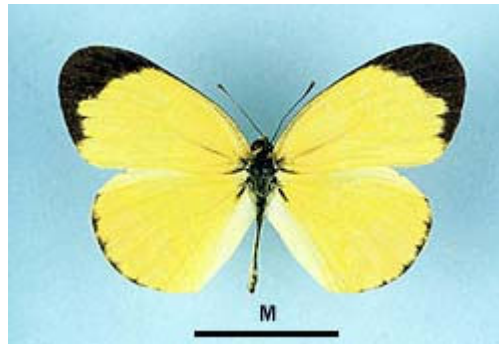


SOUTH AUSTRALIAN BUTTERFLIES

Data Sheet

Eurema(Terias) milax (Donovan) (Small Grass-yellow)



Interesting aspects: This butterfly belongs to a large group of small yellow butterflies that occur worldwide throughout the tropics. The Small Grass-yellow is tolerant of colder climates and is the only yellow that regularly ventures into the temperate latitudes of Australia. However, it is unable to survive the winter in these areas. It is a strong migrant, and every spring, numbers of these butterflies will fly south from northern breeding grounds helped by the hot northerly winds that occur at that time. During these migrations they will stop for nothing except nightfall or colder weather, but once stopped in an area they will mope around, feeding from flowers or look for their larval hostplants. Once the hot winds start again, then off they will fly with the wind to whichever direction the wind is blowing. They sometimes fly over the sea reaching islands adjacent to Australia. Females are both gravid and fertile during these migrations, but rarely stop to lay eggs on hostplant if they happen upon them. The numbers in these migrations are usually small (compared to the Caper White) and within southern settled areas only a few are seen to cross a line of site within the hour during peak periods, although farther north in open pastoral areas during one spring migration, about 80 butterflies were reported to pass a line of site during a period of one hour. In the past, these butterflies in the inland breeding areas of Australia could sometimes occur in the thousands.

Their bright sulphur colour always attracts attention from the public. During migrations they have a steady direct flight below head height, but otherwise the flight is slow and irregular within a metre of the ground. Typical of many yellows, the adult butterflies will exhibit either a summer or winter livery depending on their flight period, with the summer flying forms usually being pale yellow with few or no brown markings on the wing undersides, while the winter forms are bright yellow and the undersides have pronounced brown markings, which are best produced in the females. The darker markings are formed when the early stage life cycle is extended, particularly in the pupae, which causes increased melanin (black) pigment content to develop.

A recent DNA molecular study (Braby et al 2006) infers the small yellow butterflies of the Eastern Hemisphere may belong in their own genus *Terias* or at least may form a separate subgenus group within *Eurema*. However, the study is incomplete and based on other morphological data some other small yellow butterflies in this hemisphere group may not

belong in the subgenus *Terias*. The genus *Eurema* was originally applied to some small yellow butterflies occurring in the Western Hemisphere.

Life History

Larval food-host: *Cassia* and *Senna* species, including **C. fistula*, *S. artemisioides coriacea* (punky bush or desert cassia), *S. artemisioides petiolaris* (tomentose form - grey cassia, and the glabrous form) (Caesalpiniaceae); also *Neptunia* species and ***Paraserianthes*(*Albizia*) *lophantha lophantha* (Cape Leeuwin wattle) (Mimosaceae). The preferred hostplant is *Senna artemisioides*. The larvae usually eat the softer green parts of the hostplants including young seedpods, and will sometimes eat the flowers.

Eggs: Initially white, later turning yellowish, long spindle shaped with numerous very fine indistinct vertical ribs, and with the height slightly more than thrice the diameter, the lower half tapering to a flat base, the upper half tapering to a blunt point. Laid singly on the green parts of the hostplant, usually on the leaves. Females tend to lay eggs on very small, young plants. In the southern areas, eggs hatch in about 7-11 days during spring.

Larvae: Initially pale yellow, long cylindrical shaped, the skin is shiny, with sparse, dark coloured fine hairs arising from pale coloured, simple raised bases. These hairs are longest at the anterior and posterior ends of the larvae. The head is pale yellow, large, rounded, smooth and shining, with a few dark hairs. The larvae eat their egg shells first, then follow with whatever the eggs were laid on. After eating the hostplant, the larvae become greenish (unless they eat flowers). Initially these immature larvae scour the hostplant surface, be it leaf, bark, young pod cuticle or flowers. Older larvae devour whole leaves and young stems.

All stages of the larvae have special white-based glandular setae (hairs), which secrete poison, visible at the ends of the hairs as clear coloured droplets. The composition of the fluid is unknown, but is likely to be a deterrent to both invertebrate and small vertebrate predators, as the hostplants contain irritant poisons, which the larvae are capable of assimilating. This affords some protection to the larvae while they feed openly on the hostplant during the day.

The second instar is similar to the first. Subsequent instars acquire abundant short setae, which impart a rough scabrous appearance. The third and fourth instars are yellowish green coloured with a darker dorsal line and a yellow lateral line.

Mature larvae are long cylindrical shaped, 18-22 mm long, green with a dark green dorsal line and a yellowish white lateral line. Near pupation, the lateral line separates a distinct colour change in the larvae from whitish green above to yellowish green below the line. The upper surface of the larva is covered in abundant, poison tipped setae, which are mostly short, but there are some interspersed longer setae. The head is a uniform green colour, and is covered in short setae. The larvae are extremely well camouflaged on the hostplant and very difficult to detect. The larval duration in southern areas is about 4-6 weeks.

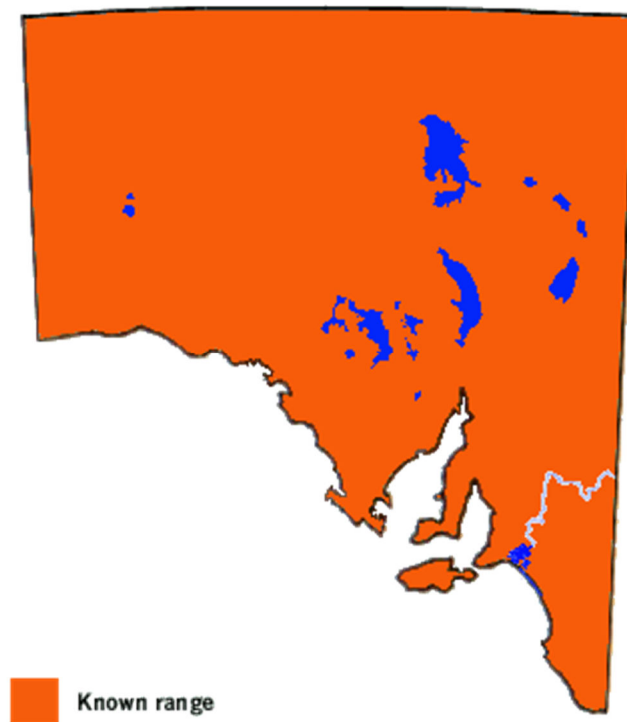
Pupae: Elongate, about 15 mm long, the wing areas have a slightly wrinkled appearance, laterally compressed with the wings compressed and extended into a prominently bowed ventral keel typical for the subfamily, and without major protuberances except for a spinose

anterior projection. The thorax is slightly bulging dorsally, and the lateral side of the pupa where the wings meet the thorax are slightly keeled. Green coloured, the dorsal area is whitish and the ventral areas are yellowish, and the lateral wing keel and the lateral side of the abdomen may be pale yellowish. There is a lateral abdominal row of small yellow spots (spiracles), and the anterior projection is normally yellow. There are usually a series of small black spots along the outer edges of the wings, and again as a subdorsal row along the abdomen. In some dark pupae there may be an indistinct purplish dorsal and lateral line, the anterior projection may be purple tipped, and there may be a dusting of purplish or other dark markings. Suspended by the cremaster and a central silken girdle, usually to a stem or leaf of the hostplant, but the larva may leave the hostplant if the plant is of small stature and pupate on adjacent plants. The pupation position is random, and pupation may occur with the head pointing either upwards or downwards. The pupal period is about 8-13 days, decreasing in warmer weather.

Flight period in S.A.: In northern pastoral areas it is possible to find the butterfly throughout the year. In the southern settled areas it is most commonly seen in the spring during its main southerly migration. It is sometimes seen again in fewer numbers during late summer or autumn in these latter areas, possibly as a result of local breeding but usually due as a result of a secondary migration from northern breeding areas after good summer monsoon rains or thunderstorms in those areas. Migrating numbers around Adelaide are very scarce in early spring, becoming more numerous in mid spring, but then decline again in late spring to be rarely observed. However, migration numbers fluctuate from year to year, as in some years it is entirely absent from the southern areas. The brood period is about 8 weeks in southern areas, but is considerably shorter in the hotter Far North areas of the state.



Distribution: Due to its migrant and vagrant habits, the butterfly can occur throughout mainland Australia, with the odd occurrence on Kangaroo Island and Tasmania. It is most common in the tropical and subtropical north of Australia. Readily breeds in the northern pastoral and northern agricultural areas of South Australia where its hostplants occur. Rarely takes up residence in southern settled areas even if its hostplant is present.



Habitat: The hostplants are common and are found in most inland habitats.

Conservation Status in S.A.: A migrant, locally common in breeding areas and during migrations.

Threats: No major threats.

Conservation Strategy: None required. The hostplants are very common in the inland areas of the state and are not eaten by stock.

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