Moths and Butterflies - Lepidoptera

of Belair National Park and surrounds

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Moths and Butterflies

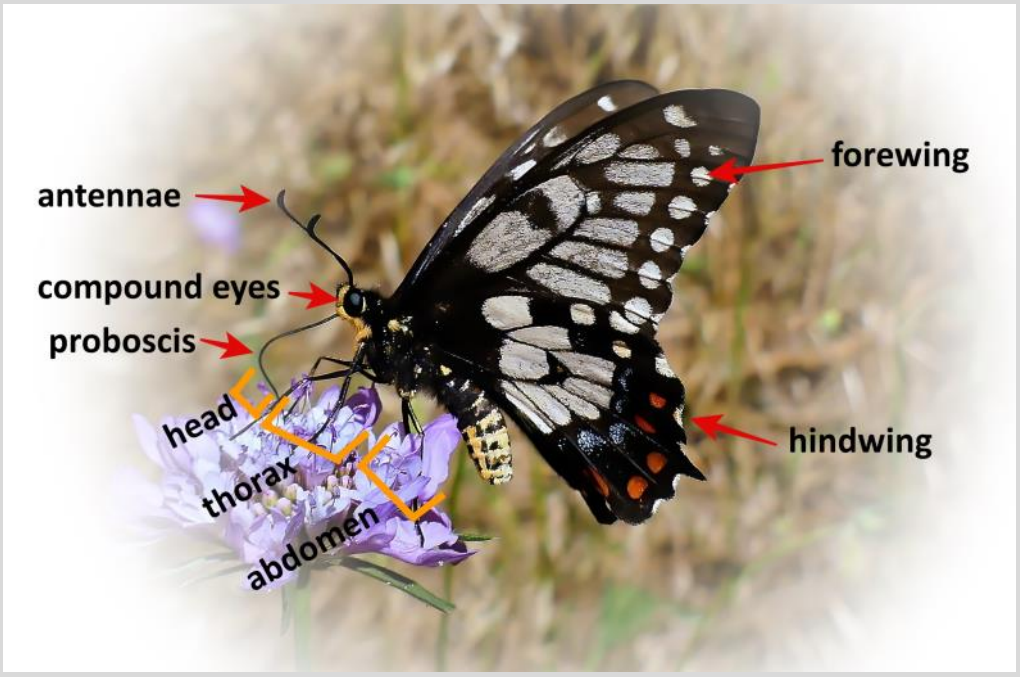
Butterflies and Moths belong to the order **Lepidoptera**. The word **Lepidoptera** comes from the Ancient Greek 'lepido' (scale) and 'ptera' (wing), and refers to the fact that the wings of adults are covered with tiny scales.

Scales on the wing of a female **Common Brown, Heteronympha merope.**

Interestingly, there are actually greater differences between various species of Moths than there are between Moths and Butterflies.

There are many many more Moth species than there are Butterfly species. In Australia for instance there are approximately only 400 species of Butterfly, most of which are described. This is compared to over 20,000 species of Moths and it is estimated that as many again are undescribed. I have frequently found undescribed Moths in Belair National Park and the surrounding areas. I have not included any Moths in this publication for which I have been unable to find an identification.

Butterflies and Moths are crucial pollinators in in the ecosystem. They possess a specialised proboscis, which is a long, coiled tube used for sipping nectar from flowers.



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Front cover image: **Two-spotted Line Blue, Nacaduba biocellata** on **Bursaria spinosa.**

Differences between Moths and Butterflies

Below are some of the most noticeable differences between Moths and Butterflies. It must be noted however, that these are generalisations and that there are many exceptions.

Moths **Butterflies**

1. Moths are more heavily built and fluffier. Butterflies are smoother and leaner.

2. Moth antennae are leafy or feathery. Butterfly antennae are smooth with a club shape at the end.

3. Moths hold their wings flat when at rest. Butterflies hold their wings upright. Butterflies do sunbake with wings flat.

4. Moth colours can be less vibrant. Butterflies are often vividly coloured and patterned. There are however many exceptions to both these statements.

5. Moths are generally active at night. Butterflies are generally active during the day. The are, however, many day-flying moths.

6. Moths have a frenulum which couples their wings together so they move as one in flight. Butterflies do not have this.

7. Moths form a silk pupa called a cocoon. Butterflies have a chrysalis made of hardened protein. There are a number of exceptions.

Life cycle

Although these photos are from different species, and there is immense variation in between species, they still give a good idea of the complete metamorphosis of Lepidoptera. .

Eggs laid in rows.

Newly hatched larvae/caterpillars feed voraciously and en masse.

Single mature caterpillar on its own. Many of the smaller caterpillars provided food for birds, wasps and other critters.

Pupa/chrysalis (or cocoon).

Adult Moth or Butterfly.

Moths

Sedge Moths - Glyphiptigidae

Glyphiptigidae are a family of small moths. The common name **Sedge Moths** comes from the fact that the larvae feed on sedges and rushes. I have seen two species in Belair NP, usually feeding on nectar. See comparison below.

Comparison

Two moths from one genus (**Glyphipterix**).

Top: **Glyphipterix chrysoplanetis.** Wingspan 6mm.

Bottom: **Metallic Sedge Moth, Glyphipterix meteora.** Wingspan 8mm.

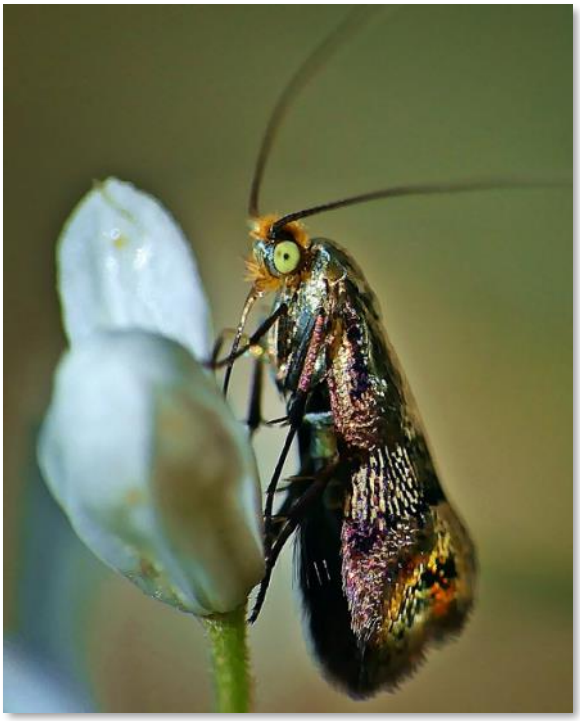
Although looking superficially similar their markings are quite different. **G. chrysoplanetis** has two distinct white ovals. **G. meteora** has three white marks that reach the edge of the wings.

Above : Three **Glyphipterix meteora** feeding on the nectar of an **Australian Buttercup, Ranunculus lappaceus**. I frequently see both species on yellow flowers. Left: **Glyphipterix chrysoplanetis** alighting briefly on a blade of grass.

Fairy Longorn Moths - Adelidae

The name **Adelidae** comes from the Greek, 'Adela' meaning 'hidden', because the caterpillars are so well hidden. Long antennae, metallic wings and small size are typical of **Adelidae**.

Long-horned Fairy Moth, Nemophora laurella. An exquisite tiny moth that is active on **Bursaria spinosa** flowers in summer. The moths can be seen 'playing' above the plants. Wing span is less than 10mm. These are a favourite of mine although difficult to photograph because they are so quick . Of note are the green eyes, long antennae and metallic wings.



Sun-loving or Shield-bearing Moths - Heliozelidae

Heliozelidae are frequently referred to as **Shield-bearing Moths** because their caterpillars cut shield-shaped cases from leaves. However their Latin name actually comes from the Greek 'helios', meaning 'sun' and 'zelos' meaning the 'rival of' or 'jealous of' because their moths are beautiful, metallic, day-flying and seem to dance in the sun.

My experience with **Heliozelidae** was one of my most exciting moth experiences.

One day in September, 2021 I stopped to look down at some flowering **Prickly Guinea-Flower, Hibbertia exutiacies**, and I happened to witness the most amazing display of a very small black and white moth on its outstretched petals. It circled around and around, up and down, dancing, running, all at very high speed. I had never seen anything like it and I felt a thrill of discovery. I took some photos and a short video and went home to research the identity of the moth. When I had no immediate success, I posted the photos on iNaturalist and was very quickly contacted by two researchers from a ten-year-long citizen science project the subject of which was the **Sun-loving Moths (Heliozelidae)** of Australia! My moth was a **Sun-loving Moth** that had not yet been described!

And so began a correspondence, and also a delightful, albeit often frustrating, preoccupation with capturing more footage and photos for their project, but I also began to look at other families and species of moths with much greater interest!

Left: Dancing!

Middle two photos: Classic posture with wings splayed for laying eggs. Abdomen is pressed deep into the flower.

Bottom: Dancing again!

Metalmark Moths - Choreutidae

Choreutidae or **Metalmark Moths** are a family of small moths that are known for their shiny or metallic scales. Their behaviour is quite distinct and believed to mimic the angular and rapid movements of **Jumping Spiders, Salticidae**.

Small Thistle Moth, Tebenna micalis.
Wingspan is approximately 10mm. I have only seen this one species of **Metalmark Moth** in Belair NP and surrounds. It was very active in the gardens of Old Government House.

Plume Moths - Pterophoridae

The name **Pterophoridae** comes from the Greek words 'pteron' meaning wing and 'phoros' meaning bearer or carrier. They are small moths and have very distinctive and immediately-recognisable wings that resemble feathers and which are held flat when at rest.

Fire-flag Plume Moth, Sphenarches anisodactylus showing wings and classic posture.

Standgeia xerodes.
Above: On a wall.
Left: Living dangerously on carnivorous **Sundews, Drosera!**

Dowdy Plume Moth, Stenoptilia zophodactylus.

Right: Side-on view.

All **Plume Moths** on this page have a wing span of approx. 1cm, so they are very small.

Diamondback Moths - Plutellidae

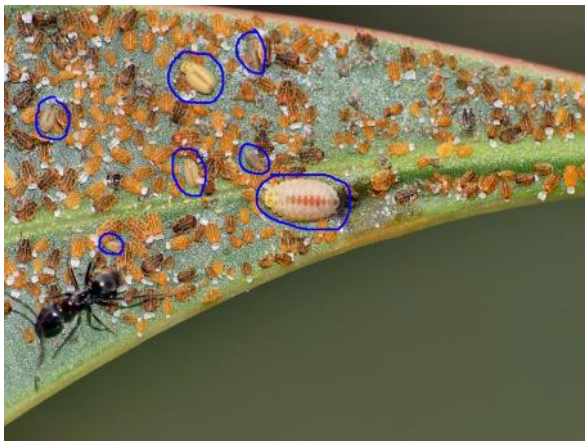
The name **Plutellidae** comes from the Greek word 'ploutos' meaning abundance. It probably refers to the widespread nature of these little moths. The common name 'Diamondback' refers to the pattern on the back of the most common of these moths.

Left: **Diamondback Moth, Plutella xylostella,** has worldwide distribution and is regarded as a pest to agriculture. This moth was found near my vegetable garden.

Right: A **Diamondback Moth** found in Belair NP. There is an Australian Diamondback Moth but it is not easily identifiable. This moth can only be identified to **Complex Plutella xylostella-australiana.**

Australian Parasite Moths - Cyclotornidae

Cyclotornidae is a poorly documented family of moths that is uniquely Australian and includes only five known species. In early instars these caterpillars are predators and don't look like caterpillars at all! They prey on **Scale Insects** and also, as my photos show, **Psyllids**! Later on the caterpillars are thought to emit a kairomone that induces the ants to take them into their nest, where they continue to prey but now on the larvae and pupae of ants! The adults are just small, brown, 'boring-looking' moths.



Left: This is an interesting scene playing out in Belair NP and an amazing example of symbiotic relationships.
On these **Acacia pycnantha leaves** are 3 species:
1. Many very small **Acizzia sp., Jumping Plant Lice** nymphs (**Psyllids).**
2. **Iridomyrmex, Rainbow Ants** which are eating the sugary excreta of the **Acizzia** as well as 'protecting' them.
3. The round circled critters which are early instars of a caterpillar (!!) in predator mode of an **Australian Parasite Moth, Cyclotorna sp**. As you can see some are the same size as the **Acizzia** nymphs so very very small. It is so interesting that they don't look like caterpillars.

Right: This photo shows a more mature later instar of a caterpillar in predator mode of an **Australian Parasite Moth, Cyclotorna sp.**

Fungus and Clothes Moths - Tineidae

Tineidae are small to medium-sized moths. They are unusual because the larvae, rather than feeding on plants, feed on fungi, lichens and even feathers or bones. Some **Tineidae** have adapted to the man-made environment and feed on fabrics, and as such are regarded by humans as pests.

Case-bearing Clothes Moth, Tinea sp. larva.

Wool Moth, Monopis icterogastra

Edosa sp. I've seen many similarly-coloured Edosa sp. over time. They are impossible to identify beyond genus.

Case Moths - Psychidae

The caterpillar or larva of **Psychidae** constructs a case out of silk and other materials from its environment like plant matter, sticks, or sand/soil. When resting these cases are attached to leaves, trees and galls (as photo below middle) but are otherwise mobile. They are extremely well camouflaged. Only the male ever takes wing and leaves the case. The female spends her life in the case and lays her eggs in the case. To mate the male may extend his abdomen into the case, or the female may briefly leave the case.

Above: The distinctive and immediately recognisable **Faggot Case Moth, Clania ignobilis** constructs a case from equal-sized twigs except for one which is longer than the others. This is used by the male to alight on for mating.

Comparison

Two moths from one genus (**Lepidoscia**).

Left is **Lepidoscia charcota** and right is a heavily-marked **Lepidoscia cataphracta.** **Lepidoscia** are very small moths that build a tapering cylindrical case from their food plants (see below).

This early instar case below is typical of **Lepidoscia** and a few other related species. It is impossible to accurately identify them until they are older. This one was highly mobile, moving quickly around the leaf.

Concealer Moths - Oecophoridae

(superfamily Gelechioidae - Curved-horn Moths)

The four families of moths that follow all belong to the superfamily **Gelechioidae.** Undoubtedly there are countless more tiny **Gelechioidae** in Belair NP and surrounding areas but these give a good idea of what I have seen. I have chosen not to include moths I can't identify to genus.

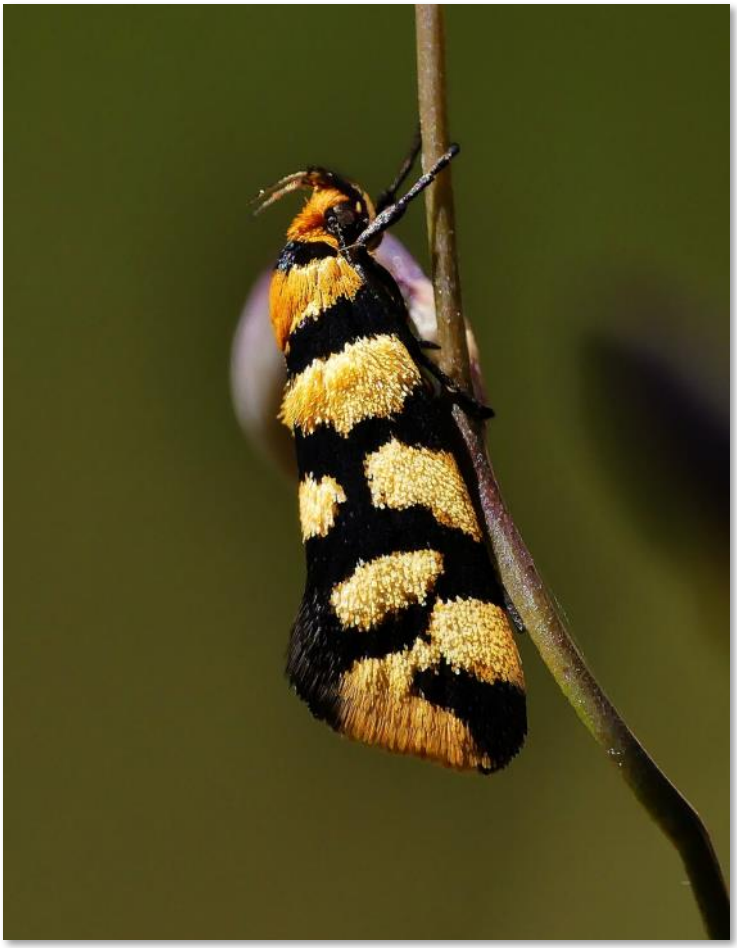
Oecophoridae is a family of moths within this superfamily of **Gelechioidae**. **Oecophoridae** are a diverse group of small to medium-sized moths with distinctive colours and patterns. The common name of **Concealer Moths** refers to the behaviour of the larvae which conceal themselves within their habitat. They construct shelters or hide in plant materials like leaves, bark or silk to protect themselves from predators.

Comparison

Below: These three **Philobota sp.** moths are quite common. I have seen many other moths in the park that *may* be **Philobota sp.** but I have been unable to accurately identify them. I've chosen not to include those.

Philobota partitella | **Philobota impletella** (also see below) | **Philobota arabella**

Philobota impletella camouflaged on a **Eucalyptus** leaf and highlighted by a brief moment of sunshine. A natural artwork.



Above: **Tanyzancla argutella.** A beautiful small moth. Wingspan approx. 2cm.

Other Concealer Moths:
Right: **Chezala sp.** This is a moth I've seen many times.
Right below: **Thema sp.**
Left below: **Ocystola crytallina** is a distinctive moth I've seen a number of times.

Above: **Tube Concealer** caterpillars of genus **Hemibela** make a hollow tube from small twig and live inside as protection. They change tube when they grow up. They pupate inside the tube as well. I see these brilliant little tubes reasonably often.

Flat-bodied Moths - Depressariidae

(superfamily Gelechioidae - Curved-horn Moths)

Depressariidae is also a family of moths within the superfamily of **Gelechioidae**. **Depressariidae** are a diverse group of small- to medium-sized moths that mostly live in shelters made of leaves joined with silk. Those represented here, however, make houses of their frass (droppings) held together with silk - see photos below. The common name of **Flat-bodied Moths** refers to the slender and more elongated shape of their bodies.

Comparison

Two moths from one genus (**Hypertropha)**.

Hypertropha tortriciformis.

Hypertropha chlaenota.

A house of frass (insect poop)

The caterpillars of **Hypertropha** hide in beautiful tunnels created from their frass and held together with silk. I frequently see these constructions on Eucalyptus leaves.

Right: This photo shows the beautifully constructed entrance.

Left: Close-up view of the frass framework held together with silk.

Feather-legged Moths - Stathmopodidae

(superfamily Gelechioidae - Curved-horn Moths)

The word 'Stathmopoda' comes from the Greek and means 'to balance the foot'. It refers to the moth's peculiar resting posture, with the back legs stuck up in the air. This is a handy pointer for identifying this family.

Eriococcus Caterpillar, Stathmopoda melanochra. The common name comes from the fact that the caterpillar feeds on scale such as **Gum Tree Scale, Eriococcus coriaceus** (far right). To get an idea of sizing, see photo top middle right with my finger.

Leather-leaf Spore-Eater, Calicotis crucifera. Both the moth and mature larva are very small, approximately 6mm. The larva feeds on the spores of ferns and also builds silk tubes disguised with spores on the underside of fern fronds.

Long-horned Moths - Lecithoceridae

(superfamily Gelechioidae - Curved-horn Moths)

Crocanthes glycine. A very small moth with only two observations overall in South Australia. It has a wing span of approximately 1.5cm.

Leafroller Moths - Tortricidae

Tortricidae are a large family of moths known for their distinctive behavior of rolling or folding leaves for shelter during their larval stage. They are found worldwide with some maligned as pests to human agriculture because they feed on the leaves, fruits and buds of crops.

Left and above: **Scolio-plecta comptana**. Note its extraordinary blue eyes. It is rare to see this in moths.

Thrincophora lignigerana.

Clarana clarana.

Comparison

Two moths from one genus (**Asthenoptycha**).

Asthenoptycha sp.

Asthenoptycha sphaltica.

Acropolitis rudisana.

Left: The tiny vacated rolled leaf of a **Leafroller Moth** attached to a weed plant **Boneseed, Osteospermum moniliferum.**

Below: Tiny rolled leaf on a **Eucalypt**.

Cotton Tipworm Moth, Crocidosema plebejana.

Crambid Snout Moths - Crambidae

Crambidae, Crambid Snout Moths or **Grass Moths** are a diverse group of small to medium-sized moths characterised by the presence of specialised elongated labial palps that resemble a snout. A couple of these moths are very common.

Above: **Hednota sp.** Bottom photo clearly shows the 'snout' (elongated labial palps) for which this family is named.

The **Tree Lucerne Moth, Uresiphita ornithopteralis** is a very common moth in grassland, flying low in the bush and camouflaged on leaf litter. The three comparison photos directly below show the variability within the species. Bottom left: Distinctive bright yellow hind wing. Bottom right: Elongated 'snout'. This moth had landed in my car!

Above: **Nacoleia rhoeoalis** a fairly common moth.
Right: **Sedenia rupalis.**
Far right: **Eudonia protorthra.**
Below right: **Glaucocharis sp.**

Comparison

Two moths from one genus (**Scoparia**). **Scoparia exhibitalis** and **Scoparia spelea.** The moth on the left is a *very* common moth I see frequently. The one on the right I have only seen a couple of times.

Pyralid Snout Moths - Pyralidae

Pyralidae, Pyralid Snout Moths or **Grass Moths** are very similar to **Crambidae** (previous page). Many **Pyralidae** are inconspicuous, although some included on this page have quite distinctive features. **Crambidae** is sometimes grouped under **Pyralidae** as a subfamily, creating one of the largest moth families. The difference between Pyralid and Crambid Snout moths hinges on the absence or presence of a tiny tympanal organ called a *praecinctorium*, the description of which is beyond the scope of this publication.

Left: **Endotricha pyrosalis.** These moths rest naturally in a unique triangular pose with the head lifted high. They have been likened to a Delta-winged aircraft about to lift off!

Comparison

Two moths from one genus (**Etiella**). **Etiella chrysoporella** (left) and **Small Tabby, Etiella behri** (right).

Crocydopora cinigerella. An unremarkable grey moth that is identified by the orange spot visible on the upper wing margin.

Homoeosoma vagella. Another unremarkable grey moth identified by the mid-wing darker streaks.

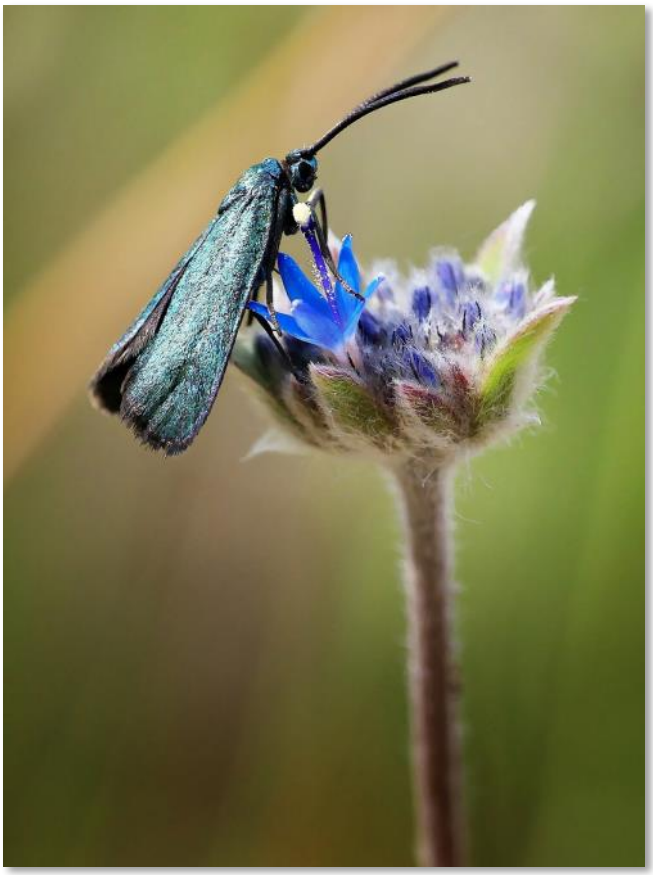
Above: **Spectrotrota fimbrialis.** I haven't seen the adult of this species but I have seen the larva a number of times. Distinctive sparse white hairs, orange dorsal line and a brown head.

Left: **Wattle Gall Moth, Gauna aegusalis.** The caterpillars of this moth feed on the Acacia rust galls, **Uromycladium sp**. In its resting posture it holds its abdomen curved up in the air.

Burnet or Forester Moths - Zygaenidae

Zygaenidae is a family of moths characterised by their vibrant and often metallic-colored wings. This coloration is a fascinating example of aposematism, warning predators of their genuine toxicity: they contain hydrogen cyanide at all stages of their life cycle!

Zygaenidae often occur in tropical regions, but are also seen in temperate zones. There is one very prolific and beautiful species in Belair NP in spring: **Satin-green Forester, Pollanisus viridipulverulenta.** Photos show moths on a variety of flowers, below on **Brunonia australis**, right on **Wahlenbergia sp.** and right below on **Pimelea sp.**



Left: Caterpillar from **Zygaenidae**. As there is only one species in this area and in South Australia, it is likely from **Satin-green Forester, Pollanisus viridipulverulenta.** However, unless actually raised to adulthood it can't be 100% verified.

Cup Moths - Limacodidae

Limacodidae or **Cup Moths** are best known for their extraordinary, multi-coloured slug-like caterpillars. As a defense mechanism the caterpillars have brightly-coloured urticating hairs that stand erect when it is disturbed. A sting from these can cause human beings intense pain. Their common name of **Cup Moths** comes from the cup-like shape of their cocoons that resemble a small gumnut. The moths are small and hairy, and often quite dull in colour compared to their caterpillar. The eggs are covered by the hair of the mother moth.

Above: **Four-spotted Cup Moth, Doratifera quadriguttata.** The common name comes from the fact that the moth has four spots on its wings - two on each as shown above. The moth is small, dull and brown and not easily seen in the bush. The urticating hairs of the caterpillar are red.

Below: **Painted Cup Moth, Doratifera oxleyi.** The moths of this species are dimorphic: males and females are different. Below right is a male moth which is orange on the back and white underneath. The wings are transparent with a bluish tinge. Male wingspan is only 2cm while females are 5cm! The urticating hairs on the caterpillar are yellow as shown below left. Also shown is an earlier instar of the caterpillar. It has quite different coloration to the more mature specimen.

Geometer Moths - Geometridae

Geometridae is the largest moth family. The name comes from the Ancient Greek 'geo' (the earth) and 'metron' (measure) and refers to the way the caterpillar moves in a looping fashion, seemingly 'meansuring the earth' as they go. They are also called Loopers or Inchworms. The moths usually hold their wings flat, the upper pair longer than the bottom pair. They generally blend into their background and are mostly night-flying.

Fallen Bark Looper Moth, Gastrophora henricaria. A very apt common name; I truly did think she was a bit of bark when I saw her. See her extraordinary camouflage against a grey tree trunk (bottom right). This is a pregnant female, see photo below with large abdomen full of eggs.

Of note is the exquisite orange underwing (above). Both sexes have an orange underwing although it is differently patterned. Males have a black stripe across the upper wing, females don't. Wingspan of female is approx. 8 cm. It is a large moth. The male is smaller at 6cm.

Pink Arhodia, Arhodia lasiocamparia. Another larger moth with a wingspan of 5-6cm. A very variable species, the underwing varying in colour from pink to a dull grey, although the line across it is the same. Most have a row of dots approx. 5mm from the edge of each forewing.

I have only seen this moth in this area in the last year.

Following page: A collage of selected **Geometer Moths.** This is by no means an exhaustive list but does give an idea of the extraordinary number of species just in this area. I have seen many more Geometer Moths for which I have been unable to find an identification.


Apple Looper
Phrissogonus laticostata (male)
Apple Looper
Phrissogonus laticostata (female)
Native Cranberry Moth
Poecilasthena pulchraria
Long-fringed Bark Moth
Phelotis cognata
Taxeotis perlinearia
Taxeotis intextata
Anachloris sp.
Golden Grass Carpet
Anachloris subochraria
Pome Looper
Pasiphilodes testulata
Pome Looper
Pasiphilodes testulata (highly variable)
Plantain Moth
Scopula rubraria
Chestnut-veined Crest-Moth
Paralaea porphyrinaria
Cape Moth
Amelora sp.
Scioglyptis canescaria
Scioglyptis chionomera
Taxeotis intextata
Red-lined Looper
Crypsiphona ocultaria
Didymoctenia exsuperata
Dodonaea Moth
Parosteodes fictiliaria
Ectropis calida
Flecked Wave Moth
Idaea philocosma
Idaea halmaea
Idaea costaria
Cyneoterpna wilsoni
Subidaria Moth
Epyaxa subidaria
Clover Moth
Epyaxa sodaliata
Black Geometrid
Melanodes anthracitaria
Poecilasthena anthodes
Microdes sp.
Ectropis aganopa
Varied Wave Moth
Scopula optivata
Australian Cream Wave
Scopula perlata
Black-signed Heath Moth
Dichromodes atrosignata
Chrysolarentia insulsata
Serrated Crest-Moth
Nisista serrata
Buff Bark Moth
Gastrinodes bitaeniaria
Red-spotted Delicate
Epicyme rubropunctaria
Lucerne Looper
Zermizinga sinuata
Dry Leaf Looper Moth
Idiodes siculoides
Syneora mundifera

A selection of **Geometrid** caterpillars. They are also called 'inch-worms' or 'loopers' because their legs and pro-legs are positioned only on the ends of their body, not in the middle. This causes them to 'loop' up when they move. It is difficult to identify caterpillars and they often have to be raised to adulthood for an accurate ID.

Above and below: **Chlenias sp.** A caterpillar grows and moults many times and can look very different each time.

Above: Capusa **cuculloides**. A caterpillar distinctive enough to make an identification.

Above and below: It is too difficult to accurately identify these two caterpillars. The one above *may* be **Arhodia sp**. the lower *may* be a **Black Geometrid**.

Emerald Moths, Geometrinae are a sub-family within **Geometridae**. They are smaller moths that generally have very distinctive blue-green colourings. At times their camouflage is astonishing. I have seen six species (below). They are a favourite of mine.

Right above: **Emerald Moth** I had rescued off the path on a very windy day. It is sitting on my thumb. Right below: Can you spot the brilliantly camouflaged **Emerald Moth?** Seen in a toilet block in Belair NP.

Lappet Moths - Lasiocampidae

The name **Lasiocampidae** comes from the Greek 'lasio' meaning 'wooly' and 'campa' meaning 'caterpillar'. The common name 'Lappet' refers to the flap like structures on the side of the caterpillars.

Right is a beautiful male **Crexa Moth, Genduara punctigera** with transparent wings. Below is an example of a caterpillar showing the flaps or lappets above its legs/prolegs. This is possibly also a **Crexa Moth**, or certainly very similar.

Anthelid Lappet Moths - Anthelidae

The name **Anthelidae** comes from the Greek 'anthos' meaning 'flower' and 'elidon' meaning 'swallow'. It may refer to the swallowtail-like appearance of the hindwings of some of the moths. **Anthelidae** are only found in Australia and New Guinea. They are noted for their very large hairy caterpillars with big heads and urticating hairs. Moths are medium to large size.

Above right: Very large **Pterolocera sp.** caterpillar. Below right: **Omphaloides obscura**. A caterpillar I see fairly often with distinct marks along its back. Below: **Urticating Anthelid, Anthela nicothoe**. A large and beautiful moth. Note the feathered antennae.

Goat or Carpenter Moths - Cossidae

The **Cossidae** include many species that have large caterpillars and moths. Some moths have a 17cm wingspan. The common name of **Goat Moths** comes from the fact that many of the caterpillars have an unpleasant smell. The common name **Carpenter Moths** comes from the fact that most of the caterpillars are borers in trees.

Above: **Wattle Goat Moth, Endoxyla lituratus.** A fabulous large moth almost like a small bird. It was a delight to see it. Length of the moth was approx. 7cm. The female moth lays eggs in holes she has bored into **Acacia** species. The caterpillars then bore through the wood, making a honeycomb of tunnels. Its life cycle can take up to four years. Of interest is the fact that the **Witchetty Grub,** a high-protein food source for Aboriginal Australians, is the large caterpillar of several **Endloxyla** species.

Tufted Goat Moth, Archaeoses polygrapha. Wingspan is approx. 4cm. As with **Ptilomacra senex (**below) the eggs are laid in circular patterns around food plant stems. I've seen this moth a couple of times. This photographed specimen was found on the wall of my house.

Left and right: **Ptilomacra senex** eggs. This is one example where I haven't seen either the moth or the caterpillar and yet the eggs can be easily identified because they are so distinctive. They are laid on the branches of food trees. Once hatched, the caterpillars bore into and live inside the stems of **Grass Trees, Xanthorrhoea sp**. See sizing with my finger (left).

Prominent Moths - Notodontidae

The name **Notodontidae** comes from the Greek meaning 'back tooth' and refers to the tooth-like tuft of hair on the inner edge of the forewings. Their common name **Prominent Moths** also refers to this tuft of hair. The moths tend to be heavy-bodied and long winged.

Above and below: The distinctive red-black-white larvae (caterpillars) of **Long-tailed Bombyx, Trichiocercus sparshalli.** The more mature instar below.

Above and below: From the same genus as the larvae to the left, but a different species, **Trichiocercus mesomelas** (deceased). The moths of both species are however very similar with this one having black hairs around the end of the abdomen (below) and **T. sparshallii** (left) having brown. Additionally the caterpillars of **T. sparshalli** have black bands as shown left, whereas **T. mesomelas** have brown.

Above and right: A very exciting observation of the larva of a **Banksia Moth, Psalidostetha banksiae**. It is the largest caterpillar I have ever seen; the size of my finger. Note how its head is curled back into its characteristic defensive posture.

Cutworm Moths and Allies - Noctuidae

The name **Noctuidae** is derived from the Latin word 'noctua' which means 'little owl,' perhaps a reference to the way the moths' wings are folded like an owl. As such, they are also called **Owlet Moths**. Their other common name **Cutworm** refers to the way that the larvae cut through stems and as such are deemed an agricultural pest by humans.

Yellow-banded Day-Moth,
Eutrichopidia latinus.

Willow-herb Day-Moth,
Phalaenoides tristifica.

Australian Fruitworm,
Helicoverpa punctigera.

Brown Cutworm
Agrotis munda.

Inland Armyworm,
Persectania dyscrita.

Neumichtis saliaris.

Hypoperidea tonsa.

Proteuxoa sp.

Green-blotched Moth,
Cosmodes elegans.

Slender Burnished Brass,
Thysanoplusia orichalcea.

Tufted Moths - Nolidae

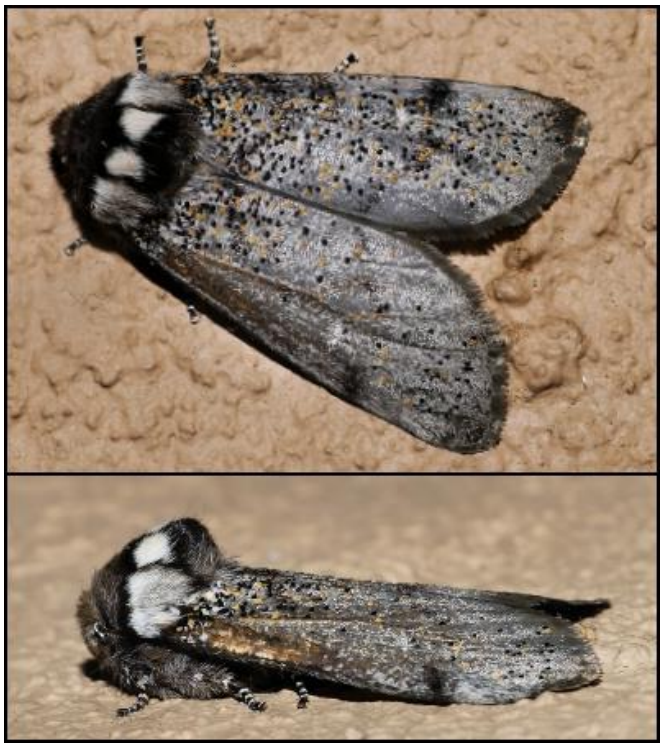
Nolidae are a family of moths previously included in **Noctuidae**. The etymology is not known. The moths are mostly small with dull colouring. The caterpillars also have muted colourings and groups of small hairs.

The only member of **Nolidae** I have come across is the very prolific **Gum Leaf Skeletoniser, Uraba lugens.** It is the one moth for which I have photographed the eggs, caterpillars and the adult (below left). Eggs are laid in neat lines. Another common name is **Mad Hatter**, because as it grows the caterpillar wears the discarded heads of previous moults on its head, presumably as a defense. The effect of the caterpillar on Eucalyptus leaves is often quite visible (right) but I have observed over many seasons that all trees revive and the caterpillars provide a bountiful food source for birds.

Oenosandrid Moths - Oenosandridae

As with **Nolidae (**above), **Oenosandridae Moths** were also previously included in **Noctuidae**. They are a small family of moths only occurring in Australia.

The only member of **Oenosandridae** I have come across is **Boisduval's Autumn Moth, Oenosandra boisduvalii**. Left is the female moth and right is the male. Interestingly, because the male and female look so markedly different, for a long time they were thought to be two different species!



Underwing, Tiger, Tussock Moths - Erebidae

Erebidae is one of the largest families of moth and contains many of the well-known moths, such as the **Tiger Moths**. The word '**Erebidae'** comes from the Greek word 'Erebos' the primordial god of darkness, no doubt referring to the nocturnal habits of many moths.

Comparison

Two moths from one genus (**Ardices**).

Black-and-white Tiger Moth, Ardices glatignyi | **Light Ermine Moth, Ardices canescens.**

Below: **Black-and-white Tiger Moth, Ardices glatignyi**, adult and its very well-known 'Woolly Bear' caterpillar. Also see comparison left.

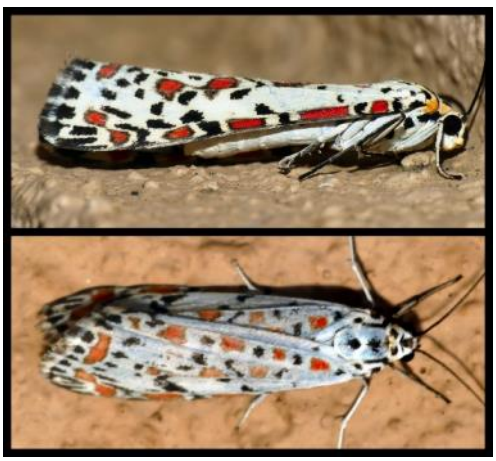
Comparison

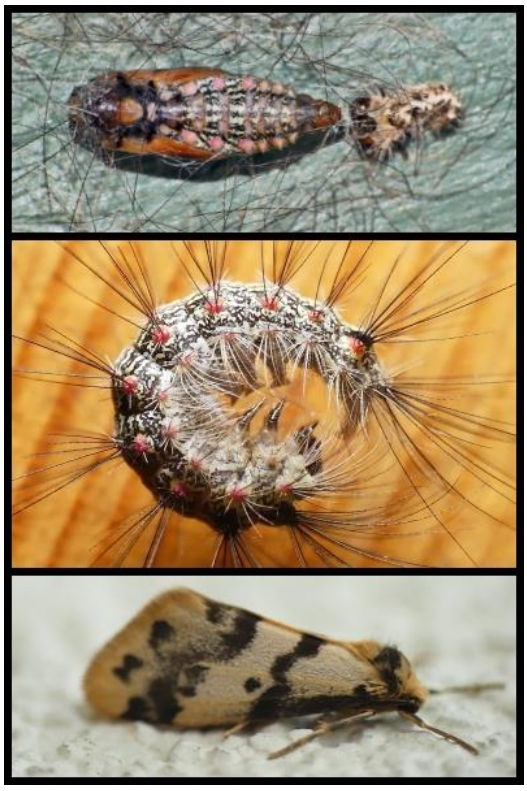
Two moths from one genus (**Sandava**).

Fungi Snout, Sandava scitisignata.

Sandava xylistis.

Below left: The very well-known **Heliotrope Moth, Utetheisa pulchelloides**. Also called a **Salt-and-Pepper Moth**, for obvious reasons! Below middle: **Bird Dropping Lichen Moth, Halone sejuncta**. One of the many animals that looks like bird droppings, in order to confuse predators. Below right: **Wedged Rhapsa Rhapsa suscitatalis.**





Top left: **Australian Magpie Moth, Nyctemera amicus**. Top right: **Omnivorous Tussock Moth, Acyphas semiochrea**. Note the tussocks on the 'tail' of the moth. Right: **Painted Apple Moth, Orgyia anartoides**. I have only ever seen the caterpillars. Immediately recognisable by the distinctive placement of the tufts. Right below: **Southern Moon Moth, Dasypodia selenophora**. Note the close-up photo of the 'eyespot' which presumably deceives predators. Left: **Clouded Footman, Anestia ombrophanes**, showing distinctive pupa, caterpillar and moth.

Comparison

Three moths from one genus (**Termessa**).

Favoured Footman, Termessa gratiosa. **Double Yellow-patched Footman, Termessa zonophanes.** **Snowy Footman, Termessa nivosa.**

Butterflies

Skippers - Hesperiidae

Hesperiidae or **Skippers** are smaller Butterflies named for their quick and darting movements (skipping). They have hooked antennae and seem to prefer open sunny areas.

Green Grass-Dart, Ocybadistes walkeri (also called **Southern Grass-Dart**). A common active Butterfly in the warmer months, particularly when introduced plants such as **Scabiosa** (far right) are flowering in Belair NP. This Butterfly is also common in backyards in the surrounding areas. 20mm wingspan.

Heath Ochre, Trapezites phigalia. Uncommon in Belair and only seen in quieter open parts of the park. They fly quickly and low to the ground. Above: **Heath Ochre** on **Pimelea humilis**. 30mm wingspan.

Brush-footed Butterflies - Nymphalidae

Nymphalidae are the largest family of Butterflies. They are medium to large size, and generally brightly-coloured with very distinctive and recognisable patterns. The under wing is often very dull and with wings closed, it is brilliantly camouflaged against dead leaves or earth. Many times I've briefly looked at my camera settings before taking a photo, only to be unable to see the butterfly again even though it is still there! Their common name comes from the fact that in some species the forelegs have brush-like hairs.

The **Common Brown, Heteronympha merope** is the most abundant Butterfly I see in summer. They are a good example of the sexual dimorphism that is characteristic of some Butterflies. Photos below show that male and female are quite different.

Left two photos: **Male**. Wingspan is 54mm.

Right two photos: **Female** with distinctive white patches on her wings. She is larger than the male at 64mm.

I frequently see the **Meadow Argus, Junonia villida**. They characteristically fly low to the ground. They have very distinctive 'eyespots' on the wings which are characteristic of many Butterflies, presumably to confuse predators. Wingspan is 40mm.

Left and above: I see the **Australian Painted Lady, Vanessa kershawi** frequently although not as common as the two previous species. Under wing and upper wing are markedly different. Male and female are virtually identical. Approx. wingspan is 45 mm .

Above and right: The **Yellow Admiral, Vanessa itea** is uncommon in Belair NP. Watching one feeding on **Xanthorrhoea semiplana** (right) was a rare treat! The intricate patterns on its under wing are quite extraordinary. 50mm wingspan.

Geitoneura sp. or **Xenicas** are a smaller species of **Nymphalidae**. Below are the two species I have seen in Belair NP. Wingspan averages 42 mm.

Right two photos: **Ringed Xenica, Geitoneura acantha.** I have only seen the **Ringed Xenica** several times in Belair NP, each time only fleetingly in the cooler areas.

Left and right: **Marbled Xenica** or **Klug's Xenica, Geitoneura klugii** is very common and sometimes mistaken as a 'baby' **Common Brown** because although smaller, it looks somewhat similar. The markings are however more 'marbled' than the **Common Brown** and the under wing is duller.

Left: **Lesser Wanderer, Danaus petilia.** A rare sighting. Although **Scabiosa** is a weed, its nectar is irresistible to many native species. 60mm wingspan.

Right: **Monarch, Danaus plexippus** (Introduced). Common in Belair NP and surrounds. Its caterpillars (far right) feed on the introduced **Wild Cotton, Gomphocarpus cancellatus**. Wingspan is 92mm. It is the largest Nymphalidae.

Gossamer-winged Butterflies (Blues) - Lycaenidae

Lycaenidae are very small in size and characterised by their colour and wing-patterning. Of note is their symbiotic relationship with ants: the ants provide protection to the caterpillars in exchange for a supply of sugary honeydew.

Common Grass-Blue, Zizinia otis labradus. Common everywhere around lawned areas and other open spaces. 20-23mm wingspan.

Saltbush Blue, Theclinesthes serpentata. Rare in the park but seen in surrounding areas. Wingspan is approx. 22mm.

Rayed Blue, Candalides heathi. Seen infrequently. Distinctive purple colouring on the upper wing and spots around the edge of the whitish under wing. 28mm wingspan.

Blotched Dusky-Blue, Erina acasta. Seen infrequently in the higher eastern sections of the park. The under wings are fawn-coloured with darker blotches. 22m wingspan.

Amethyst Hairstreak, Jalmenus icilius. Seen occasionally in the park. Photos right show their caterpillars (larvae) attended by **Iridomyrmex (Rainbow) Ants** on **Acacia pycnantha**. The ants provide protection in exchange for sweet honeydew. Approx. 28mm wingspan.

Two-spotted Line Blue, Nacaduba biocellata. A favourite of mine, seen occasionally. Left is a Butterfly feeding on **Bursaria spinosa**. The distinctive two spots are very evident. Above is an open-winged view of a female with brown upper wings. The male upper wings are bluer and lack brown. Wingspan is approx. 15mm. It's the smallest Butterfly I see.

Long-tailed Pea-Blue, Lampides boeticus. A very quick little Butterfly that is difficult to photograph. The tails, 'eyespots' and the white band on the underwing are characteristic of this species. Often the tails and 'eyespots' are missing, presumably because predators have been successfully misdirected from more vital areas of the body. 25mm wingspan.

Whites, Yellows and Sulphurs - Pieridae

Pieridae is a large butterfly family characterised by predominantly white or yellow wings, often adorned with distinctive black markings. Many **Pieridae** have migratory behavior.

Caper White, Belenois java on a **Purple Cockatoo Orchid, Glossodia major.** This is a butterfly known for its mass migrations. In some years it has been very plentiful in the park and in Adelaide in general. In other years it is only infrequently seen. Predominantly white and black markings with some yellow. 55mm wingspan.

Left: **Small Grass-Yellow, Eurema smilax.** This is a smaller butterfly and a very rare sighting for me. There are some years I have not seen this butterfly at all. Its wings are nearly all-yellow and have a black band around the upper edge and some lighter spotting on the wings. They are very quick and difficult to photograph. Wingspan is approx. 30mm.

Cabbage White, Pieris rapae (Introduced). Widespread species common to backyards and also frequently seen in Belair NP. White wings with distinctive black markings. 44mm wingspan. Their velvety green caterpillars/larvae (below) are considered a pest in backyard vegetable patches. Right below is its pupa.

Swallowtails and Parnassians - Papilionidae

Papilionidae are a large and colourful butterfly known for their striking colours and intricate wing patterns, including the iconic swallowtail shape.

Dainty Swallowtail, Papilio anactus. A striking butterfly characterised by its black-and-white patterned wings, with smaller red and blue spots on the margins of its hindwings. Its abdomen is yellow and black.

In Belair NP I have only ever seen this butterfly on the weedy **Scabiosa**. At home I have seen it laying eggs on my lemon tree (below) It is the only species of **Papilionidae** seen in Belair and the surrounding area.

Wingspan is approx. 70mm.