

Newsletter of the Lepidopterists' Society of Southern Africa

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Breeding butterflies in captivity. Part I. Introduction

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Over the past 15 years I have reared some 120 species of South African butterflies in captivity and during the last four years Rolf Oberprieler and I have studied the life histories of about 25 emperor moths (Saturniidae). A number of members have expressed interest in this aspect of the study of butterflies and it is in the hope that some of the experience I have gained may be of some use to fellow lepidopterists that I propose to publish a series of articles in *Metamorphosis* on the subject.

I would like to begin with an overview so that those who are 'itching' to begin can do so. Future articles will deal, in more detail, with various aspects only touched on in this paper.

There are a number of reasons why the breeding of butterflies is such a rewarding pastime. For the collector the possibility of obtaining absolutely perfect specimens with not a scale out of place may provide the stimulus but he will soon discover that there are other rewards for his efforts: the challenge to ones' ingenuity and patience is often great and eventual success is therefore so much more fulfilling. By breeding a species the whole bioecology of the insect comes into sharp intellectual focus. This greater depth of understanding engenders a feeling of 'oneness' with nature and is surely perhaps the most gratifying aspect of butterfly breeding.

To begin with one must capture an egg-bearing fertilised female (pairing of virgin females in captivity or hand-pairing of butterflies is a tricky operation of which I have very little experience). Most females caught in the wild will be found to be fertile but some will lay much more readily in captivity than others. This is true both between different species and within a species. One cannot do much about differences between species but it is possible to select a 'good-layer' within a particular species. Such a female is usually one that is in good condition, with a plump abdomen. If she is caught in the act of laying or while she is inspecting possible foodplants she will generally lay much more easily in captivity than a female caught, for example, feeding at flowers.

Once the female has been captured she should be placed temporarily in a plastic or cardboard container and kept in a dark place (for example, the bottom of a large rucksack).

Next, one needs the correct foodplant on which the female will hopefully be induced to lay eggs and on which the larvae will feed. The female should be fed on dilute honey-water (2 parts honey to 10 parts water) once, or preferably, twice a day. *Charaxes* and some nymphalids prefer fermented fruit - resist the temptation to fortify this with more alcohol in the form of brandy, sherry etc. The female to be fed is held by her closed wings and the front feet touched onto a wad of cottonwool that has been soaked in honey-

water (or onto the fermented fruit). The proboscis is then carefully unrolled using a long blunt pin (needles with sharp points may puncture the proboscis).

The female should be housed together with fresh foodplant in a clear plastic or perspex container with sufficient ventilation to prevent excessive heat build-up but not too much otherwise the plant will rapidly dehydrate. The box, approximately 30 cm long, 20 cm wide and 25 cm deep, should be placed behind sun-filter curtains at a window through which sunlight falls for at least 2 hours a day. While the female is feeding, the eggs laid on the previous day can be snipped off with a pair of fine scissors and placed in small plastic vials individually labelled.

When the larvae hatch they are offered fresh, tender foodplant and should be handled as little as possible – if necessary use a fine camel hair brush. The best way to rear larvae is to sleeve them on the growing foodplant but plastic boxes may be used for picked plant. Fresh plant in clean boxes on a daily basis and absolute attention to cleanliness are essential.

Mature larvae must be provided with a site to pupate e.g. dead twigs etc. and pupae can be removed from the substrate by carefully loosening the silk pad with a blunt dissecting needle. The pupae are then stored in meshed cages until they hatch. Pupae which normally hang freely downwards (e.g. Nymphalidae) should be hung in this position in the hatching cage.

It is very important to allow the newly hatched butterfly to dry its wings properly – premature killing will result in crinkling of the wings when they dry out. On the other hand the insect should not be allowed to fly around in the cage as it can batter itself to pieces in a very short time. The time taken for expansion and drying varies considerably with size, temperature and humidity – as always experience is the best teacher of judgement. Killing is best achieved by placing the live butterfly in a container in a deep-freezer.

Aantekeninge oor *Anthene liodes bihe* (Bethune-Baker)

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Dit was Dr Piet Oosthuizen wat gedurende sy eerste besoek aan die Letaba Ranch, 112 km oos van Tzaneen, die goeie nuus terug gebring het dat hierdie mooi spesie ook in die Republiek vlieg. Tot op daardie datum was dit net in Zimbabwe en verder noord bekend. Hy vertel dat dit die poinsettia blomme by die ruskamp was wat hulle gelok het.

In Junie 1973 het die skrywer 'n hele maand daar gaan kampeer om meer eksemplare te versamel. Dag besoeke, af en toe, aan die woonbuurt ook verskeie jare voor 1973 het nie veel eksemplare tot gevolg gehad nie en dit was moeilik om in een dag vas te stel waar hulle orals vlieg langs die bosryke oevers van die Letaba rivier.

Hoe ver die spesie binneland toe vlieg langs die rivier is tot dusver ook nog onbekend. Graham Henning het hulle in 1975 langs die Krokodil rivier naby Malelane aangetref.

Op 'n plaas naby Sodwana baai in noord Soeloeland het D. Whiteley en sy maats ook op die spesie in Maart 1978 afgekom. Dus vlieg die dier verder suid as verwag was.

Die vraag ontstaan, vlieg hulle net langs riviere in die RSA of ook elders soos in Zimbabwe? Nuttige navorsing lê vir versamelaars voor die deur!

Kort na sy besoek aan die Transvaalse laeveld het die skrywer die volgende van Pierre Steyn van Bloemfontein ontvang - "Gedurende die tweede week van Januarie 1984 was ek met vakansie in die laeveld op 'n suikerplaas wat aan die Lomati rivier geleë is. Met my wandelings langs die rivier oewer het ek 'n bloutjie opgemerk wat onbekend aan my was. Min het ek geweet dat dit *A. liodes bihe* was aangesien ek nie 'n boek by my gehad het nie. Hierdie bloutjie het saam met ander skoenlappers aan die gewone aktiwiteite deel geneem en was baie aktief vir 'n ruk, en daarna eers 'n bietjie gaan rus op die blare van 'n boom; wat dit maklik gemaak het om te vang. Omdat ek onbewus was van die skaarste van die spesie het ek waarskynlik by 'n hele klomp verby geloop, en hulle aangesien as verskillende spesies van die *Anthene* groep. Een eksemplaar het op 'n roosboom gesit toe ek dit gevang het. Op dieselfde boom was ook 'n *Deudorix antalus* en dit wou voorkom asof die twee mekaar vir 'n ruk lank gejaag het en dan weer kom rus het op die roosboom. Dit is ook interessant dat hierdie spesie gedurende Januarie gevang is aangesien meeste van die vorige rekords gedurende die winter maande geneem is."

Die skrywer was verheug om gedurende sy maandlange besoek aan die Letaba Ranch van die dier se gewoontes gade te slaan. Meeste eksemplare het redelik hoog tussen die bome rond gevlieg so vier tot ses meter bo die grond en dit was nodig om lang netstokke te gebruik om hulle by te kom.

Op sonnige dae het hulle geweldig vinnig rond gevlieg maar na kort rukkies weer tot rus gekom, baie kere op hulle vorige sitplekke. Die wyfies het soms laer as die mannetjies gevlieg en was minder bedrywig. Hier en daar het van hulle op blommetjies langs die rivier naby die water kom sit. Ongelukkig het geen een van hulle aangedui op watter soort plant hul hulle eiers lê nie.

Life history of *Iolus diametra natalica* Vári

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After hearing a report by Raymond Jones of Richards Bay concerning his capture of this butterfly at a locality in the Eshowe/Empangeni area of Natal (on the hill opposite Dukaneni Siding) the writer resolved to investigate and record the life history in order to enable any differences or similarities with *I. aphnaeoides* Trimen of the Eastern Cape region to be established.

The foodplant is a species of *Loranthus* (presumed to be *wyliei*, although no confirmation of identity has been made) which grows quite abundantly on the hill. The flowers are white with yellow and red tips.

Our first visit to the locality was on 8 May 1984 with no success even in finding the foodplant. On 8 October 1984 the foodplant was located but the flowers were only just forming. A few empty egg shells were found but no

larvae or unhatched ova. However, on 24 and 25 November 1984 we were successful in locating freshly laid ova in abundance and also larvae in the 1st, 2nd, 3rd and 4th instar, from which the life history described below was recorded. Phillip Zwart of Durban was also able to obtain the early stages on 17 November and a photographic record has been made by Ivor Migdoll, also of Durban.

Ovum

Pure white – 0,6 mm in diameter and 0,5 mm in height. Laid singly on the flowers, or less often, on the leaves or stems of the foodplant. Hatching occurs after 5-7 days and the discarded egg shell is not eaten.

Larva

1st instar: 0,8 mm long on hatching; the larva is creamy-white in colour and covered in fine black hairs with a black head. Almost indistinguishable from other members of the *Iolaus* group such as *I. sidus* Trimen and *I. mimosae* Trimen. The larva grows to 2,5 mm within 5-6 days, feeding in grooves it eats out of the flowers.

2nd instar: Pale green with a russet dorsal stripe and also very similar to its congeners. Grows to 6 mm in a 6-8 day period, making 1 mm wide grooves in the flower stems.

3rd instar: The larva now takes on a distinctive form and colour (see sketch). The colour varies from pale yellowish with a russet dorsal stripe, to uniform pale leaf-green. The larvae now devour the entire flower, working from the tip down. The camouflage is extremely good because of the resemblance to the flowers, particularly in the case of the yellow larvae. They grow to 8-9 mm over a 6-9 day period. They usually crawl under a leaf to moult.

4th instar: There are three distinct colours of 4th instar larvae. The most common is pale green with a darker green dorsal stripe. Approximately a quarter of the larvae are a beautiful golden-yellow with a russet dorsal stripe; and occasionally two more paler russet stripes parallel to this. The third larval type is a uniform reddish colour, which matches the colour of the flower tips on some of the plants. The larva grows to 16 mm in 7-12 days, turning a mottled grey colour in the few days preceding pupation. This colour camouflages the larva in its pupation position on the bark of a twig or branch.

Pupa

9-10 mm long. Somewhat similar to *I. aemulus* Trimen and just as cleverly camouflaged. The pupa is secured by the cremastral hooks only, to a twig, branch or on the bark or in a crevice of the foodplant or host plant. It looks like a knotty lump or stubby twig. The colour is varied to match the surroundings – from dull cream, to grey mottled with off white or pale bluish-green, to a dappled brown and cream. The wing cases are brown or cream. Pupation took place between 3 and 21 December; two females hatched after 11 days (one on 27 December 1984 and one on 2 January 1985) but in all other cases the pupal stage lasted several months.

Predators

A small spider preys on the freshly-hatched caterpillars – even ‘camping out’ next to the eggs waiting for a meal! On many loranthus clusters the entire population was being devoured.

Remarks

The writer is not familiar with the life history of *I. aphnaeoides* Trimen from the Eastern Cape. Perhaps collectors from that area could record the life history for comparison. Two other species were also found breeding on the same loranthus at Dukaneni – *I. sidus* Trimen and *I. mimosae* Trimen.

