

LEPIDOPTERA (BUTTERFLIES AND MOTHS)

P. F. le Roux, with assistance from Lepsoc members

Sources of information

There are about 309 species of butterflies occurring in the area comprising 95 genera, 6 families and 19 subfamilies. All the families from South Africa and most of the subfamilies are present in the Soutpansberg: 17% are rare (but not endangered) and 3% are endemic. Similar statistics probably hold for the moths, of which we expect to catalogue over 2 500 if given the opportunity. This exceptional diversity is most probably due to the diversity of food plants and microhabitats found in the area: we would endeavor to maintain the *status quo*. It is estimated that a total of 70 000 Lepidoptera species exists in the tropical regions of the world, of which 45 000 are known and named. (www.troplep.org — website)

The data assembled for this survey was gleaned from, amongst others, the Aurelian Butterfly collection, Dr. Johan Greyling and Paul Kruger of Pietersburg, having done extensive collecting in the area, Tuba and Retha van der Walt, Steve Woodhall, Graham Henning, John Joannou, Herman Staude, Dr. Bennie and Andre Coetzer, Ernest L. Pringle, Dave McDermott, Ernie Grey, Dr. Martin Kruger (Transvaal Museum) and Dr. Rolf Oberprieler (Canberra, Australia) and other members of Lepsoc of Africa.

The Lepidops Database (Ver 3.04, presently) is used for storing the data, and once a year this data is made available to the Lepsoc for updating the authorities regarding collections and records of Lepidoptera in the Soutpansberg, along with data from other members spread over the total sub region.

Lepidops V3.04 integrates a relational database of photographs plus literature references of Lepidoptera, food plants, habitat and life cycles plus distribution maps of the whole Afrotropical region plus the Cape. It is continuously updated, and observation and collection lists are requested from Lepsoc members visiting the area.

Many of the literature references are out of print, and generally difficult to obtain. Especially in the case of moths, very little is available, as about ten times as many moths occur in the area as the species of butterflies, and only about 10% of the lepidopterist have an interest in the moth species.

As butterflies are mobile, they tend to congregate in areas where the larval food plants commonly occur, and where the average climatic changes fall within norms that the species can tolerate. They can however occur in far-flung places that have nothing to do with their normal haunts. As such, the area defined as the “Soutpansberg” ranges from the southern slopes and the foothills up to and including the Limpopo in the north, and starting roughly at

Vivo in the West up to the Eastern Border of the KNP in the East. This is an area of roughly 12 500 km².

The data available spans at least 70 years, with some of the earlier records available as specimens preserved as part of the David Swanepoel collection in the Transvaal Museum.

Information regarding the collection records is available from the secretary of the Lepsoc of Africa. New specimens can be submitted to the author for identification or verification, within limits.

Reference books (listed at the end of this document) are available through the author, but will not be loaned out under any circumstances. A copy of the printout available from Lepibase is on hand, and copies of the program with data can be ordered from Aurelian Butterflies or directly through Dr. Bennie Coetzer.

Summary statistics

The area surveyed has at least 250 species of 95 genera representing the six main families and 19 sub-families of butterflies. This represents about 29% of the 852 species (Pennington's *Butterflies of South Africa*, 2nd Revised & Updated edition). As many as 309 species and forms are expected to be listed by the time the area is extensively surveyed, and for the moth species, about ten times as many species and forms are to be expected. For the Saturniid moths alone, over 23 species have been recorded, almost 50% of the species known from Namibia, South Africa and Botswana (R. Oberprieler, 1997).

It should be taken into account that most of the around 852 species of butterflies in South Africa belong to the ant-associated *Lycaenidae*, encouraging a localized distribution, with high risk of habitat loss and concomitant extinction. Few of these occur in the surveyed area, making the percentage of non-localized butterflies in the Soutpansberg even more remarkable.

The Soutpansberg is renowned for its high variability in microclimates, and several lepidopterists are of the opinion that some of these niches may harbor some exciting new species. For example, some of the prize species, *Dira swanepoeli* and *Papillio ophidocephalus entabeni*, were discovered only in 1939 by Mr. D.A Swanepoel, after extensive collecting in the Soutpansberg, near Mountain View Hotel. *Dira swanepoeli* is quite large, but flies only for about a month every year, varying its flight period dependent on local weather and rainfall patterns. This made it necessary for the Coetzers to make trips to the area in 5 consecutive years, to known localities, before finally making a successful trip to collect the species near Bluegums Poort. P. F. and P. A. F. le Roux have caught this species as far east as the Thate forest and Mutshindudi

Gorge in Venda, extending the known range of this Soutpansberg endemic by at least 70 km to the east. *Aloeides dryas* and *A. swanepoeli* (also named for Dawid Swanepoel), were discovered in 1968 and 1973, respectively — making them some of the most recent additions to species found in the Soutpansberg as new, undescribed species. *Alaena amazoula* (1976), *Pentilla tropicalis* (1994), are the most recently described or revised species to also fly in the Soutpansberg, although not described from here. A subspecies of *Pentilla tropicalis* f. *fuscipunctatus* was described in 1988 from material collected from the Tshachinga Pothole area.

No endangered butterflies occur in the Soutpansberg area, but several endemics are known: *Dira swanepoeli*, *Charaxes xiphares bavenda*, *C. druceanus entabeni*, *Papilio ophidocephalus entabeni* are only known from this area. All are huge butterflies, making it imperative to start looking at the smaller species to see what unknown species are perhaps hiding amongst the very well known species. A case in mind is the discovery in April, 2003 that the *Charaxes*, which has up to now been carelessly discarded as “*C. xiphares bavenda*” in Mphaphuli when ending up in traps, were apparently the inland form of *Charaxes cithaeron joanae*, known from localities in Zambia around Lusaka. Similarly a breeding population of good numbers of *Charaxes etesipe tavatensis* was known from Mphaphuli and Tshachinga area for many years, but only this season were larvae found and reared to maturity, establishing for sure what the food plants were in this area.

Although it was stated that all species occurring are not threatened (South African Red Data Book - Butterflies, G.A. & S.F. Henning, 1989), several are listed as indeterminate, indicating the need for further study. It is also apparent that, in particular in the Eastern Soutpansberg area, demand for firewood and grazing is leading to wanton destruction of habitat with a steady decline in plant cover in all areas that are within reach of a road. Several studies have indicated that all losses of species of insects have been through habitat destruction. A species such as *Catacroptera cloanthe*, quite commonly caught about 30 years ago, has not been recorded in the Soutpansberg over the past 8 years. These butterflies frequented wetlands in the area. This could be an early sign that the habitat is either changing through global changes, but - more likely - it indicates that *Homo sapiens* is well on his way to making this section of the world uninhabitable to other species, not only butterflies.

Butterflies are ideal indicators of habitat well being, alongside dragonflies. They are some of the earliest species to wax or wane dependent on prevailing conditions. Areas as small as 4 hectares have successfully been set aside as Lepidoptera sanctuaries (Ruimsig, Roodepoort for *Aloeides dentatis dentatis*).

Major studies and publications

The data is at this stage spread out over several individual and institutional Lepidoptera collections. It is the wish of this author to combine the data into a general database that is to be made available over the Internet to interested parties.

The data will also be made available to the GIS system of Nature Conservation to aid in Biodiversity studies, as well as EIA. Distribution and population density maps could then be generated from this database.

Such a database could be used to promote general tourism, but in particular focussing on eco-tourism. It could serve to identify hotspots or alternatively localities lacking in adequate data.

Recommendations for priority studies required to fill any gaps identified

- A comprehensive species list and distribution map for species in the Soutpansberg area should be compiled. It is important to establish the hotspots for particular species, as at this stage a few points in the area are well collected, with the rest of the area being virtually terra nova. The Lepsoc of Africa has proclaimed themselves willing and able to play a leading role in such a survey, which is, however, difficult to plan long-term. Pierre le Roux will co-ordinate visits, data logging, and arrange permits and permission pertaining to areas to be visited.
- Long-range studies encompassing population dynamics, species distribution and relative abundance of species pertaining to rainfall patterns, and long- and short-term increases/declines in populations are to be investigated. In this regard, Prof. John Heppner and Dr. Emmel of the McGuire Center for Lepidoptera Research at the University of Florida have declared themselves willing to contribute, and have offered assistance with students and fund raising. These studies would serve to identify shortcomings in present strategy for conservation, and real versus perceived dangers to species diversity in the Soutpansberg.

“Hot spots” of particular importance to lepidopterists

In general, areas with good vegetation and floral diversity are good areas as candidate butterfly sanctuaries. Few places in South Africa can rival the abundance, both in terms of species and sheer numbers per species, of butterflies and moths found in Mphaphuli Cycad Reserve. Several other small reserves were designated in the previous Venda homeland, without being officially proclaimed. These were all selected on the basis of unique floral elements occurring within their boundaries, and would be highly suited as butterfly sanctuaries. As mentioned, any remnant rainforest is also important to moist habitat species.

It is imperative that areas such as Mphaphuli (originally designated as a cycad reserve), Tshachinga Pothole area, Mutshindudi Gorge, Entabeni Forest and Luonde, Hanglip, Witvlag and any remaining mist-belt forests be retained in as unspoilt condition as possible. Areas in which the dry habitat butterflies occur are well-preserved through the multitude of game farms that maintain realistic stocking densities of herbivores.

What would be of great help to conservation of butterflies, is if specific tourism-oriented activities incorporating butterflies could be encouraged. It was shown in Malaysia and Kenya in particular that people in rural villages could make a viable income by farming with butterflies for the sale of pupae and dried specimens. This is a low-to-zero impact activity, as it encourages the artificial establishment of additional food sources (all indigenous and adapted to local conditions, without need to spray for diseases or irrigate).

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