the problem. You may be able to solve this by talking to the neighbours or to change the vegetation or the vantage points used by the birds around the house. Otherwise, it is better to accept that the birds are there legitimately and to invest in thicker curtains, double-glazing or ear-plugs.

Things that go bump in the night

"It's a huge owl, one that keeps coming back every night and crashing around in the fruit-tree or on the roof. It's so big I'm afraid it will take my cat or small dog, or maybe even attack me". Actually, it is almost certainly a flying-fox. These large fruit-bats live in or can visit many cities in eastern Australia. They are entirely vegetarian in diet and pose no threat to your pets, although they will probably be eating your fruit or the nectar and pollen of a flowering tree in your garden. Leave them alone and enjoy the presence of a fascinating flying mammal.

For more information about Australia's wild birds and how you can enrich your life by watching them, studying their behaviour and movements, and helping to protect our natural environment, please call Birds Australia National Office on: (03) 9882 2622, or fax: (03) 9882 2677; write to us at 415 Riversdale Road, Hawthorn East, VIC 3123, Australia, email us at: mail@birdsaustralia.com.au or visit our website at: <http://www.birdsaustralia.com.au>

Birds Australia works to facilitate research, conservation and enjoyment of native birds and their habitats in the Australasian region. Birds Australia is the Australian Partner of BirdLife International.

Commercial use of Australian wildlife?

(Found this on the NOVA website – could it be a sign of things to come?)

While many people find putting a dollar value on our wildlife unpalatable, others have developed a taste for it. For example, the kangaroo industry – mainly skins but more recently meat for human consumption – is estimated to be worth around \$245 million a year. The plant-based bushfoods industry, which markets products such as the Kakadu plum, roasted wattle seed and quandongs, was worth \$14 million in 1996 and is growing rapidly.

And there's more to it than food. Many Australian animals are popular as pets – reptile enthusiasts have been known to fork out more than \$2000 for a single live green tree python, while overseas bird-keepers hardly squawk while paying \$9000 for a red-tailed black cockatoo. The wildflower industry is also blooming, earning an estimated \$46 million for growers in 1998.

The recent expansion in the commercial use of Australian wildlife has sparked a keen debate: will it lead to better conservation, or will it threaten the survival of species?

Harvesting, ranching and farming

Australian wildlife can be used in several different ways. Harvesting may be defined as the removal of wildlife living in a free-range wild population through the collection of plants or plant parts; the live capture of animals; the killing of animals; or the collection of eggs for immediate use. Well-known examples of harvesting are the felling of native trees, the kangaroo trade and mutton-birding on the islands of Bass Strait, but it also includes 'bush pick', which is the picking of seeds, flowers and fruits from wild-growing native plants.

Ranching is the taking of animals from the wild to raise in a controlled environment for subsequent use as wildlife products or as live animal displays. In the Northern Territory, for example, crocodile eggs are taken from nests in the wild. They are then hatched in captivity and the juveniles are raised before being killed for their leather and meat or sold to reptile parks and zoos.

Farming involves the breeding of wildlife or the cultivation of native plants in an enclosed environment such as a farm or nursery. So, although the original breeding stock was obtained from the wild, farmed plants or animals are not really 'wildlife' because they have been bred and raised in captivity. Farming is also distinguished from harvesting and ranching by an inevitable process of genetic 'improvement', whereby breeding stock is carefully selected to encourage desirable traits and to remove undesirable ones. This means that, over time, farmed plants and animals may become considerably different from their wild ancestors. Many Australian native plants are already being farmed, including tea tree, hoop pine, quandong, macadamia (the macadamia industry is worth around \$80 million a year) and a host of wildflower species both for the cut-flower industry and for garden plantings. Some animals, most notably the emu, are also farmed.

The debate

The commercial use of wildlife carries some conservation risks as well as some potential benefits. A vigorous debate has sprung up among conservationists, scientists, the animal welfare lobby, government departments and entrepreneurs.

Over-use

Those opposed to wildlife harvesting and ranching say that the use of wild species will lead to their decline and possible

extinction. This has occurred in Australia: over-fishing has led to a decline in populations of orange roughy and abalone and in the 1920s the toolache wallaby was hunted to extinction. In fact, of the 500 animal extinctions estimated to have occurred worldwide in the last 400 years, hunting is blamed for around 23 per cent of them.

But advocates say that with careful management it should be possible to harvest wild animals without precipitating population declines. Moreover these advocates say that by providing a monetary value to species – the 'use them or lose them' concept – people who might otherwise over-exploit particular species or destroy their habitat gain an incentive to conserve them and use them wisely.

One of the main threats to wildlife in Australia is the clearing of habitat, much of which is carried out on private or leasehold land. Individual farmers, pastoralists and developers clear native vegetation for many reasons, but predominantly they do so in order to put the land to more 'productive' uses. Suppose they were able to make money from wildlife? Advocates suggest that many landholders may start conserving habitat if they were able to exploit their wildlife for commercial gain. Others disagree: it might make more economic sense, they say, to over-exploit such resources for a quick profit that could then be reinvested in some other venture. It could be a case of 'use them AND lose them'.

Non-target species

Another risk is the effect of harvesting and ranching on non-target species. For example, the extraction of a particular plant or animal may involve the use of vehicles in sensitive habitat, or might

lead to the spread of weeds or fungal diseases. The reduction in numbers of one species might have 'knock-on' effects for other non-target species by, for example, making them more prone to predation.

Competition and gene pool contamination

Some conservation groups suggest that harvesting and ranching will inevitably lead to farming, in which formerly wild animals and plants are 'domesticated'. Should these genetically 'improved' organisms escape into the wild, they might compete for habitat with the wild population or change its genetic make-up by interbreeding.

Conversely, some scientists argue that farming with native Australian plants and animals would be more ecologically sustainable than present agricultural systems. This is because native species are adapted to Australia's poor soils and highly variable rainfall and therefore make best use of available nutrients and moisture without damaging the environment. Whether native species would provide sufficient return to the landholder is unclear.

Farming might help resolve some conflicts over the use of wildlife. For example, many conservationists believe that the harvesting of native forests for timber degrades ecological and other values and threatens biodiversity, although the timber industry denies this. An increase in tree 'farming' – plantations of native and exotic tree species – might provide a solution. In Queensland, for example, conservationists, the timber industry and other stakeholders are currently engaged in a process that might see the phasing out of native forest harvesting, coupled

with an increase in plantations to meet the needs of industry.

Poaching and smuggling

The illegal taking of organisms from the wild poaching can have a deleterious effect on wildlife populations. In a way, the existence of poaching proves that certain wild species already have a monetary value. The smuggling of Australian birds, reptiles and, to a lesser extent, plants to national and international black markets is reputed to be big business.

People opposed to the commercial use of wildlife say that legalising some operations will increase the impact of illegal activities because hardened poachers will focus their attention on very rare species not available legally. It may be difficult to distinguish between legal and illegal specimens, making it harder to police the trade effectively. And the legalisation of an Australian wildlife trade might increase demand, leading to an increase in poaching activities and the taking of an unsustainable number of organisms from the wild.

But here, too, there are counter-arguments. For example, permitting the export and local sale of native plants and animals bred in captivity might eliminate the financial incentive to take from the wild. This would apply particularly to those species that could be bred in captivity more cheaply than they could be obtained from the wild.

The case of 'superabundant' species

Another argument in favour of the commercial use of wildlife concerns so-called 'superabundant' species. These are native animals – including some cockatoo and kangaroo species – that have benefited from the advent of agriculture in Australia and are now

prospering to the extent that they are sometimes regarded as pests. Why not turn a problem into an asset? The commercial use of superabundant wildlife could simultaneously reduce the damage they cause to agriculture and provide a resource for a new industry. Such a scheme might also provide extra funds for monitoring and supervision to ensure that culling quotas are maintained at a sustainable level.

Issues of management

The arguments for and against wildlife harvesting often come back to whether harvesting can be maintained in the long term. After all, the modern history of humans versus wildlife mostly shows that wildlife declines as human influence increases. But many wildlife managers in Australia maintain that sustainable harvesting is technically possible – one of the key challenges, they say, is to harness the economic and social forces that might otherwise act destructively. Ensuring that resource owners see an economic benefit in a well-managed wildlife trade is one of the most important elements of this. sets out some principles developed by wildlife managers and scientists to help ensure the responsible use of Australian wildlife.

The future for native plants and animals

The commercial use of Australian native plants and animals will almost certainly continue to grow. Some products, such as bushfoods, are capturing the imagination of connoisseurs worldwide. Others are more controversial and will benefit from a continued, informed debate. All sides agree that Australian wildlife is precious: for its ecological role, for its place in Australian culture, and for its own sake. If we are to use it, the main thing is that we use it wisely.

PHYTOPHTHORA CINNOMOMI from
Phytophthora Newsletter No.4 2001 by Renate
Velzeboer, reprinted from the Jnrl. of the Native Orchid
Society of SA

Phytophthora cinnomomi has been recognised by the Federal Government as a major threat to the nation's endangered species and ecological communities and considerable attention will be paid to any activities that increase the risk of *Phytophthora sp.* Impacting on nationally threatened plants and animals.

So, what is Phytophthora?

Phytophthora cinnomomi is a fungus which attacks the roots of plants causing them to disintegrate or decay. The plant cannot take up water and nutrients and dies when the soil dries out and the plant is subjected to water stress. The first symptoms of infection appear as chlorosis (yellowing) of the foliage. The disease symptoms vary between plant species. Grass trees, for example, may collapse, whereas Banksia leaves become yellow and eucalypt leaves die back slowly from the branch tips. It may take several years from initial infection to disease symptoms as the fungus waits for favourable conditions for growth, ie. warm and moist.

Phytophthora cinnomomi is killing numerous woody native plants, exotic fruits and vegetables with over 1,000 species affected worldwide. The most susceptible species in South Australia is the grass tree (*Xanthorrhoea sp.*) with silver banksia (*Banksia marginata*), desert banksia (*B. ornata*), beaked hakea (*Hakea rostrata*), cone bush (*Isopogon ceratophyllus*), Mount Lofty bush pea (*Pultenaea involucreta*), messmate stringybark (*Eucalyptus obliqua*), myrtle wattle (*Acacia myrtifolia*) also affected. Entire ecosystems are at risk as many plant species are important food sources of habitats for numerous bird and animal species.

Fruit species affected by *Phytophthora sp.* Are apples, pears, apricots, grapes, peaches, pineapples, avocados, macadamias, chestnuts and walnuts.

The spreading of Phytophthora

The fungus spreads from plant to plant through root contact. It spreads most rapidly when rainfall coincides with warm temperatures, mainly in spring, summer and early autumn. At these times the disease can spread rapidly with the help of "artificial" factors such as human disturbance. The transport of infected soil and plant material by vehicles and heavy machinery (ie. logging, fire fighting, road building and maintenance) is probably the single most important factor in the spread of this fungus. Landholders can also spread the disease by planting infected stock or transporting weeds from infected sites to non-infected dump sites. Bushwalkers also pose a threat to the spread of the fungus by mud sticking to boots and shoes.

Controlling the spread of Phytophthora

Once an area is infested *Phytophthora* cannot be eradicated, so it is necessary to take precautions to minimise the chance of transferring infested soil from one area to another.

Suggested precautions:

- Drive and walk on formed roads and tracks
- Avoid driving or walking in muddy areas
- Brush soil off shoes and vehicles on site both before and after your visit- don't wait until you get home.
- Disinfect shoes and tyres with methylated spirits or bleach solution (1 part bleach to 10 parts water)
- Obey road signs- roads and tracks may be closed to help stop the spread
- Do not transplant bush plants to your garden - they may be infected!





THREATENED SPECIES - SIGNALING AN UNBALANCED ENVIRONMENT

The Threatened Species Network is a community based program of the World Wide Fund For Nature and the Natural Heritage Trust.

Species	A single kind of plant or animal. Only members of the same species can breed to produce fertile offspring.
Ecological Community	A naturally occurring group of different organisms (Plants and/or animals) which inhabit a common environment and which interact with each other
Threatened species	One that could become extinct in the foreseeable future if no effort is made to conserve it. The term 'threatened' covers all degrees of threat.
Extinct	There are no living members of that species remaining, no new young born, or no seedlings germinating again.

Since European settlement of Australia in 1788, 30 species of mammals and birds and about 100 species of plants have become extinct in Australia. At least another 57 species of mammals, birds, reptiles, frogs and fish are now nationally endangered. Many hundreds of species of invertebrates are endangered.

It is often said that species' extinction is a natural part of evolution. This is true; plants and animals have become extinct before. However, it is usually a slow process allowing species time to adjust to the change.

At the moment, species of plants and animals are disappearing faster than ever before - even faster than they did during the great dinosaur extinction. The process is catastrophic for the environment.

There can be no doubt about the cause. Humans are bringing about mass extinctions through the effects of our activities on the earth's natural systems.

We (humans) are the only animals with the power to determine the fate of all other life forms. With this power comes a moral responsibility to ensure the survival of all species with which we share our planet. Today we have a far greater understanding of the plight of our wildlife. Yet many of the extinctions and threats to other species continue despite this knowledge.

The rapid loss of species is a signal that our ecosystems are in trouble!

AN UNBALANCED ENVIRONMENT

Life on earth is a complex web of interactions between plants, animals, earth and atmosphere. Plants and animals help to maintain the balance of the atmosphere, sea and land. They help cycle and regulate water, make soil, and break down wastes. They also provide a constant source of wonder and enjoyment. Some people argue that humans and their activities are also a part of nature. This is true, but the ultimate consequence of this 'natural' human behaviour may eventually be the extinction of our own species. We depend on the living systems of the earth to provide our food and water, the air we breathe, and the climate we live in.

WHAT PUTS A SPECIES AT RISK?

Species or ecological communities are put at risk by 'threatening processes' - or, any process or action that directly or indirectly affects the survival, abundance, or evolutionary development of a native species or ecological community. A threatening process can ultimately lead to extinction if it is not stopped or removed. Often, more than one process can affect an individual species or community.

There are five main categories of threatening processes: habitat loss or destruction, alteration to ecological systems, competition and predation from introduced species, direct taking by people (this might be hunting, direct or indirect killing for example, poison baiting for feral pests affecting a native species too), and pollution. The first three are most critical in Australia.

Examples of Threats to Particular Threatened Species

Species	Habitat Loss or Destruction	Taking	Pollution	Alteration to Ecosystem	Predation by Pest Species
Abbot's Booby	X			X	
Minke Whale		X	X	X	
Tiger Quoll	X	X		X	X
Greater Bilby	X			X	X
Kowari	X			X	X
Green Turtle	X	X		X	
Spotted Tree Frog	X		X	X	X
Trout Cod	X	X	X	X	

1. Habitat Loss or Destruction

Every year, approximately 664,000 hectares of native vegetation is cleared in Australia. At the start of the 21st Century, this places Australia in the number one position for land clearing rates in the developed world. Clearing reduces the continuous range of habitats, the diversity of habitats and ecological processes, and species diversity. Islands of remnant ecosystems are sensitive to further disturbance such as invasion by weeds and feral animals.

Much of Australia's remaining original native vegetation cover is subject to degrading processes, exists in remnants which are isolated, or is utilised for production. Obviously, this impacts on habitats for threatened species and communities.

Over 48 per cent of Australia's ecological systems are either substantially or significantly disturbed. Every vegetation type has been disturbed in some way by human activity.

2. Alteration to Ecological Systems

Changes such as dam building or tree clearing has an obvious impact. Other changes such as soil compacting, trampling, fire regimes, pollution and road widening (to name just a few) are less obvious. These can also be incremental, that is they begin in a small way without much impact but gradually grow to have a serious impact.

Impacts can also be cumulative, that is, the total of a number of small threatening actions for example, across the range of an ecosystem, which alter it in a small way, can cumulatively add up to a major threat.

The following list of threatening processes which are listed under Commonwealth legislation gives an idea of the sorts of threats which can impact on ecological systems either alone or combined.

3. Competition & Predation from Introduced Species

Many introduced species flourish in Australia - often because the native plants and animals on which they prey are defenceless, or they compete for food and/or habitat. All of Australia has been affected by introduced feral animals, even the most inaccessible of areas.

Across Australia, indigenous plant species are declining, but introduced plant species are increasing and expanding their range. In urban areas, nurseries compete to sell gardeners the latest, new, hardy, fast-growing plants. These sought after characteristics are a formula for new environmental weeds.

Environmental Weeds - A Threatening Process

- Threaten the survival of many native plants and animals
- Usually grow faster than native plants and successfully compete for the available nutrients, water, space and sunlight
- Often survive better than native plants as they may not be affected by pests or diseases that would normally control them in their natural habitats
- Reduce natural diversity by smothering native plants or preventing them from growing back after clearing, fire or disturbance
- Replace the native plants that animals use for shelter, food and nesting

Source: Healey 1996

The national government has established a Weeds of National Significance list, which includes weeds that are already causing significant environmental damage, as well as a National Alert List of weeds that are considered potentially damaging to biodiversity in Australia. For more information on weeds in Australia, check the site www.ea.gov.au/biodiversity/invasive/weeds.html.

THREATENING PROCESSES

Threatening Processes Listed under Commonwealth Legislation

Threatening Process	Listed under EPBC Act
Predation by the European Fox	X
Dieback caused by the root-rot fungus <i>Phytophthora cinnamomi</i>	X
Predation by Feral Cats	X
Competition and land degradation by feral rabbits	X
Incidental catch (or bycatch) of seabirds during oceanic longline fishing operations	X
Competition and land degradation by feral goats	X
Land clearance	X
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gasses	X
Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	X

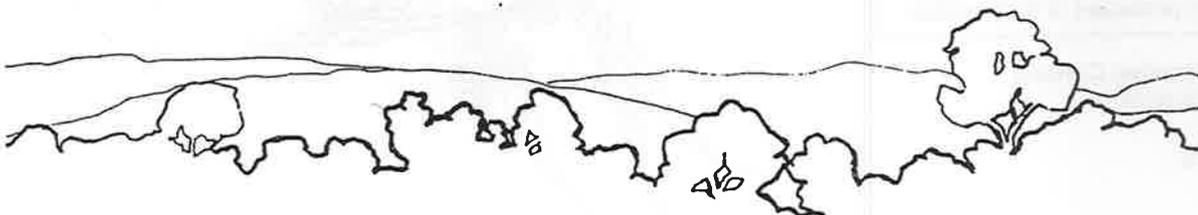
Most of the above threatening processes have yet to see Commonwealth National Threat Abatement Plan prepared. These outline the degree of threats and steps to mitigate or eradicate them

In some cases, actions to reduce or eradicate pests has a further impact on biodiversity. For example, baiting for rabbits, wild dogs and foxes is linked to the destruction of non-target threatened native fauna either through direct ingestion of baits or secondary taking of poisoned animals.

The impacts of landscape change on our native plants and animals often go unnoticed until their decline becomes obvious and severe damage has already been done.

Impact of Pest Animals on Biodiversity

Impact	Grazing Competition	Destruction of Fauna	Habitat Damage	Land Degradation	Weed Seed Dispersal	Exotic Disease
Rabbits	X		X	X	X	
Foxes		X			X	X
Rats		X				
Feral Pigs		X	X		X	X
Feral Goats	X		X	X	X	X
Feral Horses	X		X	X	X	
Feral Donkeys	X		X	X		
Feral Camels			X	X		
Feral Buffalo			X	X	X	
Feral Cattle					X	X
Feral Cats		X				X
Wild Dogs		X				X
HUMANS	X	X	X	X	X	Possibly



AUSTRALIA'S THREATENED SPECIES

For full details of species that are considered threatened and/or listed under the Commonwealth's Environment Protection and Biodiversity Act, see www.biodiversity.environment.gov.au.

	VASCULAR PLANTS	MAMMALS	BIRDS	REPTILES	AMPHIBIANS	FRESHWATER FISH
Extinct	63	27	23		4	
Critically Endangered		1				
Endangered	518	33	34	12	15	13
Vulnerable	656	49	62	38	12	17

THREATENED SPECIES LEGISLATION

Plants, animals, ecological communities and threatening processes can all be listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), if they are found to fulfil the necessary criteria. Anyone can nominate for listing under the Act. (Contact TSN to find out how)

The listing of a species triggers the preparation of an Action Statement and a Recovery or Threat Abatement Plan under the Commonwealth's Act. These outline the conservation issues for a species and those actions needed for their recovery. Some species also have national or state Recovery Teams - groups of experts and often community members whose task it is to implement Recovery Plans.

Often not enough is known about a species or community for them to be listed as threatened under legislation. Through their ecological interactions, common species not yet listed are often crucial to the survival of a listed species.

The link between listed threatened and unlisted common species - example:

The Tiger Quoll, is Australia's largest mainland marsupial carnivore, listed as Threatened under the Commonwealth EPBC Act. It requires large habitat areas with suitable den sites. Adults eat medium sized mammals such as gliders and possums. Juveniles eat reptiles and smaller mammals. To protect this listed species, we also need to protect its food prey species. These prey are often not threatened and therefore less likely to have a focus on protection of their habitat.

For More Information Contact
TSN National Support
1800 251 573
tsn@wwf.org.au

MORE THREATENED SPECIES INFORMATION

Check the following Websites for more information about Threatened Species and Ecological Communities;

- Environment Australia
www.ea.gov.au/biodiversity
- TSN and World Wide Fund for Nature
www.wwf.org.au
- Birds Australia
www.birdsaustralia.com.au
- Community Biodiversity Network
www.cbn.org.au
- Environment ACT
www.act.gov.au/environ
- NSW National Parks and Wildlife Service
www.npws.nsw.gov.au/wildlife/threatened.htm
- NSW Fisheries Scientific Committee
www.fsc.nsw.gov.au
- QLD Parks and Wildlife Service
www.env.qld.gov.au
- WA Dept. Conservation and Land Management
www.calm.wa.gov.au/plants_animals
- SA Dept. Environment and Heritage
www.dehaa.sa.gov.au/biodiversity
- TAS Parks and Wildlife Service
www.parks.tas.gov.au/thrspp.html
- VIC Dept. Natural Resources and Environment
www.nre.vic.gov.au



What's So Important About Habitat?

Australia is home to more than one million species, many of which are found nowhere else in the world. About 85 per cent of flowering plants, 84 per cent of mammals, more than 45 per cent of birds, and 89 per cent of inshore, temperate-zone fish are endemic – that is they are only found in Australia.

Each one of these species need the right conditions to survive and flourish. They need a home to live in and food to eat. For example, the Mountain Pygmy-possum can only live in icy alpine and subalpine areas, while the Southern Cassowary needs plants found in the hot tropical rainforests of Far North Queensland to survive. Other species, such as the Red Kangaroo, are not so restricted to specific habitats and can occur in a variety of habitats.

In their habitat our native animals find everything they need to survive, in particular food and water, but also the hollow logs, boulders, caverns, loose bark and tree hollows they need to shelter and breed. Australia is made up of a wide range of climates from the hot, wet tropics to the dry, flat interior to the cool alpine areas. As a result, the country has an immense variety of habitats including swamps, grasslands, mangroves, forests, rainforests, woodlands and deserts. Many factors, including clearing for agriculture and also the demands created by large urban developments, put pressure on these habitats. Other threats include competition and predation

by introduced pests such as foxes and rabbits, which have had disastrous effects on many native animals such as the Bilby. Weeds also pose a serious threat to native bushland by replacing valuable native plants with unsuitable exotic species.

Some habitats, such as grasslands, have been extensively cleared as they weren't considered to be important. However, it is now known that they are vital to the survival of many species including the Southern Lined Earless Dragon and the Button Wrinklewort Daisy, which only live in remnant lowland temperate grasslands in the ACT and surrounding parts of NSW. There is so little native grassland now remaining that very few people realise what Australia has lost of this once biodiversity rich habitat.

Habitat protection is one of the key environmental issues facing Australia today. Habitat modification and loss has been, and remains, the most significant cause of loss of biodiversity.

The good news is that with increased knowledge, sound planning and cooperation between government, industry and all members of the community we can work towards protecting native habitats. Establishing wildlife corridors, fencing of waterways and replanting native vegetation on public and private land are just some of the ways Australians are currently working together to protect habitats and the native animals and plants that live there.

How you can help

All Australians can join together in helping to protect threatened species. You can:

- ✓ Join your local conservation group, such as Landcare to help plant trees and create habitat.
- Take part in awareness activities such as National Threatened Species Day and the Yowie Hands on for Habitat Awards.
- Encourage your school to get involved in a conservation program.
- ✓ Grow native plants in your garden and ensure weeds don't spread into surrounding bush.
- Be a responsible pet owner. Keep cats in at night and don't dump unwanted animals in the bush.
- Logs have life inside! Leave hollow logs on the ground. Buy your firewood from a sustainable source.
- ✓ Be aware about how to cause minimal damage to the environment when you go walking or camping out in the bush.

There are many more ways to help – get in touch with your local conservation group or Threatened Species Network Coordinator (see below).

ASGAP Wildlife &
Native Plants Study Group
C/- C. Jones, JP PO Box 131
Strathalbyn SA 5255

For further information



Environment Australia

- Community Information Unit on Freecall 1800 803 772
- Threatened Species and Ecological Communities Website: <http://www.ea.gov.au/biodiversity/threatened/>
- Threatened Species Network Website can be found on the WWF website at: <http://www.wwf.org.au>



Threatened Species Network (TSN) – a community-based program of WWF and the Natural Heritage Trust

- | | | |
|---|--|--|
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WWF (World Wide Fund For Nature) Australia
Telephone: 1800 032 551 | E-mail: tsn@wwf.org.au

Threatened Bird Network

Birds Australia
Telephone: (03) 9882 2622
E-mail: mail@birdsaustralia.com.au

Australian Network for Plant Conservation

Telephone: (02) 6250 9509

Community Biodiversity Network

Andreas Glanznig
Telephone: (02) 9262 4743
E-mail: admin@cbn.org.au
Internet: www.cbn.org.au



September is
Biodiversity Month



Fairy Wren
Wendy Warren, Aged 10 years



Grevillea caleyii
Maddi Withington, Aged 9 years

Australia is an amazing place

The Great Barrier Reef and our rainforests are not the only place you will find a rich diversity of native birds, butterflies, frogs and other wildlife.

Our cities and towns are also home to a large variety of plants and animals. Sustaining nature's diversity is good for our health and quality of life.

The key to conserving our plants and animals is to protect and restore their **habitats**.

Even a backyard can be a haven for life.

To start creating a garden haven for wildlife is easy. Simply plant a native shrub to attract birds. Then take another step.

By helping nature at your doorstep, you'll connect your garden to the great web of life.



BIO-WHAT ?

Biodiversity is the web of life, including us. This variety of life covers all the different types of ecosystems – from forests to coral reefs, all the different plant, animal and microbe species, and the genetic material they contain.

Australia's diversity of life is in trouble – over 1400 plant and animal species are threatened with extinction, and many wildlife habitats are disappearing fast.

The Earth Alive! Action Guide was written by Andreas Glanznig, National Coordinator, Community Biodiversity Network. Design by Zebra Communication. Illustration by Fran Low. Photo montage images courtesy of Ian McCann/ Vic Department of Natural Resources and Environment, Birds Australia (NSW), Gould League (Vic), Craig Cleeland, Geoffrey Bishop and T.R.E.A.T. Printed on 100% recycled paper made with 80% post-consumer waste.

FOR MORE INFORMATION

Community Biodiversity Network

Information on biodiversity and its conservation

Ph: (02) 9262 4743

Fx: (02) 9262 4723

Email: admin@cbn.org.au

Web: www.cbn.org.au

The CBN Web Site contains:

- **Earth Alive Directory:** information on over 4,500 biodiversity education and 'hands on' resources, and nearly 1,000 environment organisations
- **Biodiversity Education Centre:** wealth of information for teachers and students
- **Home and Garden:** Lots more information and web site links on what you can do at your doorstep

Humane Society International

World's largest animal conservation organisation

Ph: (02) 9973 1728

Fx: (02) 9973 1729

Email: enquiry@hsi.org.au

Web: www.hsi.org.au

Environment Australia

Federal Department of Environment and Heritage

Information, programs and publications on the conservation of biodiversity

Ph: Toll Free 1800 803 772

Web: www.environment.gov.au

ABOUT THE COMMUNITY BIODIVERSITY NETWORK

The Community Biodiversity Network (CBN) is a national network of organisations that works to raise public understanding and support for biodiversity conservation, and provide easier access to biodiversity information. The CBN is hosted by Humane Society International, the Australian Museum Centre for Biodiversity and Conservation Research, and the World Wide Fund for Nature (Australia). Major funding is provided by Environment Australia.

Earth Alive!

ACTION GUIDE



Create a garden haven for wildlife



hands on for habitat



COMMUNITY BIODIVERSITY NETWORK

DISTRIBUTION SPONSOR

THE BODY SHOP®

A PROJECT OF

HUMANE SOCIETY
INTERNATIONAL

MAJOR FUNDING BY

Environment
Australia
Department of the Environment and Heritage

CREATE A HABITAT GARDEN

CONTACTS

- **Your Local Council.** For indigenous plant lists and information on local Bushcare and bush regeneration projects
- **Australian Plants Society, Society for Growing Australian Plants or the Wildflower Society of Western Australia** in your State - Web: farrer.riv.csu.edu.au/ASGAP/sgap.html

- **Greening Australia Office in your State**
Web: www.greeningaustralia.org.au

RESOURCES

- **The Austrafloora A-Z of Australian Plants** (Bill Molyneux and Sue Forrester) - Good book stores
- **Australian Plants for the Garden** (Gwen Elliot)
Good book stores
- **Gardening on the Wild Side: the New Australian Bush Garden** (Angus Stewart) - Good book stores
- **Grow Your Own Wildlife** (Peter Johnston and Alan Don)
Greening Australia Ltd, Ph: (02) 6281 8585
- **Flowering Natives for Home Gardens** (Denise Greig)
Good book stores
- **Making Your Garden Bush Friendly**
McLoughlin-Rawling Publications, Ph: (02) 9894 2255
- **Creating a Lizard Garden**
Web: www.wildscape.com.au/projects/project_article.asp?id=151
- **Butterfly Gardening Brochure**
Melbourne Zoo, Ph: (03) 9285 9355
- **Attracting Butterflies to Your Garden** (Densley Clyne)
Good book stores
- **Bring Back the Butterflies**
Western Australian Museum, Ph: (08) 9427 2700
- **Attracting Butterflies to Gardens in Temperate Australia Brochure** - Bird Observers Club - Ph: (03) 9877 5342
- **Gardening for Butterflies**
Web: farrer.riv.csu.edu.au/ASGAP/APOL14/jun99-1.html
- **Flora for a Fauna Friendly Sydney Garden**
Web: www.acon.com.au/lnpfriends/flora%20for%20fauna.htm
- **Gardening with Butterflies in Mind** (northern NSW)
Web: www.nor.com.au/environment/species/birdwing/index.html
- **Butterfly Gardening** (South Australia)
Web: www.adelaide.net.au/~reid/
- **Flowers Loved by Australian Native Bees**
Web: www.zeta.org.au/~anbr/surveyflowers.html

Contacts and Resources

CREATE HABITAT FOR NATIVE BIRDS

CONTACTS

- **Birds Australia.** For information about native bird conservation, bird watching, how you can get involved in threatened bird conservation projects, and the NSW Birds in Backyards Program.
Ph: (03) 9882 2662 - Web: www.birdsaustralia.com.au
- **Bird Observers Club of Australia** - On bird watching and outings
Ph: (03) 9877 5342 - Web: www.birdobservers.org.au

RESOURCES

- **The Field Guide to the Birds of Australia** (Graham Pizzey)
Good book stores - **On-line Urban Bird Identification Guide**
Web: www2.abc.net.au/science/birds/default.htm
- **Birdscaping Your Garden** (George Adams) - Good book stores
- **Birds in Your Garden** (Ellen McCulloch) - Good book stores
- **Attracting Birds to Your Garden** (John Dengate)
Ph: Gould League (03) 9532 0909
- **Attracting Birds to Your Garden Web Site**
Web: www.birdobservers.org.au/garden%20birds.htm
- **Nestboxes for Natives Brochure and Web Site**
Ph: (03) 9882 2662 - Web: [www.birdsaustralia.com.au/infosheets/info5.html/#Nestboxes for Birds](http://www.birdsaustralia.com.au/infosheets/info5.html/#Nestboxes%20for%20Birds)
- **The Nestbox Book** (Jim Grant)
Ph: Gould League (03) 9532 0909

CREATE HABITAT FOR FROGS

CONTACTS

- **Frog and Tadpole Study Group of NSW**
Ph: 0419 249 728 - Web: www.fats.org.au
- **Frog Crusaders** (Far North Queensland)
Web: www.fdrproject.org
- **Queensland Frog Society Inc**
Ph: (07) 3366 1868 - Web: www.qldfrogs.asn.au
- **Victorian Frog Group**
Ph: (03) 9354 4718 - Web: www.frogs.org.au
- **SA Frog Census** - Ph: (08) 8204 2099,
Web: www.deh.sa.gov.au/epa/frogcensus/about.html
- **TAS Frog! Program** - Tel: 03 6231 2564

RESOURCES

- **Green Guide to Frogs of Australia** (Gerry Swan)
Good book stores
- **Attracting Frogs to Your Garden** (Kevin Casey)
Ph: Gould League (03) 9532 0909
- **Frogs in Your Garden Brochure** (Qld)
Ph: Queensland Frog Society (07) 3366 1868
Web: www.qldfrogs.asn.au/garden.htm
- **Keeping Frogs in Your Garden Brochure** (NSW)
Ph: Frog and Tadpole Study Group 0419 249 728
Web: [www.fats.org.au/facts.htm#Keeping Frogs in Your Garden](http://www.fats.org.au/facts.htm#Keeping%20Frogs%20in%20Your%20Garden)
- **Creating a Wetland Habitat in Your Backyard Brochure**
Ph: Victorian Frog Group (03) 9354 4718
- **Frogs in Your Garden** (General)
Web: www.asxfrogfocus.com/garden2.html

KEEP YOUR PET SAFE AND CONSERVE NATIVE ANIMALS

CONTACTS

- **Humane Society International**
Ph: (02) 9973 1728 - Web: www.hsi.org.au
- **Royal Society for the Prevention of Cruelty to Animals** (RSPCA) - Ph: (02) 6282 8300 - Web: www.rspca.org.au
- **Wildlife Information and Rescue Service**
Ph: NSW Country: 1800 641 188 - City: (02) 8977 3333
Web: www.wires.au.com/index.html
- **Your State Environment Department**
- **Your Local Council**

RESOURCES

- **Caring for our Native Animals Brochure**
Taronga Zoo Education Centre - Ph: (02) 9969 2455
- **Cats and Wildlife Brochure**
NSW National Parks and Wildlife Service - Ph: 1300361967
Web: www.npws.nsw.gov.au/help/catswild.htm
- **Cats and Wildlife Brochure**
Queensland Parks and Wildlife Service - Ph: (07) 3227 8186
- **Keeping Cats Happy Fact Sheet**
Humane Society International - Ph: (02) 9973 1728
- **Responsible Pet Ownership Brochure and Video**
VIC Department of Natural Resources and Environment
Ph: (03) 9637 8325 - Web: www.pets.info.vic.gov.au/web/root/domino/pets/petsite.nsl/pages/petshome