

# SOUTH AUSTRALIAN BUTTERFLIES

## *Data Sheet*

*Ogyris abrota* (Westwood) (Dark-purple Azure)



Female



Male

**Interesting aspects:** The butterfly belongs to the group of *Ogyris* which associate with small ants, and members of this group have distinctive eggs and early stages that tend to typify the group. This butterfly belongs to a subgroup in which the females often have broad yellow patches, and the eggs are finely reticulated, a combination which seems to be a link with the other group of *Ogyris* that associate with the large *Camponotus* ants. Like all Lycaenids, the sexes are sexually dimorphic in morphology on the wing uppersides. In this species the difference is very clear, with the males having broad indigo-purple areas on the wing uppersides, whereas the females have no purple or blue colour on the wing uppersides, but are dark brown with a broad yellow patch on the forewing. The females are sometimes confused with the Australian Admiral, a totally unrelated butterfly.

The butterflies are rarely seen in flight. The male butterflies have a very rapid flight, and are usually active about the tops of the tall *Eucalyptus* mistletoe host trees some 10-30 m above the ground, but also spend a lot of their time settled with wings closed on a bare branch or twig near the top of the tree. There they will wait for newly emerged females to show up for mating. These butterflies become invisible when settled, as like all other *Ogyris* species, they have cryptically marked undersides that make the butterflies indistinguishable from the rough bark of trees and bushes when they are settled. Sometimes they imitate a blackened dead leaf still attached to the bare twigs. Periodically however, the males will fly off to patrol an area by circling a few different trees harbouring the mistletoe foodplant in a given area, then settle again for a while before repeating the patrol exercise. There are often territorial battles between rival males seeking a prime waiting position. The males are not known to hilltop in South Australia. The females are slower in flight, and when not feeding on the flowers of the mistletoe, they spend much of their time searching for places on the mistletoe to lay eggs. Usually only a few flying butterflies occur on any one tree at any time. They tend to favour mistletoe host trees in open woodland rather than those in the dense forests, and like most *Ogyris* within its group they prefer smooth *Eucalyptus* rather than stringy-bark types.

A pair of binoculars is usually necessary to get a close look at this butterfly, unless you stumble upon a female laying eggs on a low mistletoe. The butterflies are sometimes seen to fly with *Ogyris olane* about the tops of the host trees, as the different mistletoe foodplants for the larvae of both butterflies often occur together on the same host tree. The male butterflies are impossible to differentiate from a distance.

## Life History

**Larval food-host:** In South Australia, the butterfly is known to only utilise *Muellerina eucalyptoides* (creeping mistletoe) (Loranthaceae). The mistletoe associates mainly with *Eucalyptus*, where it usually attaches high up in the crown of the tree. It has a particular fondness for red gum (*E. camaldulensis*). It also is commonly found on *Acacia melanoxylon*. The mistletoe is also sometimes found on exotic garden plants in the urban environment. The larvae eat the flower buds, flowers, leaves and soft stem parts of the mistletoe, but are particularly fond of the flower buds.

**Larval attendant ant:** In South Australia, larvae are always attended by ants of a small black *Iridomyrmex* species that are very strong smelling, and which raise their abdomens into the air when agitated. These ants occur as either small or smaller types. In the eastern states other ants known to attend larvae

include *Anonychomyrma* sp, *Crematogaster* sp, *Froggattella kirbii*, *Rhytidoponera* sp and *Technomyrmex* sp.

**Eggs:** Small, initially pale green, later becoming blue-white to white, having a flattened hemispherical shape. The sides are fine to very finely reticulated in a hexagonal pattern, with each reticulation intersection having a small raised blunt projection. The facets on the top of the egg are smaller and are of irregular shape and these continue to the small-depressed micropylar area at the apex of the egg. The shape and surface texture of the egg is not too dissimilar to the eggs of the *Ogyris* members in the *O. idmo* Species-group.

Eggs are laid singly or in small batches (3-6), on the leaves, stems and bole (base) of the foodplant, and also on the adjacent host plant. They are often laid in crevices and under loose bark. In some areas where the butterflies are common, there are populations of tiny parasitoid wasps on the mistletoes and many of the eggs suffer parasitisation.

**Larvae:** The first instar is long onisciform shaped, grey-brown with a narrow brown longitudinal dorsal line broadly edged pale yellow, dark grey subdorsal spots are sometimes obvious, and there is a pale yellow lateral line. The posterior dorso-lateral organs are not developed. The head is large, smooth, yellowish brown, hidden beneath the body. The prothoracic and anal plates are black. There are long peripheral and dorsal setae, which are very much longer anteriorly and posteriorly. The lateral setae are white, while the rest are black. Dorsal setae occur in two pairs, one pair being long and recurved, the other pair being short, recumbent and directed to the rear. After eating the foodplant, the larvae gradually become a mottled brown and yellow colour, with a brown dorsal line. The first instar is very similar to that of *O. genoveva*, suggesting another primitive link with the *O. idmo* Species-group.

Intermediate instars gradually lose the long setae, and gain the posterior dorso-lateral organs. The second instar is similar to the late first instar. The third and fourth instars are similar to the fifth instar but are dark brown.

The first instars are very mobile, and quickly look for the foodplant to start feeding. The first instar larvae remain exposed on the leaves and stems of the mistletoe. Later instars hide and shelter during the day, and feed at night. They shelter under coarse old bark near or on the foodplant, or in crevices in the mistletoe host, or in borer holes or ant tunnels in the mistletoe or mistletoe host. These older larvae will aggregate together if the shelter is large enough. The numbers of larvae feeding on a mistletoe that is being utilised by the butterflies are variable, usually depending on the size and health of the mistletoe, and whether there are good hiding places present for the larvae. The numbers can vary from just a few larvae, to a dozen or more.

The fifth (final) instar is about 23-27 mm long, pale brown coloured, sometimes purplish, with some indistinct pinkish and reddish markings dorsally, there are pale yellow dorsal chevron markings and other indistinct subdorsal markings, the chevrons on abdominal segment 6 are joined together to form a yellow triangular mark, the posterior extremities also have yellowish markings, the prothoracic plate is grey, the anal plate is yellowish with a black longitudinal dividing line, and the spiracles are white rimmed black. Onisciform shaped with a thoracic dorsal furrow, the lateral edges are weakly scalloped, and the anterior and posterior areas are flattened, and there are some short peripheral hairs that are longer anteriorly and posteriorly, and some black paired dorsal bristles on abdominal

segments 4 and 5. The body is covered in pale and dark coloured, minute secondary setae, which are recumbent, club shaped and rough in appearance, set on a protuberant, angular and ridged base. The secondary setae impart a scabrous appearance to the larvae. The posterior dorso-lateral organs are well developed. The head is small, smooth, brown, hidden beneath the body. These larvae are more flatter (or wider) than larvae of similar *Ogyris* within the species-group.

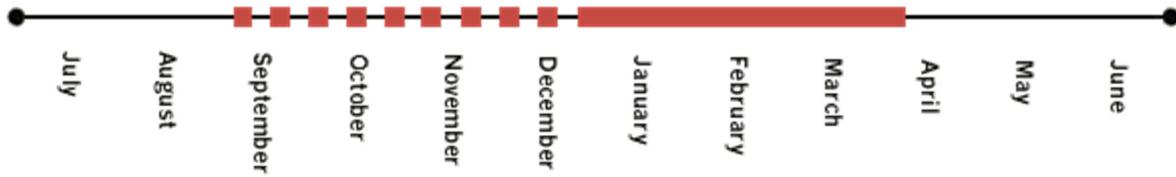
**Pupae:** Short cylindrical, rounded anteriorly and posteriorly, about 14-17 mm long, pale brown, yellowish or pinkish on the abdomen, greyish elsewhere, with a dark brown dorsal line, a subdorsal row of dark spots on the abdomen, and a posterior yellow dorsal patch on the abdomen. The surface of the pupa is without hairs, but bears a reticulated pattern (similar to the eggs) that produces a very fine scabrous surface, and which includes minute specialised secondary setae that are more common around the spiracles.

Pupation usually occurs in the first lot of secure bark at the base of the mistletoe or on the adjacent host tree, often in the first crook of the tree below the mistletoe. Larvae usually pupate singly, but will also pupate near to other pupae if they happen to be present. Pupating larvae surround themselves with a loosely webbed, silken cocoon-like shelter, which presumably affords some protection from larger predators, or perhaps from other *Ogyris* larvae which can cannibalise soft pupating larvae. There is normally space within the silk webbing for the small attendant ants to pass through to attend to the live pupae. Pupae are attached to the silked substrate by anal hooks and a central girdle. There are usually several ants in attendance with the pupa.

The pupa period is variable, depending on the time of year, being about 3-4 weeks in spring, 10-17 days in summer, and about 19-20 days in early autumn. As for most of the *Ogyris* butterflies, emergence of the butterfly from the pupa is rapid, and it is flying within about 45 minutes. Like many Lycaenidae that are attended by ants, but particularly many of the *Ogyris*, the butterflies emerge with the body covered in large quantities of fluffy grey 'down', which is discarded when the butterfly first flies. This down helps protect the butterfly from being attacked by over-zealous attendant ants, or even other small predators, while the butterfly is expanding and hardening its wings in readiness for first flight.

The pupae will readily stridulate, making a series of audible clicks, which are believed used as a means of communicating with the attendant ants.

**Flight period in S.A.:** The few flight records from South Australia are from late December to early April. The butterfly is likely to fly throughout the warmer months, but with the greatest activity during the flowering of its mistletoe foodplants, which are used for nectaring purposes by the adults. In Victoria, the main flight of the butterfly is from September to March, peaking in October, November, February and March. The brood period in South Australia is about 12 weeks during late summer-early autumn. There are probably two main generations in the Lower Southeast. Larvae go into a torpid (semi-hibernation) state over winter.



**Distribution:** The species is only found where its *Muellerina* foodplants occur, and these are present only in the Lower Southeast Region of the state. The butterfly also occurs in the eastern states, wherever its foodplants occur.



**Habitat:** The butterfly occurs in cool temperate woodland and forest, both open and closed, and is one of the few *Ogyris* that will occur in the urban environment, with butterflies present in urban Naracoorte. Its larval foodplant requires moist temperate conditions with an average annual rainfall in excess of 600 mm.

**Conservation Status in S.A.:** The butterfly is rare in its occurrence in South Australia.

**Threats:** Historically, large areas of the butterflies' habitat was destroyed and fragmented by clearing. Fortunately, many of the large *Eucalyptus* were saved as a cover for the stock, and these trees invariably carried the *Muellerina* mistletoe. The butterfly can exist on these isolated trees, and therefore the butterfly can be considered as not being under threat except where the habitat is adjacent to or within farming and vineyard communities, and affected by poison spray drift during crop spraying activities, especially when the poison is applied by aerial means. In urban areas, its mistletoe foodplants are usually considered as pests on exotic garden ornamentals and removed from their hosts. There has been a recent spate of

clearing activities in the Lower Southeast for new vineyards (in particular), and unfortunately this clearing includes the large red gums with their *Muellerina* mistletoe.

**Conservation Strategy:** Spraying activity should be carried out judiciously. Considerable thought should be undertaken before the removal of the ancient red gums. (Removal is permanent, and includes the huge bio-fauna existing on the gums.) In urban areas a public education process is required for the *Muellerina* mistletoe. Healthy trees are able to support this mistletoe, and there is usually a self-induced balance between the tree host and the mistletoe. If there appears to be an imbalance then it should not be a problem to thin out some of the mistletoe. An active *Ogyris* colony will help keep the mistletoe pruned. It is a privilege to have the butterflies flying in a garden.

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