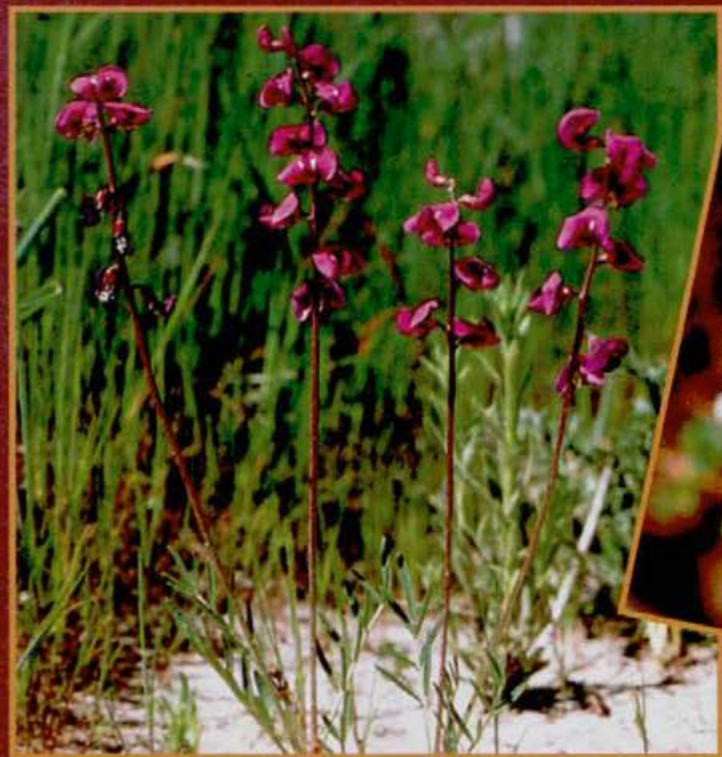


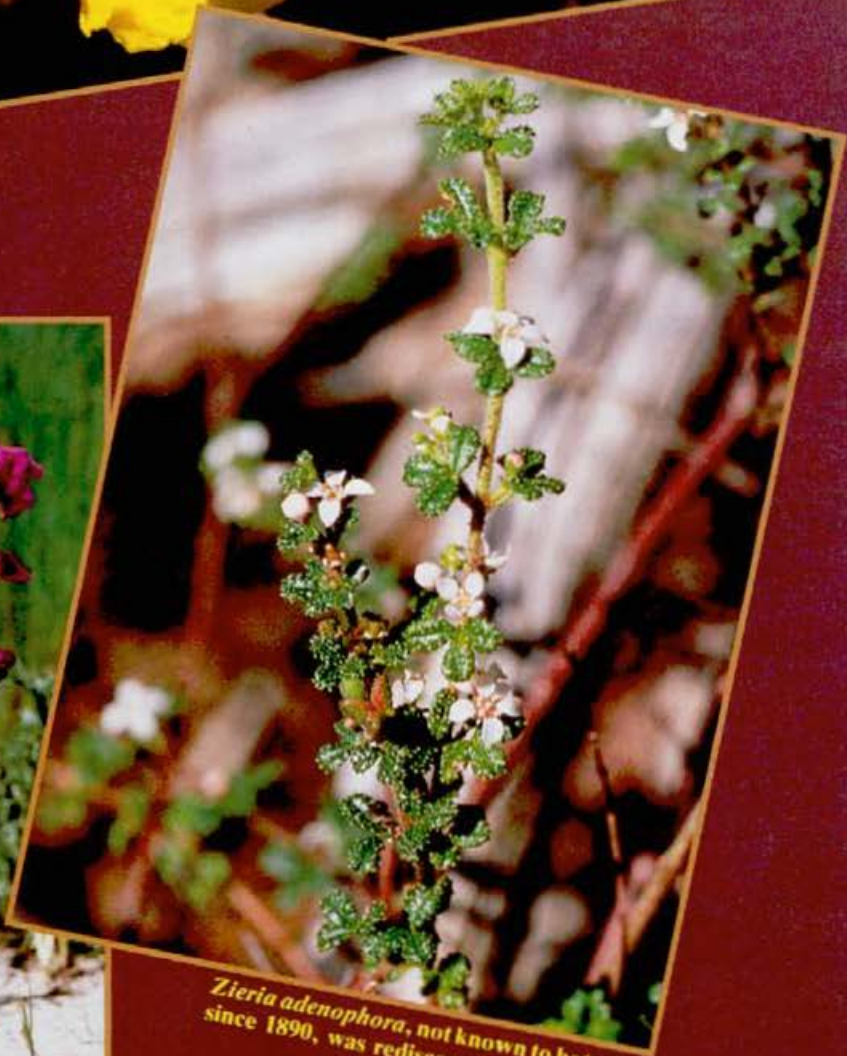
S.O.S. — save our species



Hibbertia paeninsularis, an endangered species from the Eyre Peninsula of South Australia.



Swainsona recta, an endangered perennial herb.



Zieria adenophora, not known to botanists since 1890, was rediscovered in 1988.



Anybody seen *Grevillea scapigera*? This prostrate plant of the southern wheat belt of Western Australia may now be extinct in the wild, as searches over the last few years have failed to find it.

Extinction is forever — a good reason for two CSIRO botanists to have worked for the past 11 years on compiling and refining a list of Australia's rare or threatened plant species. The list was first published in 1979.

The Australian National Parks and Wildlife Service sponsored Mr John Briggs and Dr John Leigh, of the CSIRO Division of Plant Industry, to up-date their 'Rare or Threatened Australian Plants', last published in 1981 (see *Ecos* 37). The Australian Heritage Commission and the World Wildlife Fund Australia also contributed.

Some encouraging trends show up when the updated list is compared with the 1981 version. In the earlier list, 37% of the species were considered threatened (classified as 'endangered' or 'vulnerable'), as against 30% today. While the actual number of threatened species has risen — up from 812 to 993 — so too has the total of rare or threatened plants (now 3329, up from 2206).

The bigger numbers reflect more comprehensive botanical knowledge rather than rampant habitat destruction. Indeed, the number in the critical 'endangered' category has increased only slightly — from 200 to 209. And whereas in 1981 only 38% of all the plants listed found relatively safe haven in designated reserves, now the figure has risen to 53%. The total number of plants on the list represents about one-sixth of the total Australian flora.

Miraculously, 14 species 'presumed extinct' 7 years ago have been found in the land of the living. 'It's a delight to stumble

across a once-forsaken plant, quietly swaying there in the breeze', Mr Briggs says. 'The long and tedious book-work and searching are forgotten.' The tales surrounding the rediscovery of four are told on page 12.

Mr Briggs is pleased to note that since 1981 he has seen an unparalleled growth in interest in rare or threatened plants and in the resources devoted to work on them. Some of the credit for the heightened endeavour must go to publication of 'the list' that year. Another factor is the significant increase in the taxonomic knowledge of our flora, in part due to work on the new 'Flora of Australia', which began in 1979.

The updated list is the only comprehensive catalogue of all the nation's botanical jewels in need of special attention, although most of the States, and the Northern Territory, have lists for their own domain or are currently preparing them. To ease comparison, the national catalogue also includes a section that lists each State's plants alphabetically according to genus and species.

Where and how many?

As well as having been expanded to embrace more plants, the new publication has been improved in a number of ways.

What use is a list?

The issue of 'Rare or Threatened Australian Plants' in 1981 fulfilled a long need. The list stimulated people to fill in gaps and, in some cases, search for long-lost species (see the other box).

Other noteworthy sequels have been:

- ▷ The New South Wales Education Department has developed a 'plant and save' program, sponsored by K-Mart, that encourages school-children to propagate and plant native species that are losing a root-hold in the State. The list has been the primary source of information in choosing which plants to propagate. The program has met with good success, with more than 200 schools becoming involved. Several schools with suitable propagation facilities grow the seedlings, which are then distributed to other participating schools for planting and nurture in school grounds around the State. In one instance, Temora West Primary School now runs a registered nursery that includes rare plants in its catalogue.
- ▷ The South Australian Vegetation Clearance Act makes it illegal for landholders to clear further land without government approval (and even then 30% has to be retained). Part of the approval process includes checking that no plant appearing in the list grows on the land in question.
- ▷ Various environmental impact statements have referred to the list as their authority. One of these involved the contentious Eden woodchipping area.
- ▷ The Tasmanian Forestry Commission, the Australian Heritage Commission, and the Commonwealth Department of Primary Industries and Energy have all referred to the list in arguments about logging in the Jackie's Marsh area.
- ▷ As a matter of policy, the New South Wales Forestry Commission's nurseries now propagate and sell a number of tree species that are designated 'rare' on the list.



A close brush with extinction

Some 78 species were 'presumed extinct' when the 1981 list of 'Rare or Threatened Australian Plants' was published. Today that figure stands at 97, the result of 35 additions and 14 deletions. Four of the lucky 14 that came back from the brink of oblivion make interesting tales.

Leptorhynchos gatesii, or wrinkled buttons, was rediscovered near Lorne, Vic., in 1984 after botanists lost sight of it in 1922. It was one of the few good things to arise from the Ash Wednesday fires of 1983. Apparently the plant is a post-fire pioneer, and was found growing in an ash-bed by an amateur botanist, Mary White. She remembered reading of *L. gatesii* in *Extinct and Endangered Plants of Australia*.

Hakea pulvinifera, a needle-leaved tall shrub, was known to grow only in a single locality near Gunnedah, N.S.W. In 1971 it was thought that the expansion of a car park on the site had inadvertently destroyed the remaining plants. Searches failed to find the species anywhere nearby. Nevertheless, in 1988, Ms Sue Morrison, a

New South Wales National Parks and Wildlife Service ranger, rediscovered the plant right where it had originally been sighted: the car park hadn't been expanded — one a kilometre down the road had, and searchers had mixed up the sites!

Zieria adenophora had been found in only three collections, the last in 1890 from near Araluen, N.S.W., where the collector saw only a single plant. In 1988, Mr Briggs and his colleague Dr Jim Armstrong made one more attempt to find it. After some fruitless hours they were at the point of giving up when Dr Armstrong noticed an unusual plant at his feet. There it was! There were 29 plants in all, in full flower, occupying a rocky area no more than 5 by 10 m.

In 1986, *Haloragodendrum lucasii* was rediscovered right in suburban Sydney by a local St Ives resident, Mr Chris Diekman. He located about 1000 plants growing in a gully on a plot occupying less than half a hectare. The shrub hadn't been seen since 1926!

The old list simply stated whether or not a species held refuge in a reserve. The new edition answers the question how safely (in number terms) it is preserved and, for eastern Australian species, tells in what reserves particular plants are known to find harbour. Since Mr Briggs and Mr Leigh hold the list on a computer file, they can supply a print-out of all the rare or endangered plants in a given national park — a boon to park managers.

Although the number is arbitrary, the two authors have settled upon 1000 as the number of individual plants necessary to classify a species as adequately conserved.

Another improvement in the new edition is the listing of 'species' that still await formal description, but voucher specimens of which can be found in one of our recognised herbariums. These undescribed taxa include many plants under imminent threat.

Each plant is given a readily understood code — a string of symbols that basically accord with categories adopted by the International Union for the Conservation of Nature. A species' primary conservation status may be extinct (X), endangered (E), vulnerable (V), rare (R), or insufficiently known (K).

An 'X' is awarded if a plant either has not been found in recent years despite thorough searching, or has not been collected for at least 50 years and was only

known to occur in areas now intensively settled. This category contains 97 species.

'E' for endangered is appended for species judged to face a serious risk of disappearing from the wild within one or two decades if present land use continues. Some 209 species run this risk.

Species not presently endangered, but at risk of disappearing over 20–50 years if some identifiable threat impinges on their habitat, are given a 'V'. The total under this umbrella is 784.

Miraculously, 14 species 'presumed extinct' 7 years ago have been found.

'R' refers to those rare plants that have a small population spread over a wide range, or a relatively large population set in a very restricted area. Some 1368 belong to this category.

The region with by far the greatest number of rare or threatened plants is the South-Western Province of Western Australia, with 1203 species. This is also the region with the highest number of species presumed extinct — 64.

Other regions with high numbers include Cape York Peninsula (633 rare or

threatened species), Coolgardie, W.A. (124), the northern portion of the Northern Territory (100), the Moreton District of Queensland (176), the northern coast of New South Wales (157), the New South Wales Central Tablelands (102) and Southern Tablelands (126), and the Eastern Highlands of Victoria (89).

The bright counterpoint to this gloomy litany is that, as mentioned, 53% of all the species listed find refuge in national parks or proclaimed reserves. Tasmania, Victoria, and New South Wales stand out as having 80% or more of their rare or threatened plant species made safer in this fashion. Often reserves have been specifically created for the preservation of specific plants.

It's not the area of reserves in a State that matters so much as their number and diversity. Western Australia's reserves, for example, cover 6% of the State, but — mostly large and remote — they embrace only 45% of its rare or threatened flora; whereas Victoria's — small and many — cover the same percentage area, but secure 83% of its precarious flora.

Mr Briggs and Dr Leigh hope that the new list will inspire people to create more reserves and to fill in the gaps in our knowledge of where, and how abundantly, some species survive. 'At least park rangers and amateur botanists now know what they should be looking for', Dr Leigh says. 'The list is a good starting point, and a guide to priorities in hanging on to what we've got left.'

'People respond to published data, and we've had hundreds of letters in response to the previous list. There's a private army of botanists out there who are helping to fight on behalf of some silent plants.'

The researchers regret, however, that their project, although important, has always been funded on a short-term, intermittent basis. If the list is to be kept up to date, it needs a permanent curator.

Andrew Bell

More about the topic

Rare or threatened Australian plants: 1988 revised edition. J.D. Briggs and J.H. Leigh. *Australian National Parks and Wildlife Service Special Publication No. 14*, 1989.

Native plants facing extinction. A. Bell. *Ecos* No. 37, 1983, 21–6.

Native plants at risk. A. Bell. *Ecos* No. 22, 1979, 10–12.

'Extinct and Endangered Plants of Australia.' J.H. Leigh, R.W. Boden, and J.D. Briggs. (Macmillan: Melbourne 1984.)