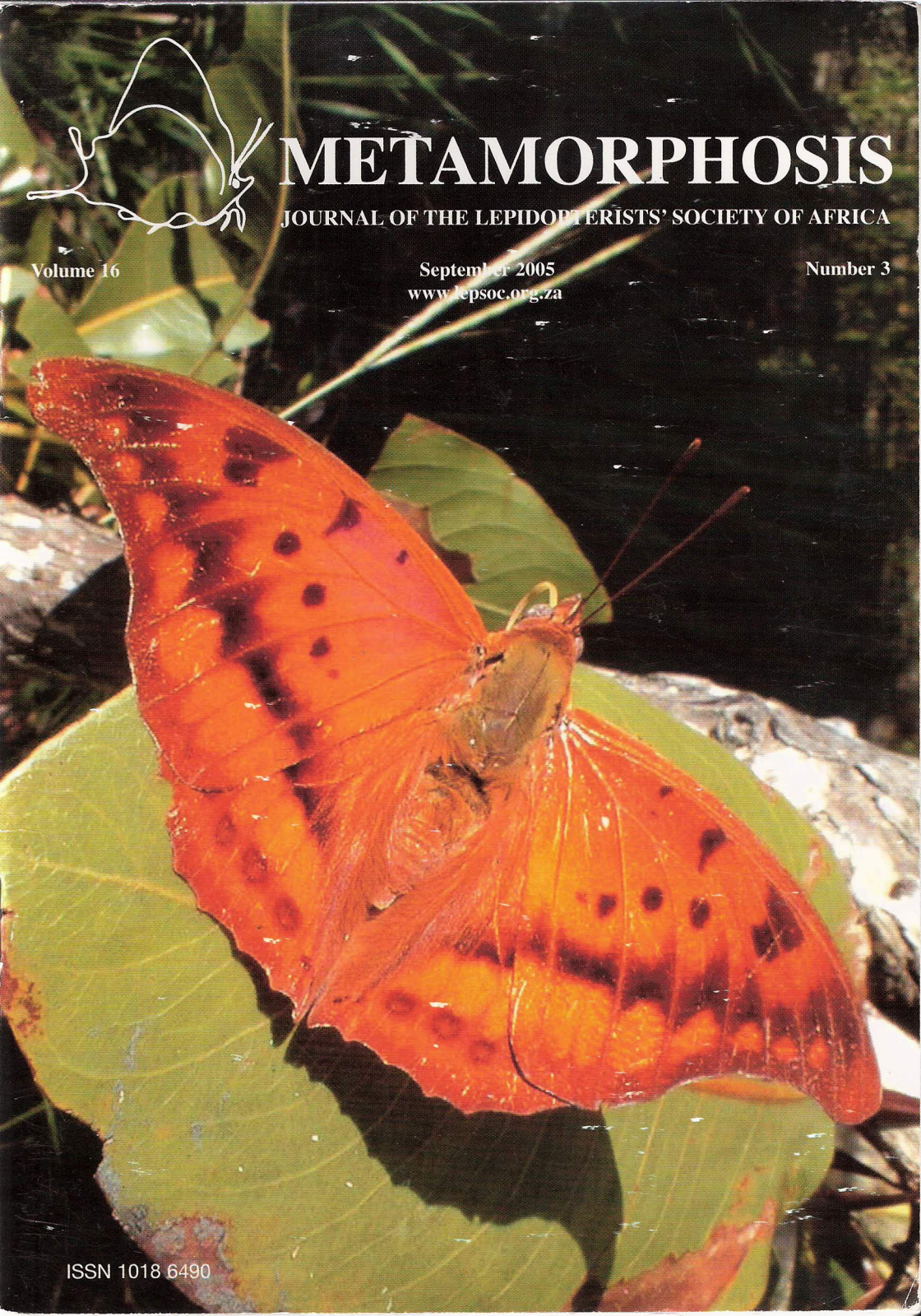

METAMORPHOSIS

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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. Please visit **www.lepsoc.org.za** for more information.

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.

Membership of the Society is open to all persons who are interested in the study of Lepidoptera. There is no geographical limit to membership. There are four categories of membership:

	South Africa	Rest of Africa	Overseas
Sponsor Member	R600.00 pa	R600.00 pa	US$ 200.00 pa
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Front cover: *Charaxes nichetes* upperside, by Alan Gardiner.
Back cover: *Hypolycaena liara* upperside, runner up Lepsoc 2005 slide of the Year by Alan Gardiner.

Council comments

Issues that the council has been focussing on lately include conservation, permits and the butterfly atlas project. These three issues are interwoven and it is impossible to separate one from the other. Graham Henning our conservation councillor, as well as a number of our members has been busy with some excellent conservation efforts specifically aimed at conserving our threatened butterflies. This has resulted in the proclamation of no less than four conservation areas set aside specifically for butterflies in South Africa. I do not think that this has been equalled anywhere else in the world for any group of arthropods and illustrates the commitment and dedication of our Lepidopterists. If, however, we do not sort out the permit problem soon we will not get any new Lepidopterists coming through the ranks and those that remain will slowly wither away. This will spell disaster for butterfly conservation. Likewise the butterfly atlas project is crucial for assessing our butterfly diversity and for setting conservation priorities and again the project will not come off the ground if permit issues are not resolved. The following article by Bennie Coetzer briefly summarises progress thus far on the project.

Communication has also been receiving a lot of attention lately and a number of initiatives have been put in place to improve this, both internally and externally. JP Niehaus our internal communications councillor has initiated *Lepsoc News Africa* – an e-mail newsletter, which gets distributed to all members that have submitted an e-mail address to us. This newsletter has been well received and praises have come from across the globe. If you have not yet received *Lepsoc News Africa* then we do not have your correct e-mail address or perhaps your membership is out of date. In this case please contact Lindsay Durham our membership councillor, who is trying her utmost to keep our members details in order.
Dave McDermott, our external communications officer has been very active lately and our exposure in the media is increasing.
When last did you visit our website www.lepsoc.org.za ? You will be surprised what you can find here. You will find the answer to most question you may have about the society, including membership, current articles, old copies of *Lepsoc News Africa*, publications, posters and software available from the Society, beautiful pictures of Lepidoptera and much more. Andre Coetzer our new webmaster has completely revamped the website – check it out.

I am sure that you will agree with me that all these new initiatives will greatly improve the way in which we communicate with each other.

All of the above and especially the publication of *Metamorphosis* will not be possible without your support, mainly in the form of submitting your dues in time. Owen Garvie, our treasurer, informs me that only 53% of our members have paid their 2005 subscriptions by the end of September 2005. Owen has been sending statements to all outstanding members and everyone should know their financial standing with the society – so please pay your dues. At our last AGM in August Owen made the following recommendations to improve the situation:

- Move LEPSOC on to a more sound financial platform- seeking stability & growth.
- Urge all listed members to pay their current/and outstanding subs where applicable ASAP.
- Encourage more members for become regular sponsor members (on a voluntary annual basis).
- Seek sponsorship from companies/institutions to boost funds- any ideas, action plans?
- Steve Collins/Nolan Owen-Johnson suggested a strong recruitment membership drive at last AGM - but we need a focused combined strategy (Jeremy Dobson/Reinier Terblanche).
- Establish a database to effectively manage membership and financial details (Lindsay Durham/Bennie Coetzer).
- Please support your society financially.

Our Branches have organised a number of field trips, meetings, workshops, reserve surveys and conservation efforts lately. It is through the branches that you can become an active member of your society. Attending these events really are enjoyable and this is where you can get to meet your fellow lepidopterists. Please contact the chairman of the branch situated nearest to you to find out details of planned events. The article in this issue on *Erikssonia acraeina* illustrates what is being done in the branches.

Hermann Staude

Butterfly Atlas Project

Bennie Coetzer: Lepsoc Project leader (benniec@thales.co.za)

As you are all aware, LepSoc has been busy with butterfly atlassing for a while using the LepiDops program to enter data into the society's database Lepibase. As mentioned at the last two conferences the butterfly atlas project has taken on a high profile with the formation of a partnership between ourselves, the ADU (responsible for the Bird, frog and currently Reptile Atlasses), SANBI (charged with conservation assessment of all South African Flora and Fauna) and the Nature Conservation bodies of South Africa.

In order to keep you aware of the various happenings we (the Lepsoc project team) will endeavour to publish reports regularly in Metamorphosis as well as the on-line Lepsoc News.

The combined project officially kicked off on the 8th August 2005 with a joint meeting between all parties. At this meeting ideas and objectives were exchanged and the accompanying project outline has been tabled. It has been suggested that the project be called SABCA (South African Butterfly Conservation Assessment).

We would like to encourage our members to actively participate in this project. Such participation will be required by making collections available for logging, entering own data into the database, assist with identification of species, actively perform surveys in identified areas once the gap analysis has been completed. The data will be entered using the LepiDops format to make collation and data extraction easy.

Please take the time to study the objectives as presented in this article and pass all comments, ideas, etc. on for incorporation. The attached document has not yet been approved but will eventually be used to manage the project.

BUTTERFLY ATLAS - PROJECT DEFINITION

Project Aims

The Butterfly Atlas project is aimed at collecting data for the purpose of enabling more pro-active conservation of Butterflies in particular but, because of its close association with other insects and plants, Insecta and Flora in general. A fundamental use of the data will be the determination of the bio-diversity of South Africa's butterflies as it occurs throughout the region. Using the recorded data it is expected that interested parties and in particular those with a conservation interest, will

perform conservation assessments of the species to highlight areas of significant conservation importance. This will therefore contribute towards determining the conservation priorities for butterflies in South Africa with a direct impact on the conservation of other species, Flora and Fauna.

Participants

While participation is not limited and general participation is encouraged, the project will be driven by the Lepidopterists' Society of Africa, The Avian Demography Unit (University of Cape Town) and the South African National Bio-diversity Institute (SANBI)
Active support is however also needed from the various Nature Conservation Authorities, Conservation NGOs, museums, scientists as well as the South African Government.

Process

Again it is not our intention to exclude any party but it is anticipated that the following roles would be managed by the suggested parties (not necessarily in isolation from one another):

Lepsoc

1. Provide expertise in identification
2. Provide access to historic data in private collections
3. Provide field workers
4. Provide the electronic software to capture data
5. Take ownership of the resultant database for the purpose of maintaining it in future and making it available to potential users.

ADU

6. Do gap analysis on existing data to determine priority areas to direct any future field work. This role could also continue into the future.
7. Assist in curating the database
8. Provide statistical expertise
9. Add structure by providing full-time staff
10. Develop project website
11. Produce regular newsletters

SANBI

12. Assistance to ensure that the project contributes towards the overall bio-diversity investigation programs.
13. Assistance to procure funding to ensure the success of the project.
14. Assistance with promoting the project within government and the public

Nature Conservation

15. Conduct butterfly surveys for each reserve under their jurisdiction and then provide specimens to Lepsoc for identification.
16. Provide amnesty to private owners of butterfly collections so that this data can be incorporated into the project.

Project Objectives

1. Compile a database of species' occurrence as accurately as possible but at least to a 1km accuracy.
2. Produce a distribution map for each species. This map could be in quarter degree intervals but preferably some finer resolution
3. Conduct a conservation assessment for each species.
4. Report on the conservation status and distribution of butterfly species together with recommended conservation actions.
5. Improve public awareness of butterfly conservation issues by making the work of the butterfly atlas project widely known through the mass media, including the web.

Output

The project will be conducted in two phases as follows:

Phase 1 - Conservation assessment project

Proposed output products:

1. A resultant database
2. A conservation assessment report
3. Butterfly hotspots
4. Recommendations for monitoring

Phase 2 - Atlas Project

This phase is recommended as a follow on but is subject to securing funding. This is ultimately the output required to involve the public and create public awareness of plight of insect and habitats. This phase could include the

creation of a published atlas and/or a red data book and/or a website.

We would support this phase strongly and believes that the funding must be found to achieve the overall conservation objectives of the project.

Project Plan

Phase 1 (5 Years)

Year 1: Planning of Phase 1: Obtain amnesty, collate and capture existing data, obtain necessary permissions from Nature Conservation, start with field work in known priority areas.

Year 2: Perform gap analysis on existing data, continue field work in priority areas identified by gap analysis.

Year 3-5: Continue field work, hold conservation assessment workshops, produce conservation assessment report.

Phase 2 (5-10 Years)

Detailed planning of this phase to be done after completion of phase1.

Workshop on caterpillars, Costa Rica

Alan Heath

It was my privilege recently, to be invited to attend a workshop on caterpillars in Costa Rica. The workshop took place from 19-28 June 2003 and was organized by Dan Janzen and sponsored by the American National Science Foundation (NSF) and Area de Conservacion Guanacaste (ACG).

The workshop took place at ACG in northwestern Costa Rica. Its formal objective was to bring together as many as possible of the highly-dispersed world's caterpillar biologists, to update each other on their respective projects, share goals and problems, and get a first-hand view of the mechanics of the ongoing NSF- and ACG-supported "Inventory of the Lepidoptera larvae, their parasitoids, and their gut microbes of a Costa Rican tropical dry forest, cloud forest and rainforest" (a programme which began in 1978).

It was the longest day I've ever experienced (following the sun) first to Miami where the flight was delayed a couple of hours due to electric storms and then on to San Jose. A bunch of us arrived on the same flight and squeezed into an 'official' orange minibus taxi. We then set off for Hotel Bougainvillea on the other side of town. The quality of driving was little better than the chaps in Cape Town and I also noticed the suburban houses had familiar-looking burglar bars and sturdy locked gates! Arriving in my hotel room, I estimated it had been about 23 hours ago that I left UK (4:30 am) and it was still the same day!!

Next morning Ivan Bampton and Colin Congdon arrived, having experienced problems the previous day. Their travel arrangements had taken them towards the wrong San Jose (in the USA). They had to purchase tickets from LA to the correct San Jose!! Among the others who had arrived included Naomi Pierce and her Harvard students, and Carla Penz and Phil DeVries.

Fifty-four of us boarded a bus for the four and a half hour drive from San Jose to the ACG in the north-west corner of the country. The country around San Jose was very hilly and, in its natural state, quite beautiful. Later the land flattened out a bit but the central hills and extinct volcanos were always visible.

As we approached the ACG we found ourselves travelling through a lovely rich green forest which did not look at all like its category of "dry lowland forest". Much later we saw pictures of it in the dry season and it was quite a shock to see it

bare and leafless. After claiming our bunks in one of the eight-up dorms we had lunch and were led to a hill where we were shown the terrain and given the low-down on the vast area now included in the ACG. This included the geological formations (locally volcanic) and more recently the acquisition of cattle ranches. Most of the forest around us was pasture a mere 20 years before. Ranch by ranch had been purchased and allowed to return to the original natural state we now saw.

We were shown one of the rearing barns where dozens and dozens of plastic bags were hanging from clothes lines; each one containing foodplant and caterpillars. Each had data about where and when and what it was, butterflies and moths alike. There were also many bagged caterpillars in the trees and understory. All caterpillars were entered into a database inventory; this had been going on for many years. Mortality and parasites too were recorded and photographs of larvae are also stored on the database. There were other rearing barns within the ACG, such as in the montane cloud forest and on the side of a volcano. It really is a colossal biological enterprise.

The days were spent alternately between classroom and field trips. The classroom days were filled with 30 minute Power-Point presentations. The first day was largely devoted to lycaenids and I had my 30 minutes slot on ant-association, as did Colin Congdon on the *Iolaus* caterpillars and their foodplants. Other days also included presentations on moths or other aspects of caterpillar life.

A collecting and export permit had been obtained for the Harvard crowd, myself and others, so I seized every opportunity there was to wave a net, such as on field days and during lunch times. I was hoping to concentrate on lycaenids (especially Riodininae) but despite many skippers and high flying pierids, the lycaenids were not well represented and very few taken. There were some remarkable nymphalids on forest edges and open paths. Even in the montane forest there were fewer butterflies than I had expected although a mint 'Owl' butterfly was caught and some Morpho's seen. In the high altitude forests there were some weird loud noises evoking thoughts of dinosaurs but it was only a troop of Howler monkeys.

In one forest we almost trod on a massive orange and black tarantula spider and we stopped to observe it for a few minutes before we allowed it to crawl away. There was other interesting wildlife, such as the long trails of leaf-cutting ants looking like a long line of miniature yachts with green sails. We also came across a friendly tree-porcupine.

After a day's collecting I would store the specimens in a sealed container in the beer and cool drinks fridge. Unfortunately, on our return bus trip to San Jose I suddenly realized they were all still there! It was over twelve months before I saw

them again. On our arrival in San Jose we were shown the Lepidoptera collection in the new INBioParque Museum.

After an overnight stay and breakfast at Hotel Bougainvillea in San Jose I explored the hotel's magnificent gardens and collected as many butterflies in two hours as I had done in the previous ten days. The nymphalids and hesperiids were the most numerous and remarkable. Different species were appearing even as we stepped on to the transport to take us to the airport.

A report by the Lepidopterists' Society of Africa on the current status of the South African population of *Erikssonia acraeina* Trimen, 1891 (Lepidoptera: Lycaenidae)

Introduction

The Lepidopterists' Society of Africa is an organization dedicated to the study and conservation of butterflies and moths in Africa.

The society has identified the distribution, conservation and monitoring of *Erikssonia acraeina*, a butterfly known from only one locality in South Africa, as one of its priorities. No specimens have been seen for several years: This is a major concern and underlines the critically endangered status of this species in South Africa.

Background

Eriksson's copper butterfly (*Erikssonia acraeina*) is a rare and localized species. It was discovered, in small numbers, in Ovamboland, by the hunter/explorer Eriksson over a hundred years ago. For many years there were no further records, until Cottrell found it in mid-December 1955 in *Brachystegia* country in Barotseland, near Mongu in Zambia.

In December 1980, Dave and Esme Edge discovered the only known colony of *Erikssonia acraeina* in South Africa, in the Waterberg, north-west of Nylstroom (Pringle *et al*., 1994).

For several succeeding years the butterfly was found in reasonable numbers at this locality. Its recent disappearance seems to have coincided with changes in the habitat.

Description of the butterfly

The butterfly has a bright orange ground-colour, with black markings (refer to photographs A and B). The known flight period is from December to February, although not continuously throughout this time. Males select a small area where they remain for long periods, occasionally flying up to drive off intruders: Generally, the butterflies fly slowly amongst the trees, which provide a shady canopy. They rest, with folded wings, on grass stems or low bushes. Females lay eggs singly at the base of the foodplant (*Gnidia kraussiana*), on the ground amongst coarse sand particles. The larvae are attended by *Lepisiota* ants, which feed fairly frequently at their honey glands. During the day the larvae shelter in the nest of the ant, coming out at night

to feed on the leaves of the foodplant. The life-history of this species was studied by S.F. and G.A. Henning and R.J. Mijburgh and described by S.F.Henning (1984).

Photo A *Erikssonia acraeina* (upperside)

Photo B *Erikssonia acraeina* (underside)

The locality is situated on the farm Hoodii, about 5km north of the village of Rankin's Pass in the Waterberg: A large boulder of quartzite/sandstone, marks the centre of the locality (S 24º 27.549', E 027º 50.571', altitude 1595m). The colony extends over an area of about one hectare, at the base of a north-facing rocky hill (refer to photograph C).

According to De Wet (1995) the habitat consists of Acocks' Veldtype 20 (Sour Bushveld): *Burkea africana* / *Ochna pulchra* trees are dotted over open savanna, in deep reddish sand with a west-facing slope of 3 degrees.

A dense cover of moribund grass has developed due to the absence of game and livestock, which have been excluded from the area due to the presence of the toxic plant, gifblaar (*Dichapetalum cymosum*). In addition, no large-scale winter grass-fires have been recorded for several years.

Approximately 25 years ago the locality was sparsely covered by tufts of grass, growing in open, sandy whitish-grey soil (see Photo D).

Photo C A large single rock marks the centre of the locality

Photo D Open sandy areas with sparse tufts of grass

A review of previous conservation measures

For several years after the butterfly's discovery in 1980, collectors visited the locality to take specimens for their collections. Collectors were urged to collect sparingly from this very localized colony, and not to interfere in any way with the host-ant of the species.

No significant variation in the strength of the population was recorded until the mid-eighties: As far as can be established, no grass-fires were recorded in the study area between 1984 and 1989, allowing a large build-up of moribund material and a corresponding decrease in butterfly numbers.

In 1989, when fires were re-introduced on a biennial cycle, significant increases in butterfly numbers were again reported (S.F. & G. A. Henning, 1989). A similar increase was also noted in the number of ant colonies, probably as a result of the ants preferring a more open type of habitat (Samways, 1983). The butterfly would also appear to require a less dense vegetation cover, to enable females to lay their eggs on the soil close to the ants' nests.

De Wet made an apparently unsuccessful attempt, in 1990, to introduce the butterfly into a suitable locality nearby. Details of this programme do not appear to have been published.

Recently, a Pretoria University student, under the mentorship of Prof Clark Scholtz, initiated a thesis on *Erikssonia acraeina*: This research project appears to have been abandoned because no signs of the butterfly were found.

The species is listed as vulnerable (IUCN Threatened Status Category), in the South African Red Data Book by S.F. & G.A. Henning (1989). The authors recommended positive conservation measures be implemented to improve the viability of the species.

Field trips to Tlodili this season

Members of the Society made three visits to the locality this summer (19 December 2004, 05 January 2005 and 16 January 2005). Although inclement weather hindered the first and third visits, the general findings from each excursion were similar: No butterflies were observed and virtually no fresh foodplant could be found. On 05 January the weather was ideal for the butterfly to be active: A hot sunny day with temperatures reaching 32^0C and a gentle southerly breeze. A detailed search was undertaken between 10:00 and 13:30, without success.

A local farmer, Mr Jan Trichardt, reported that a grass-fire had started on 26 December 2004 (the result of a lightning strike) and had burnt an area of 1-2 hectares, situated about 200m to the SE of the colony centre: The fire had been put out quickly and had not affected the locality. Young shoots of burnt *Gnidia kraussiana* plants were observed within this patch: We will specifically target this area when we search for *Erikssonia acraeina* next summer (2005).

Numerous tagged metal stakes, which previously marked positions of individual foodplants, have been provided. These are difficult to see, due to the dense grass cover, and pose a risk to anyone walking through the area (Refer to Photos E and F).

Photo E Thick lush grass and many tree saplings cover the area

Photo F Grass covering tagged metal stakes, which previously marked individual food plants

Recommendations

We have identified four actions that could be taken:

a) Continue to search the known locality, at Tlodili, for signs of the butterfly.
b) Attempt to find additional localities: We have acquired details of landowners in the area, with whom we will liaise with a view to accessing and searching potential new localities.
c) Ensure proper management of the butterfly's habitat: Grass-burning at the locality has been less than optimal over the years, and is probably the reason for the butterfly's apparent disappearance. Much of the larval foodplant (*Gnidia kraussiana*) observed over the last two years has been moribund. We propose that the Society organizes a controlled burn of the grassland in the general vicinity of the *Erikssonia acraeina* locality this winter and at the same time, remove the metal stakes. We have contacted Limpopo Conservation authorities in this regard.
d) Attempt to reintroduce the butterfly to the Waterberg. The Marakele National Park is a formal conservation area in close proximity to this colony, which is managed in a scientific way. If suitable habitat can be found, butterflies could be introduced and the results monitored.

Conclusions

We believe that the apparent disappearance of the butterfly is entirely attributable to changes in the nature of the habitat. While it is possible that the population may be extinct, we would like to re-establish proper management of the habitat, in order to reduce grass cover and encourage healthy growth of the foodplant and an increase in host-ant activity. We consider that natural re-colonization is still possible, given a protracted period of optimal environmental conditions.

It is possible the species may occur elsewhere in the general area: We will initiate a programme of identifying and searching potential new localities.

An attempt to introduce the butterfly to other similar localities will be investigated.

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Jeremy Dobson and Owen Garvie
For The Lepidopterists' Society of Africa
April, 2005

Recent visits to Mariepskop and Zululand

Jeremy Dobson

The Gauteng branch of Lepsoc ("The Gauteng Butterfly and Moth Club") visited Mariepskop over the weekend of 5th - 6th of March this year. The group consisted of Dave McDermott; Owen and Wendy Garvie; John and Barbara Joannou and their daughter Kate; Raimund Schutte; JP Niehaus, friends and family; Bennie Coetzer and myself (my son, Christopher, had to pull out due to school sport commitments).

The long-range weather forecast for the weekend didn't look too promising, however, the outlook gradually improved nearer the time and we eventually had close to perfect weather. The main group departed on the Friday afternoon – I joined them on Saturday morning (a victim of work deadlines). We stayed at the military barracks near the top of the mountain – an arrangement made possible as a result of Richard Stephen's contacts.

I received an anxious phone call from Dave on the Friday evening, requesting that I bring more beer: The pub at the Mariepskop base was closed (though Dave had persuaded the authorities to reverse this state of affairs the following evening). In any case, I have to say there did not appear to be a major shortage of alcohol when I arrived on the Saturday morning!

Mariepskop! This was my first visit and, initially at least, there did not seem to be much flying. *Calleagris krooni* were out in abundance and I saw a couple of *Zenonia zeno*, but not much else. The mountain is beautiful, however, and the view from the top, where forest gives way to fynbos, spectacular.

I eventually found the others lower down in the forest, where they were having some success with the traps: *Charaxes marieps* were flying, although fairly scarce, and showing an unfortunate tendency to only visit JP's traps. *C. candiope* were abundant and *C. drucianus moerens* were also common. A few *C. xiphares draconis* were found as well. Other butterflies on the wing included *Protogonimorpha parhassus, Precis tugela, Paralethe dendrophilus, Papilio echeroides, P. ophidicephalus, Antanartia schaenia* and *Neptis laeta*.

John Joannou had set up a light-trap, although moths were scarce on the Friday night and almost completely absent on the Saturday. Apparently the humidity levels were too low – a state of affairs the rest of us were very happy about.

I've learned several lessons during my relatively short association with Lepsoc: One tip that I can pass on to you, is to keep an eye on what the Garvies are up to. On Saturday evening, when notes were being compared, Wendy showed me several specimens of *Mylothris trimenia* and *Cymothoe alcimeda marieps*, species that I had not seen at all during the day.

The following morning, nursing a severe hangover, I patrolled the Garvies' "spot" (right beside our accommodation) and found *Mylothris trimenia* (a butterfly that I had never seen before) and *Cymothoe alcimeda* flying in fair numbers.

All in all, a thoroughly enjoyable visit – thanks to "Winners" Mashigo (Chief Forester at Mariepskop) and Richard Green (Dept of Water Affairs and Forestry, Nelspruit) for processing our collecting permits and to Sergeant-Major Mike Leek, who is in charge of the military base.

Two weeks after the Mariepskop trip (the Easter weekend), Christopher and I visited Zululand. We stayed in a chalet at Lala Lapa (the "usual" accommodation at Nduma River Lodge was fully booked), which is very close to the forests at Manguzi.

Not much of note was flying at Manguzi on the Friday, other than a few *Euphaedra neophron*, *Euchrysops barkeri* and *Coenyra hebe*, although we did find a solitary *Acraea rabbaiae*. On Saturday we decided to visit the Lebombo Mountains near Ingwavuma. Nothing was hilltopping, so we headed for a forest on the banks of the Pongola River, where we had found *Colotis celimene* a couple of years previously. No *celimene* were found, but plenty of other butterflies, such as *Papilio constantinus, Kedestes macomo, Nepheronia buquetti* and *Hypolycaena caeculus.*

On our way back to Lala Lapa we decided to have a walk at Manguzi, and look for *Melanitis leda* or any crepuscular hesperiids that might be on the wing. We were delighted to find a tree positively dripping with *Terionmima zuluana*. Well over a dozen *zuluana* (and a couple of *Pentila tropicalus*) were flying together, up until about 18h00 in the evening. The butterflies were very conspicuous in the twilight (I suspect this is not a coincidence) and would, conveniently, perch communally on a twig: A well-aimed swipe of the net would catch three or four at a time. We did not observe anything special about the tree, such as the presence of sap or homopterans - the butterflies' behaviour seemed to represent social roosting.

On Sunday, we returned home via Mahkatini Flats (a couple of *Baliochila aslanga* / *lipara* and several *Appias epaphia*) and the hill at Ubombo (nothing!).

On the whole, the abundance and diversity of butterflies in Zululand this Easter was not exceptional: Our *Terriomima zuluana* experience, however, more than made up for this!

Notes on the foodplant of *Iolaus lulua* (Riley, 1944) (Lepidoptera: Lycaenidae)

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Since my early days (in the sixties) of butterfly hunting, or rather the studying of butterflies, because I was never much of a collector, I was haunted by the enigma of *Iolaus lulua* (*Pseudoiolaus poultoni lulua* as it was then known). In the first place I had close contact with the late Ken Pennington and David Swanepoel, who were both enthralled by lulua's secrets. This created a strong urge in me to solve the mystery of its foodplant. After much research, numerous field trips, and distractions by misconceptions, I was able to identify the foodplant with absolute certainty, but I still do not know why it breeds so selectively.

It is very difficult to summarize such a long study in a short article, but I thought of just touching on the main stages, to show how exciting the whole project has been.

I am very lucky in the sense that I have friends who live or have lived in the Hluhluwe area and who know the area and the bio-diversity very well indeed. Since one of them presented me with a female specimen of *I. lulua*, which was practically taken in his garden, I had no special urge to capture the insect, but rather to solve the mystery.

I will now try to briefly outline the stages of my investigation: The first step was to make a study of the relevant literature and personal reports about the locations where lulua was found. After an intensive search in the False Bay area, Swanepoel was of opinion that lulua does not breed on loranthus (mistletoe), like other species of the genus. Swanepoel also told me that a very scarce species that normally flies in Zululand was seen (captured?) between Nelspruit and Witrivier in Mpumalanga. He was very secretive and would not tell me which species it was. At that time I believed it to be *I. diametra natalica*. Now, I think it could have been lulua.

A search conducted by Steve Collins, Clive Quickelberge, and others carried out in the False Bay bush, resulted in finding the early stages of lulua on loranthus. The plant was not flowering at that stage, so it could not be identified with certainty. Because Steve knew that *I. poultoni* was bred on a *Helixanthera* species further up north, he assumed that it must be *H. woodii*, which is the only species of *Helixanthera* found in northern KwaZulu-Natal.

The finding of the early stages of lulua on loranthus was a major breakthrough in solving the mystery. Steve could not collect enough of the foodplant

to rear all of the 15 specimens to the end, and was disappointed that they did not want to feed on *Helixanthera* back in Kenya. He succeeded in eventually getting five imagos.

After this my research really caught fire. After several thorough searches in the False Bay area, it became clear to me that *H. woodii* does not grow there and can therefore not be the foodplant. The fact that the larvae did not want to take to *Helixanthera*, confirmed it.

Clive Quickelberge provided me with a photograph of the larva of lulua, which clealy showed that the leaf of the loranthus in question, has three veins. According to Vol. 10, part 1 of Flora of Southern Africa p1:24, the most probable species having such leaves would be *Oncocalyx bolusii*. (See No 3 in FIG. 1, APPENDIX A.)

I actually located several plants of this loranthus in the False Bay Park, but I searched in vain for the early stages of lulua. Other *Iolaus* species such as *I. sidus* was commonly found on it, as well as on other species of Loranthacae.

I had several valuable and extensive talks with Colin Congdon who bred a lot of *I. poultoni*, and he gave me the following vital information:

- *I. poultoni* is mainly found on *Tapinanthus* or *Anglerina* species of loranthus.
- They do not like loranthus that grows on the outside of the host plant, but mostly on plants that are situated deeper into the shady parts.
- The plants they breed on are most of the time **host-specific**. This is probably the reason why lulua breeds so selectively.

At this stage I started concentrating more on host plants, and thought that lulua probably breeds on *Tapinanthus gracilis*, which, in Northern KwaZulu-Natal, only grows on another mistletoe, *Viscum verrucosum*. *T. gracilis*, however, does not have a three-veined leaf. Another three-veined loranthus, *Tapinanthus forbesii*, could be ruled out on grounds of its distribution.

The most important breakthrough came when the Kyles found lulua in the Mkuze and Ndumo game reserves, and together with André Coetzer, studied the early stages. Scotty Kyle was able to obtain a colour photograph of the foodplant in full bloom, of which he e-mailed me a copy. He mentioned that this specific plant grew on a creeper. At that stage I was pretty sure that the plant was *Oncocalyx bolusii* although I only had the desciption and the monochrome sketches shown in FIG.1 (APPENDIX A). I became certain of the fact when they told me that they also found *I. aemulus* on the same plant. As *aemulus* was up to this stage only known to breed on *Oncocalyx quinquinervius* (No. 2 in fig. 1, APPENDIX A), which occurs from the Durban to East London area, it was logical to assume that its foodplant at Ndumo would be closely related to *O. quinquenervius*. Although *O. bolusii* occurs in the Hluhluwe area, *I aemulus* was, to my knowledge, never found there. I would very much like to know if this is the case.

A subsequent visit to the National Herbarium in Pretoria last year gave me the opportunity to verify my conclusion with a colour photograph of *O. bolusii* in the great book "*Mistletoes of Africa"*. The similarity with Scotty Kyle's photograph was astounding! Scotty Kyle's photograph appears in FIG 2, APPENDIX B.

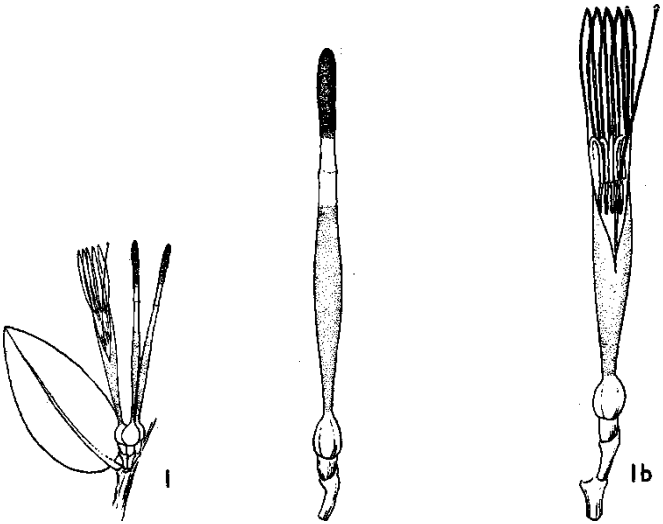
It is well known that in many cases a new locality for a butterfly can be found, based on the fact that its foodplant is growing there. Therefore, my next step was to gather information about the distribution of *O. bolusii* which I did on a visit to the National Herbarium. I obtained the following list of localities in South Africa and Namibia:

- Mrs Smith's farm in Zululand
- Hlabisa District, Dukuduku Forest
- False Bay Park
- At crossing of Mnyeleni spruit, NE of Station, Ntokweni Ranger Station, Transvaal
- Brandberg, Numa's Schlucht N of Schlucht, Namibia
- 16 km from Ingwavuma on new road to Jozini
- On road between Tshongwe and Ubombo
- Half way between Okaukuejo and Grunewald, Outjo Dist. in the Etosha Game Park
- Crocodile Poort on the main road between Nelspruit and Maputo (mountainous vally of the Crocodile River)
- 0.1 km from the gate in the False Bay Park, Hluhluwe
- 7 km Northeast of Steelpoort on tarred road to Burgersfort, Lydenburg District
- Ballitoville, Port Zimbali Dune Forest
- Margin of thicket, Tembe Elephant Park
- Ndumo Game Reserve
- Mtlile Kop, Klokwene Dist., Kruger National Park
- 5 Miles (8 km) fom Penge to Burgersfort
- Hlabisa Dist., False Bay Park
- Guernsy Farm, Klasserie

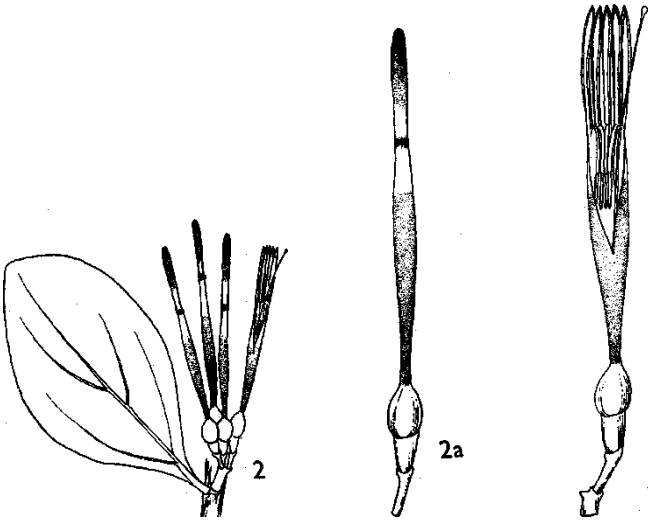
The above list does not include localities in Swaziland and Mozambique of which there surely will be many.

The last stage will be for the energetic and adventurous lepidopterists among us to try and find new localities for *I. lulua*. I enthusiastically await success stories in this regard. I am very much indebted to Scotty and Robert Kyle, Colin Congdon, Clive Quickelberge, Steve Collins, Ivan Bampton, André Coetzer, Izak Coetzer, Wihelm Myer, Coen Coetzer, Hendrik Engelbrecht and all the other friends and lepidopterists for their valuable input and inspiration regarding this project.

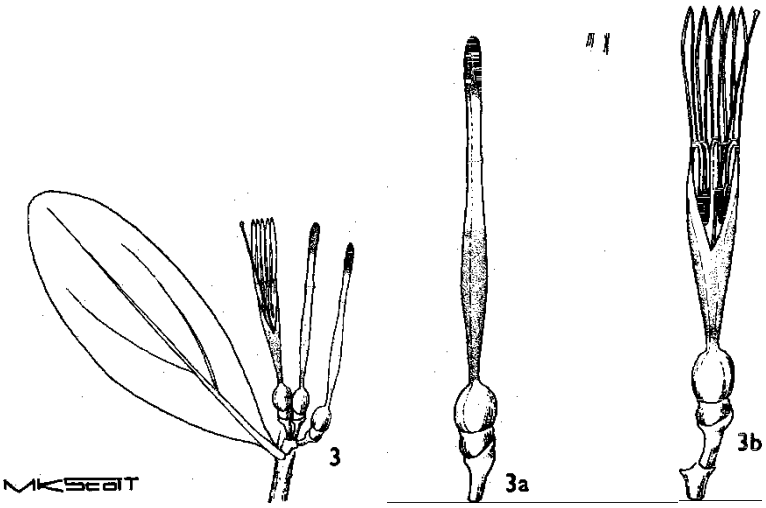
APPENDIX 1
FIG. 1: The *Oncocalyx* group (Loranthaceae)



1: *Oncocalyx rogersii* (left to right: flowering twig, x1; mature bud, x2; flower, x2)



2: *Oncocalyx quinqunervius* (left to right: flowering twig, x1; mature bud, x2; flower, x2)



3: *Oncocalyx bolusiii* (left to right: flowering twig, x1; mature bud, x2; flower, x2)

APPENDIX B

FIG. 2 : THE FOODPLANT

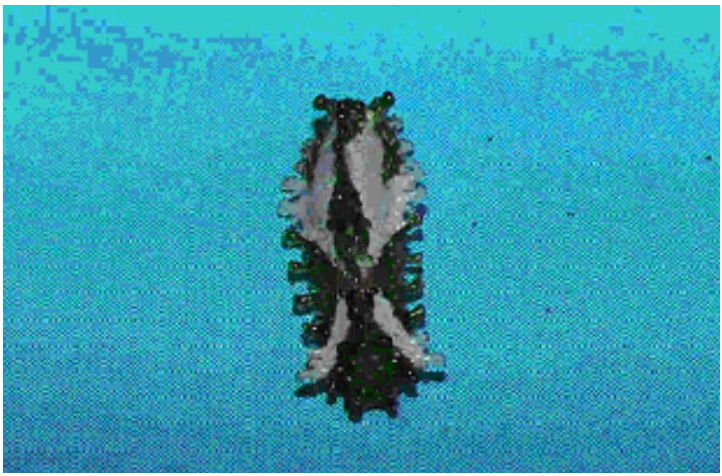


FIG. 3 : THE LARVA

Guarulhos Airport 17 September 2005

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This morning when I woke up in a not so crummy hotel in Porte Alegre, Brazil, I thought that this was going to be a better day. The week had been marred by mishaps, but I had had three already and these things always come in threes….. It was going to be a long day; down to breakfast at 6.00; then airport shuttle bus to the local airport; a leisurely hour strolling around the airport buying small things for the family, which they are going to discard immediately and which will only add to the clutter that compelled us to buy a weekend retreat so that we can escape the clutter every now and then; then embark on the short flight to Sao Paulo's Congohnas airport; sightseeing on this flight would be brilliant, flying over a very beautiful part of Brazil; then take the shuttle bus to Guarulhos International Airport; just in time to check in for a leisurely eight hours flight back to Johannesburg International.

The bus service between Congohnas and Guarulhos airports is very efficient, one travels in a luxury BUSSCAR coach. They really do build nice coaches – pity that the father who started the business was never able to let the reigns go to the next generation until it was too late – the business fell into huge debt after his untimely death and it seems that they will never get out of it. Sao Paulo is one of the mega-cities of this world, probably one of many to come. Congohnas airport is in the middle of the city. The planes queue up to land literally metres from a very busy six lane city street after dodging some highrise apartments. Two nights before I had stayed on the 22nd floor in the Quality Hotel right next to this airport, and boy was I glad it was not a misty night. You get the feeling the plane is going to land right on top of you when driving on this road – I have never been closer to the belly of a plane than here. The route between the two airports takes you first through a highrise part of the city, where you will find the most modern buildings side by side with some derelict survivours from the nineteenth century when Sao Paulo was a clutter city – it still is – only now the seemingly endless tangle of highrise apartments, nice old Portuguese buildings with well aged terracotta roofs and slums worse that what you will find in Alex, puts this 20 million + strong metropolis into an identity crises – the world in one city.

Soon, the major feature of this route is the open sewer system on your left hand side. Every time somebody collects you at the airport he will proudly tell you how hard they are working on their river. Yes, they call this sewer a river. I never remember how many truck loads of gunk have been removed from the "river" in the past few years – but I know it is in the hundreds of thousands. They are also stabilizing the embankments and are gouging the river deeper so that it won't

periodically break its banks and flood the city. The rapids in this river are quite spectacular. Huge balls of foam are produced, which will make any detergent manufacturer proud – in fact it *is* detergent, from all the untreated waste that flows into the river, that causes it. The one thing that I have not heard any Brazilian speak about is any plan aimed at reducing the pollution in their river. The average Brazilian has very little appreciation of the environment and nature in general. He sees the incredible forests, which they have everywhere, as a wasteland that you are best advised to stay out of as far as possible – there are snakes in there you know. They know that they only have about 3% of their Atlantic seaboard forest left – and they know that they should conserve this diversity and they actually do now preserve what is left – but they have absolutely no appreciation of this incredible diversity on their doorstep. There are virtually no paths into the forests anywhere and the ones there are invariably lead you to a waterfall – the Brazilians like waterfalls – so you have to traverse the treacherous forest in order to see the beautiful waterfall. The veritable gardens of bromeliads, orchids and other epiphytes that cover every sizeable tree trunk along the way, fail to attract much attention – neither do any of the myriad papilios, heliconines and metalmarks – incredible isn't it! In all their bookstores you will be hard pressed to find any natural history books apart from the coffee table variety and even these are hard to find. I have been unable to find even one book on Brazilian butterflies.

As you near Guarulhos airport you pass, on the left, a "nature" area with paths to walk on. This is truly an international forest made up mostly of Indian seringa, Australian eucalypts and black wattles, African castor oil plants and European pines. Yet, within sight, on the horizon, there are still many natural forests left on slopes too steep to build on – But, alas, with no paths in them.

Arriving at the airport on the shuttle, I was looking forward to a leisurely couple of hours choosing clutter items before check-in for the flight back home. I had left South Africa on the Wednesday and was looking forward to arriving back home on Sunday morning. I really was exhausted – it had been a tough week. I glanced up at the flight board and was bowled over – the plane had not even left SA yet and was rescheduled to leave Guarulhos at 1h30 am. This meant that I was going to have to spend 13 hours choosing clutter at the airport – what a prospect – I was devastated. Venting my frustrations at SAA ground staff didn't help either. I just had to get out of the terminal building. I like taking long walks outside. I decided that this is the best thing to do under the circumstances and crossed into the car park.

Guarulhos airport was built on a flat plain, which used to be a lovely lowland forest not so long ago. Everything, I thought, must have been destroyed. I was wrong – somebody had left a thin strip of original forest that divided the car park into two. Three roads further cut the forest up into four parts each about 100 meters wide and 500 meters long. I spent the rest of the day in these tiny forest patches. The weather was not good, totally overcast and with a cold 12 degree wind cutting through the

trees, but at least it was not raining. Not surprisingly I did not see any butterflies. The people that saw me in the middle of this 'wasteland' clearly thought that I was completely bonkers, the security guards that periodically approached me were convinced that I was up to no good, but in fact I was slowly coming out of an all-time low.

Each of the four forest patches was unique. One was dark with a very dense canopy of broad- leaved trees. The other was more open with lots of smooth-stemmed trees that reminded me of *Ochna* spp. Another patch was dominated by palms and fine-leaved Albizia-like trees. One thing common to all patches was that it was not easy spotting two trees of the same species from the one spot, the diversity is astounding. I did not see a single bromeliad but orchids, other epiphytes and delicious monsters were common. One tree trunk had hundreds of what appeared to be lasiocampid cocoons on it – the moths had already emerged from these. On another trunk the skin of a cicada was hanging, on another I found a geometrid ennomine moth that looked amazingly just like our *Ectropis spoliataria*. A long line of leaf cutter ants were slowly carrying their fresh cargo from the canopy down to their farms, each having cut exactly the same shape out of a leaf. In the leaf litter I disturbed what must have been at least a dozen small micro moths that looked like gelechids. Many small beetles were at work down there as well. On the fresh shoots of a small shrub were colonies of beautiful leaf hoppers sucking away. These colonies included adults as well as earlier stages. Swifts were patrolling between the forest edge and the parked cars, successfully grabbing any midget that dared leave the forest. The canopy was alive with many birds that I could not see but their songs signaled that here was life – a lot more life that what there was in the car park or in the "Brazif Shopping" inside the terminal building.

When it got dark I made my way back inside. SAA had booked us all into the best restaurant of the airport. I am a new man after spending just these few hours 'in the bush' at the car park. The others on the flight went to the bar and they are getting drunk while I am writing this. I feel sorry for them because getting drunk won't get rid of their frustrations – it will just exacerbate them. I think that those of us who have learnt to be aware of the diversity of life around us are indeed fortunate for having found what others forever seek in vain.

So, next time you are in Guarulhos airport with some time to spare – check out the parking lot.

Zimbabwe revisited – so much to do, so little time

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It had long been a burning ambition of mine to get to grips with *Charaxes gallagheri* and *Mimacraea marshalli*, the former because I had never come across it and the latter because I had ignored it in my youth for probably no other reason than it didn't fall into the "big flashy" category.

Come to think of it, the likes of *Charaxes bohemani*, *C. penricei penricei*, *C. nichetes leoninus* and others that look so impressive in flight probably also blinded my teenage eyes to noticing *C. gallagheri*. Strange how small, dark-looking *Charaxes* have limited appeal when you're in that dreadful 14 to 17 age group.

So it was that on March 19, 2005, some 37 years after I last wielded a net in the *Brachystegia* woodlands of south-western and north-eastern Harare, that I boarded an SAA flight to Zimbabwe for an 8-day collecting expedition with my brother Phil, who lives in a large, comfortable old house on a hectare of ground off the Enterprise Road in the Harare suburb of Highlands.

We wasted little time on the Sunday morning, setting off for the Saffron Walden road about 20 kilometres south-west of Harare just off the main Bulawayo road. There are a number of small kopjes, studded with large granite boulders, very close to the road. Just two weeks earlier Phil found very fresh *C. gallagheri* males dog-fighting with other *Charaxes* species at the summits and had seen and caught some *M. marshalli* in November the previous year.

Ever the optimists, we set up some traps (hoping to entice *C. gallagheri* females) on the lower and mid-slopes before going to the summit. We quickly came across *M. marshalli*, quite a strong colony exists there and every time I returned to this particular kopje, I found specimens feeding from scale insects at exactly the same spot on a thin branch near the top of a large *Julbernadia* tree.

Male *C. gallagheri* were active at the summit, but of females there was no sign. The performance of the traps was, to say the least, pathetic – only a single female *C. brutus natalensis* was enticed. However, I had noticed *Diospyros natalensis* (jackalberry) plants, some small, some very large and long-established with root systems covering granite boulders.

I decided to stake out a likely-looking jackalberry and to see if anything interesting would turn up and, sure enough, a fresh *C. gallagheri* female appeared out of nowhere about 20 minutes later. She laid a few eggs in the centre of the tree and then disappeared just as suddenly as she had arrived. I told Phil and suggested that he examine the tree for advanced stage larvae later in the year.

Determined not to leave empty handed, I moved my stake-out to another jackalberry on the side of the kopje and again played the waiting game. After what seemed an age, I decided to look elsewhere. Suddenly, out of the corner of my eye, I saw something land on the edge of the tree. Sure enough, a female *C. gallagheri*. I netted her and about 20 minutes later took a second, very fresh specimen, at the same place. In the short time we were there, those were the only female specimens seen.

The land upon which the kopjes are situated is unoccupied. The farm houses and outbuildings are deserted and rapidly deteriorating. Yet some three years before, when Phil first went looking for likely collecting spots in the area, he saw large groups of so-called war veterans occupying the farms. They're all gone now, and once highly productive land lies idle in a country struggling to feed its people.

Christon Bank was our second destination the following day. Again this was a huge walk backwards in time for me. I couldn't remember when I had last visited the area but recall cycling there as a 12-year-old in the company of the late Rob Paré, my senior at school, whose enthusiasm and energy resulted in a healthy crop of young collectors emerging from the Marlborough Junior School.

What a marvellous place it is. Although Houghton Kopje is somewhat under pressure from a number of homes built around it, large tracts of the bush in the general area and near the botanical garden remain unspoiled; the Lepidoptera yield is bountiful.

Here I saw up to seven glorious male *C. bohemani* at a time, dog-fighting and protecting territories in a very small area of woodland; females occasionally putting in an appearance and looking like flying soup plates painted in brilliant blue, black and white. What a stunning sight.

Then there were lovely freshly emerged *Hyalites induna* flying leisurely about the grassy ridges, accompanied by numbers of *Precis antilope* and *cuama* both wet and dry season forms, the latter being stunningly fresh and the former mostly becoming a little worn. That "Prince" of the *Precis* genus, *actia*, was also flying. Much scarcer but enough of them to lift a weary collector's spirits, especially the very freshly emerged dry season form. The wet season f. *furcata* was about but invariably very worn – such a pity.

A single male *C. gallagheri* was caught on one of the hilltops as well as several males and females of *C. chittyi*. Phil caught a male *Fresna nyassae* and I was pleased to net a number of *Anthene lunulata*.

Then it was off to the Vumba Mountains for four days, accompanied by Phil's wife, Jane and my mother, Isolde. What a disappointment it turned out to be butterfly-wise. We stayed near Leopard Rock at the Syzygium Cottage (nice name but not a *C. druceanus* to be seen!). The private land upon which this and two other cottages are situated has a large chunk of thick, pristine-looking high altitude forest and we thought we were in for a great time.

More like frustration, unfortunately. The forest was very thick and irritating clouds would sit and for long periods keep the sun out of a large clearing in which

we saw a female *C. alpinus* that sat just out of reach of our single extension (difficult taking extension net poles on an aircraft), as well as *Cymothoe vumbui* and *alcimeda rhodesiae*, *Hyalites vumbui* and *Neptis swynnertoni*, among others. When the sun departed, so did the butterflies. It was an awkward spot to collect in because of the narrow path and steep slope, leading to much irritation. Traps in the area yielded nothing.

While the sun was obscured, I spent much of the time examining many fine specimens of *Rawsonia lucida* (Forest peach) for eggs or larvae of *C. vumbui* but to no avail. Generally butterflies were about in small numbers and many were worn. It was most disappointing but perhaps a reflection of the ongoing drought.

The next day we felt we would do better down in the Burma Valley, where the sun was shining brightly. We decided to go to the river line on the farm that originally belonged to the Cruger family, where in the late 1960s we had found great collecting. The path next to the river, if you follow it all the way up the escarpment, emerges near Leopard Rock.

What a shock we were in for. The thick forest along the river where we had years ago found treasures such as *Salamis cacta eileenae, Crenidomimas concordia, Berberia orientis orentis, Euriphene achlys* and others, was but a shadow of its former glory. An explosion of banana plantations has reduced the river forest to a scraggly 5m-wide belt either side of the river. While we found *B. orientis* and *Cyrestis camillus sublineata* (both uncommon) there wasn't much else to crow about. Didn't even see one *C. protoclea azota*, yet in times gone by they were resident on just about every tree. Only decent catch for me was a single male *Ampittia capenas capenas*.

We next visited Laurenceville. It was also most disappointing, except for a good haul of fresh *Baliochila barnesi* and the bright little skippers, *Teniorhinus harona*, which were quite common (the nominate and f. *ruso*). We also saw a pair of *Ornipholidotos peucetia peucetia*, which teased us unmercifully by hovering just under the canopy in a large thorn tree. Every attempt to collect was thwarted by net snagging.

And so, it was back to Harare the next day. Foul weather, as much as time, prevented us from a visit to Cross Kopje, near Mutare. On reflection, we felt that we may have done better by going to the Haroni-Rusitu area near Chimanimani, last visited by us in the 1990s but deforestation has occurred there too so who knows?

Traps hung in Phil's Harare garden at least produced some excellent specimens of *Charaxes macclounii*. When I went out to inspect a trap, I noticed a very fresh *Baliochila* fluttering near the ground. I caught it and it turned out to be *B. lipara*. While packeting the specimen I saw a large female *M. marshalli*. With one hand occupied I took a clumsy swing, missed her and she took off like a rocket across the main road and into the gardens of the Danish Embassy.

The next morning, Phil netted a *M. marshalli* while hanging a trap in the garden and I decided this warranted closer inspection. On both occasions the

butterflies had been seen near a huge Kenyan coffee tree. Looking into the tree, I saw three more specimens, along with another *Baliochila*, sitting on a very thin branch about 3 m up. At eye level was another thin branch with two *M. marshalli*. The attraction was scale insects and I had the pleasure of watching the butterflies stroking them with their antennae while their extended probosci were busy at the base of the insects. So Phil has his own colony of *M. marshalli* not 20 metres from his kitchen door!

Easter Monday and the end of the expedition came all too soon and it was off to Harare Airport. At least a free upgrade to Business Class lifted my spirits a little. I will have to go back because as somebody said, there are places we like to go to and things we like to do…

Letter to the Editor

CHRYSORITIS REVIEW

In a paper on *Chrysoritis* published in *Metamorphosis* (Heath, 2001) I synonymised 15 species of *Chrysoritis* and reduced a further four to subspecific status. In doing so, much debate and some dissent ensued among the lepidopterists in South Africa. Whilst some agreed with these taxonomic changes, there were some who did not. One general objection with which I am obliged to agree, is that there was a lack of illustrative justification for the changes made.

I make no apology for the taxonomic changes but I do apologise for the lack of visual support for these. I believed the numerous plates needed to do so would have been too expensive if a range of intermediate forms, etc., were to be illustrated in sufficient detail.

Mark Williams at one time suggested that the plates could perhaps be published in *Metamorphosis* in black and white and the same illustrations placed on the Society's internet web-site in colour.

I proposed preparing another paper with greater support, both illustrative and textual. This I have done jointly with Ernest Pringle. There were some errors of judgement in my 2001 paper and these will be rectified in the new publication. In re-visiting some of these taxa, we found the status of some taxa rather difficult to determine with the information currently available. We believe that the comparative DNA of these taxa may assist us to make the right decision.

A paper by Rand *et al*. (2000) described the molecular work on some of the taxa in the genus. The data obtained from this work provided limited support for the contention of synonymy within the *Chrysoritis*. Only one gene had been used and with only 19 taxa out of, at least 59, the conclusions were not sufficiently convincing. Furthermore the study did not include taxa which are controversial.

Partly in an attempt to redress the shortcomings of the 2000 paper, the Pierce Laboratory at Harvard has now begun a molecular study of all the taxa (prior to 2001) and using three genes, two mitochondrial and one nuclear.

It would be foolhardy to make any further changes to the taxonomy of this genus without first having reference to the results of the imminent molecular study, so we propose to wait for these results.

Alan Heath, in agreement with Ernest Pringle.

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