

Conservation of the graceful sun-moth

By Matthew Williams

The graceful sun-moth (*Synemon gratiosa*) is a small, brightly coloured day-flying moth found only on the Swan Coastal Plain. Monitoring the adult moth has presented a challenge as it appears for only a few weeks each year, mainly in March, and has a limited distribution determined by the availability of suitable mat-rush habitat. Further surveys in 2010 hope to clarify the conservation status of the species.

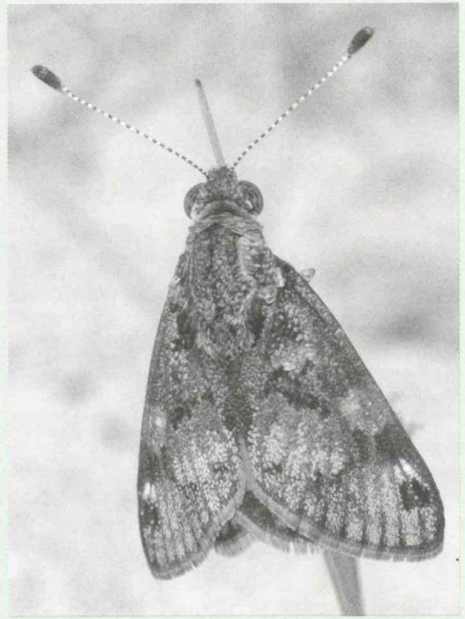
Endemic to south-western Australia, the graceful sun-moth is restricted to the Swan Coastal Plain between Quinns Rocks and Mandurah. It is specially protected fauna under the WA *Wildlife Conservation Act 1950* and listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Surveys since 2002 have revealed few populations of the graceful sun-moth and all are in banksia woodland and coastal heath remnants. These relictual populations are thought to have a high risk of local extinction.

Biology

The larvae (caterpillars) grow to only about 20 mm long, are pure white, and look like beetle grubs. For most of the year, the larvae live underground where they feed on the subterranean parts of two closely related mat-rushes (*Lomandra maritima* and *L. hermaphrodita*). They pupate inside a silk-lined tunnel that they construct in the soil beside their host plant. The pupae are mobile and can move up and down this tunnel. The adult moths emerge in late February and March. They have dark grey-black fore wings and bright orange hind wings. They may feed on flowers, but this has never been observed – there are few plants in flower during March! After mating, females spend all of their time seeking out plants to lay eggs on, which they do by inserting their ovipositor into the soil at the base of a suitable mat-rush.

Conservation

Distribution of the host plants is the major determinant of potential graceful sun-moth habitat. *Lomandra maritima* was identified as a larval host plant only recently, and this has widened the potential habitat of the graceful sun-moth to include many areas zoned for clearing in near-coastal parts of



When at rest, the graceful sun-moth's dark grey-black forewings cover the bright orange hind wings. Photo – David Pike

the Perth and Peel areas. This creates an urgent need to clarify the habitat and distribution of the species to resolve any potential conflict between the species' conservation and future development.

2010 surveys

DEC Research Scientist Carly Bishop will be coordinating a project in 2010 to survey the graceful sun-moth and its habitat. These surveys will extend from Wilbinga in the north to Binningup in the south, including existing and proposed conservation reserves. The project will determine the habitat and distribution of the graceful sun-moth, provide a regional context for environmental impact assessment processes and clarify the conservation status of the species.

There will be extensive surveys and searches for adult graceful sun-moths between late February and early April 2010. To help with these surveys we are seeking the participation of volunteers, community and Friends groups. DEC staff and environmental consultants will also be conducting surveys.

DEC will be conducting training sessions on survey methods for the graceful sun-moth in mid to late February and early March. For more information or to participate in the February–April 2010 surveys, please email carly.bishop@dec.wa.gov.au.