

News of Friends of Grasslands

Volume 1 Issue 2

1 December 1994

Monday 12 December Twilight seed collection

Join us for a 5.30 pm to 7.30 pm excursion to the Belconnen Naval Radio Station to collect seed of *Danthonia carphoides* (a key species for the Golden Sun Moth, *Synemon plana*) and *Vittadinia muelleri*. See inside pages for background.

We'll see the highly invasive weed, Ser-rated Tussock Grass (*Nassella trichotoma* from South America). Learn how to differentiate it from look-alike native grasses, and how to ensure we don't spread it as we're walking.

Sarah Sharp and others will brief us on the correct technique for identifying species and collecting seed, and the seed will go into the FOG seed bank.

We need to let the Naval Station know numbers, so please phone Edwina (253 1860 w/h) by Thursday 8 December if you'd like to come. No prior experience required—all welcome.

To get to the Naval Station, turn west off Baldwin Drive Kaleen (opposite the high school). Once on the road to the Station, turn left after the stop sign and look for the white buildings—we'll meet Warrant Officer John Connors at the Mess Club building at 5.30 pm.

HMAS Harman's Publicity Officer may join us to take a few photos of our activities—all good publicity for FOG!

Thursday 8 December 8 pm native grass talk

FOG members are invited to join the Society for Growing Australian Plants in Meeting Room 1 (street level) Griffin Centre in Bunda St, Canberra City to hear Todd Layt of Sydney firm Aabulk explain the Viro-Cell native grass

Inside This Issue

- Seed collection trip
- Native grass talk
- Background on Golden Sun Moth and the Belconnen Naval site
- Collect seed for cash

method, a cost-competitive alternative to establishing native grass by direct seeding.

Using Viro-Cell—plants grown in an upside-down pyramid-like cell, with an absorbion agent to ensure water retention after planting plus special pre-treatments to enhance transplant growth and frost/heat protection—Todd is cracking the urban subdivision market in a big way, in Sydney and now in Canberra.

Aabulk's technique has developed to the point where Viro-Cell native grass can usually be installed for about the same price as turf—often less. Could this be the start of the native grass revolution in public (even private) landscaping?

Hear how developers, landscapers and the public are reacting to this, and what lessons Aabulk has learned along the way.

Collect seed for cash

To meet demand for local provenance native grasses for landscaping projects in the ACT, Aabulk—with the support of the ACT Parks and Conservation Service—is looking for people willing to collect native grass seed in the ACT region.

By helping Aabulk collect seed, you are not only earning money but also helping provide a commercial seed bank from which local Canberra grasses can be grown for Canberra developments. Otherwise, seed from Victoria or elsewhere may have to be used—a less environmentally desirable outcome. Details page 4.



Golden Sun Moth

Synemon plana



Danthonia carphoides

Seed heads

Introduced plants rapidly displaced native grasslands, destroying the animal communities they supported.

GOLDEN SUN MOTH

BY TED EDWARDS

IN PAST DECADES ENDANGERED species conservation has concentrated heavily on vertebrates. Invertebrates were poorly understood and knowledge about them was lacking. Today, for a very few, information is becoming available that indicates many are in danger of extinction.

One such species is the Golden Sun Moth (*Synemon plana*). It belongs to an

ancient family of moths, the Castniidae or sun moths, which are day-flying and, like butterflies, have well-developed clubbed antennae. Adult Golden Sun Moths have a wingspan of about five centimetres and are active in the hottest part of sunny days between mid November and mid December. They inhabit grasslands dominated by certain species of wallaby grass (*Danthonia spp.*). In Canberra this is Short Wallaby Grass (*D. carphoides*). The males patrol the grasslands flying rapidly and searching for females. When a patrolling male flies over an unmated female she flips her cryptic dark grey forewings forward exposing her golden orange hind wings to which the male responds by alighting beside her. After mating the females scuttle from tussock to tussock inserting their eggs deep into the bases. The wings of the females are reduced in size so, although they can fly, they rarely

do so unless frightened and then they only fly for a short distance. In this respect the species is unique in its family.

The adult moths have no mouthparts and so cannot feed or drink. They do not live long and probably die within a few days of emergence. All the feeding is done by the caterpillars which, after hatching from the eggs, tunnel in the soil feeding on the underground parts of the wallaby grass. How long they remain caterpillars is unknown but two years is the most likely period. When fully grown they prepare a vertical tunnel to the surface through which the pupa travels just before the moth emerges.

At the time of European settlement suitable grasslands inhabited by *Synemon plana* were found from Bathurst (New South Wales) through central Victoria to the South Australian border. These grasslands were prime areas for agriculture and were quickly occupied. Fortunately wallaby grass was one of the native grasses most resistant to heavy grazing by introduced stock and the grasslands survived, although probably in an altered state.

In the 1950s the use of chemical fertilisers and more vigorous introduced pasture grasses and clovers became almost universal in the areas where suitable *Danthonia* grasslands grew. These introduced plants rapidly displaced the grasslands, destroying the animal communities they supported. *Synemon plana* was once very common in the grasslands but today is known from only ten sites in the inner urban areas of the ACT, and two sites in Victoria. The largest known surviving site is the Belconnen Naval Station in Canberra, an area of some 100 hectares now under imminent threat of development, but some of the sites are no larger than a few hundred square metres.

The Golden Sun Moth is a robust survivor and can be common in these tiny



ED EDWARDS

areas, some of which have been isolated and at their present size for several decades. Nevertheless the moth is endangered because the grassland it inhabits is endangered.

None of the known sites is in a national park or part of a large reserve, and all are vulnerable to various threats. Housing and office development in Canberra threaten some of the surviving sites and invasion by introduced weeds is another major threat. *Danthonia carphoides* grassland survives best where it is lightly grazed or occasionally subject to high mowing. Without grazing or mowing the low-growing natives can become shaded and eventually choked out by taller exotic plants. Clearly at least two adequate reserves are necessary, and these would need to be carefully managed with minimum disturbance except for grazing or mowing, if the moth is to survive. Much

**The female's wings are
reduced in size so,
although they can fly,
they rarely do.**

more needs to be known of the biology of the moth and the characteristics of the grassland if they are to be successfully conserved.

The Golden Sun Moth is a species of some scientific interest. It was once an extremely successful moth, common over a large area of south-eastern Australia. It has the advantage of being relatively resistant to grazing and mowing, and possibly also resistant to fires. It has the disadvantage of being confined to a single plant community suited to and vulnerable to modern agriculture. It has the further disadvantage of being unable to recolonise an area distant from an inhabited site because of the relative immobility of the female. These characteristics have brought it to the edge of extinction.

Although this article is about one conspicuous species, it is important to stress that it serves as a figurehead or focus for the many invertebrates as yet unstudied that are also confined to these grasslands and also in danger of extinction. All these invertebrates play an essential role in the balance of the grassland. While many of the individual plant species in the grassland are not yet endangered, the grassland community itself is. ■

Ted Edwards is a scientist at the Australian National Insect Collection in the CSIRO's Division of Entomology in Canberra. He has been studying the taxonomy of moths for the last 23 years.

ANH

Naval Navigation Centre, Belconnen

A.C.T.

LOCATION: 1 km north of Belconnen in the ACT.
AMG: 6902 60997. Quadrat No. MON348. Figure 13.

SIZE: 50 ha.

RARE OR THREATENED SPECIES: The site is the best remaining habitat of the endangered moth *Synemon plana*, which in its larval form, feeds on the roots of *Danthonia carphoides*.

OTHER SIGNIFICANT FEATURES: The best remaining lowland grassland in the ACT dominated by *Danthonia* spp..

LAND TENURE & MANAGING BODY: Commonwealth Government. Australian Defence Forces - Navy.

CURRENT MANAGEMENT: The area is securely fenced off and managed as a communication station. The grass is regularly mown.

THREATS: The Navy are proposing to relocate the navigation centre to Narranderra on the south-west slopes of NSW. The Belconnen site is then proposed for urban subdivision so the grassland would be destroyed. Weeds are a problem in sections of the centre but mowing seems to minimise their dominance.

RECOMMENDATION: If the Navy move, the area should be incorporated into the ACT's reserve system. The fence should be maintained and the grassland should continue to be subject to high mowing (20 cm), pending more research into its requirements.

Collect seed for cash, continued

Aabulk is willing to buy the following seed on a per kilo basis :

- *Poa sieberiana* \$500 per kilo (clean seed, eg sieved to reduce husk and debris)—up to 2 kilos
- *Poa fawcettiae* \$500 per kilo (clean seed)—up to 2 kilos
- *Chionochloa* \$350 per kilo (florets)—up to 2 kilos
- *Danthonia carphoides* \$350 per kilo (florets)—up to 2 kilos
- *Danthonia tenuior* \$350 per kilo (florets)—up to 1 kilo
- *Danthonia pilosa* \$350 per kilo (florets)—up to 1 kilo
- *Danthonia longifolia* \$350 per kilo (florets)—up to 1 kilo
- *Stipa bigeniculata* \$350 per kilo (loose seed and some husks)—up to 1 kilo

In addition people may be needed to work with Aabulk on an hourly rate basis, collecting seed for ACT Parks & Conservation projects.

Seed must be collected when mature (not too early) ie just prior to seed dropping. To ensure correct species identification, a sample plant should be collected for species confirmation by the Herbarium at the Australian National Botanic Gardens.

If you are interested, phone Todd Layt at Aabulk on (045) 77 5912 w or (045) 77 2901 h (fax (045) 77 5736) as soon as possible, or write to Lot 1, Ingold Lane, Clarendon NSW 2756. Or talk to Todd at the 8 December SGAP meeting.

Next issue

Report on FOG meeting 26 November.