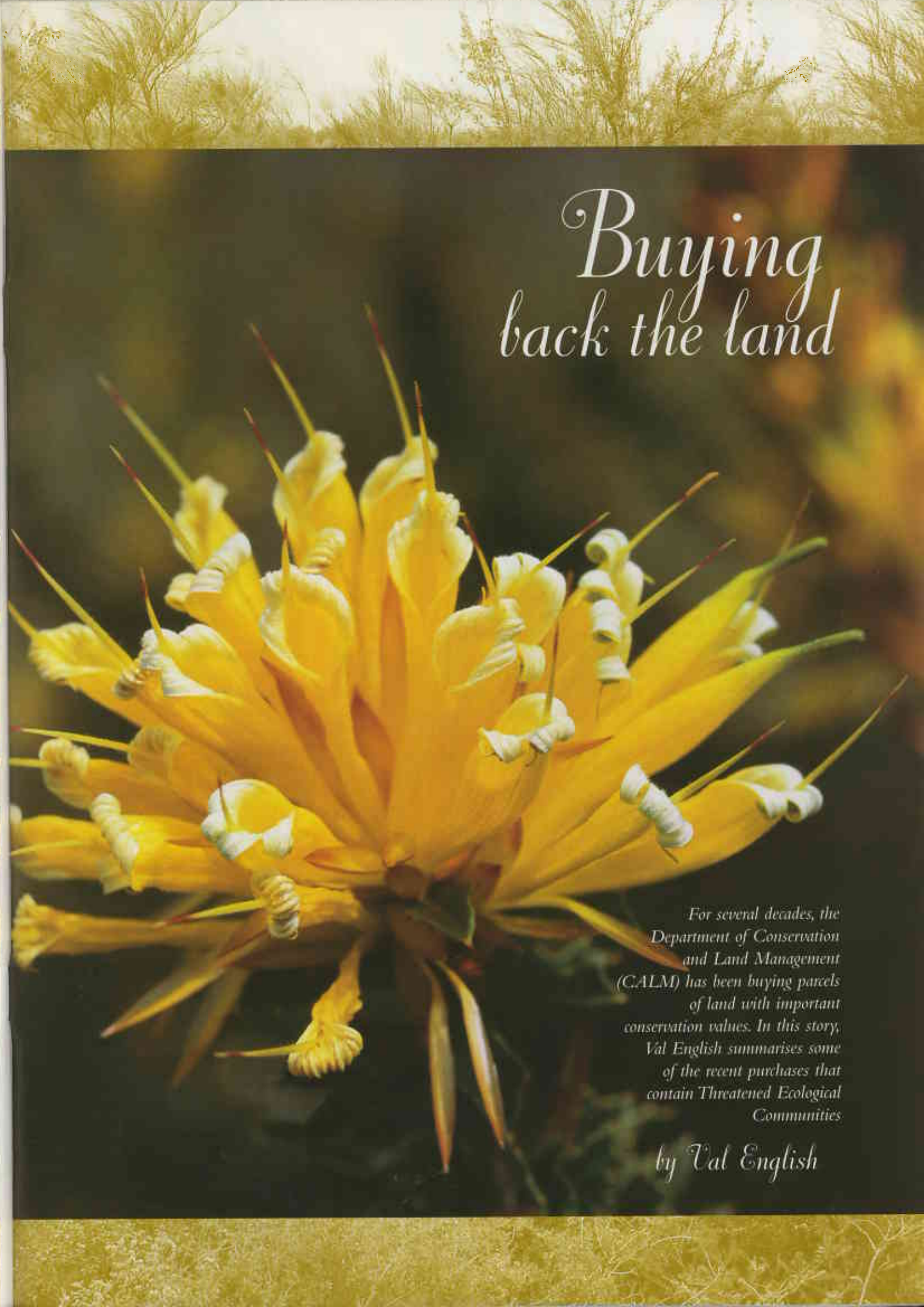
Buying back the land



For several decades, the Department of Conservation and Land Management (CALM) has been buying parcels of land with important conservation values. In this story, Val English summarises some of the recent purchases that contain Threatened Ecological Communities

by Val English

Since 1994, the Department of Conservation and Land Management (CALM) has been identifying 'threatened ecological communities'—groups of species that occur together in particular ecosystems and that are seriously threatened (see *LANDSCOPE*, Spring 1996). Formally written Recovery Plans frequently follow the identification of such communities, and acquiring and managing land containing threatened ecological communities are important recommendations in many of these plans.

Bush Forever, a 'whole of Government' planning document for the Perth area, includes a number of recommendations for land purchase where sites contain threatened ecological communities. Already, many such areas have been purchased through this process.

In addition, a total of nearly $1.8 million has been spent on land purchases under CALM's threatened ecological community program. The Commonwealth Department of Environment and Heritage (previously Environment Australia) has provided financial assistance with most of the purchases.

These are a few examples where land purchases are helping to ensure the long-term conservation of these rare and highly threatened communities.

Springs

In 1995, the very first land purchase under CALM's threatened ecological community program was a small, slightly degraded but highly significant area of tumulus ('little mound') springs in Muchea. Investigations by Brenton Knott and Edyta Jasinska of the Zoology Department at The University of Western Australia indicated that these permanently wet peat mounds supported a remarkable suite of plants that usually only occurred in the coolest parts of the far south-west of the State, and an unusual suite of invertebrate animals (animals without backbones).

An 'Endangered' article in *LANDSCOPE* (Autumn 1996) featured these springs. After reading the article, Bullsbrook resident Doug Kennedy contacted the authors about an area on his neighbours' land that he believed may also be a 'tumulus spring'. Permission was granted to visit the site and it was, indeed, found to contain a virtually pristine area of tumulus springs.

A completely new genus of beetle was recorded at this new site. In addition, a fern *Cyclosorus interruptus*, a sedge *Cyathochaeta teretifolia*, and a buttercup *Hibbertia perfoliata*, all of which are uncommon on the Swan Coastal Plain and only found in permanent freshwater seepages or springs when they do occur there, were also discovered in this spring. The landowners wished to subdivide and sell the site, and a nine-hectare block was purchased in 2001.

Both springs have been fenced. Extensive weed control and rehabilitation have been carried out by staff from CALM's Swan Coastal District, with the help of teams from Conservation Volunteers Australia. The complex hydrology that drives the springs is not well understood, so a consultant has investigated this to provide better information to help manage them.

Ironstone communities

Many threatened communities are associated with highly restricted soil types. They include two plant communities associated with ironstone

Previous page
Main Western prickly honeysuckle.
Photo – Andrew Brown
Background Busselton Ironstone.
Photo – Val English

Above Ironstone petrophile.
Photo – Leonie Monks

Left Members of the local catchment group view the springs at Bullsbrook with zoologist Brenton Knott.
Photo – Val English

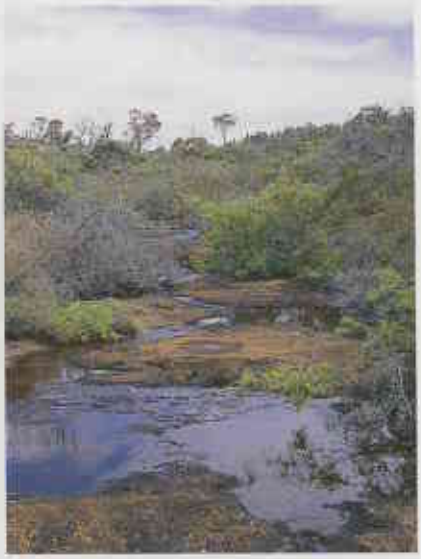
Above Tumulus Springs in Bullsbrook.

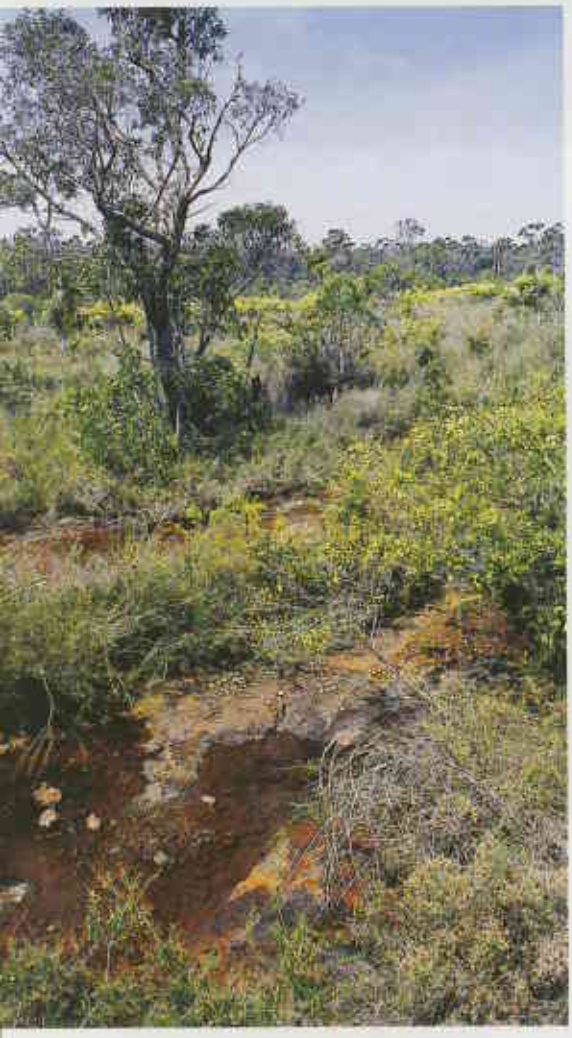
Right Monitoring the Perth to Gingin Ironstone.
Photos – Val English

soils believed to have been formed in ancient bogs (hence the common name 'bog ironstone') on the Swan Coastal Plain.

The Perth to Gingin Ironstone community ('northern ironstone') is restricted to a very small area near Gingin (see *LANDSCOPE*, Spring 1996). This attractive community features the only area of massed everlastings near Perth. Pink sunray everlastings (*Rhodanthe manglesii*) flower en masse with flannel flower (*Tribonanthes australis*). The largest area of this community, about 75 hectares, was purchased in 2001 to form what is now the Timaru Nature Reserve. The area has since been fenced and is the subject of an extensive monitoring program, prompted by the occurrence of a very hot wildfire that swept through the entire reserve in January 2003. A consultant, working under the direction of CALM's Swan Coastal District and Threatened Species and Communities Unit, is implementing the monitoring program. The main aim of the project is to determine the impacts of the fire on weed levels, plant community composition, and regeneration of the many native herbs and shrubs that dominate the community.

Another plant community confined to 'bog ironstone' soils, but occurring much further south, is the 'Busselton ironstone' shrublands community. The significance of this amazing plant community was identified during a major regional survey of the southern Swan Coastal Plain. It contains a hugely rich flora, including nine species listed as declared rare flora, and another suite of species of uncertain status that are on CALM's informal 'priority list'. Western prickly honeysuckle (*Lambertia echinata* subsp. *occidentalis*), McCutcheon's grevillea (*Grevillea maccutcheonii*), laterite petrophile (*Petrophile latericola*), butterfly-leaved gastrolobium (*Gastrolobium papilio*) and Abba bell (*Darwinia* sp.





Top A creek in the Busselton Ironstone.
Photo – Val English

Top right Pink sunray.
Photo – Jiri Lochman

Above The Busselton Ironstone Community in full flower.
Photo – Val English

Williamson) are among the rarest and most threatened plants in the State, and are found only within this plant community. Appropriate management of this threatened ecological community is therefore crucial to the long-term survival of these species.

Five areas of the Busselton Ironstone community have now been purchased to help secure the future of both the plant community and its rarer components. One of the sites was largely cleared for agriculture long ago, and another contains cleared patches. These have provided ideal sites for translocation of a number of the most threatened plant species that make up the community. Since 1997, many hundreds of plants of these very rare and threatened species have been planted within the sites. Now, some more common plant species of the Busselton Ironstones are being added to begin restoring the original plant community. CALM's Blackwood District and Science Division staff work with the Bunbury Naturalist's Club on these mass plantings, and in weed control at the sites.

The most recently purchased area of ironstone in Busselton was an exciting find. CALM staff became aware of the property during negotiations for a subdivision application, and several staff did a quick survey of the site in early 2003. Most of the property was found to be in near-pristine condition, with exceptionally low weed levels, having never been grazed and historically subject to very limited disturbance.

In addition to the plant community on shallow ironstone soils that occupies the central portion of the property, the site of about 50 hectares was inferred to contain an additional three threatened ecological communities: a claypan community ('shrublands on dry clay flats', listed as Endangered in WA); a woodland ('*Eucalyptus calophylla* woodlands on heavy soils of the southern Swan Coastal Plain', listed as Vulnerable in WA); and a shrubland ('southern wet shrublands', listed as Endangered in WA).

The brief survey by CALM staff in 2003 also identified six species of flora on CALM's priority list. The potential for other declared rare and priority flora to be identified during detailed spring survey is very high.

There is no other private land and few areas of conservation land near Busselton in such pristine condition and containing such a varied combination of threatened ecological communities and priority flora. The land was purchased and transferred to CALM in mid-April 2004.

Dieback disease, caused by *Phytophthora cinnamomi,* is one of the greatest threats to remaining areas of the Busselton Ironstone community. These areas, including those that have been purchased and identified as being infected with the disease, are now sprayed regularly with phosphite, a chemical that helps to combat the serious impacts of this disease. Spraying is done from an aircraft, so that whole areas of the community are covered.

Right McCutcheon's grevillea.
Photo – Andrew Brown

Below Abba bell.
Photo – Meredith Spencer

'Muchea Limestone'

Another plant community based on the underlying soil type is the 'Muchea Limestone' community. This occurs in areas up to 35 kilometres from the coast, where limestone deposited by watercourses in black clay soils is associated with a suite of plants that normally only occur on the coastal limestone. The community only remains in very small, isolated pockets, as the rich soils were cleared many years ago for agricultural use. A six-hectare area in good condition was purchased in 1996, after Department of Environment and CALM staff conducting a survey noticed a 'for sale' sign on the road verge. Later, a neighbour who owned a much larger area of adjacent land that also contained areas of the plant community expressed an interest in selling his land. Both areas are now fenced, and CALM's Swan Coastal District conducts weed control at both sites.

Volunteer involvement

Many groups, including naturalists' clubs, friends groups, land care district committees, the Wildflower Society and Conservation Volunteers Australia, are involved in managing threatened ecological communities. They contribute in many important ways through weed control, rehabilitation, fencing, developing management plans, managing contractors and just generally keeping a close watch on these important sites.

All of the land purchases and the subsequent management actions are helping in our efforts to ensure that the amazing biodiversity, in both species and ecosystems, in the State's south-west is maintained for future generations to appreciate.

Val English is an Acting Senior Ecologist with CALM's WA Threatened Species and Communities Unit (WATSCU), based at Woodvale. She can be contacted on (08) 9405 5169 or by email (vale@calm.wa.gov.au).

Plant communities discussed in this article were identified in the report *A floristic survey of the Southern Swan Coastal Plain*. This report was prepared for the Australian Heritage Commission by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc) in 1994 by Neil Gibson, Bronwen Keighery, Greg Keighery, Allan Burbidge and Mike Lyons.

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Erratum

The photograph in the Autumn 2004 issue of *LANDSCOPE* (mid left, page 52) is the rare *Diuris purdiei* not *Diuris corymbosa* as stated in the caption.

The photograph in the Summer 2003-04 issue of a snail on p. 56 and p. 61 was incorrectly captioned. The photo is of the introduced predatory snail *Oxychilus* sp., which is thought to be at least partly responsible for the extinction of the Pemberton and Albany snails, and is a threat to many of our native terrestrial snails.

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