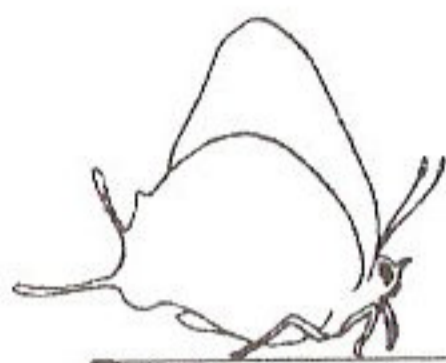


# METAMORPHOSIS

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JOURNAL OF THE LEPIDOPTERISTS'  
SOCIETY OF SOUTHERN AFRICA

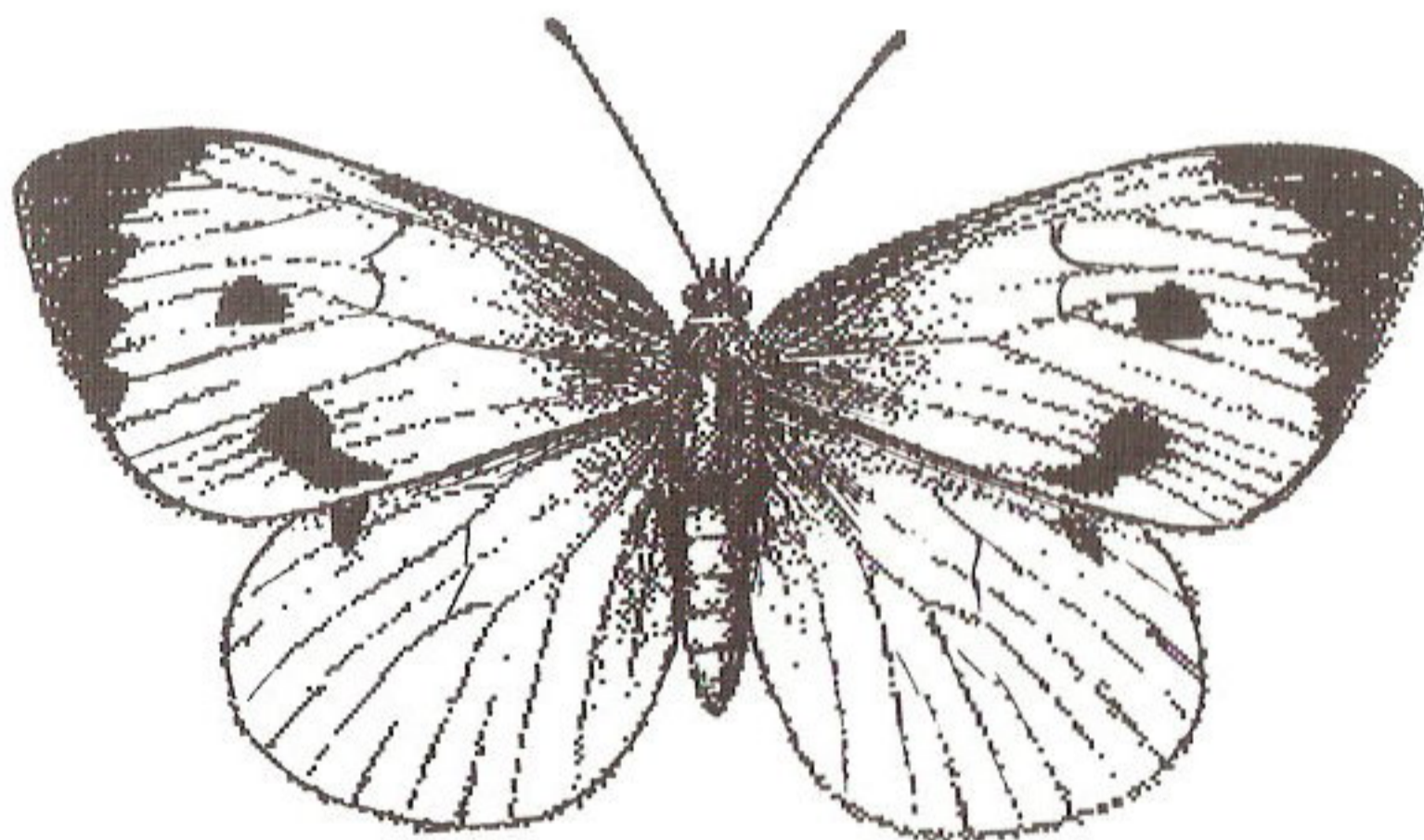
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Volume 6

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Number 2

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*Pieris brassicae* (Pieridae) female  
(Forewing length 33 - 36 mm)

# LEPIDOPTERISTS' SOCIETY OF SOUTHERN AFRICA

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The **aims** of the Lepidopterists' Society of Southern Africa are to promote the scientific study and conservation of *Lepidoptera* in Southern Africa; and to promote the publication of original scientific papers as well as articles of a less technical nature in the journal, *Metamorphosis*, or other publications of the Society.

**Membership** of the Society is open to all persons interested in the study of *Lepidoptera*. There is no geographical limit to membership.

There are three categories of membership:

	Local	Overseas	
Full members	R60,00 p.a.	US\$44.00 p.a.	UK £22
Junior members and Pensioners	R30,00 p.a.	US\$22.00 p.a.	UK £11
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Membership fees are due on **1 April**. Overseas rates are higher due to increased postage.

## CORRESPONDENCE

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*Metamorphosis* - The Co-ordinating Editor, P. O. Box 398, Magaliesburg, 2805  
Membership Fees - The Hon. Treasurer, P. O. Box 67317, Bryanston, 2021

All drawings, unless otherwise stated, are by S.F. Henning.

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## EDITORIAL

It was with a tinge of sadness that I agreed to take over the task of managing *METAMORPHOSIS*. It would mean that I would no longer experience the joy of receiving it in the mail or be able to immediately switch on my red light, ( a gadget I have in my office that indicates to all and sundry that I am positively not available) only to switch it off once I have thoroughly perused the journal from cover to cover! If there is one thing that makes *METAMORPHOSIS* unique, then it is its readability. I thank Bill, Stephen, and Graham Henning for all that they have done over the past few years towards the development of *METAMORPHOSIS* from a newsletter to what it is today.

The challenge for the future is to provide an avenue for our members to be able to publish new information, exchange ideas, and report on their activities in a format that will be both acceptable and therefore available to science, and still be readable to the membership at large.

It was with this goal in mind that the council decided to appoint an editorial team:

- Dr. Mark Williams is our Scientific Sub-Editor. He is responsible for ensuring that all articles of a scientific nature adhere to the specific standards that are laid down in the editorial policy determined by the executive council elected by the membership. In order to do this he will appoint an anonymous referee, who will be an expert in the field concerned, for each scientific manuscript received. Together they will be able to guide any author, no matter how much experience she or he may have, to present his or her new scientific information in such a way that it can be accepted and used by the scientific community at large.
- Mr. Bill Henning is our Sub-Editor of articles that are not specifically aimed at reporting information that is new to science. He is responsible for ensuring that the content of all articles are essentially correct, statements are backed up, and that articles are grammatically acceptable. With his years of experience he will be able to assist any prospective author with any article or report he or she may want to write.
- Mr. Andy Gray is our Technical Sub-Editor. He is responsible for ensuring that the content of *METAMORPHOSIS* is formatted to conform with the house style of the journal and to type-set the final proofs. If you have a manuscript for *METAMORPHOSIS* please do not bother to format it as this will be changed anyway. Just give us the text on disk and Andy will do the rest.
- My responsibility will be to ensure that all of the above happens and that *METAMORPHOSIS* reaches you regularly. If you have any query or comment regarding *METAMORPHOSIS* please do not hesitate to contact me.

Hermann S Staude

**BILL HENNING - EDITOR OF METAMORPHOSIS FROM 1990 TO 1995.**

After 5 years of regular, high quality issues of *Metamorphosis*, our old friend Bill Henning decided that, despite generous help from his sons Graham and Stephen, it was time to hang up his red pen. He is 75, after all, and more than deserves a happy retirement! I would just like to put down a few words on the advances that took place during Bill's stewardship of our Journal.

Many of our newer members will not remember the "pre-WHH" days of *Metamorphosis*. They were exciting days. To get a copy of *Metamorphosis* through the post was a surprise on the lines of catching a nice butterfly on a collecting trip. The chaps who edited *Metamorphosis* before Bill took over were busy working men who didn't have much spare time (after collecting trips took their priority!) to lavish on chasing reluctant authors and then licking their efforts into shape! In the youth of the Lepidopterists' Society there was no firm printing or style policy and some issues were photocopied on the goodwill of employers! That being said, Nolan Owen-Johnston and Mark Williams before him, cajoled some excellent reading matter from our membership and when an issue came out it was eagerly read. But, alas, sometimes we had to wait a little too long, and membership began to dwindle.

In early 1990, Douglas Kroon was President and at one of our council meetings the view was taken that *Metamorphosis* was the major reason for lepidopterists joining our Society. We decided to do something about it. Bill, as a pensioner, had the time available to devote to the job, and had the added advantage of the support team of Graham and Stephen living nearby. Stephen had already started organising the printing of the Journal after Douglas had done the typesetting, so it was logical for Bill to take over as Editor, a position he kindly accepted.

The first thing Bill did was to address the irregularity of *Metamorphosis*. Many letters and 'phone calls went out, twisting arms and generally begging authors to put pen to paper. *Metamorphosis* no. 25 (vol.1) saw light of day in March 1990, still in the A4 format, followed by no. 26 (vol.1). Then the format changed from A4 to A5, in keeping with practice in other journals. *Metamorphosis* no. 27 (vol.1) was the last of the "old style" *Metamorphosis*, and the first for the Society with Stephen Henning as President and long-suffering me as Treasurer (psst- anyone want a job?).

The first big changes came in 1991. Bill had pointed out that if we wanted our Journal to be taken seriously it would have to become a proper official publication, with an International Standard Serial Number (ISSN). This was duly applied for, and Bill was able to proudly announce the allocation of ISSN 1018-6409 to *Metamorphosis* in volume 2 no.4, published in December 1991. The other change was to an official quarterly Journal with one volume per annum, guaranteeing our members a regular Journal for their membership fees.

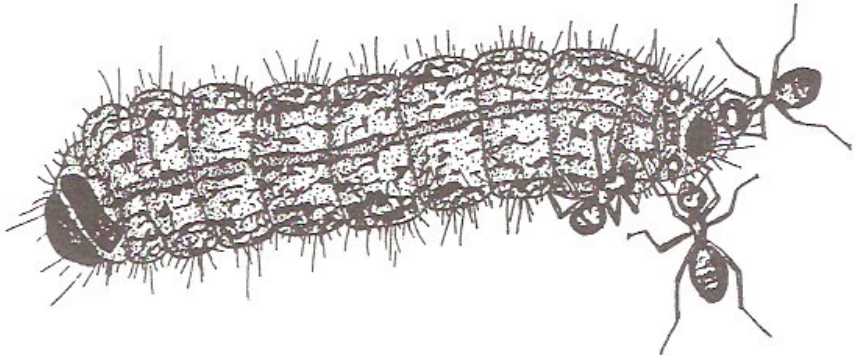
The volume of work started to mount up. The new format and style tempted more authors to put pen to paper, or finger to keyboard. In September 1992 two more milestones were passed in one leap - our first colour issue and our first full species description - *Poecilmitis blencathrae* Heath & Ball. Douglas Kroon, who had kindly done our typesetting on his wonderful computer, found the task to be encroaching on

other duties, so we went to a professional typesetter in Andy Gray of Sixgee's, who has done an excellent job since then at a price we can afford, and is now our technical editor.

I don't think Bill or any of us realised the sheer volume of work that would become involved in producing a periodical like *Metamorphosis* on a regular basis. Gradually the Editor's job grew. In the early days it was largely a case of cajoling copy from authors until there was enough for an issue, collating it all and getting it off for typesetting. Then other duties started to creep in, like dealing with printers and typesetters, colour separations and peer review refereeing which is essential when learned papers are being published. The paper chase got bigger and bigger, to the point where it was a major management task merely to keep track of who was writing what and what stage it was at! We on the council could see that the Editor's job was getting too big for just one man to do in his spare time, and that it was time for a change. Bill asked if he could step down late last year, and Herman Staude bravely stepped into the breach.

It was during Bill Henning's reign that vital changes were made, as witness the fact that the decline in membership was reversed in 1992 and we are now over the 300 mark and growing. I know I will be joined by the council and all our membership in thanking Bill for five years of successful editorship of *Metamorphosis*.

Steve Woodhall



*Aloeides dentatis* final instar larva with host ants, *Acantholepis* sp.

**COMMENT BY THE PRESIDENT**

Conservation has once again occupied my attention over the past few months with our efforts to get a reserve established for the last known colony of *Orachrysops niobe*. As you will see from the report elsewhere in this issue, we have made good progress to date.

While one contemplates the fate of *O. niobe*, one cannot help but think of the other species which may be similarly affected. Examples such as *Oxychaeta dicksoni* and *Argyrocupha malagrida malagrida* immediately spring to mind. Are these colonies adequately protected?

Are these small reserves we are creating actually viable or will they need careful management? Our particularly small 12 hectare reserve for *Aloeides dentatis* at Ruimsig has to be burnt every year to ensure suitable habitat for the butterfly. However, these reserves are certainly serving a valuable purpose, not only preserving the rare species, but providing valuable publicity for the conservation of insects and the general education of the public.

The Society tries to monitor the status of the rare and endangered butterfly species in South Africa. To do this, however, we need information which only you the member can provide. All of you have one or two rare species on your doorstep which you can check at regular intervals so that any potential habitat destruction can be prevented. This habitat destruction could be by alien plants, township development, dams, roads and so on. If we know in advance of a potential threat we can decide whether to take measures to try and get the area protected. If it is necessary to establish a new reserve, it is far easier to do so as soon as possible, for example, before the area has been sold to a developer for township development, or plans for roads and dams have been drawn up.

If you are concerned about an area, the Society is here to give you a hand and advise, as we have built up considerable expertise over the years in this area.

Stephen Henning

## REGIONAL ROUNDUP

The past few months have not produced the frenzied activity often associated with this time of year. I, and many of my colleagues, have spent a great deal of time working on articles, books and projects such as the Brenton Blue Project which is detailed elsewhere in this magazine. The collecting of specimens often turns out secondary to the collecting of information.

While on a visit to the Knysna area over Easter the only butterfly of any note was *Dira clytus*. It was flying in some numbers throughout the coastal fynbos at Brenton-on-Sea. I did manage to collect some Geometrids with a light supplied by Hermann Staude. They were found in thick coastal fynbos and Hermann was pleased with the results. The forests of the region were particularly lush but almost totally devoid of the butterfly life normally associated with such habitats by visitors from the north.

With reference to forests it would appear from accounts by Neville Curle and Rudolf Swart that the Dondo and Amatongas and other forests of Mozambique have been extensively destroyed by the residents. It is good to know that Mozambique is now becoming more accessible to lepidopterists but it may be a while before some collectors feel perfectly safe to travel through the area. Neville has written an article on his trip. Rudolf saw a few *Sallya rosa* but they flew high and would not come to the traps. What did come to their traps however were a couple of *Pseudacraea lucretia expansa*, a rather unusual record. Other species recorded were *Charaxes protoclea azota*, *C. pseudophaeus* and *C. violetta melloni* which were darker than the Zimbabwe specimens in Rudolf's collection. *Euxanthe wakefieldi* was also recorded but the best catch was *Hypolimnas deceptor*.

The Eastern Transvaal looks in good condition but very few butterflies were out during April when I paid a brief visit. Izak Coetzer has been breeding *Platylesches* on the *Parinari* at various sites through the Eastern and Northern Transvaal and has bred *P. picanini*, *P. galesa* and others.

Paul Kruger spent some time travelling around the Northern and Eastern Transvaal, in Kerkbos at Lagalameetse he found sucking spots (fermenting sap oozing from insect wounds) on *Buddleia* where he saw *Charaxes xiphares kenwayi*, *C. druceanus moerens*, *C. candiope* and *C. brutus natalensis*. *Appias sabina phoebe* was also flying at Lagalameetse and he saw both female forms. At Blyderivierspoort *Hyalites obeira burni* was flying as was *H. cabira*, *Acraea aglaonice* and *Charaxes phaeus*. At Woodbush in March he saw *Papilio ophidicephalus transvaalensis* and recorded *P. euphranor* sucking at red *Mombresia* lilies.

It is pleasing that some members are now writing up their trips and submitting them for publication in *Metamorphosis*. We hope to see a detailed account of Alf Curle's trip to Cameroon and Kenya. It was apparently a memorable experience.

Please phone me with any interesting observations so they can be shared with your fellow members and recorded for posterity. Your observations will make up the butterfly books of the future.

Graham Henning

## MOTHING MARIEPSKOP

By J. G. Joannou  
P. O. Box 894 Krugersdorp 1740

I was lying on my bed, ruing my recent back operation and generally feeling sorry for myself when the phone rang. It was Hermann Staude, who started off the conversation with the question "How long a period are you capable of sitting up for?" I told him, and asked why. "We're going to MARIEPSKOP," he said "I've cleared out Sani, put a mattress in the back and we're going to MARIEPSKOP! Clear it with your doctor and get back to me".

So began the preparations for a weekend's MOTHING on the mythical, misty mountain.

The journey itself took some seven hours to complete - a combination of slow travelling, (respect for my back) and repairs to Sani's alternator at Blyde River Motors. The latter, I might add, costing us the princely sum of R15.00! - surely one of the better perks of rural living! We arrived in darkness and went to Mike Walker's house to renew acquaintances and discuss areas suitable for trapping at this late hour. Mike duly directed us to a nearby patch of forest and insisted we drive over the dam wall, even though there was a perfectly good road around it. (Mike is an off-road nut and recognised in Sani a kindred spirit) We eventually set up the traps and returned to our billets to off-load and prepare for the night ahead. The others started trickling in, now slowed by rain damaged roads, and in due course everyone was settled, various frothy beverages were opened and contentment reigned supreme.

The 10 pm visit to the traps was cancelled as the weather had by then turned foul - torrential rain accompanied by high winds. We decided to call it a night and see what the morning would bring.

Saturday 5 am, and despite the poor weather, the traps had attracted huge numbers of moths - most of them sphingids. It was an absolute pleasure to have to spend more time at the traps than Hermann, something which has never happened during any of our previous joint collecting exercises. Although the number of individual specimens was vast, the species count was obviously disproportional. However, having to look through the thousands of insects nevertheless took lots of time. We completed our collecting and went back to base for a change of dry clothing and breakfast. The weather cleared, we ate heartily and sat back relaxing. We watched, bemused, as the others scurried around preparing bait and assembling nets for the day's fly catching. Hermann and I decided to take an hour or so's nap - MOTHING really is such a civilised pursuit!

At about 11 am we climbed into Sani and drove up the mountain seeking new sites for that evening's trapping. The forest was, as always, magical. I can never get enough of that silence and tranquillity, only occasionally broken by the raucous, reverberating call of the loerie. I can never tire of the moist, lush undergrowth or peer often enough upward, through the outstretched limbs of those moss and orchid bedecked giants. And all the while, the brown and white forms of *Paralethe dendrophilus* float gently in



and out of the vegetation - surely the emblem of our montane forests? An inner peace and awe exude from every pore and it is difficult to be a scientist in the face of such magnificent creation.

Having decided which forest spots to use, we moved still higher. I had heard that the upper regions were covered in fynbos but was still unprepared for the dramatic change when we reached the top. Huge boulders and rock outcrops, covered in moss of a hundred different hues, dominated the landscape. Water trickled out of crevices, cold and crystal clear, watering the Cape-like vegetation. The occasional small yellow wood tree, lichen bearded and wind bent, poked fingers into the mist which shrouded the entire plateau. Even at this time of day, it was cold and foreboding. The ethereal quality generated was so profound that I would not have been surprised if one of the little people had materialised from behind one of the boulders.

Hermann was ecstatic "If there are new bugs to be found, this will surely be the place" he enthused. I wasn't so sure. The desolate landscape did not look particularly sphingid friendly, but we nevertheless looked around and decided on a protected spot before heading back down for lunch. I was a bit concerned that the luminous traps would be seen from far off and create some consternation due to their proximity to the military installations. We spoke to Mike and decided to visit the army base and make known our intentions. To the personnel concerned and to Mike in particular, our sincere thanks for their cooperation.

We set off again at about 6 pm to erect the traps at the preselected sites. The lower ones in daylight, but those up on the plateau just as it was getting dark. The wind was icy cold but Hermann kept assuring me that any bugs living up here would be used to these conditions. The eerie surroundings were made even more so, picked up in Sani's headlights as we wound our way back down. We stopped at the lower traps but not much had arrived despite it now being nearly 8 pm and we continued back to base for dinner.

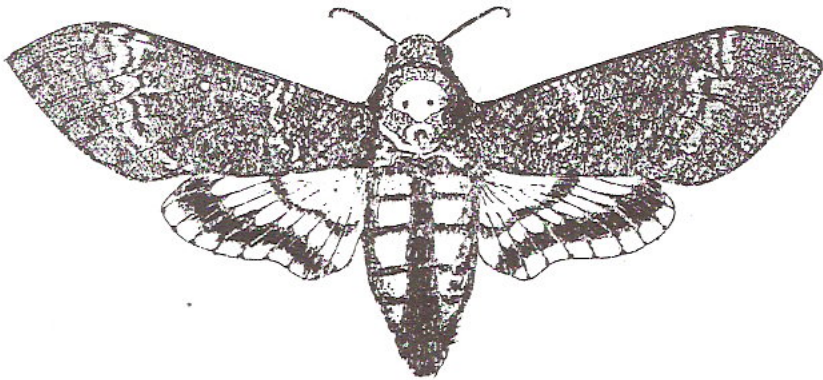
Saturday 10 pm and time for the first visit. The forest traps were humming, again with lots of sphingids. We spent an hour or so there and proceeded up to the fynbos. As we neared the trap site, all that could be seen was a dingy violet glow. I cynically remarked to Hermann that the mist was too thick and the insects wouldn't be able to see the trap. And suddenly we were upon it. Dimly lit, not because of any mist, but because it was covered in tens of thousands of insects! And the bulk of these? - Why, sphingids of course! I have never seen such a conglomeration of Lepidoptera. It was truly a magnificent sight. We collected there for some time, nothing new sphingid-wise, but Hermann collected numerous species which have strong Cape associations. In fact his remark was "I may as well be collecting in Stellenbosch!" The sight of this bulging trap was too amazing not to be shared with the others. Hermann volunteered to bring them back up but I opted for a bit of kip before having to get up again in a few hours.

The 5 am visit was particularly fruitful for Hermann who found plenty of geometrids in the grass. The trap itself, filled with robust hawks, was obviously no place for these frail butterfly-like moths. We eventually finished collecting and spent the next hour clearing traps of insects and packing equipment away. Although I say 'insects' there

were in fact hardly any other orders represented - the odd mantid and a couple of beetles. 99.99% of that amazing biomass was lepidopteran!

Back to camp, breakfast, and a chat with Mike before packing for home. All in all, a thoroughly enjoyable weekend. To those members who have yet to experience a Society weekend - make a plan to do so, you really are missing out!

I must acknowledge and sincerely thank Hermann Staude, for his patience, understanding and good fellowship. After three months of forced inactivity, this visit to Mariepskop was surely the best possible medicine I could have taken. To Mike Walker and the Department, grateful thanks on behalf of the Society and myself, for allowing us the run of this wonderful forest reserve. And lastly, but by no means least, thanks also to Martin Kruger, of the Transvaal Museum, for identifying some of the moths we had difficulty with. His willingness to assist, not only in this particular instance, but at all times, needs public recognition and I hope I do not embarrass him by taking the opportunity to do so here.



*Acherontia atropos* female upperside

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## AN ANNOTATED LIST OF LEPIDOPTERA COLLECTED AT MARIEPSKOP, SOUTH AFRICA

By J. G. Joannou  
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**Abstract:** A list of Lepidoptera, collected at Mariepskop, South Africa, during 3-4 March 1995 is presented, together with brief taxonomic, nomenclatural and ecological comments on selected species.

### Introduction

Over the weekend of 3-5 March 1995 a preliminary survey was undertaken by members of the Lepidopterists' Society of Southern Africa of the Lepidoptera occurring in the Mariepskop wilderness area (24°33'S.30°52'E) in north-eastern Transvaal, South Africa. The greater part of the area is under the control of the Department of Forestry and part of it falls within the boundary of the Blyderivierspoort Nature Reserve. The two dominant vegetation types in which Lepidoptera were collected are montane forest, which occurs approximately between 1000-1800m and montane fynbos-type vegetation which occurs approximately between 1800-1944m above mean sea level. The list presented here is, of course, no comprehensive checklist of all the species that occur in this area, but since it contains a number of new or otherwise important distribution records, and since it was requested by the forestry authorities, it is here formally published to make the records available to science.

### Materials and methods

Nocturnal Lepidoptera were collected by means of three "Oberprieler type" umbrella light traps (Oberprieler, 1984) consisting of 2x 15w black light white fluorescent tubes, powered by 120ah wet-cell batteries. Traps were placed in different localities within the area each night.

Diurnal Lepidoptera were collected by hand net and by "Charaxes type" bait traps.

### List of species collected

In this list, the Geometroidea, Spingidae, Saturniidae, Papilionoidea, and Hesperioidea represent a full account of all the species encountered. Of the other families, only a few selected taxa were collected and are listed here, by no means representing the full diversity of species attracted to the lights.

In presenting this list, we have, where possible, included references to books in which more information and also illustrations of the species can be found (PH-Pinhey 1962; PE-Pinhey 1972; PM-Pinhey 1975; JA1-Janse 1932; JA11-Janse 1933-1935)

For the Papilionoidea, Hesperioidea, and Geometroidea the following applies:

- (F) denotes afro montane forest;
- (B) bushveld;
- (G) grassland;
- (M) fynbos macchia.

## COSSOIDEA

### COSSIDAE

#### ZEUZERINAE

PM pl 3 No. 2 *Xylocossus capensis* (Walker, 1856)

## GEOMETROIDEA [#1]

### DREPANIDAE

#### ORETINAE

*Epicampoptera notialis* Watson, 1965 (F)

## GEOMETRIDAE

### GEOMETRINAE

PM pl 14 No. 416 *Adicocrita koranata* (Felder, 1875) (F)

JA11 pl 13 No.9 *Chlorocoma didita* (Walker, 1861) (F)

*Comostolopsis apicata* (Warren, 1898) (F)

PM pl 14 No. 415 *Lophorrhachia rubricorpus* (Warren, 1898) (F)

JA11 pl 11 No.5 *Pingasa distensaria* (Walker, 1860) (F)

PM pl 15 No. 419 *Prasinocyma germinaria* (Guenée, 1857) (F)

PM pl 15 No. 420 *Prasinocyma scissaria* (Felder, 1874) (F)

*Prasinocyma* sp near *P.albisticta* (F) [# 2]

PM pl 15 No. 430 *Rhadinomphax divincta* (Walker, 1861) (M)

JA11 pl 15 No.1 *Rhodesia alboviridata* (Saalmüller, 1880) (F)

JA11 pl 15 No.5 *Syndromodes prasinops* Prout, 1930 (F)

JA11 pl12 No.8 *Thalassodes quadraria* Guenée, 1857 (F)

### STERRHINAE

JA11 pl 4 No. 17 *Problebsis latonaria* (Guenée, 1857) (F)

PM pl 12 No. 396 *Scopula inscriptata* (Walker, 1862) (M)

JA11 pl6 No. 4 *Scopula opperta* Prout, 1920 (M)

JA11 pl 4 No. 19 *Scopula rossi* (Prout, 1913) (F)

JA11 pl 6 No. 6 *Scopula serena* Prout, 1920 (F)

JA11 pl 7 No.40 *Somatina sedata* Prout, 1922 (F)

### LARENTIINAE

*Chloroclystis jansei* Prout, 1935 (F)

PM pl 14 No. 354 *Chloroclystis muscosa tumefacta* Prout, 1917 (F)

JA11 pl 4 No. 9 *Eupithecia infelix* Prout, 1917 (F)

JA11 pl 3 No. 23 *Eupithecia polylibades* Prout, 1916 (F)

*Haplolabida coaequata* Prout, 1935 (M)

*Lobidipteryx eumares* Prout, 1935 (F)

JA11 pl 2 No. 12 *Melanthia ustiplaga* (Warren, 1899) (F)

- JA11 pl 1 No. 12 *Mimoclystia explanata* (Walker, 1862) (F)  
 JA11 pl 1 No. 24 *Perizoma africana* (Warren, 1911) (M)  
 JA11 pl 1 No. 25 *Perizoma epipercna* (Prout, 1913) (M)  
                   *Perizoma* sp near *P.alumna* (M)  
 PM pl 14 No. 360 *Piercia bryophilaria* (Warren, 1903) (F)  
 JA11 pl 111 No. 26 *Piercia cidariata* (Guenee, 1857) (M)  
 JA11 pl 4 No. 2 *Piercia ciliata* Janse, 1933 (F)  
                   *Piercia* sp near *P.eumeles* (M) **[#3]**

**ENNOMINAE**

- JA11 pl I No.4 *Acrasia crinita* Felder & Rogenhofer, 1875 (M) **[# 4]**  
 JA1 pl 8 No. 16 *Anacleora extremaria* (Walker, 1860) (F)  
 JA1 pl 8 no. 12 *Ascotis reciprocaria* (Walker, 1860) (F)  
 JA1 pl 8 no. 7 *Cleora betularia* (Warren, 1897) (F)  
 JA1 pl 8 No. 1 *Cleora tulbaghata* (Felder & Rogenhofer, 1875) (F)  
                   *Colocleora faceta* (Prout, 1934) (M)  
                   *Drepanogynis arcuifera* Prout, 1934 (F)  
 JA1 pl 15 No. 7 *Drepanogynis chromatina* (Prout, 1913) (F)  
 PM pl 13 No. 326 *Drepanogynis mixtaria* Guenee, 1857 (F)  
 JA1 pl 7 No. 20 *Ectropis spoliataria* (Walker, 1860) (F)  
 JA1 Pl 14 No. 13 *Eupagia valida* (Warren, 1914) (F)  
 JA1 pl 7 No. 5 *Hypotephrina exmotaria* (Walker, 1861) (M)  
                   *Larentioides* sp near *L.cacotheron* (M) **[# 5]**  
                   *Luxiaria* sp (F) **[# 6]**  
 JA1 pl 6 No. 11 *Macaria brongusaria* Walker, 1860 (F)  
 JA1 pl 3 No. 7 *Obolcola deocellata* Prout, 1913 (M)  
 PM pl 13 No. 293 *Oedicentra albipennis* Warren, 1902 (F)  
 PM pl 13 No. 284 *Omizodes ocellata* Warren, 1894 (F)  
 JA1 pl 3 No. 15&16 *Pareclipsis punctata* Warren, 1900 (F)  
                   *Pareclipsis* sp (F) **[#7]**  
 PM pl 11 No. 333 *Pseudomaenas alcidata* (Felder &  
 JA1 pl 4 No. 12 *Psilocerea immitata* Janse, 1932 (F)  
 PM pl 09 No. 292 *Psilocerea pulverosa* (Warren, 1894) (F)  
 PM pl 13 No. 291 *Psilocladia obliquata* Warren, 1898 (F)  
                   *Sicyodes* sp (F) **[#8]**  
 JA1 pl 7 No. 9 *Tephрина inconspicuaria* (Hübner, 1796) (F)  
 PM pl 11 No. 318 *Xylopteryx protearia* Guenée, 1857 (F)  
                   *Xylopteryx* sp near *X.protearia* (M) **[# 9]**  
 JA1 pl 2 No. 3 *Zamarada transvisaria* (Guenée, 1857) (F)

**EPIPLEMIDAE**

- JA1 pl 1 No. 8 *Leucoplema dohertyi* (Warren, 1904) (F)  
 JA1 pl 1 No. 7 *Epiplema inconspicua* Janse, 1932 (F)

**PAPILIONOIDEA****NYMPHALIDAE**

**DANAINAE**

- Danaus chrysippus aegyptius* (Schreber) (F,B)  
*Amauris albimaculata albimaculata* Butler (F)  
*Amauris echeria echeria* (Stoll) (F)

**SATYRINAE**

- Bicyclus safitza safitza* (Hewitson) (F)  
*Aeropetes tulbaghia* (G)  
*Dira jansei* (Swierstra) (G/F) [#10]  
*Paralethe dendrophilus junodi* (Van Son) (F)  
*Cassionympha cassius* (Godart) (F)

**ACRAEINAE**

- Acraea horta* (L) (B,F)  
*Acraea neobule neobule* (B)  
*Acraea oncaea Hopffer* (F,G,B) [#11]  
*Acraea anemosa* Hewitson (B)  
*Acraea natalica natalica* De Boisduval (B,F)  
*Acraea axina* Westwood (G,F)  
*Bematistes aganice aganice* (Hewitson) (F)

**CHARAXINAE**

- Charaxes varanes varanes* (Cramer) (F)  
*Charaxes candiope candiope* (Godart) (F)  
*Charaxes jasius saturnus* Butler (F,B)  
*Charaxes brutus natalensis* Staudinger & Schatz (F)  
*Charaxes druceanus moerens* Jordan (F)  
*Charaxes xiphares draconis* Jordan (F)  
*Charaxes zoolina zoolina* (Westwood) (F)  
*Charaxes marieps* Van Someren & Jackson (F) [#12]

**NYMPHALINAE**

- Cymothoe alcimeda marieps* Rydon (F)  
*Sallya morantii morantii* (Trimen) (F) [#13]  
*Byblia ilithyia Drury* (G,B)  
*Eurytela hiarbas angustata* Lathy (F)  
*Hypolimnas misippus* (L) (F)  
*Precis tugela tugela* Trimen (F)  
*Junonia hierta cebrene* (Trimen) (B,F)  
*Junonia oenone oenone* (L) (F)  
*Antanartia dimorphica* Howarth (F)  
  
*Antanartia schaeneia schaeneia* (Trimen) (F)  
*Lachnoptera ayresii* Trimen (F)

**LIBYTHEINAE**

*Libythea labdaca laius* Trimen (F)

**LYCAENIDAE****THECLINAE**

*Iolaus silarus silarus* Druce (F) [#14]

**POLYOMMATINAE**

*Anthene definita definita* (Butler) (B)

*Cacyreus lingeus* (Stoll) (G/F)

*Zintha hintza hintza* (Trimen) (B)

*Leptotes pirithous* (L) (G,F,B)

*Lampides boeticus* (L) (G,F)

*Actizera lucida* (Trimen) (F)

*Zizeeria knysna* (Trimen) (F)

*Cupidopsis cissus* (Godart) (G)

*Azanus jesous* (Guerin-Meneville) (B)

*Azanus moriqua* (Wallengren) (B)

*Azanus mirza* (Ploetz) (B) [#15]

**PIERIDAE****PIERINAE**

*Pinacopteryx eriphia eriphia* (Godart) (B,F)

*Catopsilia florella* (Fabricius) (B,F,G)

*Eurema brigitta brigitta* (Stoll) (B,F)

*Eurema desjardinsii marshalli* (Butler) (F)

*Nepheronia thalassina sinalata* (Suffert) (F)

*Colotis ione* (Godart) (B)

*Colotis danae annae* (Wallengren) (B)

*Colotis evenina evenina* (Wallengren) (B)

*Colotis evippe omphale* (De Boisduval) (B)

*Belenois zochalia zochalia* (De Boisduval) (F)

*Belenois aurota* (Fabricius) (B,F,G)

*Belenois gidica* (Godart) (F)

*Mylothris rueppellii haemus* (Trimen) (F)

*Mylothris trimenia* Butler (F) [#16]

**PAPILIONIDAE****PAPILIONINAE**

*Papilio dardanus cenea* Stoll (F)

*Papilio echerioides echerioides* Trimen (F)

*Papilio euphranor* Trimen (F) [#17]

*Papilio demodocus demodocus* Esper (B,F)

*Papilio nireus lyaeus* Doubleday (F)

*Papilio ophidicephalus ayresi* Van Son (F)  
*Graphium angolanus angolanus* (Goeze) (F)

**HESPERIOIDEA****HESPERIDAE****COELIADINAE**

*Coeliades pisistratus* (Fabricius) (F)

**PYRGINAE**

*Celaenorrhinus mokeezi separata* (Strand) (F) [#18]  
*Celaenorrhinus mokeezi mokeezi* (Wallengren) (F) [#18]  
*Tagiades flesus* (Fabricius) (F)  
*Calleagris krooni* Vari (F) [#19]

**HESPERIINAE**

*Metisella metis paris* Evans (F)  
*Metisella malgacha malgacha* (De Boisduval) (G/F) [#20]  
*Platylesches galesa* (Hewitson) (F)  
*Platylesches neba* (Hewitson) (F)  
*Zenonia zeno* (Trimen) (F) [#21]

**BOMBYCOIDEA****LASIOCAMPIDAE****LASIOCAMPINAE**

PM pl 25 No. 523 *Pachypasa sericeofasciata* Aurivillius, 1921  
 PM pl 29 No. 525 *Pachypasa* sp near *P.capensis*  
 PM pl 25 No. 528 *Leipoxais peraffinis* Holland, 1893  
 PM pl 29 No. 535 *Trichopisthia monteiri* (Druce, 1887)

**EUPTEROTIDAE****EUPTEROTINAE**

PM pl 27 No. 551 *Striphnopteryx edulis* (Boisduval, 1847)  
 PM pl 30 No. 558 *Poloma angulata* Walker, 1855

**SATURNIIDAE****SATURNIINAE**

PM pl 20 No. 480 *Imbrasia cytherea clarki* (Fabricius, 1775) [#22]

**LUDIINAE**

PE pl 43 No. 5 *Ludia goniata* Rothschild, 1907 [# 23]

**SPHINGIDAE****SPHINGINAE**

PM pl 31 No. 595 *Agrius convolvuli* (Linnaeus, 1758)  
 PM pl 34 No. 596 *Acherontia atropos* (Linnaeus, 1758)  
 PM pl 34 No. 597 *Coelonia mauritii* (Butler, 1877)



PM pl 32 No. 598 *Macropoliana natalensis* (Butler, 1875)  
*Macropoliana oheffermani* (Gess, 1967)

PM pl 33 No. 579 *Pseudoclanis postica* (Walker, 1856)

#### **MACROGLOSSINAE**

PM pl 35 No. 617 *Temnora pylas* (Cramer, 1779)

PH pl 10 No. 12 *Temnora pylades* Rothschild & Jordan, 1903

PM pl 32 No. 620 *Nephele comma* Hopffer, 1857

PM pl 35 No. 625 *Daphnis nerii* (Linnaeus, 1758)

PM pl 35 No. 626 *Hyles lineata* (Fabricius, 1775)

PM pl 35 No. 629 *Basiothia medea* (Fabricius, 1781)

PM pl 35 No. 632 *Hippotion celerio* (Linnaeus, 1758)

PM pl 35 No. 633 *Hippotion eson* (Cramer, 1779)

PM pl 36 No. 634 *Hippotion osiris* (Dalman, 1823)

PH pl 11 No. 12a *Hippotion exclamationis* Fawcett, 1915 [# 24]

PH pl 11 No. 21 *Theretra orpheus* (Herrich-Schäffer, 1854)

### **NOTODONTOIDEA**

#### **NOTODONTIDAE**

##### **DESMEOCRAERINAE**

PM pl 39 No. 669 *Desmeocraera vernalis* Distant, 1897

### **NOCTUOIDEA**

#### **ARCTIIDAE**

##### **ARCTIINAE**

PM pl 45 No. 796 *Amerila bauri* Möschler, 1883 [# 25]

#### **HYPSIDAE**

##### **AGANAINAE**

PM pl 46 No. 804 *Psephea speciosa* (Drury, 1773)

#### **NOCTUIDAE**

##### **EUTELIINAE**

PM pl 51 No. 1003 *Caligatus angasii* Wing, 1850 [# 26]

##### **CATOCALINAE**

*Ulotrichopus* sp [# 27]

PM pl 57 No. 1035 *Erebus walkeri* (Butler, 1875) [# 28]

PM pl 57 No. 1038 *Hypopyra capensis* (Herrich-Schäffer, 1854)

PM pl 58 No. 1048 *Ophiusa tirhaca* (Cramer, 1777)

PM pl 58 No. 1050 *Hypanua xylina* (Distant, 1898)

PM pl 58 No. 1059 *Achaea lienardi* (Boisduval, 1833) [# 29]

##### **OPHIDERINAE**

PM pl 62 No. 1123 *Oraesia provocans* Walker, 1858

PM pl 62 No. 1124 *Eudocima fullonia* (Clerck, 1764) [#30]

PM pl 62 No. 1125 *Eudocima materna* (Linnaeus, 1767) [#30]

# 1 The list of 65 species of Geometroidea (including the Epiplemlidae and Drepanidae) compares favourably with results from other collecting trips in similar habitats. Specimens from the montane forest slopes, marked [F], and those from the fynbos

plateau, marked [M] were kept separate. The species composition of the latter was remarkably similar to that which can be found in typical fynbos of the South Western Cape. It is interesting to note that despite the proximity of the two areas, not a single species was recorded from both habitats. This is typical of geometrid moths, which generally do not fly far from their preferred foodplants, a characteristic that could make them a useful tool in the measuring of change in ecosystems.

# 2A taxon intermediate between *P.albisticta* and *P.bifimbriata* with white cilia and white terminal macula present but terminal brown line absent. There are prominent white crests on the abdomen.

# 3The lines in the fore and hindwings differentiate this probably undescribed species from *P.eumeles*. It is also significantly larger.

# 4A species normally associated with the Cape, but also recorded from the Blouberg (23°09'S/29°00'E) by M. Krüger.

# 5A probably undescribed species which has also been recorded from the Blouberg (23°09'S/29°00'E).

# 6An undescribed species of the tribe Eutoeini that also occurs in the Ngome Forest, Natal (27°48'S/31°25'E). Its generic placement is still uncertain.

# 7A very distinct, probably undescribed species with antemedial and postmedial lines orange with red edges.

# 8A large undescribed species with green forewings and distinct postmedial line. It has been recorded in a number of places along the Eastern Transvaal escarpment.

#9 This taxon differs from *X.protearia* in the antemedial and postmedial lines as also in ground colour and size.

#10 *Dira jansei* which is a Red Data Book species, was again found at Mariepskop, but at a different locality. Previous specimens were found at the Reitz memorial, but this one was taken in the grassland above the Klaserie waterfall.

#11 *Acraea oncaea* is a new record for Mariepskop.

#12 *Charaxes marieps*, was abundant. The best localities were found to be the forested clifftops above the Klaserie waterfall, the clearing at the end of the track following on from the Reitz memorial, and the forests along the road towards the radar station. The latter two are in excellent condition but the waterfall area is threatened by encroaching pines and should be conserved.

#13 *Sallya morantii morantii* - a single specimen found in the forests near the waterfall. This is a rare butterfly in the Eastern Transvaal.

#14 *Iolau silarus silarus* is found on the same *Loranthus* that is used by *Mylothris trimenia*, that grows in the area near the married quarters. As the latter insect is found all over the forest it is likely that *silarus* is also widespread.

#15 *Azanus mirza* was found in good numbers on mud at the bottom of Mariepskop after rains. This is another uncommon butterfly.

#16 Mariepskop is perhaps the only Eastern Transvaal locality where one can be certain of seeing *Mylothris trimenia*. It was flying in reasonable numbers.

#17 *Papilio euphranor* is another Red Data Book species, a single specimen was seen in the forest along the road to Klaserie waterfall.

#18 *Celaenorrhinus mokeezi separata* was plentiful in shady spots where its foodplant, *Isoglossa woodii* grows. A single specimen resembling *Celaenorrhinus mokeezi mokeezi*, the nominate subspecies from KwaZulu-Natal, was taken by P. Sharland. This record questions the validity of these subspecies.

#19 *Calleagris krooni* is another species for which Mariepskop is well known. This is a vicariant of the Eastern Cape to KwaZulu-Natal species *Calleagris kobela*. Together with *C. mokeezi* and the vicariant *Charaxes xiphares* subspecies, this is evidence of long-ago connections between the forests of KwaZulu-Natal and Mariepskop.

#20 *Metisella malgacha malgacha* is a new record for Mariepskop.

#21 *Zenonia zeno* is another new record for Mariepskop

#22 The subspecies *clarki* Geertsema with yellow ground colour and pink eyespot rings, occurs widely in Natal and along the Transvaal escarpment.

#23 Unlike the commoner *L. delagorguei* (Boisduval), in which the males are diurnal, those of *L. goniata* fly at night and are attracted to lights. Mariepskop is a new locality record for *L. goniata*, but the species is known from further north (Tzaneen, Soutpansberg) and south (Sabie, Montrose) and also occurs in Natal and the eastern Cape Province. (R. Oberprieler, pers. comm.)

#24 Described by Fawcett as a distinct species but treated as a subspecies or form of *H. roseipennis* by Pinhey (1962) and Carcasson (1968). It was again regarded as a separate species by d'Abera (1986), whom we follow here.

#25 Many *Amerila* species are aposematic and chemically protected from predators. When disturbed, adults of this species produce a noxious, strong smelling froth from glands situated near the tegulae.

26 Illustrated by Pinhey (1975) under the name *Pacidara venustissima* Walker, 1856. The name was changed to *C. angasii* by Vári & Kroon (1986) and Poole (1989), as *Pacidara* is a junior synonym of *Caligatus*, and *venustissima* of *angasii*. Pinhey (1975:205) remarks that "*The specific name signifies that it is the most beautiful moth*" This really is a remarkable moth, particularly the male. The illustration does not do justice to the mother-of-pearl sheen of the living insect.

#27 Although specimens have previously been collected from Mariepskop (Transvaal Museum), this very attractive, medium-sized moth appears to be still undescribed.

#28 This species is listed as *Erebus macrops* (Linnaeus) in Pinhey (1975) and as *Eupatula macrops* in Vári & Kroon (1986). Poole (1989), however, treats *Eupatula* as a synonym of *Erebus*, as Pinhey (1975) had also done, and regards *E macrops* as an only Oriental species. The African representative of this genus, *Erebus walkeri* (Butler) is the largest owlmoth on the continent.

#29 There were numerous forms of this species - flying together. Apart from the sphingids, this was the most numerous single species.

#30 Both these species are placed in *Othreis* by Pinhey (1975), and *E. fullonia* in *Othreis* but *E. materna* in *Elygea* by Vári & Kroon (1986). However, both *Othreis* and

*Elygea* are regarded as synonyms of the older *Eudocyma* by Poole (1989), whom we follow here.

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**THE EFFECTS OF ALTERNATIVE LARVAL FOODPLANTS ON THE  
MORPHOLOGY OF ADULT *CHARAXES ETHALION ETHALION* (BOISDUVAL,  
1847) AND *CHARAXES VANSONI* VAN SOMEREN, 1975  
(LEPIDOPTERA: NYMPHALIDAE)**

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**Abstract:** The rearing of broods of *C.ethalion ethalion* and *C.vansoni* is described, with specific emphasis on the differences between adults fed as larvae on the natural foodplant and on an acceptable alternative. The differences found between adults of *C.e.ethalion* were subjected to statistical analysis, and found to be highly significant for males, but less so for females. Antenna/forewing ratios were significantly different, showing that this measure, normally used as a test to distinguish between species, can vary significantly within a species.

### Introduction

*C.ethalion ethalion* from Manguzi forest, northern Kwazulu-Natal, has been bred on *Peltrophorum africanum* Sonder (Caesalpinoideae) when the natural foodplant in this zone, *Albizia adianthifolia* (Schumacher) W.F.Wight (Mimosoideae), was unavailable in sufficient quantities for breeding (Al Curle, unpublished). *P.africanum* is known as a foodplant of *C.ethalion binghami* Henning in Zambia, but Henning (1989) states that all other subspecies of *C.ethalion* reject it. Adults emerging from Curle's brood showed superficial similarities to another "black" charaxes, *Charaxes vansoni*. They were smaller than normal *C.e.ethalion*, and the females had the rusty-white apical spots and heavily iridescent blue-washed hindwing medial bands that are more typical of *C.vansoni*. *C.vansoni* uses *P.africanum* as a larval foodplant in the wild.

As well as the similarities between adult females, the early stages of these two species show some similarities. For example, the larvae have similar transverse dorsal stripes. They may be closely related, perhaps even conspecific, foodplant use being responsible for the differences in colouring and size.

This paper records the breeding of series of *C.e.ethalion* and *C.vansoni* on both the above foodplants, to establish whether:

- 1: these two insects are so closely related as to be perhaps conspecific, the choice of wild foodplant influencing the noticeable differences between their adults.
- 2: Larval foodplant use has any significant effect on the morphology of the adults of either species.

### Materials and Methods

Two female adults of *C.e.ethalion* were collected from Tshatshingo, Northern Transvaal on 23.I.1993. Both were of the form *rosae* Butler. They were confined in a fine net bag, tied over a growing plant of *A.adianthifolia*, and fed on honey-water every 48 hours. Over a period of two weeks, ca.70 eggs were laid on leaflets of the plant provided.

Three female adults of *C.vansoni* were collected from the vicinity of Thabazimbi, North-West Province, on 7.III.93. These were treated similarly to the *C.e.ethalion*, except that they were sleeved on a growing plant of *P.africanum* situated near the *Albizia* used for the *ethalion* females. Over a period of three weeks ca. 200 eggs were laid.

Half of the *ethalion* eggs were separated from the leaves to which they were adhering. This was done by carefully cutting the leaf away from the base of the egg using a scalpel, so as to leave a minuscule piece of leaf behind, which subsequently dried up. The eggs were placed in a small plastic bottle until they showed signs of imminent hatching, when they were put onto fresh, young cut shoots of *P.africanum*. The newly-hatched larvae commenced eating the leaflets at what appeared to be a similar rate to that of the other half of the larvae, which hatched from eggs left on the growing *Albizia*. As soon as the larvae on *Peltrophorum* had spun silk pads, the cut shoots were pinned to growing shoots of *Peltrophorum* within sleeves. No attempt was made to compare growth rates of the two sets of larvae. They were left in the sleeves, which were moved as the foliage was consumed, until the larvae pupated. Mortality rates were low. Both sets pupated over a period of time, from the beginning to the middle of March 1993, and adults started to eclose some two weeks later. No difference was noted between the times of emergence of either set; they all eclosed at random over a period of approximately three weeks.

Twenty eggs of *C.vansoni* were separated from their leaflets. All were placed on leaflets of *Albizia* as soon as signs of imminent hatching were seen. The newly hatched larvae ate very small pieces of *Albizia* leaf, no larger than 0.5mm, produced a tiny amount of frass, then refused to eat the *Albizia*. Ten were transferred to *Peltrophorum* leaves, which they ate, showing no ill effects. The other ten were left on the *Albizia*; they refused to eat it and died after 3-4 days.

The adult *C.e.ethalion* from each foodplant set were mounted and dried. On removal from the setting boards, the antenna and forewing lengths were measured using callipers and a vernier gauge. The forewing length was taken as the straight-line distance from the point where the humeral vein meets the thorax, to the end of vein R3 (see fig.1). Twelve males and eleven females fed on *Peltrophorum* were measured, and thirteen males and seventeen females for those fed on *Albizia*.

## Results

### Foodplant tolerance

*C.e.ethalion* was successfully reared on *Peltrophorum africanum*, which is the natural foodplant of *C.vansoni*. *C.vansoni*, on the other hand, would not feed on the natural foodplant of *C.e.ethalion*, *Albizia adianthifolia*.

### Variation of the adults

No differences in coloration were evident in the females of *C.e.ethalion* that emerged. Their markings were, without exception, those of the nominate form, as illustrated in Henning (1989). The only difference from the typical specimen illustrated by Henning, is that these females all had a strong metallic blue-green suffusion distal to the

hindwing white medial band. This is the characteristic of *C.vansoni* exhibited by specimens bred from Manguzi by Curle, that led to this work being done, but females fed on both plants showed this. A few specimens from each set had darker markings and narrower medial bands, but this again was not confined to females bred on one foodplant. The males were typical *C.ethalion* - having matt, jet-black uppersides with none of the iridescent blue-green scaling seen on *C.vansoni*.

It was difficult to compare the dimensions of these specimens to those described by Henning, because he used wingspans and the present work uses the forewing length of set specimens. The thoracic widths of ten random specimens of each sex bred in this work were measured and found to vary very little. The mean was 6mm for both sexes with a standard deviation of only 0.1mm, so a comparison with Henning was made by multiplying the forewing length by two and adding 6mm. By this method, the *Albizia*-fed specimens were similar in size to the population wingspan ranges quoted in Henning, although no true significance test could be used: (figures in mm.)

Henning's figures for <i>C.e.ethalion</i>			Present work ( <i>Albizia</i> -fed)		Present work ( <i>Peltophorum</i> -fed)	
sex:	males	females	males	females	males	females
range:	60-66	78-84	64.2-74.0	66.0-84.6	65.4-70.0	72.0-83.8
mean:			70.3	81.0	67.6	79.0

The *C.vansoni* larvae feeding on *Peltophorum* reached maturity over a period of more than three months. The adults showed normal variation (females with apical spots ranging from blue-white through ochre to reddish). Thoracic width was again measured to allow wingspans to be quoted from forewing lengths. Ten males showed a mean thoracic width of 4.5mm with a standard deviation of 0.08mm, ten females a mean of 5.2mm, standard deviation 0.1mm. The wingspans appeared to be at the lower end of the range for wild-caught ones described by Henning, but again no significance test was possible: (figures in mm.)

Henning's figures for <i>C.vansoni</i>			Present work	
sex:	males	females	males	females
range:	59-64	66-74	58.0-63.2	65.5-73.4
mean			60.7	68.8

The measurements of the two sets of adult *C.e.ethalion* were analysed using the student's t-distribution. The attached tables show the results. For the males, the mean forewing length of the *Albizia*-bred specimens at 32.4mm was 5.2% larger than that of the *Peltophorum*-bred ones at 30.8mm. This was significant at the 99.8% level. The males' mean antenna/forewing ratios were also significantly different at the 99.8% level, the mean for *Albizia*-bred specimens being 0.424 and that for *Peltophorum*-bred ones

being 0.410. The same differences were noted for the females, the mean forewing length being 36.5mm (*Peltophorum*-bred) and 37.5mm (*Albizia*-bred), and mean antenna/forewing ratio being 0.356 (*Peltophorum*-bred) and 0.360 (*Albizia*-bred). These were consistent with the differences seen in the males, but at a lower significance level (90%).

### Discussion

The original observation that specimens of *C.e. ethalion* from Manguzi bred on *P.africanum* superficially resemble *C.vansoni* was probably coincidental. All the female *C.ethalion* bred in this study showed the same green-blue metallic sheen on the hindwings, irrespective of foodplant species. It is possible that the dry climatic conditions in Randburg, where the insects were reared, affected the amount of hindwing blue, but it would need parallel breeding experiments in Tshatshingo and Randburg to confirm this. The male *C.ethalion* showed no differences in colouring between series bred on the two foodplants, and all were indistinguishable from normal wild-caught Tshatshingo specimens. For the Tshatshingo population at least, foodplant choice does not appear to affect the facies of *C.ethalion*. This is evidence

that this insect is not simply a form of *C.vansoni* which uses a different foodplant, and whose appearance reverts to type when fed on the latter's natural foodplant.

From this work it appears that *C.vansoni* cannot use *A. adianthifolia* as a foodplant, at least as far as the Thabazimbi population is concerned. It is interesting to observe that, for the two populations of *C.ethalion* discussed here (Manguzi and Tshatshingo), *P.africanum* does grow in the vicinity and could conceivably be used in the wild as a foodplant, or it may have been in the past. *A. adianthifolia* does not occur within 600km of the Thabazimbi area, so the population of *C.vansoni* found there are a lot less likely to have had chance to use it as an alternative foodplant.

It would be too bold to conclude, on the above evidence, that *C.vansoni* and *C.ethalion* are definitely separate species, although the evidence supports this hypothesis. Regarding the true relationship between these two species, this work actually poses more questions than it answers. Would *C.ethalion* from a locality where no *P.africanum* is found for hundreds of kilometres, be able to use it as an alternative foodplant? If not, this would be an homologous situation to *C.vansoni* at Thabazimbi. Also, would *C.vansoni* from northern Kwazulu-Natal populations survive on *A. adianthifolia*? The answers to these questions are important from a biogeographic and evolutionary point of view.

For this population of *C.ethalion*, which can utilise the two foodplants, foodplant species does appear to affect adult morphology. *A. adianthifolia*, the foodplant of choice at Tshatshingo, produces larger specimens than the alternative, *P. africanum*. The larvae were bred under identical climatic conditions and both sets appeared to thrive equally well, so the size difference reflects either poorer nutritional value of *P. africanum*, or the larvae being less able to gain nutrition from it. This state of affairs may not hold true for the entire range of *C.ethalion* that can utilise *P.africanum* as food, and the situation may be different at, say, Manguzi.



It also appears that sleeving larvae on their wild foodplant of choice leads to full-sized adults. None of the *C.ethalion* were expected to reach full size due to the lack of their natural habitat's heat and humidity, but the size of the *Albizia*-fed specimens were actually at the upper end of Henning's (1989) recorded range for this species. The *C.vansoni* were being reared under conditions much closer to their natural dry bushveld home, and were at the lower end of Henning's size range, but still within it. The *P.africanum* used in this work was grown from seed taken near Pretoria; it is possible that *C.ethalion* from Tshatshingo may grow to full size on *Peltrophorum* from that locality, and this should be tested.

An interesting finding was that the series of *C.ethalion* bred on *Albizia* had significantly greater antenna/forewing ratios than those bred on *Peltrophorum*. This difference was sexually consistent. This result was unexpected and is difficult to explain without speculation. Perhaps the greater suitability of *Albizia* as a food produces stronger individuals, and long antennae could be an indication of health. Whatever the reason for this observed difference, antenna/wing ratios are often used as a justification for the separation of species, so to find such significant differences in series bred together, with the control variable being the foodplant, was surprising.

### Conclusions

These results appear to support the species distinction between *Charaxes vansoni* and *Charaxes ethalion ethalion*, at least as far as the populations studied are concerned. They do not appear to be so closely related that specimens answering to *C.vansoni* can be obtained simply by feeding *C.ethalion ethalion* larvae on *Peltrophorum africanum*. However, the closeness of the relationship between these two *Charaxes* is still uncertain and further work is required, using material from other localities, to elucidate this.

For the Tshatshingo population of *C.e.ethalion*, using *Peltrophorum africanum* as a foodplant has a negative effect on adult size. This indicates that this butterfly population is adapted to *Albizia adianthifolia* as a larval food, but may have used *P.africanum* in the past. Alternatively this plant has a chemical similarity to *A.adianthifolia* that fools the larval taste which can use it, at a cost. Further useful evidence would be supplied by breeding Tshatshingo *C.e.ethalion* on *Peltrophorum* from its home range.

Within a species, *Charaxes ethalion ethalion*, antenna/wing ratio was found to be significantly affected by the foodplant species. Why this should be so is unclear, but it is an indication that workers should take care in using antenna/wing ratios as evidence for the distinction between closely related species.

### Acknowledgements

The author wishes to thank Al Curle for the initial observations that led to this work.

### References

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## BUTTERFLIES OF NAMAQUALAND

By A. J. M. Claassens  
203 High Level Rd. Sea Point 8001

The following list of butterflies represents the species collected in Namaqualand from Clanwilliam in the South Western Cape as far as Vioolsdrif in the north of Namaqualand by Gordon Fraser-Grant and myself during our collecting trip in the area from 3-12 October 1994. There is no doubt that for two geriatrics "hill-topping" proved just a little more difficult than it used to be. Motoring to the top as at Hantamsberg was certainly a lot easier for us than scaling the higher rocky hills from the bottom. However we managed, even though neither would admit they preferred the more easily accessible grounds. Somehow our reflexes also seemed just a little slower and I understood when Gordon shouted "I saw six but missed three and the others got away".

Meeting Andre Marais and his wife Maureen catching beetles in the hills at Witwater, was a very pleasant distraction from our serious, but rather unsuccessful collecting efforts in that area. After much guessing we finally identified an evasive collector on a motorbike. We caught a glimpse of him on his bike in various places and eventually discovered that he was Alan Gardiner of Harare, Zimbabwe, who was staying in a caravan park in Springbok. We spent a most enjoyable evening braai together and exchanged experiences, successes and disappointments.

### LISTS OF SPECIES COLLECTED

#### CLANWILLIAM:

*Aloeides damarensis damarensis*, *A.pierus*, *Argyraspodes argyraspes*, *Tylopaedia sardonyx peringeyi*, *T. sardonyx sardonyx*, *Durbaniopsis saga*.

#### LAMBERTS BAY:

*Aloeides arida*, *A. damarensis damarensis*, *A. margaretae*, *A. thyra*, *Phasis thero* (with red markings on upperside very much reduced), *Poecilmitis atlantica*, *P. bamptoni*, *P.felthami*, *P. psyche*, *P. pyroeis*, *Tarsocera cassus cassus*, *T. Imitator*, *T. namaquensis*.

#### LEIPOLDTVILE:

*Aloeides margeretae*, *Tarsocera cassina*

#### HANTAMSBURG:

*Aloeides apicalis*, *Lepidochrysoptera jamesi claassensi* (two worn specimens only) *L. ortygia* (one very worn female) *Poecilmitis stepheni*, *Pseudonympha trimenii namaquana*, *Spialia asterodia*, *Tarsocera namaquensis*.

#### STRANDFONTEIN:

*Aloeides apicalis*.

#### NIEUWOUDTVILLE:

*Chrysoritis coetzeri* (mostly worn specimens)

## NUWERUS:

*Brephidium metophis*, *Poecilmitis psyche*, *Chyrsoritis*

*chrysanthos*.

## GARIES:

*Brephidium metophis*.

## KAMIESKROON:

*Phasis clavum*.

## WITWATER:

*Aloeides aridus*, *A. bamptoni*, *A. vasoni*, *Poecilmitis kaplani*.

## SPRINGBOK:

*Aloeides damarensis damarensis*, *Lepidochrysops badhami*,

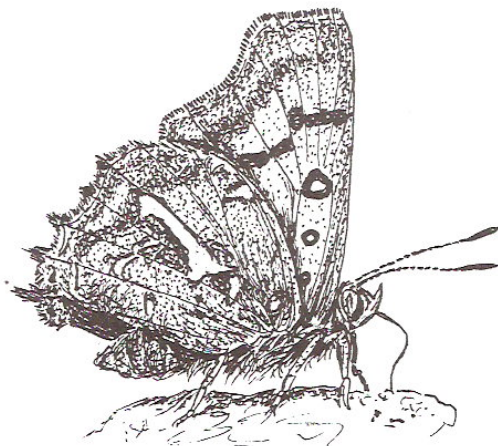
*Leptomyrina lara*, *Spindasis namaqua*.

## STEINKOPF:

*Chyrsoritis chrysanthos*.

## VIOOLSDRIFT:

*Colotis agoya bowkeri*, *C evippe omphale f. namaqua*, *C. doubledayi angolanus*, *Deudorix antalus*, *Pinacopteryx eriphia eriphia*, *Tuxentius hesperis*.



*Phasis thermo* male underside

## FIRST VISIT TO SUTHERLAND

By G. Fraser-Grant  
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It all started after bumping into those "beetle boffins" Andre and Maureen Marais at Witwater near Kammieskroon, where they were searching for some obscure crawly just where Andre Claassens and I were hunting unsuccessfully for *Poecilmitis kaplani*.

During our comparing of notes they kindly invited me to join them at Sutherland from 22 to 26 October. As this was an entirely new area for me, my "gun bearer" Betty and I jumped at the opportunity. Probably one of my better decisions.

Andre obviously knew the area well and sometimes on our own, but mostly in their company we were able to collect in those few days what would otherwise have taken me no doubt years. It was wonderful to experience such complete openness and willingness to share sites and opportunities. Something one does not always find in the often tight-lipped circle of many lepidopterists.

The first day was spent on the Swaarweeberg where we found:

*Tarsocera fulvina*  
*Tylopaedia sardonyx sardonyx*  
*Aloeides vansoni*  
*Poecilmitis beaufortia*  
*Pseudonympha southeyi wykehami*

The next day took us to Saltpeterkop and the Observatory, producing:

*Poecilmitis azurius*  
*P. violescens*  
*P. turneri turneri*  
*P. midas*

Finally we ventured to and conquered Sneeuks where we found:

*P. beaufortia wykehami*

Altogether for me a most enjoyable and successful trip. Thank you both Andre and Maureen for making it so!

## A PROPOSAL FOR A DATA RECORDING SYSTEM FOR LEPIDOPTERA Part 2

By B. Coetzer  
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**Abstract:** In this concluding part of the proposal for the standardised Lepidoptera database, (see *METAMORPHOSIS* Vol 6 No. 1), the field definitions, data entry format and suitable computer programs are specified. The field definitions are proposed to consist of up to seven separate databases that are linked together.

### 1 FIELD DEFINITION

This section describes all the fields required in all of the databases. Some explanations and specifications are given but it will be possible to modify this in future, if necessary.

#### 1 Lepidoptera database

##### 1 Species\_ID

This is a field that must be unique for each different taxon. It is important that this field be chosen with care as it will be used to relate collectors' items to the species database. A reference to PENNINGTON'S *BUTTERFLIES OF SOUTHERN AFRICA* could also have been used but as this may change with subsequent editions of the book an unmistakable name is suggested instead.

A 15+ character field is suggested, with the first two characters depicting family, the next two subfamily, the next three genus, the next three species, three for subspecies and two numeric characters assigned for variety and forms. The 15 characters of this field will form a unique code for each taxon. An example could be:

Family: **Pieridae**

Subfamily: **Pierinae**

**Colotis** (*Colotis*) **danae** **annae** f. **annae**: PiPiColDanAnn01

**Colotis** (*Colotis*) **danae** **annae** f. **wallengrenii**: PiPiColDanAnn02

Where no subspecies has been named, the species name will be duplicated and the nominate subspecies must have the numeric code 00. If any code is duplicated then a manual adjustment will be made to the ID field, by changing as few as possible characters to achieve a unique representation.

The advantage of choosing a code that resembles the actual species name is that one can readily recognise the species. A computer does not need this sort of recognition and any unique code would have sufficed. Another advantage of a well-structured code is that code generation could be done automatically in order to reduce the possibility of mistakes being made. The disadvantage of choosing a code as above is that, should the species be re-classified, the resemblance would disappear

or the code would have to be changed. In this case it may be better to retain the old code for the sake of traceability.

Whether such a code is sufficient for all Lepidoptera is an issue still to be investigated and resolved, preferably by the lepidopterological community. Once finalised such a code could be published alongside the species name in all new literature on Lepidoptera in southern Africa.

2 Family

This name and the following are as normally specified.

3 Subfamily

4 Tribe

5 Subtribe

6 Genus

7 Subgenus

8 Group

9 Species

10 Subspecies

11 Form

12 Author, Date

The suggested format for this is a character string of 36 digits following the standard form:

Wallengren, 1857 (Linnaeus, 1769)

13 English Common Name

Only one common name will be used, starting with the name used in PENNINGTON'S *BUTTERFLIES OF SOUTHERN AFRICA*, SECOND EDITION, 1994, as a baseline.

14 Afrikaans Common Name

Only one name will be used. Although more common names may be included in future, and also names in other languages, this will initially not be used.

15 Reference Number

For butterflies, this will be the Pennington number except for newly described taxa. For moths it could be Vári & Kroon.

16 Reference Book

For butterflies this will be PENNINGTON'S *BUTTERFLIES OF SOUTHERN AFRICA* second edition, 1994, except for newly described taxa.

17 Conservation Status

This field could be used to indicate the conservation status of a taxon, eg rare, extinct, etc.

18 Foodplants

This should be a list of all known foodplants for the species. The list will consist only of Foodplant ID names as defined later.

**19 Life History**

This could be a reference to the most recent publication where the life history can be found. It could also be extended to include all references to the life history of the taxon.

**20 Description**

This could be a reference of the taxon's original description. It could also be extended to include all references that contain later descriptions.

**21 Location of Holotype**

The collection in which the holotype is deposited, e.g. The Transvaal Museum, Pretoria.

**22 Location of Allotype**

The collection in which the Allotype is deposited, e.g. The Transvaal Museum, Pretoria. NB. this is **not** desirable as the allotype is not a name bearing specimen and **cannot** be used to determine the application of a name.

**23 Male image (upperside)**

This could be a scanned image of the upperside view of a male of the taxon.

**24 Male image (underside)**

As above

**25 Female image (upperside)**

As above

**26 Female image (underside)**

As above

**Note:** The last six fields could be left out initially but be included at a later stage.

**2 Locality database****1 Location\_ID**

This is a unique code identifying the location. A 24 digit code is suggested, where the first three digits indicate the region or province, the next 20 the town, and the last two being numeric to cater for duplicates.

NatMkuze00: Natal, Mkuze

GauZoutpan00: Zoutpan, Pretoria district

As an initial definition a list of reference names covering the whole of southern Africa in quarter-degree blocks will be chosen.

**2 Country****3 Region/Province****4 Town****5 Actual location**

Possibly a farm name.

**6 Latitude**

The system should allow for an accuracy of 1'.

**7 Longitude**

The system should allow for an accuracy of 1'.

8 Average altitude

### 3 Collection database

This database is kept by the collector for his own use.

1 Record\_ID

A number referencing all captured specimens of the specific collector.

2 Species\_ID

See Lepidoptera database

3 Location\_ID

See Locality database

4 Date

5 Collector

The name of the collector

6 Number\_caught

The number of butterflies caught, logged as males and females (if identified). The field could look as follows:

1M,3F

or

3

7 Population\_observation

This is again a controversial field which is hard to quantify, but it may be a very useful field in terms of population studies. It is suggested that the entries be grouped as follows:

Very few	If one or two were observed
Few	3-5
Many	5-15
Plentiful	>15

8 Notes

Here the collector could add notes concerning the capture, such as other observations, the weather, flight patterns, etc. Although this may be useful in the longer term, it is for now, excluded from the atlas database.

### 4 Catalogue database

This is the database which should be created at a centralised location. It will be brought up to date using data from individual collectors.

1 Record\_ID

A numeric ID identifying the entry in the database

2 Species\_ID

Retrieved from collector's database.

3 Location\_ID

Retrieved from collector's database.

4 Collection\_ID

The code identifying the collection.

5 Date

Retrieved from collector's database.



**6 Collector**

Retrieved from collector's database.

**7 Number\_caught**

Retrieved from collector's database.

**8 Population\_observation**

Retrieved from collector's database.

**5 Foodplant database**

This database is to be set up in the same way as the Lepidoptera database above.

**1 Plant\_ID****2 Family****3Genus****3Species****5 Author, Date****6 English Common Name****7 Afrikaans Common Name****8 Group****9 Reference\_book****10 Reference\_number****6 Collector's database**

This is a database containing the information of all collections that contribute to the information base.

**1 Collection\_ID**

A code identifying the collection where the entry resides.

**2 Address**

The address of the collection

**7 Reference book database**

This is a database containing all reference books in which the recorded information (foodplants, life histories, descriptions) can be found.

**1 Book\_ID**

A code identifying the book. The same style as used with the other databases.

**2 Title**

The title of the book

**3 Author(s)**

The author(s) of the book

**4 Publisher**

The publisher of the book

**5 Year**

The year of publication

**6 ISBN Number**

The book's identification number

### 7 Location

In the case of rare books, one location of the book

## 2 DATA ENTRY FORMATS

Modern databases offer sophisticated data entry sheets and it would of course be beneficial if these tools could be used. Such a tool will, for instance, warn if a spelling mistake was made when choosing a specific identification code.

As it is quite possible that many users will only have access to limited computing capabilities it is suggested that a simple, comma separated field structure be used where the database cannot be used. This should only be the case at collector level. The following field structure is proposed:

Record\_ID, Species\_ID, Location\_ID, Date, Collector, Number\_caught, Population, observation.

e.g.

523, PiPiColDanAnn00, PRETORIA, 26/06/1994, A.Coetzer, 2M,1F, Many

It will be necessary to complete the Lepidoptera Database soon so that Species\_ID's can be made known to contributors via publications such as *Metamorphosis*. The Location Database will be more problematic and it is suggested that the data used by the Botanical Society for distribution maps be used initially.

## 3 PROGRAM CHOICE

Many good products exist in the PC. market, and most will do the job. The following issues can be used as guidelines:

The program should be a relational database in order to perform the necessary data manipulation.

The database must be able to load simple text files.

The database must be able to handle large tables containing many entries

The program should ideally be inexpensive so that many people could afford it.

It would be preferable for the database to handle image information, such as scanned images or line drawings.

Windows offer a superb user interface and it is suggested that the program runs in a Windows environment.

**Paradox for Windows** may be used as the database program, and where Windows is not available, **Paradox for DOS** may be used as an alternative. This database is relatively inexpensive and can handle all the above mentioned requirements.

**Access** may also be used. This can be distributed to members as executable programs, so only one copy of Access need be purchased. The disadvantage of Access is that it requires Windows. Other options would also have been possible such as dBase, Oracle, Informix and so on. These were essentially discarded because of their high price or lack of programming tools.

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**SUMMARY OF DATABASE FIELDS**
**Lepidoptera database**

Specie\_ID  
 Family  
 Subfamily  
 Tribe  
 Subtribe  
 Group  
 Genus  
 Subgenus  
 Specie  
 Subspecies  
 Form  
 Author, Date  
 English Common Name  
 Afrikaans Common Name  
 Reference  
 Conservation Status  
 Location of Holotype  
 Location of Allotype  
 Life History  
 Description  
 Male image (Top)  
 Male image (Bottom)  
 Female image (Top)  
 Female image (Bottom)

**Locality database**

Location\_ID  
 Country  
 Region/Province  
 Town  
 Actual location  
 Latitude  
 Longitude  
 Average altitude

**Collection database**

Record\_ID  
 Specie\_ID  
 Location\_ID     Date

Collector  
 Number\_caught  
 Population\_observation  
 Notes

**Catalogue database**

Record\_ID  
 Specie\_ID  
 Location\_ID  
 Date  
 Collector  
 Number\_caught  
 Population\_observation  
 Collection

**Foodplant database**

Plant\_ID  
 Family  
 Genus  
 Specie  
 Author, Date  
 English Common Name  
 Afrikaans Common Name  
 Group  
 Reference\_book  
 Reference\_number

**Collectors database**

Collection\_ID  
 Address

**Reference book database**

Book\_ID  
 Title  
 Author(s)  
 Publisher  
 Year  
 ISBN Number  
 Location

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**LETTER FROM KNYSNA**

Dave & Esme Edge  
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We have lived in Knysna nearly a whole year but it has been so crammed with new activities and butterfly experiences that it seems much longer than that! In this letter we'll give more details on each species encountered rather than describe each trip.

JANUARY/FEBRUARY 1994.

***Lepidochrysops ketsi***

The insect discovered above our house at The Heads during December proved on closer examination to be somewhat problematical. Although it is clearly quite akin to *ketsi* it is much darker than OFS and Eastern Cape specimens, in fact as dark as *robertsoni* for which the closest known locality is on the Prince Alfred's Pass. Cottrell's excellent paper on the *methymna* group refers to a darker form of *ketsi* found near Caledon - perhaps someone has specimens of this for comparison to the Knysna ones? The locality, where the Knysna type form of *Thestor brachycerus* also flies, is in need of protection as it is right up against the present boundary of housing development on The Heads. We intend to hold discussions with the landowner in the near future.

***Charaxes karkloof capensis/trimeni***

As reported previously a female of this species laid over 60 eggs on 15 January. The larvae all hatched on 21 January and reached the 2nd instar 6 days later. Their voracious appetite became impossible to satisfy with cut foodplant (*Ochna arborea*) from the locality some 15km away so we decided to move them onto sleeved foodplant in the forest. 65 larvae were attached to the foodplant in five sleeves. On 9 February they were examined and found to be all in the 3rd instar, very healthy and brilliantly camouflaged with the russet brown head shields the same colour and shape as young twigs of the foodplant. The larvae were regularly checked and the sleeve bags cleaned over the next several weeks, resulting eventually in 47 pupae by the second half of March. The first hatching was on 28 March, and emergences continued over the next 2-3 weeks. Some specimens and / or pupae were given to other collectors and a good number were released back into the forest. My own short series now clearly demonstrates that there is very little difference between the Knysna insect and the Eastern Cape *capensis*. Ernest Pringle has also apparently bred through some specimens from the Hoogekraal Pass, some 25km west of Knysna - which were described by Rydon as *karkloof trimeni* based only on two specimens obtained by Mike Schlosz from larvae collected there. These are identical to the Knysna specimens on superficial examination.

***Lepidochrysops* species novum?**

One of the female *Lepidochrysops* that I collected in December on a high ridge of the mountains in the upper stretches of the Prince Alfred's Pass cannot be identified. It is not *braueri*, *balli*, *outeniqua* or *australis* - all found in the general vicinity, but appears to

be something new. We can't wait for November/December to try for some males to resolve the mystery!

### ***Charaxes xiphares xiphares***

We reported earlier that we had obtained 21 larvae, some of which were on sleeved foodplant (*Scutia myrtina*) in the forest and in our garden. The development of these larvae was quite different from *karkloof capensis*. In each bag one larva grew rapidly and the other 3-4 more slowly. The larvae are very strongly territorial - each one staking out its own leaf and facing inwards towards the stem poised on its hind legs to repel invaders. If approached they lash from side to side using their headshields as a sort of weapon.

The first larva to pupate did so on 12 March at 55mm length and another 6 pupated by 11 April. Some of the other larvae just grew very slowly; 10 had perished by the start of winter leaving only 4 survivors. By the end of August they had all reached final instar despite the foodplant shedding most of its leaves.

### ***Poecilmitis mithras***

This butterfly was discovered by Ruth Southey and later found by Charles Dickson and Clive Quicquelberg near the Hotel at Brenton-on-Sea. It is a near ally of *thysbe* but owing to a paucity of specimens and uncertainty as to its status it has not yet been described. Ernest Pringle has managed to get a few specimens and he advised me to be on the lookout for it. During my regular visits to Brenton I had already searched most of the likely spots and had looked further afield such as at Buffalo Bay, Goukamma Reserve, Sedgfield and Swartvlei as well as on the Knysna side of The Heads. It was therefore amazing good fortune that Owen Garvie caught a male *Poecilmitis* on 13 January near Brenton which he showed to me. As luck would have it I had the type specimens which were en route from Jonathan Ball who had used them for illustrations in the new Pennington book to Ernest Pringle and I was able to ascertain that Owen had indeed caught a *mithras*! On the 15th we returned to the spot and found one more male and two females. On the 20th another female was caught and released. Further visits on 25, 27 January and during February revealed no more specimens despite wider search of the area.

This locality is also good for *Poecilmitis palmus margueritae* - that was why I suggested to Owen he should go there - and only 200 metres from the spot for *Orachrysops niobe*. Unfortunately the entire area faces the dire threat of housing development. The Lepidopterists' Society and the Brenton Council are endeavouring to suspend further development so that further investigation of these exceedingly scarce and endangered species can be conducted.

### ***Argyrocupha malagrida maryae***

On 23 January we visited the locality for this butterfly discovered by Ernest Pringle. Not knowing where he had actually found it we searched the area - which had mostly been burnt - and eventually found a place (which had not been burnt) where *maryae* was flying in profusion. Nearby was a strong colony of *Thestor rossouwi*.

### ***Cymothoe alcimeda alcimeda***

On 10 February we discovered a very good locality for this elusive butterfly in the Gouna Forest near Knysna. The males were very plentiful, flying around high up and

perching on leaves to sun themselves. A very long extension net handle is needed if you want to catch any! The females are much scarcer, mostly being seen around the foodplant *Kiggelaria africana*. Ernest Pringle was able later in February to obtain a good quantity of ova and larvae on this foodplant.

#### ***Aloeides carolynnae aurata***

On 13 February we returned to the *malagrida maryae* locality and this time met up by chance with Mike and Pat Schlosz - a small world it is for lepidopterists even in the vastness of the Cape! We showed them our spot for the insect where it was once again prolific. A little further to the west along the same ridge we found *carolynnae aurata* on a gently sloping grassy area with no rocks - both males and females in fair numbers.

#### ***Charaxes xiphares occidentalis***

We spent the next two days at the Grootvadersbosch forest reserve between Swellendam and Heidelberg. The forester-in-charge, Chris Martens, was extremely helpful when we explained that we wanted to breed *xiphares occidentalis* to compare it with the *xiphares xiphares* from the Knysna area. We set up our traps at places he recommended and had great success, mostly males but eventually two females were secured. We installed these into laying cages with some fresh foodplant (*Scutia myrtina*) and left them with Chris. One of these females duly obliged and laid 12 eggs, from which 9 larvae hatched. These were raised back at home in Knysna until 13 April when the then surviving six larvae were moved into the forest on bagged foodplant. Unfortunately by the end of August only one remained alive because the foodplant shed nearly all its leaves during winter.

#### ***Aloeides lutescens***

We had searched without success for this insect around the Brandvlei dam near Worcester over the last several years. This year (just for a change of scene!) we decided to try the Roodeberg near Robertson. 16 February was a very hot day and Esme beat a sensible retreat to the nearby Rooiberg winery while I slogged up and down the white sandy slopes at the base of the mountain. My efforts were rewarded with a few worn specimens of this, what had been for us, elusive butterfly. It was fairly widespread, seeming to like the small white flowers of a low shrub but also settling on the white sand between small flat stones. When we returned from our Cape Town trip on 26 February we visited the spot again and found several very fresh specimens - clearly a new emergence had started.

#### ***Aloeides carolynnae carolynnae***

On 16 February we visited Jonathan Ball's type locality near Goudini and had our best encounter yet with this lycaenid - many fresh specimens both male and female over a sloping grassy area between and along two rocky ridges.

#### ***Argyrocupha malagrida paarlensis***

On 20 February, accompanied by Mike and Pat Scholsz, we drove to the Paardeberg north of Cape Town. At the farm Blydschap the farmer Mr. De Rauville gave us

permission to use his road to drive to the top of the mountain. When we arrived at 10:00 we found *malagrida paarlensis* in fair numbers at the best known spot for them.

We then decided to search all likely spots over the rest of the mountain but had no success with this endeavour. Returning to the original spot we met up with Alan Heath, Tony Brinkman and Chis Ficq - who had taken a long series of the insect the previous day. Hence its relative scarcity.

***Argyrocupha malagrida cedrusmontana***

Having obtained directions from Jonathan Ball I visited this Skuurweberg locality on 23 February. It is quite a climb but immediately on reaching the top of the first ridge my efforts were rewarded by finding a large colony of *malagrida cedrusmontana*. I then searched higher up along the ridge and across onto the other ridge but found no more. I did however encounter a number of other species including *Aloeides* spp., *Poecilmitis uranus* and *Lepidochrysops* sp? (not caught).

***Poecilmitis thysbe schloszi***

This butterfly was discovered by Mike Schlosz in the Moorreesburg district of the Swartland. We visited the locality on 25 February and in extremely hot conditions found the insect quite scarce, only obtaining five males near the summit after twelve o'clock. *Aloeides margaretae* was present on the lower slopes of this hill.

**AUGUST 1994.**

Emerging from our winter "hibernation" in the middle of August we made a trip to the Western Cape in search of early season butterflies.

***Thestor strutti***

In previous years we'd made an annual pilgrimage to the locality for this scarce butterfly on a mountain near Wolseley and had only encountered one or two specimens at best.

This year we decided to go earlier (17 August) and what a difference this made! Immediately on arriving at the spot just after noon I found 3 males and a female flying together in a small area. All the way up the northwestern-facing slope on the flat rocks and stones more *strutti* were found - nearly all males and very fresh. Most of them were very pale - almost a white ground colour - but others were a rich golden brown and very handsome too. Only the odd female was seen - they are difficult to catch because they are not territorial like the males. Altogether this was our best day ever for *strutti*.

***Tylopaedia sardonix peringueyi***

We visited a locality near Clanwilliam on 18th and 20th August and had little difficulty in obtaining an excellent series of this butterfly. They were widespread over the eastern side of the hill on sandy ground with clumps of low bossies and grass. The females were found mostly around a straggly low bush - presumably the foodplant.

So the new season has got off to a good start. We are planning a number of trips over the next few months and with the knowledge we gained last year it promises to be very fruitful.

Happy hunting!

Dave & Esme Edge

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**OBSERVATIONS ON THE LARGE WHITE, *Pieris brassicae* (L.) (LEPIDOPTERA, PIERIDAE), A BUTTERFLY WHICH RECENTLY ESTABLISHED ITSELF IN THE WESTERN CAPE**

By A.J.M. Claassens  
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**Abstract:** Early sightings, results of rearing imagines from larvae, seasonal dimorphism, sex ratios and parasitoids of *Pieris brassicae* are recorded and discussed.

### **Early sightings**

The very first sightings of the Large White, *Pieris brassicae*, in South Africa was no doubt recorded by D. E. Whiteley, who found the butterfly in the coastal forests of Natal, probably near Durban, more than a decade ago (Swanepoel, 1983).

It is not known exactly when the Large White, *Pieris brassicae*, arrived in the Cape Peninsula, nor has it been established how it got there. Sightings by Ball in early 1994 and by others from 25 August 1994 were all of fresh specimens and, according to Ball, loc. cit., of the spring form. The earliest known records of the immigrant were perhaps those of Gordon Fraser- Grant of a fresh female captured on 31 July 1994, at Blinkwater Gorge, Camps Bay and of a fresh female seen ten days earlier by myself in my garden, where it hovered from flower to flower of the creeping Lantana (*L. montevidensis*). It seems therefore that the Large White arrived in the Cape Peninsula either as an immigrant and propagated itself unnoticed well before these early sightings, or that its early stages were introduced by accident on imported vegetables such as cabbage. There is, of course, a slight possibility that somebody smuggled a few batches of eggs or larvae into the country from Europe or Great Britain, reared them, and released the imagines which then gave rise to the Peninsula population. Be that as it may, at this moment the butterfly seems to have established itself well in the Peninsula and immediate vicinity, although certain environmental factors soon proved not to be in its favour.

The Large White established itself in my garden in September 1994, where it found an abundant supply of the larval foodplant *Tropaeolum majus*, Nasturtium, locally also known as Caper or Kappertjie. A less known, but equally suitable larval foodplant of the butterfly is the tall, often robust introduced cruciferous annual weed, *Rapistrum rugosum* All. This weed is also a larval foodplant of *Pieris* (*Pontia*) *helice helice*, the Meadow White, but regrettably is not mentioned as such in the second edition of *Pennington's Butterflies of Southern Africa*. A flower head of this plant is depicted in Claassens and Dickson, 1980. The weed is very common in the Cape Peninsula where it may well have helped the Large White in settling successfully, especially in areas where cabbage and Nasturtiums are not readily available. The weed germinates from seeds in autumn, reaches maturity in winter and flowers and sets seeds in September and October, after which time it begins to wilt and die down. The flowers of *R. rugosum* are usually yellow, but white flowered individuals are not uncommon.



In my garden the larvae also fed and reached maturity on the flowers and leaves of Sweet Alyssum, *Lobularia maritima* (Crucifera). They did so in February and March, when there was a critical shortage of Nasturtiums and the larvae wandered about the garden looking for alternative foodplants. I have not seen *imagines* oviposit on this plant, but one wonders whether perhaps it could become a larval foodplant for this butterfly. Like *R. rugosum*, Sweet Alyssum is favoured by the larvae of the Meadow White.

### **Rearing *imagines* from larvae**

Three batches of final instar larvae collected from Nasturtium and *R. rugosum*, were allowed to pupate in carton shoe boxes and the time of pupation and subsequent emergence of *imagines* noted.

#### **Batch 1**

Sixteen larvae collected 28 September 1994 pupated between 1 and 4 October '94. Of these:

- Eight *imagines* emerged between 12 and 14 October; pupal period about 10 days. Frohawk (1934) states that in Great Britain and Europe the pupal period of the Large White is about 14 days.
- Six *imagines* emerged between 5 and 12 December; pupal period about 60 days.
- Two *imagines* emerged between 2 and 6 February 1995; pupal period about 120 days.

#### **Batch 2**

Forty four larvae collected between 25 and 30 October 1994 pupated between 3 and 5 November. During October and November 1994 the breeding season of the Large White reached its peak, at least in my garden, but many pupae resulting from these late broods went through a long period of diapause.

- One imago emerged on 19 November; pupal period about 14 days.
- Three *imagines* emerged between 25 and 29 January 1995; pupal period about 80 days.
- Thirty eight *imagines* emerged between 5 and 28 February; pupal period about 100 days.
- One imago emerged 6 March 1995; pupal period about 120 days.
- One imago emerged 15 March 1995; pupal period about 130 days.

#### **Batch 3**

Six larvae collected 27 November 1994 pupated between 1 and 2 December. Of these:

- Two *imagines* emerged 2 February 1995; pupal period 62 days.
- Two *imagines* emerged 2 March 1995; pupal period 90 days.
- Two *imagines* emerged between 3 and 4 March; pupal period about 92 days.

### General comments on rearing results

The pupal period varied tremendously in all three batches.

The "biological clock" of the pupae was obviously completely out of order, due probably to a combination of unusual environmental factors such as higher light intensity, longer days (shorter nights) and much higher day and night temperatures than those to which the pupae would have been exposed during the European autumn and winter. Although the pupal period showed a strong tendency to last much longer than usual for the prevailing climatic conditions, it was still much shorter than it would have been during the European autumn and winter. Frohawk (*loc. cit.*) states that the pupae which go through hibernation in Europe remain in that stage for up to 8 months.

There was no noticeable difference in the pupal duration of specimens reared outdoors or indoors. Twelve pupae situated against the wooden ceiling of an open stoep (porch) in front of my study as well as five pupae against the garage wall and three against the garden wall were checked at regular intervals. It was found that emergence of imagines in these places was also very much staggered with some taking place during every month between October 1994 and March 1995.

Careful note was taken of sightings of the Large White flying in the garden and elsewhere in the Peninsula. The number of sightings gradually increased from September until well into December. They decreased from late December when the Nasturtiums were almost completely devoured by the larvae and those that had survived the total onslaught began to deteriorate badly and died naturally. *R. rugosum* also died down and food supplies became a controlling factor. Many more imagines were seen on the wing during January and February, but they emerged from pupae which had remained dormant for several months as they did under laboratory conditions. They must have found it difficult to find suitable larval foodplants on which to oviposit even if here and there cabbages remained available. In well-watered gardens and in other damp places Nasturtiums start germinating in February, but their early development is very slow. My young plants were soon grazed off by the many larvae, but fortunately they did not like the stems on which new leaves soon developed to feed the hungry, which continued to hatch from newly laid eggs. Moreover I discovered that in my garden another hazard, namely parasitoids, began to plague the larvae. See below, under *Biological control*.

Imagines reared from larvae collected during early February 1995 emerged from the pupae before some of the imagines reared from larvae collected in October and November 1994.

### Seasonal dimorphism

All imagines reared from October 1994 until well into January, 1995 had the tips of their forewing upperside broadly margined with black with the edges of these tips showing varying degrees of grey scaling. Compared with the illustrations of the Large White in Frohawk (*loc. cit.*) these individuals represent the summer or arstival form, although a certain amount of grey scaling did occur. However, comparing them with the specimens depicted in South, 1906, the distinction between the two forms is not all that clear. During January, February and March the butterflies showed less grey scaling,

thus approaching the true aestival or summer brood, although some overlap between the two forms was evident. Imagines reared from eggs or larvae collected in February or March, thus representing true March and April brood resulted in imagines in which the wing-tips clearly showed a fair amount of grey scaling. The degree of grey scaling gradually increased to produce typical spring forms in May.

In connection with environmental variation and with specific reference to the effect of temperature in melanin formation in butterflies, Ford (1957) states that high temperature tends to restrict melanin formation and a low one to promote it. However he goes on to say that this effect may be modified by the hereditary constitution of the species. Thus, he says, dark individuals of the sub-family Pierinae, to which the Large White belongs, are produced by warmth and pale ones by cool conditions. It was obvious that in the Cape Peninsular the Large White did not follow Ford's general rules on melanism.

### **Sex ratios**

Of the total of 66 imagines reared and examined by me 26 were females and 40 males. This represents a sex ratio of 5 : 8 in favour of the males.

### **Biological control**

Concern has been expressed about the possible harmful effect the rapid increase and spread of the Large White might have on cabbage crops such as on the Cape Flats and in private vegetable gardens. In the absence of suitable natural controlling agents, the prolonged hot summer temperatures and the mild Western Cape winters did not seem to have a negative effect on the Large White and in fact the butterfly was on the wing during all seasons of the year. Parasitoids, such as certain wasps and flies, seemed to have ignored the early stages of the new immigrant initially. Of the larvae collected for rearing purposes by me during late winter, spring and early summer months not one was parasitized. However their parasitoid-free existence did not last much longer.

In Europe and Great Britain the tiny chalcid wasp, *Apanteles glomeratus*, (referred to by Frohawk (*loc. cit.*) as an ichneumon fly and again so named by Ball (*loc. cit.*) is the principal controlling agent of the Large White. This parasitoid, which kills the larvae, has not been recorded from South Africa, but a relative, *Apanteles acraea*, is a common parasite of the larvae of the Garden Acraea, *Acraea horta* (Picker and Griffiths, (1989) and Claassens, (1991)). Clark and Dickson (1971) often mention *Apanteles* spp. as parasitoids of lycaenid larvae.

A mature larva taken from the garden on 24 February 1995, produced a pale yellow maggot during the larva's prepupal state on 27 February which pupated later that same day. The pupa was dark brown, 11mm long and 5mm wide. A rather dark and hairy tachinid fly emerged from the pupa 21 days later, on 20 March. Fascinated by this discovery I searched for signs of parasitism among the many Large White larvae feeding on Nasturtiums in the garden and discovered that another tachinid fly, smaller than the first one, but bigger than an ordinary house-fly, laid tiny white eggs on any instar, some later instar larvae carrying as many as 10 eggs. Some of these larvae kept in captivity produced maggots of the parasitoid during their prepupal state. The

maggots pupated within a few hours, one of the pupae being light brown, 8mm long and 3mm wide. After a pupal period of exactly 21 days they produced the adult parasitoids. Pupae of these flies can differ considerably in size, resulting in the flies emerging from them also varying in size.

Two pupae collected in the garden during March each had a tiny hole in the side, marking the opening through which tiny parasitoids, probably wasps, has escaped. Attempts are now being made to collect these parasitoids and have them identified.

The parasitoids were identified first partly by Dr. S. Van Noort of the SA Museum and later, more fully by Dr. D.A. Barraclough of the Natal Museum as a *Winthemia* sp. (the larger, darker fly) and an *Exorista* sp. (the smaller fly). Dr. Barraclough, commenting on these flies, stated that species identification was not possible as no keys are available for the African species. Both genera of tachinids are well known parasitoids of Lepidoptera, especially moths. The effect of the parasitoids on the larval population in my garden was most remarkable. Few larvae escaped being infested and few pupated successfully. From about mid-March onwards the number of imagines on the wing started to decline and by the end of that month only a few came to oviposit on Nasturtium leaves, laying small batches of a dozen or less eggs on small leaves and larger batches on bigger leaves. Was this behaviour of the females designed to ensure an adequate food supply for the gregarious first instar larvae? It has been observed by Ball (*loc. cit.*) myself, and others that on the much larger cabbage leaves batches of well over 100 eggs are laid, although small batches do also occur. The decline in the number of imagines observed during March and April must, as has been explained earlier, in part also have been due to a shortage of larval foodplants during the earlier months of the year.

Considering the many early instar larvae present on Nasturtiums in April, I foresee a gradual increase in the number of imagines from about May onwards, that is when larval foodplants become more readily available, and the number of parasitoids may decline due to the then prevailing colder climatic conditions.

Further observations on the parasitoids revealed some interesting facts:

- The parasitoid eggs when laid are very sticky and cannot be brushed off from the host larvae.
- Parasitoid egg shells remained attached to cast skins after moulting of infested larvae, the parasitoids continuing to feed on the non-vital parts of their hosts during subsequent instars.
- The flies often oviposited on larvae already carrying eggs.
- On dissecting a number of final instar larvae it was found that some contained maggots in various stages of development, as was expected.
- Multiple infestation appeared to result in earlier than usual death of the larvae, the parasitoids themselves therefore not completing development either.

There is abundant evidence available of biological control having taken place in 3 species of butterfly which entered the Cape Peninsula from the easterly parts of the country. They concern 2 pierids, *Catopsilia florella* (see Claassens and Dickson, 1980)

and *Mylothris agathina* (see Claassens and Dickson 1986a; Geertsema, 1985; Macpherson, 1986), as well as the hesperiid, *Zophopetes dysmephila dysmephila* (see Claassens and Dickson 1986b; Geertsema, 1985). After initially having been recorded as single specimens, appearing here and there, they soon became very common and their larvae were found breeding freely on their respective host-plants. Obviously they were, at first, free of parasitoids. However, for all 3 species, the "freedom of the Cape Peninsula" was not enjoyed for long. Local parasitoids soon recognized their early stages as easy prey, soon reducing the number of imagines drastically. All 3 species still occur here, some years being more favourable to them than others, but they have never regained their former, though temporary, abundance.

Macpherson (*loc. cit.*) recorded a chalcid wasp, *Brachymeria visellus*, from pupae of *Mylothris agathina*. Cochrane (1989) describes how the silkworm, *Ocinara ficicola*, introduced into the Western Cape, was at first feared to perhaps become a pest on *Ficus* spp., including the domestic fig, *Ficus carica*. It was soon controlled by two wasps, a *Telenomus* sp. (Scelionidae), parasitizing the moth's eggs, and a *Coccygomimus* sp. (Ichneumonidae) attacking its larvae.

Many parasitoids, especially perhaps the tachinid (bristle) flies are not host specific and readily, though obviously not immediately, infest new host species entering their natural environment, especially when the newcomers are defenceless and readily available. It is thus not surprising that the early stages of the Large White fell prey to these flies so soon after arriving here from another continent.

More species of parasitoids will no doubt be recorded from the early stages of the Large White and they will probably include certain ichneumonid and chalcid wasps.

## Conclusion

One can only speculate on the sudden appearance of *Pieris brassicae* in the Cape Peninsula. Its temporary population explosion was due probably to an abundant larval food supply, available at the time of the butterfly's arrival in the Cape Peninsula, and an apparent initial lack of biological control.

The biological clock concerned with timing of emergence of imagines during the European summer and after the winter was very much out of control due to reversal of the seasons and other unusual climatic conditions in South Africa.

Following the usual trend in introduced species, parasitoids started depleting the population within a year after the introduction of the butterfly. Parasitoids will remain the most important controlling agents of the butterfly if it succeeds in establishing itself for good in the Western Cape. A temporary shortage of larval foodplant during the hot summer months also appears to curb the immigrants great capacity to build up large populations within a relatively short period.

The usual two seasonal colour forms of the imagines, recognisable in the European Large White also occurred in the peninsular, but they were not always easily distinguishable. There was much overlap between the two, and a considerable degree of variation occurred in the extent of grey scaling in the individuals in any one season. The

spring form was most evident in autumn, becoming the dominant form in winter, and the summer form largely started to appear in spring, becoming the dominant form in summer.

### Acknowledgements

I wish to thank Dr. S. Van Noort of the SA Museum, Cape Town for identifying the *Winthemia* sp. and Dr. A.D. Barraclough, Chief Curator of Entomology of the Natal Museum, Pietermaritzburg, for confirming the identification of *Winthemia*, for identifying the *Exorista* sp. and supplying further information about these parasitoids.

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*P. brassicae*  
above: male summer form  
below: female summer form



Mature larvae of *P. brassicae*  
(note the white egg of Tachinid  
parasitoid behind thoracic region)

## *Pieris brassicae* from Sea Point, Cape Town

( Photographs by A J M Claassens)



Tarachnid fly; *Exorista* sp.  
Parasitoid of larvae of *P. brassicae*



*P. Brassicae* freshly emerged  
female on pupal shell.

## BRENTON BLUE PROJECT

By Graham Henning  
17 Sonderend Street, Helderkruin, 1724.

A project to ensure the preservation of *Orachrysops niobe* (Brenton Blue or Knysna Blue). The last colony of *O. niobe* is under threat from housing development at Brenton-on-Sea on the western Knysna Head. The butterfly is found in thick vegetation and is generally only seen along a dirt road leading to the western Knysna Head. The road and lower slopes adjacent to it are part of a development called Brenton-on-Sea Extension 1. This is being undertaken by the Brenton Development Corporation who own part of this land. The area of land under question is not very large but does consist of a number of exclusive sites.

The threat to this last colony of *O. niobe* has been brought to our attention by Mr John Plumstead, a resident of Brenton-on-Sea and vice-chairman of the Brenton Local Council.

The Lepidopterists' Society has sought support from various conservation bodies and conservationists including the S.A. Nature Foundation, Endangered Wildlife Trust, Wildlife Society, Cape Nature Conservation and the National Parks Board. We have also written to the Department for the Environment and Tourism as well as the Department of Water Affairs and Forestry.

Our Conservation Representative at Knysna, Mr Dave Edge, has been extensively involved in the project from the outset. He has been joined by our Eastern Cape Conservation representative, Mr Ernest Pringle. Messrs Edge, Pringle and Plumstead have formed the action team and have had meetings with National Parks Board and Cape Nature Conservation. Mr Edge has also met with senior management of the Brenton Development Corporation at the site.

The co-ordinating in Johannesburg has been done by myself. I have visited the site and, with Mr Plumstead, have met with prominent landowners of the western Knysna Head who are very interested in a nature reserve.

### **OBJECTIVES OF THE BRENTON BLUE PROJECT:**

To protect the last known colony of *Orachrysops niobe*. To establish a nature reserve which will ensure that *O. niobe* and the fynbos environment in which it lives will be preserved. The reserve to be under the control of the LEPIDOPTERISTS' SOCIETY OF SOUTHERN AFRICA (LSSA), BRENTON LOCAL COUNCIL and the relevant conservation authority such as NATIONAL PARKS BOARD or CAPE NATURE CONSERVATION.

### **BRENTON BLUE PROJECT:**

A joint venture project between LSSA, members of LSSA, Mr J. Plumstead, prominent landowners, conservation bodies and the Brenton Local Council.



**FUNDING:**

All participants are investing their own time and money into the project and will claim expenses against it. Funding of the project will come from donations as well as from the sale of art prints. Any surplus of funds will be donated to the LSSA. Funds are needed for promotions, research, fences, notice boards, maintenance and labour to manage the invasive exotics which are found in the area.

**ACTION PLAN:**

1. Display cases in Brenton and Knysna. To be displayed in Knysna Tourism offices and the Brenton Hotel.  
J. Plumstead organisation/funding; D. Edge donating specimens.
2. Donations from residents at Brenton-on-Sea.  
J. Plumstead organisation. G.A. Henning & LSSA providing promotional material.
3. Donations and sponsorships from companies.  
J. Plumstead organisation. G.A. Henning & LSSA providing promotional material and backup information.
4. Sale of 500 sets of prints - Threatened Butterflies of Knysna.  
Dave and Esme Edge marketing, arranging sponsors / G.A. Henning organisation/ S.F. Henning artist.
5. Promotional  
Mr E.L. Pringle / Mr D. Edge. Magazine articles, lectures, meetings with Cape Nature Conservation and National Park Board. LSSA, J.Joannou and others providing promotional material.
6. A savings account in the name BRENTON BLUE PROJECT will be opened to receive funds. Expenses will be claimed by participants when funds are available.
7. LSSA will liaise with the Brenton Development Corporation with regard to the property owned by them and with the Brenton Local Council and local residents with regard to the proposed reserve for the BRENTON BLUE (*Orachrysops niobe*), as well as with all relevant conservation bodies and government in regard to this project.

LSSA in a Council Meeting on the 10th May 1995 agreed to participate in this project as outlined above.

Any members wishing to participate in the project or who have questions or suggestions or wish to donate funds or promotional material please contact me.

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## UPDATING THE STATUS OF SOUTH AFRICAN RED DATA BUTTERFLY SPECIES

BY G.A. & S.F. Henning  
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**ABSTRACT:** The *South African Red Data Book - Butterflies* was published in 1989 and since that time, considerable research has been carried out on the status of the rarer South African species. This has led to the reclassification of 50 species. An annotated list is presented.

It is now over five years since the SOUTH AFRICAN RED DATA BOOK - BUTTERFLIES was published. Since then a revised Red Data list was published in the *Practical Guide to Butterflies and Moths in Southern Africa* in 1992. The major change in this list was *Chrysothrix cottrelli* Dickson being removed from the ENDANGERED list and reclassified as RARE. Several localities having been found in the Outeniqua mountains and the species now appears to be fairly safe.

The new changes are as follows:

1. *Orachrysops niobe* (Trimen) to be changed to ENDANGERED from VULNERABLE as a result of property development activities at Brenton-on-Sea threatening the last known locality.
2. *Argyrocupha malagrida malagrida* (Wallengren) to be changed from VULNERABLE to ENDANGERED due to the sensitive nature of the last remaining colony at Cape Town (A. Heath).
3. *Oxychaeta dicksoni* (Gabriel) to be changed to ENDANGERED from VULNERABLE as a result of further habitat destruction, encroachment of alien vegetation and the instability of the existing colonies (A. Heath).
4. *Orachrysops ariadne* (Butler) to be changed from RARE to VULNERABLE. It appears that the colonies of this species are not well established and are under threat of being overgrown. The colonies must be closely monitored and action taken should the need arise.
5. *Argyrocupha malagrida maryae* Dickson & Henning to be changed from VULNERABLE to RARE due to more localities being found for this butterfly.
6. *Poecilmitis mithras* Pringle to be added to RARE due to the limited number of localities known. It is found at the threatened locality at Brenton-on-Sea. It is not accorded a higher category because more research is required on this recently described species.

7. *Charaxes karkloof trimeni* Rydon to be added to RARE. This subspecies inhabits the higher forests of the Outeniqua range from George to Knysna but is very seldom seen. Most specimens recorded have resulted from breeding. It was only described in 1994.
8. *Orachrysops warreni* G.A. & S.F. Henning to be added to RARE. Only known from a single locality which is within the VERLORENVALEI NATURE RESERVE near Dullstroom in the Eastern Transvaal.
9. *Orachrysops montanus* G.A. & S.F. Henning to be added to RARE. Only known from a single locality which is within the GOLDEN GATE HIGHLANDS NATIONAL PARK in the Orange Free State.
10. *Anthene lindae* S.F. & G.A. Henning to be added to RARE. Only one locality is known which is at Witsand in the Northern Cape. More research needs to be done on this recently discovered species.
11. *Anthene juanita* G.A. & S.F. Henning to be added to RARE. Only one locality known which is at Manoutsa in the Northern Transvaal. Only a few specimens are known and more research is required.
12. *Aloeides barbarae* S.F. & G.A. Henning to be added to RARE. It is only found at Barberton above the Sheba Mine. More research is required on the distribution of this species.
13. *Thestor terblanchei* S.F. & G.A. Henning to be added to RARE. Only one locality known at the Korannaberg in the Orange Free State. Further research is required.
14. *Durbaniella clarki belladonna* Ball to be added to RARE. Only known from a single locality near Jansenville.
15. *Thestor malagas* Dickson & Wykeham to be added to RARE as only one locality, at Langebaan, is known. Further research is required at this coastal locality.
16. *Thestor brachycerus* (Trimen) to be reclassified as RARE from INDETERMINATE due to the possibility that only Knysna taxa are of this species. A great deal of research must still be done on this butterfly and allied taxa.
17. The following are to be reclassified from RARE to INDETERMINATE:  
Some of these species have had additional localities found while others are reclassified due to the inaccessible mountain ranges that they inhabit not being threatened and the distribution of these taxa requiring further research:

*Aloeides caledoni*

*Argyrocupha malagrida cedrusdmontana*

*Dira swanepoeli isolata*

*Lepidochrysops balli*, *L. jamesi claassensi*, *L. jamesi jamesi*, *L. littoralis*, *L. loewensteini*, *L. oosthuizeni*, *L. outeniqua*, *L. pringlei*, *L. quickelbergei*

*Phasis pringlei*, *P. thero cedarbergae*

*Poecilmitis adonis*, *P. azurius*, *P. balli*, *P. daphne*, *P. endymion*, *P. henningi*, *P. hyperion*, *P. pyramus*, *P. stepheni*, *P. swanepoeli*, *P. wykehami*

*Sarangesa ruona*

*Spialia confusa confusa*

*Thestor dicksoni calviniae*, *T. kaplani*, *T. pringlei*

18. The following are added to INDETERMINATE.

*Lepidochrysops ketsi leucomacula* S.F. & G.A. Henning

*Thestor rooibergensis* Heath, *T. camdeboo* Dickson & Wykeham, *T. dicksoni warreni* Ball

These changes are based on information received from members of the Society. Please contact either of the authors with your comments.

### References

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**OBITUARY****ROBERT DUNDONALD PARÉ (ROB) : 1946 - 1995**

By Jonathan B. Ball

Rob was born on August 19, 1946 in Umtali (now Mutare), in Zimbabwe. He spent many of his carefree boyhood days in the bundu developing a great love for the fauna and flora of Zimbabwe. He would often go into "the bush" accompanied by one of his pals and a butterfly net. His education began at Hillside Primary School in Bulawayo, followed by Marlborough School in Salisbury (now Harare), finishing at Ellis Robins Boys High in Salisbury.

He was "on the land" farming from the age of 16. His farming career began at Umvukwes (now Mvurwi). For 14 years he was the manager of a farm between Umvukwes and Shamva. He then owned his own farm, Uronga South near Bindura, where for the last 16 years he cultivated mainly cotton, soya and wheat. Many a lepidopterist was royally entertained and hosted at Rob and Claire's lovely home there.

Rob played an extremely active role in various agricultural associations, including the Bindura Farmers Association (for 4 years) and represented the district in the Commercial Farmers Union. He later became the Chairman of the Mashonaland Central Branch, and was very much to the fore in the area of debate with the government on many matters, including land resettlement. He was also the chairman of the ICA (Intensive Conservation Areas) and the rural council, and was very well informed about the local population in the rural council.

Rob was an active lepidopterist who built up a fine representative collection of Zimbabwean butterflies. He also collected those elusive day-flying *sesiid* moths (which mimic wasps and bees). He was vitally interested in the biology of butterflies, and was most active in the identification and micro-photography of the early stages of many species. He was the first to record the host plants of numerous Zimbabwean butterflies, having a penchant particularly for *Charaxes* and *Hesperids*. To assist him in this regard he started his own arboretum 8 years ago. He spent much time scouring the hills in the vicinity of Bindura and the eastern highlands looking for larvae. He trained some of the locals to identify certain larvae, exchanging bags of mielies for information on these, and used them as his "minders" of sleeved larvae and pupae. He would only collect a modest series of any species, releasing most of his bred specimens where they had naturally developed. He had expert knowledge on the trees of Zimbabwe. He regularly attended the A.G.M.'s of the Lepidopterists' Society of Southern Africa.

He was an active lecturer on conservation at various educational camps for the youth, more specifically at RIFA, in the Zambezi Valley, but also at various schools (primary and secondary) throughout Zimbabwe, and at clubs whenever he was called upon to do so.

Rob married Claire Cullen in February 1975. They have a son Jo, and a daughter Kate. Recently he became an energetic cyclist, mountain biking with his teenage son. Rob was a devoted family person, and a man of deep faith. He devotedly served his

local Christian Fellowship at Bindura through the medium of his musical gifts, where he played the guitar and banjo. He loved classical music, and owned a large musical library comprising a significant number of the works of Bach and Beethoven. This music often broke the silence of the dark star filled African sky at Urunga South. He loved that sky and owned his own Cessna aeroplane, clocking up a total of approximately 600 hours in it. I will never forget the way he buzzed the runway at Fothergill's, next to Lake Kariba to clear it of Zebra and Wildebeest, before landing there. A multi-talented man, he was also a fine artist, especially in drawing and painting.

He was well loved and respected by the indigenous people of the Bindura area for his honesty and fairness towards them. Most of all he is remembered for his twinkling and alert brown eyes, his intelligent and mischievous repartee and his warm sense of humour. He was tireless in his devotion to duty.

The skies he loved so much under the canopy of the Southern Cross eventually claimed him. He was tragically killed at Middle-save (Zimbabwe) on Thursday, march the 16th, 1995 as he was departing in a light aircraft from a farmer's conference that had been held there (he was not piloting at the time). The plane struck a tree, then some power lines and exploded, instantly killing 5 of the 8 passengers.

I will never forget the halcyon days I spent with him exploring the eastern highlands of Zimbabwe, being taken to places like Burma Valley, the Vumba and Mutare. We arrived at Nyanga and sat in his vehicle while the rain was pelting down. he did not think that much collecting would be done that day, and smiled when I started applying some sun-screen lotion to my arms and face (I had just said a little prayer explaining that this was my first trip to Nyanga, and that my home in Cape Town was far away!). 15 minutes later the rain stopped, and the sun shone brightly! We both had a good laugh and spent some glorious hours collecting some of the exquisite *Lepidochrysops* that occur there. In a lighthearted way, he often teased me about that later.

"This is ecstasy," the Russian author/lepidopterist Nabokov penned, writing about the experience of standing alone in pristine creation amongst rare butterflies, "and behind the ecstasy is something else, which is hard to explain. It is like a momentary vacuum into which rushes all that I love. A sense of oneness with sun and stone. A thrill of gratitude to whom it may concern - to the contrapuntal genius of human fate..." These feelings could have been Rob's.

We extend our love and sympathy to his young family, knowing that he is sorely missed by many, many people. He was indeed one of Africa's exceptional sons taken in his prime.

## GETTING TO KNOW MOTHS - EMPEROR MOTHS -

By Stephen Henning  
5 Alexandra Street, Florida 1709, South Africa

The emperor moths belong to family Saturniidae (Superfamily Bombycoidea). This is a family of medium to large moths often with a ring-like pattern on their hindwings forming coloured eyespots. However, in some species these eyespots are reduced to irregular or crescent-shaped hyaline (clear) spots. The wings are large and broad, with no frenulum present. The forewing is often drawn into a curved tip as in giant Asian atlas moths which can attain a wingspan of 300 mm. The colour pattern on the forewings is usually cryptic to conceal the moths when at rest during the day. The antennae are strongly pectinate, particularly that of the males. The haustellum (proboscis) and labial palpi are greatly reduced so that the adult moths are incapable of feeding.

The eggs are laid singly, in small batches or in clusters of several hundred. The young larvae of many species are gregarious at first, but the later instars are solitary. The larvae of many species are adorned with colourful spines and tubercles, while others are completely smooth or hairy. The crochets are uniorbital and simple. Pupa with simple cremaster when present. They pupate in tough silken cocoons or in subterranean (underground) cells.

The large long-lived larvae are subject to heavy predation particularly from birds and primates. The most palatable species rely mainly on camouflage, resembling a stick, a leaf or leaves. Some emperor moth larvae, however, are unpalatable being able to metabolize toxic compounds found in their foodplants and store them in their bodies. These larvae advertise their poisonous or unpalatable qualities by means of warning coloration, usually combinations of red, white, black, orange or yellow, e.g. *Eochroa trimerii*. Other hairy larvae, such as those of the Ludiini, have hollow spines containing histamines which can cause severe allergic reactions and blistering on human skin.

Most species are strictly nocturnal and are readily attracted to light at night. The males are capable of quite a fast, erratic flight but the females are much slower. They are short-lived and probably live no longer than three to five days. The males die shortly after mating and the females soon after oviposition. The female moths only fly to find larval foodplants on which to oviposit, while the males fly to find virgin females with which to mate. The virgin females attract the males by releasing a volatile chemical substance (called a pheromone) from special glands at the tip of their abdomens. These pheromones are able to attract males over long distances. When sexually active males pick up pheromones carried in the breeze, they fly upwind until they locate the "calling" female and then mate with her. The large feather-shaped antennae of the males are specially constructed to pick up minute concentrations of pheromones in the wind. The females usually do not take to the wing until they are mated.

Emperor moths rest during the day on tree trunks or amongst leaves where they blend in with the background. If they are disturbed, they will jerk their forewings forward exposing the eyespots which resemble the eyes of large birds or mammals. This action may frighten away potential predators.

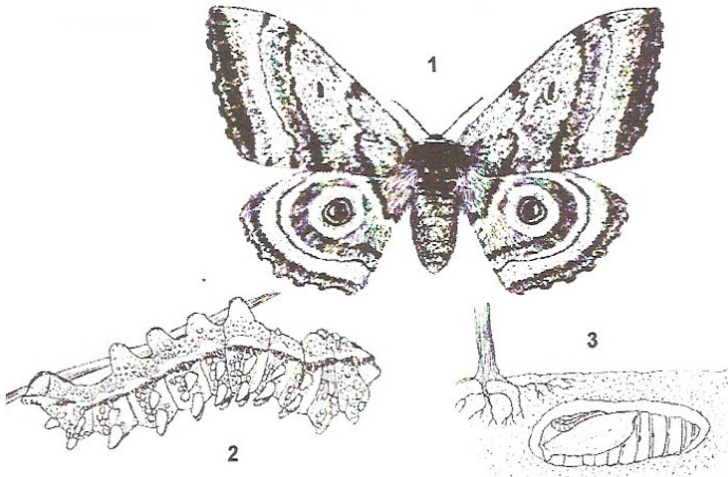
Economically the family is of minor importance. In Southern Africa the larvae of *Imbrasia cytherea* and *Bunaea alcinoe* can be considered pests in pine or bluegum plantations and occasionally in gardens.

This is a small family in Southern Africa of about 69 species and 31 genera, all belonging to the subfamily Saturniinae which is divided up in five tribes.

For more information see Pinhey (1972, 1975), Oberprieler (1985, 1995) and Vari & Kroon (1986).

### References

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- VARI, L. & KROON, D.M. 1986. *Southern African Lepidoptera. A series of cross-referenced indices*. Lepidopterists' Society of Southern Africa & Transvaal Museum.



Saturniidae - 1. *Gynanisa maja* female; 2. Fifth instar larva; 3. Pupa underground.



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## BOOK REVIEWS

*The emperor moths of Namibia.* Rolf Oberprieler. Ekogilde, Hartebeespoort, in collaboration with the Namibian Scientific Society and Lepidopterists' Society of Southern Africa, 1995. 91 pp. Price: R75.00 (hardcover). ISBN - 0 - 9583889 - 2 - X.

Many of us will remember the awe and amazement we felt when we encountered our first emperor moth, be it adult or larva. I have been lucky as a biology teacher to share again in this amazement when my pupils arrive at school with a glass jar or shoe box containing a Vienna sausage-sized caterpillar or occasionally a huge moth with eyespots on its wings.

The pupils always want to know its name, what does it do, where does it live? If it is a caterpillar, what does the moth look like and vice versa? What we always needed was a book where both adult and caterpillar are clearly illustrated with lots of interesting facts about them. This is what Rolf Oberprieler has done for the 27 species of emperor moths from Namibia.

It has been an absolute delight for me finally to have a book of Rolf's excellent photographs. Those of us who have sat enthralled through his series of talks and slides on emperor moths at the conferences of the Lepidopterists' Society of Southern Africa, have long awaited this publication; and it has been worth the wait.

I was particularly pleased with the introductory chapters in which we are taken through the early exploration of the emperor moth fauna of Namibia from Johan Wahlberg in 1854 who probably collected the first Namibian emperor moths, right up to the present. His chapter on the biology is absolutely packed with interesting facts including the different flight times of the adults, chemical attractants (sexual pheromones) and larval development. He also deals with the ecology of emperor moths and how they affect man.

In this day and age our minds are never far from conservation and this is dealt with in some detail in this work, pointing out the emperors role as indicators of environmental change.

The fauna and flora of Namibia has always fascinated me and this work deals comprehensively with the distribution of the different faunal elements, with reference to emperor moths, throughout the region. It goes on to discuss endemism and the diversity of species found in the different centres.

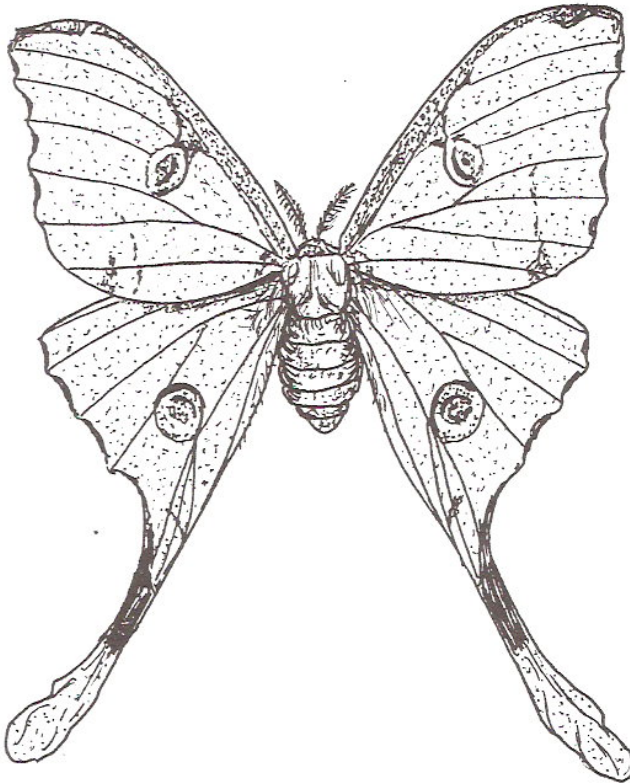
We have all come across emperor moths at some time or another and discovered that we cannot dispatch them with the time-honoured pinching method we use as butterfly collectors. The book discusses this and other aspects of collecting and preserving emperor moths both adults and early stages. However, it is made clear that the best way of obtaining both good adult specimens and information about the life cycle is to breed them. With all his years of experience the author discusses with authority the most suitable methods to achieve this.

The only possible criticism is that the colour illustrations do not do justice to his magnificent original slides. However, it is unlikely that any printing method could do this adequately. To give you an idea of the quality of his slides one has to only

consider that he has won the photographic competition of the Lepidopterists' Society of Southern Africa on several occasions with his emperor moth slides.

In summary: the book is well presented and the text is relatively error-free. It is magnificently illustrated and covers all aspects of the study of emperor moths of Namibia in great detail. It is an absolute must for anyone who is interested in Lepidoptera.

S.F. Henning  
Science Department  
Johannesburg College of Education  
27 St. Andrews Road  
Parktown 2193



*Argema mimosae* female upperside

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## LETTERS TO THE EDITOR

*Lepidopterists' Society of Southern Africa*  
*Western Cape Branch*  
Alan Heath  
209 Ringwood Drive  
PINELANDS 7405  
R.S.A.  
Tel: (h) (021) 5316840

### SUMMARY OF THE THIRD MEETING OF WESTERN CAPE MEMBERS

The meeting was held on the 10th of March 1995, at 6 Camp Rd, Pinelands, Cape Town and kindly hosted by Dr. Jonathan Ball.

Those present were: Harold Selb, Jonathan Ball, Tony Brinkman, Gordon Fraser-Grant, Charles Wykeham, Alan Heath, Andre Marais, Maureen Marais, Ernest Pringle and Anne Pringle.

Apologies were received from Andre Claassens, Hamish Robertson, Simon van Noort, John White, Mike Schlosz and David Edge.

Alan welcomed all present and in particular, our guest speaker Ernest Pringle and his wife Anne from Huntley Glen near Bedford in the Eastern Cape. Our host Jonathan was unfortunately called away to an emergency medical task as we started and missed a large part of the meeting.

The following items were raised for discussion:

1. Letter from David Edge

Alan informed the meeting that he had just received a letter from David Edge and his submission for inclusion in *Metamorphosis* in which he described his recent lepidopteral activities. There was not enough time to read either of them out. The letter will be appended to this Summary.

2. Formation of a local branch of Lep. Soc.

Attention was drawn to the suggestion by SF Henning and circulated earlier to our local members. The proposal was received favourably. It was agreed that we now consider ourselves a local branch of the Lepidopterists' Society, however the question of office bearers, etc, be held over for discussion at the next meeting.

3. Next Meeting

It was announced that Dr. Andre Claassens had offered to host the next meeting and it was agreed that it will be held on the last Friday in July - the 28th.

#### 4. Butterfly Atlas project

It was also agreed that further discussion be held over until the next meeting, however Alan asked that each of the members consider their real level of practical commitment towards this project.

#### 5. Concepts of Taxonomy - a talk by Ernest Pringle

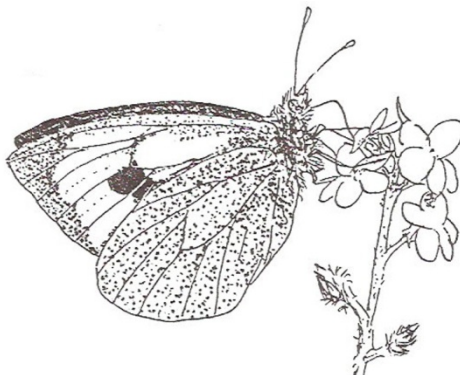
Ernest gave a very interesting talk in which he first discussed the uniqueness of the southern Cape area in the context of the African continent. He then raised the difficulty posed when deciding at what point a 'form' should be recognised as a 'subspecies'. He went on to discuss a concept of speciation based upon what he described as the "communication network". He pointed out that genitalia were seldom of use in separating species whose habits, and so forth, have conclusively demonstrated speciation. He suggested that wing shape, wing colour and even larval coloration was too variable to be used reliably. He gave as an example *Lepidochrysops victori*, a butterfly found on the farm Huntley Glen. The time of emergence was of more value than the minute differences in genitalia subsequently noted by Kit Cottrell between it and its nearest relative.

Ernest concluded by describing his determined approach in trying to conserve such vulnerable species as *Orachrysops niobe* and stated that any conservation minded enthusiast should recognise rare and endangered species as such and avoid over-collecting at all costs.

#### 6. In Conclusion

Alan thanked Ernest on behalf of those present for his thought provoking talk. The rest of the evening was spent listening to stories of past lepidopteral experiences; these yarns were spun mostly by Charles and Ernest and were highly entertaining. Our laughter had to compete with the noise of thunder which seemed at times to echo our own appreciation.

Alan Heath & Tony Brinkman



*Pieris brassicae* male underside

## AGM & Conference 1995 Onderstepoort - August 12-13

"Probably the largest gathering of brain-power on African Lepidoptera under one roof....."-Steve Collins, Nairobi, Kenya.

Steve made this remark at last years conference. This is one annual event that no Lepidopterist in Africa dare miss!

**This is where :**

- you meet all those authors you always wanted to meet.
- new friendships are made and old ones reinforced.
- exiting expeditions to wonderful destinations are initiated.
- you get updated fast on what is happening in the African Lepidopterists' world.
- you can view all the latest paraphernalia.
- you will see displays that will make you green with envy.

And we haven't even come to the main purpose of the conference yet, which, of course is the presenting of papers to the delegates. We already have some exiting papers lined up for this years conference:

- Mark Williams is going to show us how far you can go with his "**Life History of *Iolus trimeni***". The photographs he took with the aid of a electron microscope are unbelievable.
- Steve Woodhall who has been doing much research on the subject for a new book is going to give us some background on "**The Paleobiology of South African Butterflies**".
- Graham Henning is going to present us with a paper on "**The Threatened Butterflies of South Africa and the Brenton Blue Project**".
- Martin Kruger will tell us all about "**Collecting In The Days of A JTJanse**".
- Rolf Oberprieler is delivering another episode in his saga on "**The Emperor Moths of the World**".
- John Joannou is presenting another **Quiz on Lepidoptera** including the early stages, showing us a selection from his exquisite slide collection.
- Hermann Staude will be introducing a **debate on "Lepidoptera as measuring tools in conservation"**.
- Charles Bellamy will give us a glimpse into the world of "**Jewel Beetles**".

We are looking forward to receiving more papers. If you have something, please contact the secretary.

### Can you really afford to miss this?

All you have to do is get there! If you are in need of accommodation contact the secretary and try our hospitality - Ps. Did I mention the Photographic competition or the great party on Saturday night at Marks place.....?

See you there -Ed.

**NEW MEMBERS**

**Morton S. Adams**, 212 High Point Road, West Shokan, N.Y. 12494, USA.

**David R. Britton**, 35 Duke Street, Woonona NSW, 2517 Australia.

**Boireau P.**, La Florida, 01 Ave de Verdun, Villi 06230, France.

**Buys J. W.**, P.O. Box 640, Klerksdorp 2570.

**Fourie D.**, P. O. Box 786513, Sandton 2146.

**Knoetse Jan**, P. O. Box 229, Magaliesburg 2805.

**Maliepaard D.**, P. O. Box 56170, Arcadia 007.

**Olivier D. R.**, 258, Corry Str, Queenswood 0186.

**Jill Reid**, Cango Butterfly Farm, P.O.Box 1418, Oudtshoorn 6620.

**University of Natal**, P.O.Box 375, Pietermaritzburg 3200.

**Veronese G.**, Viala Venezia 138, 33100 Udine, Italy.

**Yves Bertrand Gerschel**, Les Rozieres, Escamps 46230, France.

**CHANGE OF ADDRESS**

**Albert Adamson**, 374 Karee Park 2, Garsfontein.

**Richard Curries**, P.O.Box 1997, Rivonia 2128.

**J.T. de Kock**, P.O.Box 3, Marble Hall 0450. Tel (012020) 3151(H), 2054 (W).

**F.C. Donnelly**, P.O.Box 519, Lanseria 1748. Tel. (011) 792-5901.

**Kenneth Gainsford**, 37 Aintree Mews, Milnerton Drive, Milnerton Ridge 7441.

**Koos Liebenberg**, P.O.Box 800, Roodepoort 1725

**J.A. Nagle**, P.O.Box 31, Winklespruit 4145, Natal.

**Johan Olivier**, Spruitstraat 34, Potchefstroom 2520.

**Terblanche R.**, P. O. Box 11878, Hatfield 0028.

**FORTHCOMING EVENTS**

Saturday 10 June 1995 at 9:00 - 13:00

WORKSHOP - STUDYING THE EARLY STAGES OF BUTTERFLIES.

Venue: Faculty of Veterinary Science, University of Pretoria, Onderstepoort.

Mark Williams, Tel (012) 529-8074.

Saturday 15 July 1995.

Mid Year Dinner, The New Münchener House Restaurant.

Lindsay Durham Tel. (011) 444-6642.

Saturday 22 July 1995

WORKSHOP - GENITALIA DISSECTIONS.

Venue: Transvaal Museum, Pretoria.

Martin Krüger Tel. (012) 322-7632

Weekend 12-13 August 1995

CONFERENCE AND ANNUAL GENERAL MEETING.

Graham Henning, Tel. (011) 768-1949(H); 474-1466(W)

Weekend 21-22 October 1995

BARBERTON AREA - HOME OF *LEPIDOCHRYSOPS SWANEPOELI*, *L. JEFFERYI*  
AND MANY OTHERS.

Graham Henning Tel. (011) 768-1949 or Steve Woodhall (011) 452-2543.

Saturday 18 November 1995

XMAS BRAAI or LUNCHEON (STILL TO BE DECIDED)

### ADVERTISEMENTS

In cases where animals or plants are offered or sought, which are protected by South African or foreign legislation, the advertiser remains responsible as the Lepidopterists' Society cannot verify if the necessary permits have been obtained.

**THE CONSTITUTION AND THE ENVIRONMENT** being able to write one's own constitution is a privilege not many people in the world have ever had. We, the public, have been invited to make submissions to the Constitutional Assembly. The final deadline for submissions from the public is June 30th 1995. Exercise your fundamental rights and send your submissions to:

The Secretariat,  
Constitutional Assembly,  
P. O. Box 15 Cape Town 8000

**LUXURY ACCOMMODATION** available at good rates for lepidopterists at Brenton-on-Sea. Special rates for anyone who will be working on the proposed Brenton Blue Reserve. Contact John Plumstead, P. O. Box 1203 Knysna 6570.  
Tel. (0445) 81-0062 Fax. (0445) 81-0081.

### BOOKS FOR SALE

The Butterflies of The Table Mountain, Claasens & Dickson, 1980.

S. A. Butterflies, a Monograph of the family Lycaenidae, Murray & Desmond, 1935.

Butterflies of South Africa, where, when, and how they fly, Swanepoel D. A., 1953.

Life Histories of the South African Lycaenid Butterflies, Clark & Dickson, 1971.

Contact: Prem Singh, P. O. Box 2544, Pietermaritzburg 3200. Tel. (0331) 94-0391.

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**NOCTUID MOTHS WANTED** has for exchange Arctic and or Neotropical moths. Morton S. Adams, 212, High Point Road, West Shokan, NY. 12494, USA.

**BUTTERFLY CABINET DRAWERS FOR SALE**, 18 drawers with imbuia fronts, some mounted butterflies. Like to sell these drawers at R100 each, to take lot. Contact Mr A.P. Swanepoel, P.O.Box 32, Strand 7140; Tel. (024) 853-7907 (work), 854-5552 (home).

**THE NATURALISTS DIRECTORY & ALMANAC**, Philip Mallard (Executive Editor), P.O.Box 382595, Harvard Square, Cambridge, Massachusetts 02238.25956. Tel./Fax (617) 976-8343.

**WANTED** *The Butterflies of Southern Africa* Part Nymphalidae: Acraeinae, 1963, by G. Van Son. Mr. D. Bernaud, 26 Cours de la Liberation, 38100 Grenoble, France.

**WANTED** Pinhey, 1962, *Hawk Moths of Central & Southern Africa*.  
Pinhey, 1972, *Emperor Moths of South & South central Africa*.  
Martin Szepanski, Sperlingswinkel, 3, D-46284, Dorsten, Germany.

**EXCHANGE** - African butterflies and moths wanted in exchange for all Italian and European species, as well as Japanese. Ask for list. Gino Galli, via Ferrarotto 7, 95125 Catania, Italy.

**APOLLO BOOKS**. Natural history books - send for catalogue. Kirkebt Sand 19, dk 5771 Stenstrup, Denmark.

**RUSSIAN BUTTERFLIES AND BEETLES** - Directly from Russia, many *Parnassius*, *Colias*, *Erebria* and others - Pieridae, Satyridae, Nymphalidae, Lycaenidae and some beetles (*Carabus*, *Cicindela*, *Catoniidae* etc) - top rarities as well as common species from Central Asia, Siberia and Far East of the late USSR. You can find all in our NEW CATALOGUE. Best quality, resonable prices, satisfaction guaranteed. For catalogue, please send \$1,00 cash (or R5) for postage to Alexei G. Betik, pr. Entuziastov, 29,Kv, 237, 410049, Saratov, 49, RUSSIA.

**WANTED - SOUTH AFRICAN BUTTERFLIES**. Will buy or exchange Spanish for all southern African species, especially *Charaxes*. Xavier Torres Boronat, Santo Cristo 59-2, 2 08014 BARCELONA, ESPANA (SPAIN).

**EXCHANGE** - African butterflies and/or large moths wanted for exchange for specimens form Central and S.W. Europe. Uwe Kumick, Paulinenstra Be 13, D-04315 LEIPZIG, GERMANY.



**CABINETS** - 18 drawer with glass approx R1000 made to measure or how you would like it. Bruce Smith & Mark Dix, P.O.Box 34, Merrivale 3291. Telephone & Fax 0332 - 303762 (W); after hours 0332 - 307144/303041 (H)

**WANTED** - *Charaxes* from South Africa - all species. Will buy or exchange for *Charaxes*, *Papilio* or other butterflies from the Central African Republic and Burundi. G. Veronese, Viale Venezia, 138, 33100 UDINE.

**WANTED:** All South African subspecies of *Charaxes xiphares*, *druceanus*, *karkloof*, *vansoni*, *jahlusa*, *Papilio ophidicephalus* + any African Saturniidae.

Perfect condition - collecting data important.

Prepared to exchange or buy. All enquiries will be answered.

Ivan Willem, P.O.Box 1625, Margate 4275. Tel. & Fax. : 03931-20597

**CORRESPONDENCE WANTED**, Dr. H.S. Rose, Dept. of Zoology, Punjabi University, Patiala - 147 002, Punjab, India. Systematics of Indian Papilionoidea (Ditrysia: Lepidoptera).

**EXCHANGE**, Coleoptera and Lepidoptera from Middle Europe, rare mountain butterflies from Tadjik, also beetles from Azerbajdzan, Turkey. Jaroslav Voldrich, Namesti 5, Kvetiu 42, Straz pod Ralskem 471 27, Czech Republic.

**EXCHANGE**. Require *Acraea* of S.A., Madagascar, Botswana, Namibia, Angola, Zambia & Southern Zaire. Have for exchange material from Cameroun, mainly *Acraea*, but also other Lepidoptera & Coleoptera. I am also interested in Life Histories - photos & descriptions. D. Bernaud, 26 Cours de la Liberation, 38100. Grenoble, France. also B.P. 4036, Douala, Cameroun.

**WANTED**. Books on butterflies and/or moths by Migdoll, Pinhey, Dickson etc. Also posters, postcards and calendars of S.A. species. E.P. Sheskin, 2650 Ocean Pkwy, Apt 5E, Brooklyn, New York, 11235 - USA.

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