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The aims of the Lepidopterists' Society of Africa are to promote the scientific study and the conservation of Lepidoptera in Africa, and to provide a communication forum for all people who are interested in African Lepidoptera.

Metamorphosis, which is the official journal of the Society, publishes original scientific papers as well as articles of a less technical nature. Fees indicated below refer to surface postage, but if airmail is required, notify the Treasurer and - per issue – add R32.00 for Africa or US \$6.00 if Overseas.

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Front cover: Male *Graphium tynderaeus*, Ivory Coast (photo – Stephen Woodhall).

Back cover: Male *Euphaedra delera*, Lamto, Ivory Coast (photo - Stephen Woodhall).

Editorial

The Annual conference and AGM of the Lepidopterists' Society of Africa will be held from the 9th to the 11th of August, 2002. It will take place at the Faculty of Veterinary Science, Onderstepoort and registration will take place from 8:00 on the 9th. It promises to be an exciting event. Besides the thirteen speakers, there will be a workshop and photographic competition. On Friday evening there will be a braai at Tildie and Mark Williams' place (183 van der Merwe Street, Rietondale, Pretoria). On Saturday night there will be a formal dinner at a restaurant near Pretoria. Try and be there so that you don't miss all the fun!

I also want to appeal to all our members to consider writing and submitting something for *Metamorphosis*. Share your collecting experiences or anything else concerning Lepidoptera with others – these popular contributions are appreciated and enjoyed by all our readers. I am very short of this sort of material for inclusion in the September and December issues.

OBITUARY

William Henry Henning, 1920 – 2002



Bill Henning died on the 25th May 2002 at the age of 81 years.

He was one of the foremost African lepidopterists of the late twentieth century. He inspired a generation of young butterfly collectors with his enthusiasm and dedication to the study of butterflies. His hard work, meticulous approach to correspondence and self effacing attitude endeared him to all who met him or corresponded with him. His family remembers his quirky sense of humour and generosity of spirit - a truly gentle man. From the stories he told his sons, now handed down to future generations, to the courage with which he bore his final long illness and incapacity, everything about Bill showed the spirit of a truly great man.

Bill was born on the 26th October 1920 in Aldershot, Hampshire in England. He was the eldest of six children, two boys and four girls. Early on his parents moved to Portsmouth to start a small business. Some of his fondest memories of that time were walking the hills and fields around Portsmouth with his father. It is during this time that he started developing his love of nature and his interest in collecting butterflies.

When he left school he joined the British Admiralty where he served as a clerical officer for some 15 years. In 1940 he was transferred to Cape Town, South Africa where he worked at Simonstown. While there he met Gertrude Alma Cann and they got married on the 4th December 1943. Shortly after this he was transferred to Freetown, Sierra Leone where he had his first experience of tropical butterflies and rainforest. He returned to Cape Town at the end of 1944 and lived there until 1947 when he was transferred back to England. While in England his two sons, Stephen (1948) and Graham (1950), were born. However, the call of Africa was strong, so he resigned from the Admiralty and emigrated back to South Africa, arriving in Cape Town in July 1950. In 1951 he joined the United Tobacco Company where he worked as an accountant until 1983, when he retired. In 1954 the head office of UTC was moved to Johannesburg, so the family moved to Gauteng (then the Transvaal).

With his sons getting older, Bill could now resume his hobbies involving his love of nature. In 1957 he joined the Witwatersrand Bird Club and started attending meetings on a regular basis. It was a whole family affair with the smaller Hennings weighed down with huge binoculars.

This renewed contact with nature reawakened his love of butterfly collecting. Around 1960 they all saw a *Papilio demodocus* flying around the lemon tree in their garden and proceeded to capture it. He showed his sons how to collect and mount butterflies and moths. To get more information he contacted Georges van Son at the Transvaal Museum and corresponded with him for several years.

In January 1962 the family went on their summer holiday to Ballito Bay in Natal. Here they found butterfly heaven. A small

patch of tropical forest introduced them to a whole new variety of exotic species. This was the final stimulus Bill and his sons needed for them all to dedicate the rest of their lives to the pursuit of butterflies.

Bill started corresponding with a variety of other collectors - Ken Pennington, David Swanepoel, Clive Quickelberge, Cameron McMaster and most of all Charlie Dickson. Bill and Charlie swapped letters on a weekly basis for the next 28 years until Charlie's death in 1991. Bill developed an extensive network of correspondence with collectors throughout the world. He has left a huge bank of letters chronicling the history of African lepidoptory through the 1960's to the early 1990's. In the early days he formed friendships with Lionel Schroder, Bill Teare and Russel Badham. In the early 1970's Bill met Ivan Bampton and their friendship opened up the study of tropical African butterflies to Bill and the "boys".

Bill discovered his first new species at Strubens Valley, near Florida, in 1963 (*Aloeides henningi* Tite & Dickson) and later that same year discovered the colony of *Aloeides dentatis* (Swierstra) at Ruimsig near Roodepoort - now the Ruimsig Entomological Reserve.

Virtually every weekend for the next twenty years Bill scoured the countryside around Johannesburg and as time went by the journeys went further afield. During the 1970's day trips to the Northern Province and KwaZulu-Natal were often on the cards. During this time he built up a tremendous knowledge of the behaviour and life histories of the species in this area. Unfortunately in the 1980's ill health curtailed much of his activities.

Bill was involved in many conservation projects with his sons, such as the Ruimsig Entomological Reserve in Roodepoort and the South African Red Data Book - Butterflies, which was published by his sons in 1989.

He was one of the founder members of the Lepidopterists' Society of Africa and was a council member for some seven years. He took over as editor of *Metamorphosis* in 1989 when it was still

1989 when it was still an irregularly produced humble newsletter and turned it into the Journal of the Lepidopterists' Society of Africa we know today. He changed the format, ensured that all scientific articles were refereed, obtained an ISSN number, and introduced black and white and colour illustrations. He was editor until 1996 when ill health and failing eyesight finally persuaded him to pass the responsibility on. He was made an Honorary Life Member of the Society in 1998.

During his lifetime Bill and his sons have built what is probably the largest private collection of African butterflies in South Africa. He has several species named after himself - *Aloeides henningi* Tite & Dickson, *Leptomyrina (Gonatomyrina) henningi* Dickson, *Iolaus (Stugeta) bowkeri henningi* Dickson, *Chryсорitis henningi* (Bampton), *Colotis amata williami* G.A. & S.F. Henning, *Charaxes williami* S.F. & G.A. Henning and *Chryсорitis williami* Heath.

He described *Chryсорitis dicksoni* (now *Chryсорitis williami*) and *Chryсорitis perseus* in 1977. In 1980 he described *Trimenia malagrida maryae* with Charlie Dickson.

Bill generally left most of the scientific writing to his sons but was involved in all their numerous articles and books. His skill at proof reading and use of English improved every one of their publications.

His own scientific publications on butterflies are as follows:

HENNING, W.H. 1977. New species of *Poecilmitis* Butler (Lepidoptera: Lycaenidae) from Namaqualand, Cape, South Africa. *Entomologist's Record and Journal of Variation* **89**: 25-30.

DICKSON, C.G.C. & HENNING, W.H. 1980. A new race of *Argyrocypha malagrida* (Wallengren) (Lepidoptera: Lycaenidae) from the Western Cape. *Entomologist's Record and Journal of Variation* **92**: 297 - 300.

Stephen and Graham Henning.

Collecting and conservation in Côte d'Ivoire, West Africa

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Abstract

Despite having lost 90% of its forest cover, Cote d'Ivoire remains an important centre for butterfly biodiversity in West Africa. A three year survey (1998-2000) produced a total of 780 species. Some 50 taxa were recorded from Côte d'Ivoire for the first time, and a further 20 proved to be either new subspecies or new to science altogether. Extinction of butterfly species in Côte d'Ivoire so far is unlikely, though endemics in the Danane area are under threat from habitat change. There are risks if the forest cover is further eroded.

Detail

Two hours out of Abidjan, as you head west along the coast, tall forest trees start to hug the main road on either side. Drive on, and they become your constant companions for most of the next hour. There is just one small problem. The trees are dead - ring-barked and left standing by share croppers in a hurry to plant their coffee and cocoa, rice and cassava.

In a few years, the grey skeletons will rot and disappear. When I left Cote d'Ivoire in mid 2001, there were already many fewer standing than when I arrived, three and a half years earlier. All you will see then will be the new plantings - or worse still, secondary bush, as slash and burn agriculture exhausts the soil and the farmers move on, to repeat the same procedure elsewhere.

In 1960, forest covered most of the southern half of Côte d'Ivoire. Since then, an estimated 90% has gone. Inevitably, some argue. How else was a primarily agricultural economy to develop? But many of the historic collecting sites that helped establish Côte

d'Ivoire's entomological reputation vanished in the process. Type localities have become cocoa plantations.

Arriving in late 1997, it did not look good. One of my first visits was to the excellent government mapping service. Their aerial photos showed clearly that even supposedly protected areas were suffering serious encroachment. On the butterfly front, I had high hopes but low expectations .

Experience over the next three years, however, told a different story. Permit in hand - and you are unlikely to get very far in Côte d'Ivoire without one - I set about drawing up checklists from sites around the country. Some were well known, others new. Practicality, and job constraints, meant that the most visited were reachable in a day from Abidjan.

The nearest of all was the Banco Forest. Almost within Abidjan, and now a detached remnant of a much larger forest block, it was nonetheless surprisingly rich. I continued to find new material there until the day I left. The 444 species on the checklist included one new subspecies, since described (*Epamera longicauda haydoni*), one new species still in manuscript, and a host of other little-known material, including a good series of another 'sapphire blue', *Epamera banco*, previously only known from two tatty males.

However, there were some surprising absences, especially among the nymphalids (*Cymothoe egesta* being a prime example: it is regularly encountered in other coastal forests. Perhaps they had never been there. But that, I suggest, is an optimistic reading of the situation. If nothing more, such unexplained absences provide a reminder that small patches of relict forest are likely to see declining species numbers over time. Local populations which vanish, for whatever reason, can no longer be naturally replaced.

Forests next to capital cities acquire their own special characteristics when political instability sets in, as it did in Côte d'Ivoire for most of 2000. Bodies started turning up on forest paths. At one point, the Banco Park Warden asked me to intervene with the Minister of Defence (whose soldiers were widely assumed to be behind the killings) to get the bodies dumped somewhere else.

They were, he said, putting off his customers. I politely declined, on the grounds that I had already intervened forcibly over the killings. This seemed to me to be the main issue rather than where the bodies were dumped. He looked at me strangely and shuffled away.

Banco was also the scene of the country's worst ethnic killing in late 2000, when 50 northerners were gunned down near one of my prime collecting spots. There were times when it was, frankly, not a good place to wander alone.

All along the coast, though by no means continuously any more, patches of forest remain. They stretch from the riverine forest along the Comae River in the East, to Bereby near the Liberian border in the West (though the latter appears on no maps and is fast disappearing). Despite being superficially similar, they turned out to harbour surprisingly different butterfly faunae. Almost everywhere, among my main collecting sites, I turned up at least one species which was both new to science, and did not occur in any of the others.

In terms of conservation, I was struck that those forests which appeared to be most species-poor were also those most likely to produce the unusual. In biodiversity, a reminder that numbers are not everything! Azagny, just over an hour west of Abidjan, was especially good in this respect, with a variety of unusual forest floor nymphalids (including *Bebearia warrengashi*) and rare hesperiids, among others.

But even Azagny was not risk free. On my last visit, I narrowly escaped collision with a van veering erratically towards me. Then the van stopped and all became clear. The windscreen was shattered and the driver and passengers riddled with bullets. They had driven through an attempted hi-jack 30 seconds before. They were alive but in urgent need of hospital treatment. I had the interesting task of driving them back through the hi-jack site to get them to medical help. Luckily, the attackers had vanished. But, despite Azagny's entomological pull, I felt no overwhelming urge to go back.

Inland, the destruction of the forest has been particularly severe. Little remains. The Tai forest in the west is still there.

An UNESCO world heritage site, and the largest tract of undisturbed primary forest left in West Africa, it is one of the few places in the country where there are still reasonable quantities of game (though seeing it in a primary forest setting is a separate challenge!). The butterflies are exceptional and include a series of dark green morphs of forest *Euphaedra*, which must have evolved over time to take account of the unusually thick forest cover. The only example of *Euriphene lomaensis*, apart from the Sierra Leone type; was taken there.

Tai is tough to reach, and I did not do it justice. A few short visits were enough to push the species count beyond 400, and to turn up another completely new species. But it needs and deserves a thorough survey, by someone prepared to spend serious time on the spot. That person would do well to remember, though, that this is real rain forest: it rains almost every day, and sometimes for weeks on end during the wet (or should I say 'even wetter') season. It is not for the faint-hearted.

Perhaps the least promising site, on the basis of its appearance was Mt Peko, also in the west, to the north-east of Tai. It is one of the smaller reserves, with much degraded forest and secondary bush, and one rather small hill in the middle. I would not have given it a second thought. But I was asked to help, and the results were little short of amazing. In particular, it proved rich in lycaenids.

The Mt Peko species count, again at around 400, includes an impressive array of insects characteristic of the largely vanished forests of the interior. Another reminder, if one were needed, that conservation needs to be about the full range of biotope and not just the more showy ones. The north-west includes Mt Nimba (a serious mountain this time!). It is difficult to get to, and surprisingly poor in montane insect fauna: one of the few butterflies with montane affiliations is *Uranothauma belcastroi*, endemic to Nimba and a few of the higher peaks nearby. But Mt Nimba also generates its own lowland species, in the cross-border area leading into Guinea and Liberia. I was lucky to have collectors who made several visits to the area. I passed through but was unable to spend time on the ground (a real regret: I believe

strongly in the importance of seeing a biotope for oneself, and getting a personal feel for it, even if much of the subsequent collecting is done by others for you).

Unusual species from this area included *Hypolimnas aubergeri*, named after a French schoolteacher who spent part of his career in the nearby town of Danane. Auberger also found many other wonderful things, which have not been seen since, including the unusual *Euphaedra aubergeri*, the nearest relative of which comes from Cameroon! But here too, the forest is fast disappearing. If there is anywhere in the Côte d'Ivoire forest belt where butterflies are in real danger of extinction as a result of habitat change, it is probably here.

In West Africa generally, butterfly diversity is at its maximum in the forest. The drier country to the north of Côte d'Ivoire is noticeably poorer in species than similar habitats in East Africa. But it has also suffered from comparative neglect. I too was guilty. Insects in the drier areas are very seasonal and very local, and it was a long way to go from Abidjan on the off chance. I am sure that there are species I did not find.

Perhaps the biggest challenge remaining, however, is the dry forest leading into the 'forest-savannah mosaic' just north of the main forest belt. One Ivorian site is well known. There has been a research centre at Lamto for many years, and its former head, Roger Vuattoux, did groundbreaking research on butterfly host plants. I am glad to say that, despite being retired now, he has not completely severed his links. Several species are still known only from Lamto, including *Neptis vindo* and *Euphaedra delera*.

Of the rest, we know little. I was able to become involved in a partial taxonomic survey of Mt Sangbe Reserve, to the west of Lamto, and more clearly disjunct from the main forest belt. Though incomplete, the results strongly suggest that there is a lot to learn, with the likelihood of as-yet undiscovered transition belt species and unusual morphs of wet forest species seeking to adapt to a drier environment.

Over three and a half years, I was able to produce confirmed records for 780 species in Cote d'Ivoire. Of these,

around 50 were species which had been previously recorded from elsewhere, but not from Côte d'Ivoire itself, and a further 20 species or subspecies which were new to science.

The breakdown of insects by family is as follows:

Hesperiidae	172
Papilionidae	20
Pieridae	34
Acraeinae	36
Danainae	6
Satyrinae	38
Nymphalinae	172
Charaxinae	48
Apaturinae	1
Libytheinae	1
Lycaenidae	252
Riodinidae	0
TOTAL	780

(For anyone interested, a full breakdown by species and location is available from me on request; but you will need Works for Windows on your system to be able to access it).

Some 80 further species have been recorded at various time by other authors. Of these, around a dozen are doubtful records based on misidentification, or earlier names of species which have since been revised. The rest, however, are good species, such as *Aphnaeus gilloni* and deep forest hesperiids from the genus *Leona*, that will still be there. Although a few may be threatened, especially those endemic to the Danane area, I think it unlikely that we have yet seen any extinctions in Côte d'Ivoire.

Overall, I estimate that the total butterfly fauna in Côte d'Ivoire will fall not far short of 900 species. This is impressive in itself. It is also a reminder of the work that still remains to be done.

The authorities are aware of the effects of declining forest cover. They see it first in changing rainfall patterns, and the effect this has on agricultural production. They worry about biodiversity, but it takes second place to the pressures from a land hungry population. As elsewhere in Africa, this is a dialectic with no easy answer, but with the particular twist in Côte d'Ivoire that, until recently, farmers were actively encouraged to treat the forest as fallow land to be brought into production.

So the pressure on the forests will continue. I am optimistic in the short term about the prospects for species survival. My survey suggests that butterflies have so far held up to the threat to their habitat remarkably well. Healthy, viable populations can survive in much more restricted areas than they had in the past. The figures from Banco underline that, if well chosen, even relatively small conservation areas can support a wide range of species. This is an important message to those fighting for conservation in West Africa .

But there are no grounds for complacency. Butterflies will only survive as long as their foodplants do. The smaller, or more polluted, that the remaining areas become, the higher the risk that foodplants - and butterflies - will start to disappear.

A recent observation in the Eastern Cape Province leads to a new hypothesis regarding the possible mimicry of *Papilio demodocus* by *Aeropetes tulbaghia* and the presence of two newly discovered species of Lepidoptera in the same habitat

Alf Curle

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Abstract

The proposed classification of visual signals emanating from the wings of African Lepidoptera by Staude and Curle at the Inaugural Conference on African Lepidoptera in Nairobi, Kenya in May 1977 served to heighten the author's awareness of other associations which might not at first be so obvious. During recent visits to the hills and mountains of the Eastern Cape Province, for the purpose of studying recently discovered species of Lepidoptera, it was found that four species which fly together are easily confused with one another when on the wing. It was then speculated that size alone might not be the only factor determining the mimetic relationship between *Papilio demodocus* and *Aeropetes tulbaghia* as is suggested by Henning in his paper "An Introduction to African and Southern Satyrrinae (1997).

Keywords: Lepidoptera, Mimicry, Visual signals, Crypsis, Survival strategies, Physical inedibility, Chemical inedibility, Unpalatability.

Introduction

The Eastern Cape is the area of our attention and, in particular, the hills between Queenstown and Cathcart. In general the area can be described as Highland or Dohne Sourveld, mixed with Southern

Tall Grassveld (Acocks, 1952). These descriptions are general for the area and our focus is on hillsides and mountainsides where montane grasses blend into forest remnants. In some instances the forest remnant might be only a few trees sheltered against large rocks or cliffs. In other areas more of the forest remains, supported by the additional moisture captured by the elevation from the prevailing winds.

In addition to this more general description, the area in question is home to the cycad *Encephalartos friderici-guilielmi*. Some magnificent specimens are to be found in the area and, fortunately, it is a fairly common plant. The cycad is the larval food plant of the two species of moths discussed in this paper.

Materials and Methods

The observations and details that emerged from field studies were gathered more from experience and frustration than by design. During the course of studying the two newly discovered moth species the two butterfly species that flew in the same area were easily confused with one another. This added some weight to the suggestion by Henning (1997) that one of the species does mimic the other. A speculative hypothesis began to emerge. Information on each of the four species is recorded and from this some ideas are formulated.

Results

Results and observations are discussed under each species.

Aeropetes tulbagia (Linnaeus, 1764). Henning (1997) states: "The *Lethina* appear to be genetically maleable enough to adapt their appearance for mimicry. *Paralethe* apparently mimics *Danaus chrysippus*. *Aeropetes tulbaghia* appears to mimic the only butterfly of its size in those high mountains, the common Citrus Swallowtail - *Papilio demodocus*." The hypothesis that *Paralethe* mimics *Danaus chrysippus* is perhaps debatable as their respective

habitats can hardly be said to overlap in present day terms. However, the suggestion that *Aeropetes tulbaghia* appears to mimic *Papilio demodocus* on mountains may have merit. It may have attained its size to mimic *P. demodocus*, both of them being physically inedible to the majority of the predators on the high mountains.

The food plants of *Aeropetes tulbaghia*, various grasses, do not indicate any chemical unpalatability. Its specialised role as a pollinator of some important mountain plants is well known. While the model should perhaps be more common than the mimic this was not always the case in the various localities visited.

P. demodocus has a much wider habitat range and is not confined to the eastern mountains from the Cape to Zimbabwe as is *A. tulbaghia*.

Papilio demodocus Esper, 1798. The defence mechanisms and strategies used by Lepidoptera are many and varied. Perhaps in *P. demodocus* there are a number of different survival tactics employed. It has already been suggested that its size, certainly on the high mountains, makes it physically inedible to most of the predators in that habitat. It has also been suggested that broken wing patterns with spots can lead to predator confusion. This confusion would perhaps be greater where a female is amongst the leaves of a food plant, in dappled sunlight, laying eggs.

The larva of *P. demodocus* uses crypsis to avoid detection, firstly in the early instars appearing to be a bird dropping, and in the later instars looking leaf-like and part of the foliage. A larval form from the Cape has a variegated pattern when feeding on Umbelliferae rather than the normal the normal Rutaceae. The larva also has an osmeterium, a fleshy, forked organ, normally a bright orange colour, behind the head. From this organ it is able to produce a pungent odour. This odour has been known to turn away ants. The larval food plants of *P. demodocus* are rather numerous. They include Rutaceae, Ptaeroxylaceae, Umbelliferae and Sapindaceae. A number of Rutaceae are important food plants. While no specific food plants have been analysed Neuwinger

(1996), in his book *African Ethnobotany* says, ‘Without doubt, *Teclea* species are very poisonous, including the leaves’. Further, *Zanthoxylum* are said to be highly toxic, containing mainly quaternary alkaloids. Some Sapindaceae are toxic, one species, *Cardiospermum halicacabum*, is strongly cyanogenic. One is left with the feeling that perhaps our papilionids are more unpalatable than they were originally thought to be. Perhaps *P. dardanus* is more model than mimic? One is reminded of the papilionids from the Far East, which feed on Aristolochiaceae from which they sequester toxins as larva for use later as adults.

Callioratis mayeri Staude, 2001. This diurnal species was discovered in 1998 and can be found about the hills in certain areas, from Queenstown to Cathcart in the Eastern Cape Province. The wonderful story surrounding this discovery and its formal description do not form part of this hypothesis. The species does not venture too far away from its larval food plant *Encephalartos friderici-guilielmi* (The White-Haired Cycad) but only areas at an elevation of approximately 1400 metres above sea level or higher appear to be inhabited. Stands of the cycad at lower elevations appeared to be uninhabited. In places where the insect was more common forest remnants remained, so moisture may have an influence on its range. Larvae were found feeding on the cycad leaves. The larvae were blackish brown, with some red on the head and a pinkish underside. Clearly, the warning colours of an unpalatable species. Leaves of the cycad contain macrozamin and cycasin. Presumably the moth is able to sequester these toxins and retain them as adults. The chances are good that most predators pay some respect to this unpalatability although this is not the case always, as will be explained shortly. Although males and females land on the cycads from time to time the males, in particular, exhibit a strange behaviour by settling on high rocks and cliffs. Often they patrol these areas of rock before landing for a few minutes. On the wing this species, in particular, was often

confused with *A. tulbaghia*. Unless pressed by hunger, most predators are likely to leave both species alone.

Callioratis curlei Staude, 2001. Presently, not much is known about this species, which was only discovered in 1999. It seems to inhabit the same areas as *Callioratis mayeri* and it is assumed that it will use the same larval food plant as *C. mayeri* as *E. friderici-guilielmi* is the only cycad in that area. The moth is, again, diurnal. On the wing, although smaller, it cannot be separated from the larger *C. mayeri*. It is likely that it is also unpalatable and adds to the general warning signal in that area for predators to stay away. As is the case in many disciplines in life not every one has the correct perspective. One specimen was taken by a robber fly in front of Nolan Owen-Johnson. The fly settled a short distance away and had time to inject its digestive juices into the moth before it became the prey and not the predator. Unfortunately, the robber fly made good its escape leaving Nolan with a rather oily looking *Callioratis*. *Callioratis curlei* tends to stay much closer to the cycad plants than its relative *Callioratis mayeri*, which is far more intent on rock sitting.

Conservation Note

Assuming that the cycad is the larval food plant of both this and the other moth one can safely confirm that there is no threat to either species at present. The populations of the cycad are very strong and are not in danger of being destroyed or exploited. Legislation controlling the sale and transport of cycads is strong enough for this particular plant. Some of the areas where both the moths and cycad are to be found are not easily accessible and this affords them even more protection. While *C. curlei* is never found in large numbers, it is widespread and often difficult to capture. *C. mayeri* has been observed in large numbers, especially the males, that congregate against cliff faces.

Discussion

As one begins to observe more closely, patterns begin to emerge that were not previously obvious. A recent visit to the locality near Eshowe to search for the “extinct” species *Callioratis millari* is a case in point. On a number of occasions a specimen would be seen, only to turn out to be *Acraea natalica*. Only at fairly close quarters could one tell that it was the ubiquitous *Acraea* and not the moth. Both species are orange and black, about the same size, and fly at about the same height over the grassland, where they both live. Other *Callioratis* seem to have the same ability to mimic unrelated species in their specific habitat.

It seems that *A. tulbaghia* has the ability to adapt its size and wing pattern to become a Batesian mimic. *P. demodocus* has developed several survival strategies. Apart from its size, its pattern may confuse predators and it may even be unpalatable. *C. mayeri* is a bold diurnal moth which advertises its unpalatability and chemical inedibility. *C. curlei* is smaller but displays the same warning colours as *C. mayeri*, in particular, and the other two species, in general.

It is very strange that the two new species could have escaped discovery for so long. Collectors have been visiting one of the localities for decades. How two such exquisite creatures could have remained undetected for so long is a mystery.

Factors influencing this could have been:

The butterflies normally collected on the hillsides have specific habitats of their own and do not live close to the cycad populations.

The time of year when the moths fly is late summer or autumn and perhaps no self respecting butterfly collector would expend the energy on such effort at that time of the year.

At a reasonable distance even the most observant collector might be forgiven for overlooking the moths for the two large species of butterfly on the mountain.

It is hoped that however imaginative and speculative this hypothesis may be it serves to stimulate and encourage all of us to the enormous possibilities that wait out there for study and exploration.

Acknowledgements

I would like to thank Hennann Staude for his support and help, not only with this particular article, but for the many wonderful hours of field work we have enjoyed together. My thanks also to Nolan Owen-Johnson for his company, insight and support in this and many other endeavours. To the individual who started it all, many thanks to Andrew Mayer for being an extraordinary collector and field worker. Finally, thanks to my family who, for some reason, have never failed to support the GOM (Grumpy Old Man).

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**“Up the hill and down again” -
Gauteng/KwaZulu-Natal Branch visit to
Lesotho, 19 and 20 January, 2002**

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The annual Lesotho trip is beginning to be an institution these days. It's always great fun because the weather is usually good, the company amusing, and the butterflies obliging - well sometimes.

Early on Saturday morning Dave McDermott, John-Paul Niehaus and Nolan Owen-Johnston gathered at my place to pile into the Blue Beast, aka Wendy McD's Isuzu Frontier. We had heard from Alan Gardiner that the Sasolburg - Heilbron - Fouriesburg road was in terrible condition, so we decided to go down the N3 and cut across country from Villiers to Frankfort and Reitz. That did not allow for Woodhall getting too engrossed in the early morning debate on ... you guessed it. ... Alan Heath's recent paper ... and failing to let our driver know where to turn off, so we ended up in Heilbron anyway.

As we had stuffed the car with enough grub to feed an army, we didn't have the by now traditional Great Wimpy fryup, we just hoovered home-made bacon sarmies as we went. We met up with the KZN contingent (Kevin Cockburn) at Bethlehem, tanked up and headed for the border. I transferred to his car to keep him company. I am getting to be a connoisseur of African border posts now - and Lesotho's at Caledonspoort is one of the best. Clean, courteous and quick, even though they have put a toll on the bridge now. However, as we headed towards the Misty Mountains, we were subjected to the other side of Africa. The Electricity Supply Commission in Lesotho have put an “Anti-vandalism” roadblock on the Butha-Buthe - Oxbow road. They only stop non-Lesotho

vehicles. An odious little uniformed individual was manning this, he bellied up closely to the window, stuck his face in, invaded Kevin's space and said he wanted five Rand because he was "hungry". I asked him if his Minister of Tourism knew he was pulling this stunt and told him to sling his hook. Judging from the way he recoiled from the window of the following Blue Beast, I guess Nolan gave him even shorter shrift. This is a worrying development, obviously they have no leverage like power of search or they would become the sort of road hazard one finds further north.

But nothing daunted we climbed the awesome Moteng Pass. I have seen the Lord of the Rings movie twice now and yes, I know New Zealand is beautiful but... the Misty Mountains scenes should have been shot in Lesotho. We stopped off at the waterfall to look for *Lepidochrysops lerothodi*, where Alan G had found them earlier in January. Straight away we found a colony of *Serradinda bowkeri bowkeri*, delighting J-P and Dave, for both of whom this was a Primary Experience. I was crawling around on my tum with my camera and succeeded in getting a great wings-open shot of a female. There were some other nice beasties around, such as *Pseudonympha varii*. These were impossible to stalk with a camera. Then we found there were indeed a few *lerothodi* around, but only a tiny few. I wanted to get a shot of this, so I spent a long time fossicking around looking for one and some of the others started to get a little tight-lipped!

So on we went, over the pass and down the other side to Oxbow. The marsh before the Lodge provided us with *Pseudonympha varii*, as well as *Pseudonympha machacha* and *Harpencyreus tsomo*. I got shots of all these, but no *H. noquasa* as I had hoped and the *varii* were just as skittish here. But I was rewarded at the Malimabatso River after Oxbow. We stopped there to get some *Metisella malgacha orina*, which I wanted to photograph. Flying here also were a few *P. varii*. I got a great wings-open shot of a male, then we found a female slowly fluttering around some low herbs. Breathlessly I sank to my knees, shoved the Nikon into the greenery and got a prizewinner of a

wings-open shot. Female *varii* are NOT common!

The next stop was the well known *Pseudonympha penningtoni* spot on the top of Mahlasela Pass. There was a howling cold gale here, so we had to retreat around the corner into the lee of the hill. As usual these butterflies were everywhere, flying a few inches above the ground and diving into the grass as soon as the sun went in. I had a lot of fun watching the newbies catching these, and helping them was good sport.

We then went to Motete River, where J-P, Dave and Kevin went haring off up the hill to look for *Chrysoritis pelion*. Not I! Too much like hard work. Some determined grunting around in the bushes had good shots of *Cacyreus palemon* f. *ecaudata*, as well as various *Pseudonymphas*, in the bag. My antics attracted some attention. One of the shepherds we all see in Lesotho came down off his lofty perch to have a chat. Having heard some horror stories about these guys I was a bit nervous, but he spoke good English and I was soon showing him how I photograph butterflies! And then his chum from across the valley came to have a look. The shepherds all have packs of dogs, real mangy curs of all descriptions. Their two packs met and I was treated to a dogfight of note. Out of Africa, always something new!

Sadly, the mountaineers did not find hordes of *pelion*. I suspect the best time for this insect is closer to New Year, and we should come at that time next year. Then it was time to set off- on the scenic cross-country drive to Mokhotlong. All the way we were looking out for the other half of the party (oh appropriate word!), Messrs Mayer, Greyling and Seib. No sign. We got into Mokhotlong, Kevin and I were worried we had under-stocked on amber beverages so we bought a load of quarts in a little bottle store. Then up to the boulders in the Sehonghong Valley. On the way, some kids threw rocks at the Blue Beast - it's a good job the perpetrators could run fast in the thin air or some lepidopterists would have been up for assault.

At the boulders there is a nice deep pool that we suspected was full of submarine-sized trout. And we had one K. Cockburn on the strength, who is a mean fisherman. Unfortunately the pool level was low, and the trout were more sardines than submarines but Kevin caught enough for everyone to have a taste at supper. The sun shines late at this idyllic spot and we were entertained by Kevin's trance-like concentration on the fish ... and a few cold Castles ... and an *Aeroptes tulbaghia* that kept flirting with Dave, sitting on the cliff wall on the opposite bank of the stream, walking with his jerky, *Charaxes*-like gait and opening and closing his wings like a *Euphaedra*. Every so often he would take off and cross the stream, making sorties past an increasingly frustrated Dave. Eventually he got too brave, Dave's first strike missed but a marvellous reflex back handed hook shot and the *tulbaghia* was caught. Tease a McDermott at your peril, Dave reminded him.

Eventually we got to the Sani Top Chalet, where good cheer awaited. We found Andrew, Harald and Johan had got there well before us and had a bit of a head start. They had covered some different ground to us, and had unsuccessfully searched for *Torynesis pringlei* but had found a new spot for *C. pelion*. Over dinner and lots of cold frosties, yet again the same subject came up - we should give Alan Heath a medal for provoking so much debate! We had some of the top coproglossologists in Lepsoc, all on good form, very entertaining. I cried off before midnight, but some others kept a late vigil. There were some very sore heads on Sunday morning.

So at last it was time to go up the hill and look for *pringlei*. We parked at the boulders and started up that long, long hill. This is a much shorter walk than at Waaihoek, but for sheer slog this is just as bad and the 3 000m altitude is no help. On the way up we realised the place was teeming with butterflies. I saw a couple of *Lepidochrysops loewensteini* but was so focussed on *pringlei* that my shots were half-hearted. The trouble with this place is that you climb the rocky talus slope and the cliff line, all the time eyeing the massive bulk of the mountain beyond. It never seems to get

smaller. Four of us, Dave and I on the left and Kevin and J-P on the right, slowly trudged up the ever-steeper grass slope towards the summit cliffs. Nolan lurked balefully at the base of the summit slope, catching *loewensteini* after getting half way up and deciding enough was enough. All around us, *Orachrysops nasutus* and various *Pseudonymphas* fluttered around, but no *pringlei* ... and then a large grey-brown female popped up from the turf at my feet! Success!!!

As I put her in a bottle for escape-proof photography later, Dave spotted one floating lazily across the hillside next to him. It was very dark, like a *Serradinga*, and that's what Dave thought it was until he caught it. Suddenly, all over the hillside there were *Torynesis*, just like *magna* at Molteno. It was 1030hrs ... all the talk about needing to get there at 0800 was not true although if you are unfit you need to start climbing before then! We even had a self-appointed ghillie - a teenage shepherd who knows the score with *pringlei* and kept pointing out pockets of them for us. Dave kept him fed on mountain rations - peanuts etc. The butterflies kept on flying until 1130, and then they started going to roost as the weather started to cloud up. We had all caught a good number, and some extra to give to Nolan. Surprisingly we found them quite a long way down the hill, almost to where he had stationed himself. The cherry on top was managing to photograph a male; wings wide open as well as closed. Sliding down the hill to keep him in the frame, I lost my hat that I had stuffed into my pocket. Murphy's Law determined that the clouds immediately dispersed and it got rather hot.

This was one of the good days - as well as the shots of *pringlei*, I got both sexes of *O. nasutus*, great shots of *Pseudonympha paludis* and *L. loewensteini*. We all slowly nursed our stiff muscles as we walked towards the cars. J-P was full of joy after getting his first *L. loewensteini* right next to the cars. Dave even had the energy to get another couple of *tulbaghia*. Quarts of Castle were glugged straight down, and an air of celebration filled the valley. There was a magnificent impromptu *a capella* rendering

of James Brown's "I Feel Good!" from all of us as Kevin set up a group photo.

Eventually it was time to wend our way home and we said our farewells to Kevin who was planning to go back via Sani Pass. As it turned out he stopped off at Johan, Andrew and Harald's spot at Black Mountain Pass and got himself some *pelion* that looked awfully like *C. orientalis* when I saw them later at his farm. On the long drive home I reflected on what a successful trip this had been - between all of us we had actually managed to get every special Lesotho butterfly in one weekend!

The need to take photos for the Field Guide, and the law of diminishing returns, means I spend more time with a camera in hand than a net these days. Don't get me wrong - I am still the indefatigable collector of old - but I am discovering the delights of shutterbugging. Even common butterflies are a challenge and it's more than just amassing specimens - the photos have to be good. I have recently bought a 3-diopter close up filter ring lens on the advice of a camera shop salesman who heard my moans at the price of autofocus extension tubes. Advice to all owners of autofocus cameras - forget extension tubes and buy close up lenses at 1/10th the cost! They are quicker to swap around and you should see the shot I got of a tiny *Harpencyreus tsono* with J-P gently holding the bossies apart for me ...

**A new subspecies of *Lepidochrysops neavei*
(Bethune-Baker, 1923) (Lepidoptera:
Lycaenidae) from Malawi.**

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Abstract

A new subspecies of *Lepidochrysops neavei* (Bethune-Baker, 1923) (Lepidoptera: Lycaenidae), *L. neavei nolani*, is described from material collected near Mangochi, south-eastern Malawi. The adult males differ principally from those of the nominate subspecies in that the black spotting on the underside of the wings is much reduced and the post-medial row of black spots on the underside of the forewing is entirely absent.

Key words: Lepidoptera, Lycaenidae, *Lepidochrysops*, new subspecies, Malawi.

Introduction

Lepidochrysops neavei (Bethune-Baker, 1923) is a member of a large Afrotropical lycaenid genus containing some 127 known species (Williams, 2002). *L. neavei* was described from two males and four females, all captured by S.A. Neave (Bethune-Baker, 1923). The two males, and three of the females, were collected at an altitude of 2, 500 feet, in the foothills north of Mount Chipero (16°30'S; 35°45'E), in Mozambique. They were captured in the months of November and December. The remaining female was collected at [Mount] Mlanje, Malawi, in January. These specimens, the type series, are housed in the Natural History Museum, London. Further specimens of *L. neavei* have been found on the

Zomba Plateau, to the north-east of Mount Mlanje, at Limbe (Barrow) and Zomba (Johnston) (Gifford, 1965).

From 1995 to 1997 Nolan Owen-Johnston obtained a small series of male *Lepidochrysops* in December and January at a locality on the eastern side of the southern tip of Lake Malawi. This locality is about 80 km north of the most northern known localities of topotypical *L. neavei*. The new material shows significant and consistent differences on the underside of the wings, when compared to topotypical material. The purpose of this paper is to describe this variation and assign subspecific status to this, apparently, geographically isolated population.

Material examined

Holotype: Male; Maiwale, Chowe (30 km north-east of Mangoche), Malawi; 24/12/95; N. K. Owen-Johnston.

Holotype to be deposited in the Transvaal Museum collection, Pretoria. Paratypes: 2 males, same data as holotype; 2 males, same data as holotype but 6/1/96; 1 male, same data as holotype but 26/12/97. Paratypes in the collection of Nolan Owen-Johnston.

Description/Diagnosis

Lepidochrysops neavei nolani **ssp. nov.**

The upperside of the wings, and the male genitalia, are indistinguishable from those of the nominate subspecies. On the underside of both fore- and hind-wings the black spots and darker markings are all significantly reduced when compared to the male of the nominate subspecies (Figs 1 & 2). Most striking is the absence of the post-medial row of black spots on the underside of the forewing. The submarginal markings are also indistinct to absent on the forewing underside.

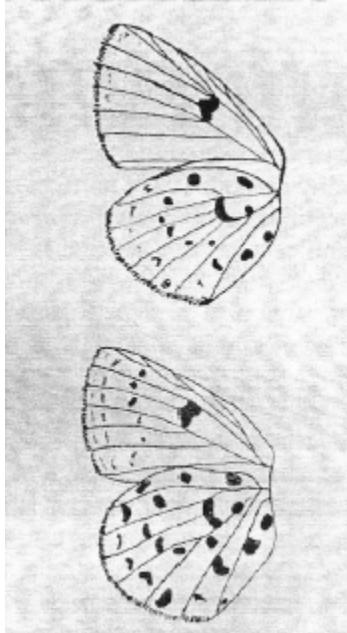


Fig. 1 - *L. neavei nolani* ssp. nov. Fig. 2 - *L. neavei neavei* (B-B).

This subspecies is named for Nolan Owen-Johnston in recognition of his contributions, over many years, to our knowledge of Afrotropical butterflies.

Habitat

Adult males of this newly described subspecies have only been found in an area some 1 hectare in extent, on the shoulder of a mountain, at about 1 000 m altitude. This shoulder is about 300 m below the summit of the mountain. They were flying over rocky ground, with clumps of grass, in *Brachystegia* woodland. According to Owen-Johnston, males were showing what he thought was hilltopping behaviour, and he could not locate females.

Discussion

The known localities for populations of the nominate subspecies (Zomba Plateau, Mount Mlanje, Mount Chiperone) are all on relatively high ground (800 m, or higher) and are linked by similarly high ground. It is thus probable that undiscovered populations between these localities may serve as conduits for gene flow, thereby making the southern (nominate) subspecies a metapopulation. Subspecies *nolani* is separated from the southern populations by an 80 km wide corridor of relatively low ground (500 to 600 m), with Lake Chilwa in the east and the Shire Valley to the west. It is possible that a single female, from one of the southern populations, crossed this lowlying ground and established the northern population. The resulting, extreme, founder effect may thus account for the unique absence of the post-median spots on the forewing underside, as well as the general diminution of black spotting on the underside of the wings.

Acknowledgements

My sincere thanks to Martin Krüger, Transvaal Museum, for genitalia preparations. My thanks, also, to Nolan Owen-Johnston for asking me to describe this new taxon.

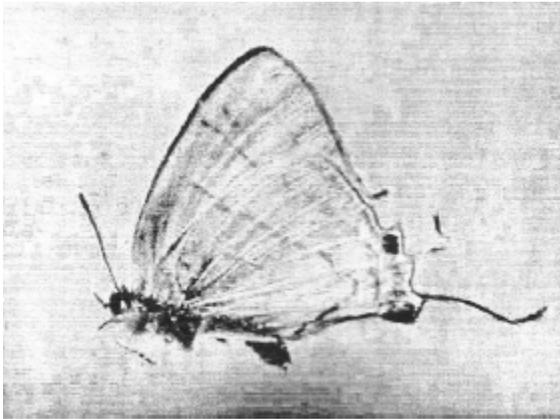
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Another record of *Iolaus poultoni* from eastern Zimbabwe

Robert Plowes

Few records exist of *Iolaus (Pseudiolaus) poultoni* from southern Africa, and it was therefore interesting to find a specimen at another locality in eastern Zimbabwe. This female specimen was collected by my son Richard above Python Pools Waterfall on the Timbiri River, Chimanimani district on 23 May 1999.



Previous records of *I. poultoni* include single records from Dondo Forest, Mozambique (H.Cookson, 18 April 1953), Xiluvo station, Mozambique (D.Cookson, 15 January 1965) and Baroni River, Zimbabwe (A. Gardiner). All four specimens from southern Africa are females. The species is widespread, though localized, along the east African Coast, from Mozambique to Kenya.

This recent specimen is similar to the figure in “Pennington” (1994), although it has reduced black markings. It is interesting to note that the female Kenyan specimen depicted in Larsen (1991) has considerable blue suffusion at the base of the wing, not seen in the recent specimen, nor in the “Pennington” figure. The Kenyan specimen also differs in having a curved post-discal band on the forewing underside, while the southern specimens have a straight band. More specimens, especially males, are needed for comparative work.

The Python Pool site lies within the Zimbabwe Forestry Commission's Tarka Estate in the Chimanimani district (32°59' E, 19°58' S), and is 172 ha in extent. It is at a point where the Timbiri River plunges almost 500 m, from an altitude of 800 m a.s.l., down to the Haroni River via a narrow forested gorge. The east side of the river above the Pool is a nearly sheer hillside of typical Chimanimani quartzitic sandstone, with a scattering of *Brachystegia glaucescens* trees draped with Old Man's Beard lichen (*Usnea*). This rocky hillside comes to an abrupt stop where the Timbiri River veers sharply east to fall almost immediately into the gorge.

The west side of the river is a gentle grassy slope of red clay loam, with a narrow flood-plain in the valley bottom. Along the river above the falls there is a narrow strip of evergreen riverine forest, dominated by *Breonadia salicina* and *Bridelia micrantha*. Average rainfall is probably around 1 500 mm, with misty drizzle ('guti') being a frequent feature at any time of year. Frosts are probably absent, but occur regularly on adjacent higher ground in winter.

Below the falls, the Timbiri River joins the Haroni River, in a narrow valley at an altitude of about 320 m, and with a much higher rainfall (probably about 2 000 mm). The valley habitat is low elevation tropical evergreen forest. Given the previous records of the butterfly, it seems likely to be centered in the lower tropical forest habitat, and so this capture at 820m a.s. l. is well above the expected elevation and habitat range.

The Haroni-Risitu Valley lies at the southern tip of the Chimanimani mountain range. It formerly had extensive, tall,

tropical evergreen forests that contain plant, bird and butterfly species not found elsewhere in Zimbabwe. Unfortunately, much of this forest has now been cut and the land used for arable crops, even within National Park boundaries. The more remote and inaccessible forest patches leading back along the Haroni and Timbiri rivers are the last of these forests, yet still harbour items of interest, such as *Iolaus poultoni*. Let's work towards conserving these remaining patches.

**Additional revisionary notes on Afrotropical
Ennominae of the Drepanogynis group
(Lepidoptera: Geometridae: Ennominae:
Ennomini)**

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Abstract

Two species of Ennominae belonging to the *Drepanogynis* group of genera are described as new: *Argyrophora murphyi* sp. n. from northern Malawi and *Pseudomaenas bidentata* sp. n. from the Maluti Mountains of Lesotho. A new distribution record for *Microligia luteitincta* Prout, previously thought to be restricted to southern Africa, extends the range of this species to Malawi.

Key words: Geometridae, Ennominae, Ennomini, *Drepanogynis* group, new species, new record, Afrotropical region.

Introduction

The *Drepanogynis* group of genera as defined in Krüger (1997) comprises in excess of 150 species of Ennominae of the tribe Ennomini of diverse habitus, most of which are endemic to South Africa. Over the past five years, the *Drepanogynis* group has been the subject of a series of revisions (Krüger, 1997; 1998; 1999; 2002).

In the last but one of these contributions, Krüger (1999) revised the species of the genera *Argyrophora* Guenée, *Microligia* Warren and *Pseudomaenas* Prout. Since publication of this paper, material has come to hand of a new species each of *Argyrophora*

and *Pseudomaenas*, which are described below. In addition, the first records of *Microligia luteitincta* Prout from outside southern Africa are detailed.

Material and methods

Type material of taxa described in this paper is housed in the collections of the Transvaal Museum, Pretoria, South Africa (TMSA) and the collection of H.S. Staude, Magaliesburg, South Africa (HSS).

The specimens on which the new distribution records for *M. luteitincta* are based are in HSS.

Preparation of genitalia slides and other technical details follow Krüger (1997).

Species descriptions

Argyrophora murphyi **sp. n.**, Figs 1, 2

Type material. Holotype ♂, MALAWI: N. Malawi, Nyika Nat[ional] P[ar]k, Juniper Forest, 7000 ft., 23.IX.[I 9]99 (R.J. Murphy); TM Lep. Heter. Genitalia slide No. 14261.- (TMSA).

Description. Adult male (Fig. 1). Large for the genus. Antennae bipectinate, longest rami not exceeding twice diameter of shaft. Forewings with straight costa and moderately pointed apex. Termen of forewings slightly angled at Cu, termen of hind wings appearing somewhat truncated. Ground colour of wings white, finely dusted with pale grey scales, resulting in a dirtyish white overall appearance. Forewings with relatively large but poorly defined, greyish-brown discal spots and a subapical streak of the same colour; other markings absent. Cilia largely worn in holotype but probably concolorous with wings. Underside similar to upper side but grey irroration more intense, especially in interneural areas, resulting in a streaked appearance. Vestiture of body concolorous with wmg.

Forewing length. 16 mm (♂) (n = 1).

Male genitalia (Fig. 2). Uncus short and robust. Gnathos also stout, with broad arms and well-developed medial element bearing a prominent serrated median ridge. Genital capsule elongate, with somewhat angular contour; vinculum almost twice length of tegumen. Juxta well developed, taking the form of an inverted bell; furca with very long processes, widening towards the hook-like apex. Valvae narrow, having an indistinct, finely serrated sacculus. Aedeagus broadest medially; vesica bearing a single large cornutus, which is poorly defined anteriorly.

Diagnosis. Resembling the other white *Argyrophora* species *A. variabilis* and *A. retifera* but larger, with fainter forewing pattern (compare Fig. 1 and Figures 11, 12 (*A. variabilis*) and 13 (*A. retifera*) in Krüger, 1999).

Phenology and habitat associations. Although the name of the type locality suggests a forested habitat, the species is likely to inhabit montane grassland at an altitude of approximately 2 300m. The holotype was collected in late September.

Distribution Northern Malawi, known from the type locality only.

Etymology. Named in honour of the collector of the holotype, Mr. Ray Murphy of Mzuzu, Malawi.

Pseudomaenas bidentata **sp. n.**, Figs 3, 4

Type material. Holotype ♂, LESOTHO: Moteng Pass, *Rhus-Buddlea* [sic, recte: *Buddleja*] interspersed grassland, 2 350m, 28°46'S 28°35'E, 1.II.1997 (H.S. Staude); TM Lep. Heter. Genitalia slide No. 14267.- (TMSA).

Paratype (1 ♂). LESOTHO: 1 ♂, same data as holotype.- (HSS).

Description. Adult male (Fig. 3). Antennae plumose (bipectinate with long, thin rami). Costa of forewings nearly straight, apex moderately pointed; termen of both pairs of wings rounded. Ground colour of wings off-white. Forewings finely striated and suffused with blackish-grey except for postmedian area, the latter pale cream with some greyish striation. Forewings with blackish basal and postmedian lines; basal very indistinct; postmedian forming two pointed intrusions into median area. Subterminal area blackish-grey, indistinctly delimited from postmedian area. Discal spots black, large, but inconspicuous. Hind wings off-white finely sprinkled with grey, resulting in a light grey coloration. Discal spots grey, other markings absent. Cilia cream on forewings, light grey on hind wings. Underside light grey with a rosy hue and densely peppered with dark grey on hind wings and along forewing costa and apex. Discal spots dark grey and fairly conspicuous, other markings absent. Vestiture of head and thorax concolorous with forewings. Abdomen ochreous grey, first abdominal segment and tip paler.

Forewing length. 16 mm (♂) (n = 2).

Male genitalia (Fig. 4). Uncus curved, sword-like, approximately equalling genital capsule in length. Gnathos prominent, with heait-shaped, rounded arms and narrow medial element bearing some small denticles. Genital capsule broadly elliptical, tegumen of same width as vinculum and only slightly shorter. Juxta broadly crescentic, posterior margin emarginate; processes of furca moderately long, acutely pointed and well sclerotized. Valvae comparatively broad, angled at 1/3 from base; coremata bearing hair pencils present. Aedeagus small and thin relative to size of genital capsule; apex produced into a short sclerotized projection; cornuti absent.

Diagnosis. Resembling *Pseudomaenas dukei* to some degree (see Fig. 36 in Krüger, 1999) but readily distinguished by the fore wing pattern.

Phenology and habitat associations. The type locality is situated on the boundary between veld types 45 (Afro Mountain Grassland) and 46 (Alti Mountain Grassland) of Low & Rebelo (1998). The types were collected in early February but are slightly worn, suggesting a main flight period in January.

Distribution. Maluti Mountains of Lesotho, known from the type locality only.

Etymology. From Latin *bidens*, having two teeth: from the two tooth-like projections of the postmedian line on the forewings.

Distributional note

Micrologia luteitincta Prout

Krüger (1999: 451) gives the geographical range of the species as ‘Southern Africa, apparently occurring in widely separated populations from the Western Cape through KwaZulu-Natal, Gauteng and Swaziland to Zimbabwe.’ The distribution is now known to include Malawi as well (1 ♂, N. Malawi, Mt. Uzumara, 6 500ft., 10.I.1997 (R.J. Murphy); 1 ♀, Nyika Plateau, Juniper Forest, 20.IX.1999 (R.J. Murphy)) (both in HSS).

Acknowledgements

I wish to thank H. Staude, Magaliesburg, South Africa, for access to material in his collection and donating the holotypes of the two new species to the Transvaal Museum collection.

The Photographic Unit of the University of Pretoria produced the illustrations of the adult moths.

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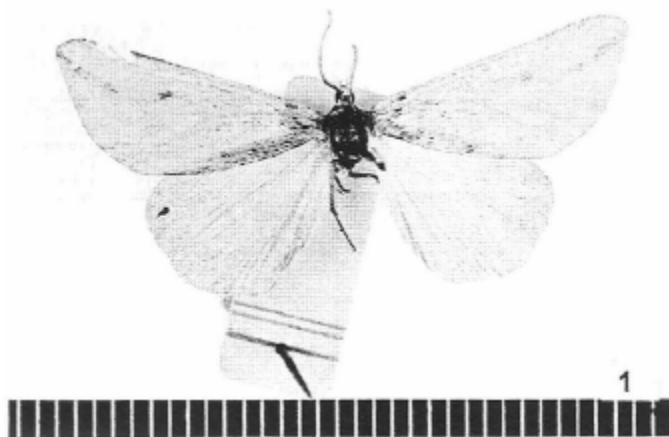


Fig. 1. *Argyrophora murphyi*, adult male. Scale bar in mm.

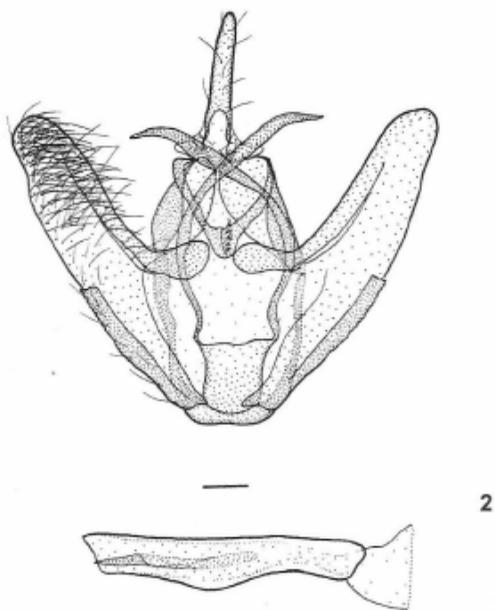


Fig. 2. *Argyrophora murphyi*, male genitalia. Scale bar = 0.3 mm.

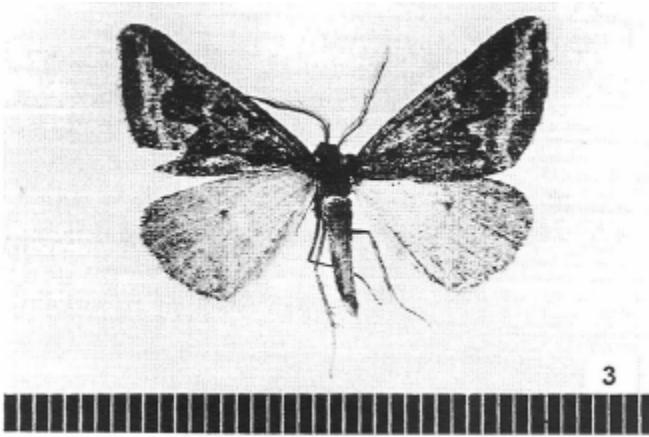


Fig. 3. *Pseudomaenas bidentata*, adult male. Scale bar in mm.

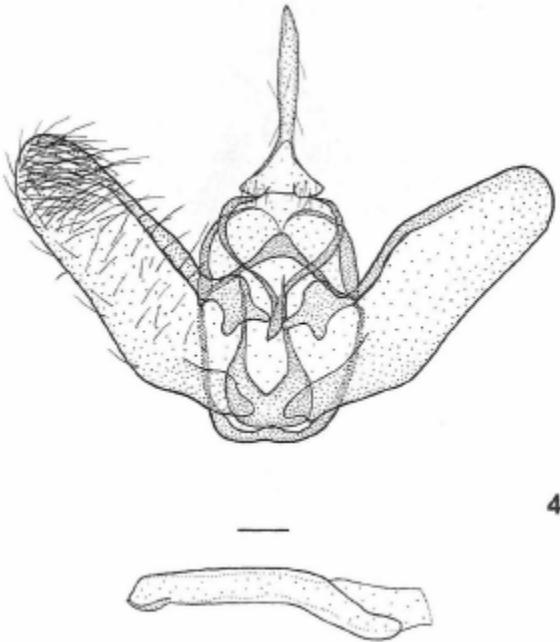


Fig. 4. *Pseudomaenas bidentata*, male genitalia. Scale bar = 0.3 mm.

Letter to the Editor

In a letter dated 2nd December, 2001, Colin Congdon writes as follows:

I have only just caught up with my June [2001] edition of *Metamorphosis*, and very interesting it is, too.

If I may I should like to comment on Lawrence and Samways' thought provoking paper on hilltopping in *Hyalites encedon* (Acraeinae).

The authors measure differences in age structure and behaviour pattern in male populations on top of and at the base of a hill. Their figures show clearly that both inter- and intraspecific events occur much more frequently and occupy considerably more time for hilltopping males, while patrolling and perching behaviours predominate at the base of the hill. Further, that the hilltopping males are older on average than those at the hill base.

Ford (1945) remarks that butterflies migrating from the Iberian Peninsula to Britain often arrive as though freshly emerged, giving rise to the unfounded belief that they must have bred in Britain. This suggests that uninterrupted flight results in little or no wing damage. Similarly, we might expect patrolling behaviour to result in little damage, and the same must hold for perching behaviour.

This leaves inter- and intraspecific interactions (with which we may include attempted mating) as the main causes of wing damage. It may therefore be that, while the hilltopping males are on average older than those at the hill base in terms of wear and tear, their chronological ages may be similar.

A relatively simple capture-mark-release-recapture study might shed light on this, provided that the species studied is not subject to migration. In this context, an acraeine butterfly would make a good subject, as it would be unlikely to suffer different intensities of avian predation between the two sites. We have seen swallows hilltopping, too.

Hilltopping appears to be a high risk strategy, offering a trade-off between a better chance of mating on the one hand, and accelerated wing disintegration on the other. The additional risk might become more acceptable as the butterfly approaches middle age, so perhaps hilltopping males are indeed older. It would be interesting to know.

Book Review - The Butterflies of Zambia

Publishers: African Butterfly Research Institute (ABRI) &
The Lepidopterists ' Society of Africa

Authors: A. Heath, M.A. Newport and D. Hancock

A comprehensive work on Zambia's butterflies has been long awaited. Publishers ABRI and Lepsoc are to be congratulated for finally committing the tireless fieldwork and research efforts of authors Alan Heath, Michael Newport and David Hancock, to print.

The value of this work is considerable. The book provides a checklist of 839 species, almost all of which are illustrated within some 2 300 separate photographs on CDROM, enriching the pool of information available to collectors (both amateur and professional), scientific and natural history institutions, conservationists, entomologists and others with scientific interest.

The authors state outright that this is not a book for the beginner as it focuses purely on species information and cover none of the other topics that might interest the layman. Despite this, however, it is likely to be of some value to the growing band of ordinary people whose passion for nature and wildlife now also encompasses butterflies, as a means of identifying specimens, albeit only by their scientific names.

The species information is well presented and with brevity. In this age of information overload many readers will find brevity to be an asset, particularly as sufficient critical information species description, distribution, habitat preference, status (scarcity or otherwise), locality records, flight periods, food plant details and unusual habits or occurrences - is given almost without exception.

Use of CD-ROM for illustrations is novel and in keeping with the electronic age. It works well and the quality of the photographs (all set specimens) is excellent. Wherever possible, each species is illustrated four-fold with uppersides

and undersides of both male and female. For a variety of reasons, there are also advantages to being able to print out good quality colour hard copies of specimens as desired. The only possible shortcoming is that some purchasers may not have the appropriate computer equipment to view the CDROM, but in this day and age they are surely in the minority.

The Introduction is comprehensive, offering the rationale behind the book, the classification methodology and very readable and informative sections relating to topography, climate, vegetation/biomes, conservation and the history of collecting in Zambia.

In a user-friendly manner, "The Butterflies of Zambia" fills a void in the African Lepidoptera knowledge base and is a must for anyone seriously interested in African butterflies. The book also makes significant progress in the use of technology, which has kept the purchase price down. Perhaps the day is not long off when specialist books like this one will go electronic all the way ...

Reviewed by Dave McDermott.

Copies of the publication are available at R 160 (plus postage) per copy from D. McDermott. His address is P O Box 782114, Sandton 2146. E-mail tmc@tmc.co.za.

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Figures must be boldly drawn in black waterproof ink, and arranged in clear and logical plates on stiff white, preferably A4-sized board. All the figures must be numbered in a common sequence in Arabic numerals, irrespective of whether they are line drawings, photographs, diagrams, graphs or maps. Magnifications should be indicated by scale bars on the figures.

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Additional, expanded author instructions are available on request from the editor.

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