

Life history notes on the Large Grass-yellow, *Eurema hecabe* *hecabe* (Linnaeus, 1758) Lepidoptera: Pieridae – Wesley Jenkinson



The Large Grass-yellow previously known as the Common Grass-yellow is encountered across much of northern and eastern Australia. Within its breeding range, this species is one of our most common butterflies.

The adults can be located in a variety of habitats where the host plants are established; chiefly in grasslands, open woodland, eucalypt open forest and in suburban gardens where there is suitable habitat. Dispersal of this species from its breeding areas depends on regional rainfall and the availability of its host plants. There are dry and wet season forms with some adults being intermediate between the extreme forms pictured.

Adults have a slow erratic flight although they can fly rather quickly if they have been disturbed. They are found flying close to the ground in grassy areas but will fly much higher in search of nectar or over obstacles. During hot summer days, large numbers of the adults can be observed imbibing moisture from mud puddles and moist gravel areas along creeks. While feeding, the wings remain closed. The adults are active during warm sunny conditions but tend to settle during heavy cloudy periods only to take flight again when the cloud has cleared. The adults are readily attracted to a wide variety of small native and exotic flowers. The males do not hilltop.

Whilst in flight, the adults can be very easily confused with other species in the *Eurema* genus, in particular, the Scalloped Grass-yellow (*E. alitha*) which is very similar in size and markings. Smaller adults (runts) can occur particularly if the larval food is in short supply. Voucher specimens are generally required to determine correct identification between these two species but even then some specimens can be difficult to separate. *Eurema alitha* has only been recognised in recent years in Australia and was first included in Braby 2000.

In comparison to *E. alitha*, *E. hecabe* is a slightly paler yellow, and the top yellow 'tooth' on the forewing black margin indentation is generally shorter than the lower tooth and sometimes broader. The hindwing upperside may also have slight but less obvious scalloping along the margin. Other *Eurema* spp. are generally smaller in size and (with the exception of *E. puella* from Cape York Peninsula) the wide black marginal band on the upperside forewing does not extend to the tornus. In both species, the black markings on the upperside show slight variation in the shape. In addition, both species also feed on separate host plants.





Images left to right: male & female *Eurema alitha*, male *E. alitha*, male *E. hecabe*, male *E. hecabe*

The sexes are rather similar in appearance. Males have a sex brand (or patch of sex scales) along vein CuA on the underside of the forewing. The females are also a slightly paler yellow and, in particular, the wet season form has a dusting of black scales towards the base of fore and hindwing uppersides and a broader black suffused margin along the upperside of the hindwing.

The sizes of the adults for both seasonal forms are similar with wingspans for the pictured males being 38mm and females being 40mm respectively.



***Eurema hecabe hecabe* (Large Grass-yellow) Wet Season Form**

Images left to right: male, female, male underside, female underside



***Eurema hecabe hecabe* (Large Grass-yellow) Dry Season Form**

Images left to right: male, female, male underside, female underside

This species utilises a broad range of host plants in the following four families: Caesalpiaceae, Euphorbiaceae, Fabaceae, and Mimosaceae. These are listed by various authors in Braby 2000. Additional host plants within these families have been recorded and published in Moss 2010.

During November 2005 at Beaudesert (in southeast Queensland) a female was observed slowly fluttering around a Coffee Bush (*Breynia oblongifolia*) a known host plant. She settled on the host plant and curled her abdomen on to the upperside of a



leaf and laid a single egg. While ovipositing, the wings remain closed. This egg was kept for life history studies.



This egg was creamish white, spindle shaped with very fine longitudinal ribs, approximately 0.5 mm wide x 1.3 mm high.

Freshly laid egg

The first instar larva emerged prior to 7.00 am and consumed the eggshell shortly afterwards. It was observed feeding during daylight hours, resting on either side of the leaves and along stems of the host plant. The larva raised completed five instars and attained a length of 30mm.



1st instar larva



2nd instar larva



3rd instar larva



4th instar larva



5th instar larva



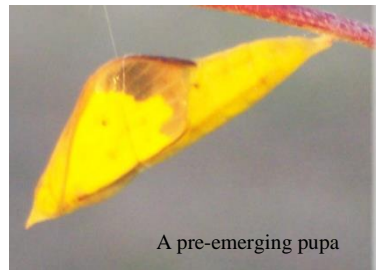
Pupa lateral view



Pupa with reddish-brown markings

In captivity, the pupa measuring 19mm in length, was located below a stem of the host plant. It was attached with silk by the cremaster and a central girdle. The pupae occasionally have reddish-brown or brownish markings for camouflage to match the stem colour as pictured.

The total time from egg to adult was almost 1 month, with egg duration of 4 days, larval duration



A pre-emerging pupa



18 days and pupal duration of 7 days.

Within the new boundary of the Scenic Rim Regional Shire south of Brisbane, I have records of adults from all months of the year. In this region, the adults appear to be more numerous during the summer and autumn months. In this location, during some years, the life cycle is completed throughout the winter months. However, this probably relates to the timing of local temperatures and rainfall triggering fresh growth of the host plants.

I would like to thank John Moss for commenting on the manuscript.

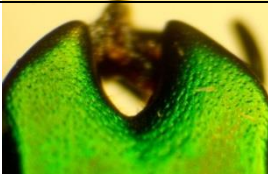
References:

Braby, M.F., 2000. *Butterflies of Australia – Their Identification, Biology and Distribution*. vol 1. CSIRO Publishing, Melbourne.

Moss, J.T. 2010. *Butterfly Host Plants of south-east Queensland and northern New South Wales*. 3rd edition, BOIC.

Photos Wesley Jenkinson

UNDER THE MICROSCOPE

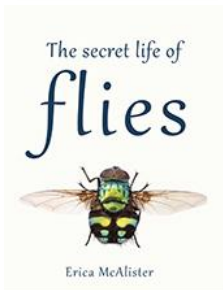


This image is of part of an insect photographed under a microscope. Can you guess what it is?

See page 42 for the answer.

BOOK REVIEWS

The Secret Life of Flies by Erica McAlister – Hardback | April 2017 |
\$ 29.95 ISBN: 9781486308026 | 200 x 130 mm Publisher: CSIRO – Reviewed by
Bernie Franzmann



Insects are endlessly fascinating aren't they? After reading this book, I'm thinking that flies are the most fascinating insects of all.

Every second page of this book has an interesting and, usually, amazing story about a fly family or species. The book has 241 pages so there are at least 120 such stories. The stories are presented in an entertaining, David Attenborough-like style.

Erica is a staff member at the Natural History Museum in London where her job enables her to 'play with one of the best collections of flies in the world'. She has also travelled extensively, including Australia, studying flies. She says of her book "It is a book of my ramblings through the world of flies and how they interact with everything else in the environment."

