

EDITORIAL PAGES

Published online: 31 December 2019

DOI: <https://dx.doi.org/10.4314/met.v32i1.17>

EDITORIAL

Volume 32 of *Metamorphosis* published a lesser amount of articles than Volume 31 (16 v. 26), which is not surprising given the easing of the COVID situation, but this was a relief to our hard worked Editorial team. All these articles are accessible on www.metamorphosis.org.za, or via the website of the Lepidopterists' Society of Africa, www.lepsocafrika.org.

Obituary

This year we have paid tribute to Dr. Douglas Kroon, who did so much to encourage LepSoc Africa members to study the entire order of Lepidoptera, and not just concentrate on the super family Papilionoidea (butterflies).

Editorial staff

Our Sub Editor Dr. Silvia Kirkman regrettably had to resign her post early in 2021, principally because of increased family commitments as a result of the COVID pandemic. Fortunately we have been able to find a very capable replacement, Dr. James Lawrence. My latest term as Editor of *Metamorphosis* was to have come to an end during 2021, but I will continue.

Printed version

Mailing to overseas members was difficult and very time consuming. We sent bulk courier packages to distributors in the UK (Chris Dobson), Germany (for Europe – thanks to Michael Ochse), Washington (North America – Richard Greene) and Canberra (Australia – Rolf Oberprieler)

African Journals Online (AJOL)

Acceptance to join AJOL means we are able to obtain DOI numbers, and *Metamorphosis* articles are also posted on their (more visible) website. I was able to participate in an INASP online course and gained considerable ideas and knowledge to improve our journal further. Revised procedures are consequently been drafted for authors and peer reviewers, along with a new overall editorial policy document, being drafted for comment by the LepSoc Africa Council and the Editorial Board.

Editorial Board (EB) – After investigating the norms in the scientific publishing industry it seems we should consider some changes to our EB, principally the following:

- 1) Term of office to be limited to three years, so that we can regularly bring in new ideas
- 2) Replacements will be needed for current EB members and some new ones have been approached and have accepted.
- 3) EB members will not be able to publish in *Metamorphosis* during their term in office, to prevent any conflict of interest.
- 4) EB members will be expected to do at least one peer review per year.

Department of Higher Education and Training – have made a decision on our 2021 application, and unfortunately have again found us unable to meet their standards. We will be following up to obtain more details.

Indexing

We have been invited by Clarivate to apply for indexing with the Web of Science and/or Zoological Record. Initially we will apply to join their ESCI (Emerging Sources Citation Index). which will give us more international exposure and possibility of obtaining an Impact Factor.

Gratitude

In our efforts to keep improving the quality of our articles and other publications, we extend grateful acknowledgement to our team of peer reviewers, who give of their precious time and expertise to improve and perfect manuscripts. *Metamorphosis* would not exist but for the efforts of our authors, who have again supplied a steady volume of high quality manuscripts covering every aspect of the study of lepidopterology, for which we are deeply appreciative.

Finally, I would like to wish all those who have an interest in *Metamorphosis* a prosperous, productive and joyous 2022, and encourage you to send in your contributions for publication to either myself at orachrysops@gmail.com, or James at phorbanta@gmail.com. Our team of editors and reviewers are keen to help you share your work on Afrotropical Lepidoptera with the wider community of lepidopterists.

Yours sincerely



Dave Edge

orachrysops@gmail.com

31st December 2021

CHAIRMAN'S REPORT

In December 2020, I noted that we had experienced an extraordinary year, but was confident that 2021 would see a return to “business as usual”. Well, I certainly got that wrong, although hopefully we are now over the worst of Covid restrictions. The world of African Lepidoptera carries on regardless, although aspects of LepSoc Africa’s activities have probably changed forever.

Let’s review our key constitutional objectives and how we performed last year:

Publications

Our journal, *Metamorphosis*, has experienced another busy year. While the quantity of material is down compared to Vol 31 (2020), it still represents a considerable body of work. Silvia Kirkman – our former Sub Editor – had to relinquish the position to pursue other commitments; fortunately, we have an excellent successor in James Lawrence, who has taken over Silvia’s role and is responsible for production of the Journal. Dave Edge continues his role as Editor.

LepSoc Africa (LSA) were directly responsible for *Butterflies of Botswana and their Natural History*, a book based on manuscripts produced by the late Torben Larsen and compiled by Steve Collins, Jeremy Dobson and Mark Williams. All profits from the sale of this book accrue to the Society. Another significant publication involving our members was *An Illustrated History of Butterflies of the Afrotropical Indian Ocean Islands*, produced by James Lawrence and Mark Williams. This book is essential reading for anyone interested in the unique butterflies of this region. A further publication, *Mylothris* by Haydon Warren-Gash, has undertaken a complete review of this genus with several new descriptions; the latter book was the winner of the Torben Larsen Tankard at the 2021 LSA conference.

Research

LepSoc Africa are engaged in a comprehensive review of a large African butterfly genus - the largest in terms of South African taxa - the *Aloeides* (Russets). While substantial progress has been made this year, publication of our preliminary phylogenetic paper has been postponed, pending the acquisition of further DNA sequences. We are commencing similar programs with *Thestor* (the Skollies) and *Spialia* and related genera (the Sandmen). Marianne Espeland, with assistance from several members of LSA is busy with ongoing research into *Lepidochrysops*, *Orachrysops* and *Euchrysops*.

In 2020 we commenced with the monitoring of butterflies within our National Botanical Gardens. To date we have volunteers regularly visiting Walter Sisulu (Roodepoort), Garden Route (George), Lowveld (Mbombela), Harold Porter (Betty’s Bay) and Kirstenbosch (Cape Town); from 2022 we will include KwaZulu-Natal (Pietermaritzburg) and hope to expand the program to other National Botanical Gardens if possible. In conjunction with the Botanical Garden surveys, the Butterfly Index is tracking trends in butterfly abundance within South Africa; if we are in fact experiencing an insect apocalypse, we are at least recording this to the best of our ability.

We are looking at instituting a partnership between LepiMAP (administered by the Biodiversity Institute) and our own lepidoptera database, Lepibase, but as yet nothing has been resolved. The Caterpillar Rearing Group (CRG) managed by Hermann Staude and supported by a considerable number of assistants, goes from strength to strength; Hermann was the recipient of the Ivan Bampton Teapot at the 2021 LSA Conference

Conservation

Our principal Conservation initiative COREL (Custodians of Rare and Endangered Lepidoptera) has been restructured: In addition to the individual custodians, provincial leaders have been appointed (the branch chairmen) who report to the National Coordinator, Mark Williams. A report for the 2020–2021 season was completed and has been circulated to all interested parties.

There has been little positive news regarding some of our Critically Endangered species, with no sightings of *Orachrysops niobe* or *Erikssonina edgei* for several years. On a brighter note, Andrew Morton recently found a new locality for *Chrysoritis rileyi* near Robertson in the Western Cape. This Endangered butterfly was discovered as a direct result of the SALCA Screening Tool, which had flagged the site as a potential locality for *Aloeides lutescens*. Further good news involved Louise Baldwin finding three new populations of the Critically Endangered *Kedestes barberae bunta* at Strandfontein and Cliff Dorse, a representative of the City of Cape Town, locating a colony of *Kedestes lenis lenis* near Kommetjie.

Our members continue to find and record rare and endangered lepidoptera within Africa, whether as part of COREL or otherwise. A notable finding this season was the discovery, by Peter Ward, of a strong colony of *Lepidochrysops penningtoni*.

While there is some uncertainty regarding the taxonomy of this butterfly, it is distinctly possible that this new finding represents the first time that this species has been seen for over 50-years.

The Endangered Wildlife Trust (EWT) has contacted LepSoc Africa regarding possible assistance with the funding of COREL; we will hold further meetings and engage with EWT in this regard.

Interaction among our members

Our bimonthly newsletter, *African Butterfly News*, endeavours to report on all matters related to African Lepidoptera. The newsletter appears to be increasingly gaining acceptance by our members and there are inevitably plenty of articles regarding trip reports, taxonomic revisions, or butterfly projects. Active provincial WhatsApp groups have been established in the Highveld region (Gauteng, North West Province and Free State), Limpopo and Eastern Cape and there are also lively Zimbabwe and East Africa groups. As a result of Covid there were no branch meetings last year, although we hope to reinstate Butterfly Evenings at Ruimsig in 2022.

In October we hosted our annual Conference which, for the first time, featured a mix of “live” delegates and presenters, combining a similar number of “virtual” attendees. Internet connectivity is the way forward and it enables all our members, wherever they may live, to participate and interact with the Society, without the cost - and uncertainty - of international travel. We will adopt a similar approach for the 2022 Conference and, hopefully, will make this an even bigger and better event than last year.

While the internet may solve our networking needs, it doesn't help you find any butterflies. Our hobby has been severely impacted by Covid and many field trips and expeditions have been canceled as a result.

Administration

Hanna Edge, our Membership Secretary, maintains detailed membership lists and our membership, in terms of numbers, remains at, or near, record levels. Membership Cards are produced for all paid-up members of the Society. We have complied with all statutory corporate governance obligations and, thanks to Peter Ward, Hanna Edge (Bookkeeper) and Graham Henning (Internal audit), have up to date and certified financial statements.

A friendly reminder that annual subscriptions are due on 01 January – LSA Council approved moderate increases to your subscriptions for 2022; you should have already received a notification in this regard.

Other activities

LepSoc Africa are committed to the construction of an African Butterfly Centre, which will house specimens bequeathed by our members. Lepidoptera collections are, in general, not wanted by our national museums and we urgently need to find a secure home for the valuable specimens that they contain. A significant amount of design and planning has already been undertaken and we are currently reviewing several options. We desperately require funding, so if anyone can help, please let us know!

LSA are compiling a single, consolidated list of English names for all African butterflies; almost 6 500 taxa. Considerable progress was made last year, and we hope to have a completed list, ready for comment, by 2025.

To conclude, thanks to you all for your continued support of LepSoc Africa. Our Society has maintained steady growth over the last few years, and we have a current membership list of about of 300; a creditable result in the uncertain times that we find ourselves in. While we are not a large organization, we are an active and important one.



Jeremy Dobson
jchdobson@gmail.com

Chairman – LepSoc Africa

31st December 2021

HONORARY LIFE AND SPONSOR MEMBERS OF LEPSOC AFRICA

Below we list our honorary life members, who have been honoured by the Society for their outstanding contributions to the study and conservation of Lepidoptera.

HONORARY LIFE MEMBERS

Jonathan B. Ball	Stephen G. Henning
Bennie Coetzer	Ernest L. Pringle
Stephen C. Collins	Clive Quickelberge
T. Colin E. Congdon	Hermann S. Staude
David A. Edge	Prof. Emeritus Mark C. Williams
Alan Heath	Stephen E. Woodhall
Graham A. Henning	

SPONSOR MEMBERS

The members below, apart from their significant contributions to the Society as ordinary members, have chosen to be Sponsor Members for 2021, and have through their generosity provided significant financial support, which is much appreciated by the Society. Any member of the Society can volunteer to become a sponsor member on an annual basis by making a contribution of R1 300 (Africa) or R 1 480 (International). Since the Society needs all the financial support it can get to provide services to members and to fund our projects more persons are encouraged to become Sponsor Members in the future.

Ian Bampton	Dr. Duncan MacFadyen
Dr. Julian Bayliss	Dr. Dino Martins
Anthony Cambitzis	Dr. Wolfram Mey
Mike Cleaver (new)	Dr. Jacqueline Miller
Kevin Cockburn	Dr. Michael Ochse
Dr. Jeffrey Crocombe	Dr. Lorenzo Pizzetti
Jeremy C.H. Dobson	Jan Praet
Dr. Stewart Fisher	Dr. Ian Richardson
Stephen Georgiadis	Hanna Roland
Dr. Richard C. Greene	Peter Sharland
Tim Gilbert	Reinier F. Terblanche
David Horne	Peter Ward
Dr. Timm Karisch	Ian Waters
Dietmar Ley	Dr. Christian Widmann
Dr. Michel Libert	

Any sponsor members who wish to contribute a larger amount are of course at liberty to do so, and this would be much appreciated.

DONATIONS TO THE SOCIETY WILL ASSIST BUTTERFLY CONSERVATION

Donations to LepSoc Africa are needed more than ever, since we have now committed ourselves to several conservation programmes and projects:

COREL – Custodians of Rare and Endangered Lepidoptera
CRG – Caterpillar Rearing Group
BED – Butterfly Evolutionary Diversity project
APP – *Aloeides* phylogeny project

These programmes are currently being funded through the Brenton Blue Trust (BBT), a registered Public Benefit Organisation, of which LepSoc Africa was a founder member. SARS has given permission for donations made through the BBT (website www.brentonbluetrust.co.za) for butterfly conservation to be eligible for issuing of section 18A tax certificates. Donors are therefore encouraged to make their donations by accessing our website page www.lepsocafrika.org.za and clicking on the “donate” button, or by making an electronic funds transfer to LepSoc Africa’s or the BBT’s bank accounts, which are given below:

Lepidopterists’ Society of Africa	Nedbank a/c no. 1905032617	Branch code 190541
Brenton Blue Trust	Nedbank a/c no. 2089033681	Branch code 108914

***METAMORPHOSIS* PEER REVIEWERS**

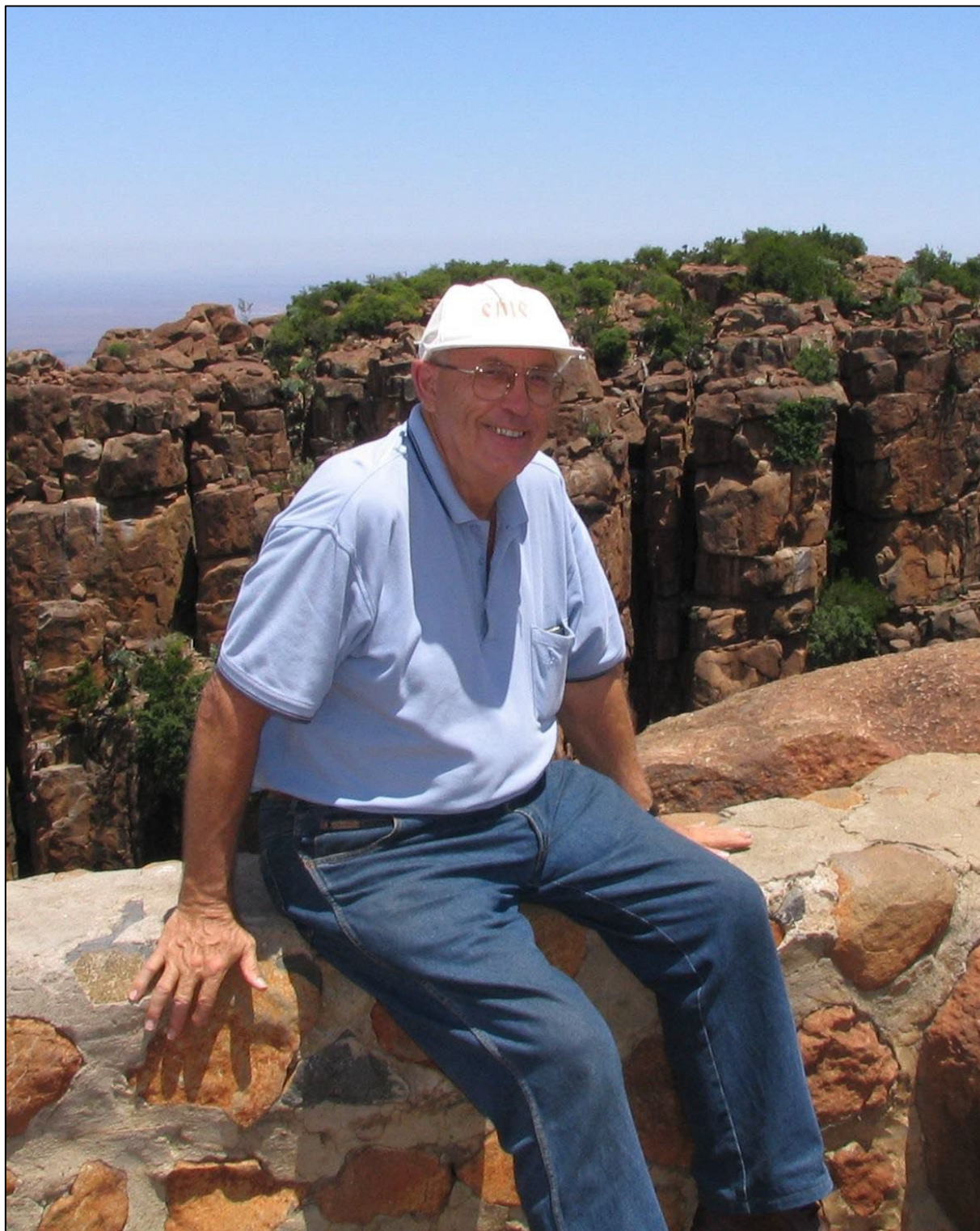
Below we list our peer reviewers for Volume 32, who have given of their expertise and time to assist our authors to produce articles of high quality.

Dr. Thierry Bouyer	Entomologia Africana, Belgium
Stephen C. Collins	African Butterfly Research Institute, Nairobi
Dr. Jonathan F. Colville	University of Cape Town
Dr. David A. Edge	North West University
Dr. Scott Forbes	Uganda Wildlife Authority
Dr. Timm Karisch	Natural History Museum, Dessau-Roßlau, Germany
Dr. Silvia Mecenero	University of Cape Town
Dr. James M. Lawrence	University of South Africa
Dr. David Lees	Natural History Museum, London
Dr. Michel Libert	Lepidopterists' Society of Africa
Dr. Ian Richardson	Lepidopterists' Society of Africa
Dr Szabolcs Sáfián	University of Sopron, Hungary
Dr. Alexander Schintlmeister	Museum Witt, München, Germany
Hermann S. Staude	Lepidopterists' Society of Africa
Dr. Tom Struhsaker	Duke University, Durham, North Carolina
Dr. Richard Vane-Wright	Natural History Museum, London
Prof. Martin Villet	Rhodes University, South Africa
Prof. Emeritus Mark C. Williams	University of Pretoria (retired)

OBITUARY – DR DOUGLAS MERVYN KROON

17th April 1940 – 2nd August 2020

Compiled by David Edge, Hermann Staude and Heather Kappmeier



OBITUARY – DR DOUGLAS MERVYN KROON

Douglas Mervyn Kroon, husband, father, grandfather, brother, retired medical doctor and renowned lepidopterist, passed away suddenly on the 2nd of August 2020, at the age of 80. He will be greatly missed, and this obituary is a record and celebration of his remarkable life.

Education

Doug began school at the tender age of four in Graaff-Reinet. From an early age, he wanted to study medicine, which required Science and Latin as matric subjects. Union High School in Graaff-Reinet did not at that stage teach science as a subject. Consequently, he spent standards 9 & 10 at Kingswood College in Grahamstown, taking these subjects for the first time. He matriculated at the top of his class, despite being the youngest, displaying the first signs of a man with a prodigious intellect. He went on to study medicine at the University of Cape Town (UCT), graduating in 1963 – one of the youngest persons to achieve this.

Medical career

Doug worked as a medical doctor/locum at various hospitals and medical practices, where he gained an extensive range of medical skills. At one stage he held two jobs, including working at Stillfontein Mine Hospital. He moved to Sasolburg in 1966, where he settled and built up an extensive medical practice that was so busy that it had four full time doctors plus support staff. He decided to retire early, but because he was so well known in Sasolburg as a medical doctor, he was requested by Saffropol to join them as an Occupational Health and Safety (OHS) manager and medical specialist. This required him to do further studies and he studied at Witwatersrand University for two years. He then became qualified as an OHS practitioner. He worked for 25 years at Saffropol and serviced all the chemical industries in Sasolburg. He compiled a Health and Safety manual with over 600 different chemicals, their dangers and treatments, occupational exposure limits etc. This was a first in South Africa and a reflection on the calibre and dedication of the man.

Family life and outside interests

Doug met Noelline at UCT when they were both studying there, and they became married in December 1963, not long after he graduated. They had three children, Michael, Heather and Cecil. Doug was an excellent father, always extremely supportive of any activities his family wished to participate in, such as studying flora, hiking and even riding ponies in Lesotho. He taught his children the rewards of observing nature closely, including butterflies, moths, caterpillars, other insects and the plants they use as food. This ignited in each of them an appreciation and love for nature and the outdoors.

His other hobbies included squash – he was a superb player in his youth; wildlife photography which he also excelled at, and listening to classical music.

Noelline was Doug's soul mate and they shared so much

Doug and Noelline's marriage was founded on much love and mutual respect. Their commitment and support towards each other was evident in everything they participated in – be it work, home or interests and hobbies. Having common interests definitely strengthened their bond. Noelline's botanical knowledge added great value especially when it came to hatching and feeding larvae and finding food plants! His 1999 publication on the host plants and other associations of southern Africa Lepidoptera was appropriately dedicated to Noelline.

After their sons Mike and Cecil emigrated to Australia, Doug and Noelline went to visit them as often as possible, including in 1996, when they stopped over in Hong Kong on the way back, to visit his friend James Young and of course the famed Botanical & Zoological Gardens. For both Noelline & Doug a single day's visit would never



Doug happily collecting with Noelline and the children (c. 1970)



Doug and Noelline's 30th wedding anniversary (1993)

have been enough and they were overwhelmed with the beauty and fascination of the exhibits.

Heather fondly remembers her father

Dad used every moment to add value to a day and to the lives of those around him. From my earliest childhood memories family time was a high priority – be it a traditional Sunday lunch, taking the dogs for a swim in the river, a collecting (family) holiday in yet another new/remote region or just accompanying him in the car doing his house calls – his time was always fully utilised. The family were all drawn somehow or other to participate in most activities around the house: from the making of butterfly cabinets, pitching tents and moth sheets on collecting trips, folding triangles for specimens, searching for bagworms to helping with daily chores, feeding worms being bred, photography, sport and various other recreational activities – the list is endless. Although often working alone (by choice), he was a committed family man and especially supportive of my mother and her interests (botany) and hobbies (weaving, the natural path) – who would ever have imagined that 2 people could complement each other so perfectly? Never would I either have imagined it possible to learn so much in such subtle ways from someone who never thought of themselves as a teacher. Dad created opportunities to share whatever he could with us children in every possible way. Strict at times yet never selfish, he patiently guided and shaped us and gave us the support, freedom and confidence to be who we've become today. Dad's favourite quiet spot was sitting at the window and many fond memories can be recalled there. In his own quiet way, absorbing the view – noticing every minute detail, reading, thinking or perhaps even day-dreaming - his quiet space yet he always seemed to have time - time to share, time to listen and time to offer advice. We miss you Dad!

Cecil remembers his Dad as a role model

Dad will be remembered for many great things but the most important to me has been his balanced steely sense of determination depicted in the adventures we had in my early childhood leading us into the wilds of South Africa, Namibia, Zimbabwe and Mozambique following his own passions while nurturing others. I remember him as a **father of values**, living his life for his passions – Family, Medicine, Friends, Sciences and Arts succeeding at all and meaningfully influencing others to the full extent of role model and mentor. I am truly blessed to be able to say “He was my Dad”.

His brother Geoff has many happy memories of times spent at Paardekraal

There was a substantial age gap between Douglas and myself as his youngest brother Geoff. In some ways maybe Doug took advantage of this and persuaded me to collect moths for him in various remote locations my career took me to. For example, at Bagani in the Western Caprivi, I was setting up moth traps by night, collecting, and then shipping the captures back to South Africa. Doug would always enthuse and mention that a new species or two had been discovered, and this kept me inspired. Some years later I bought some wilderness in the Camdeboo mountains near Graaff-Reinet. Being of Graaff-Reinet origins himself this really piqued Doug's interest and it was not long before Doug and Noelline made their first visit to the Paardekraal/Onbedacht farms. During those early 2000's Doug and Noelline enjoyed some extended periods there, him collecting moths and Noelline waxing lyrical about the red romans and beautiful fauna. The mention of new species arose often so we must presume that Doug was in his element. Reflecting back now, those were the sunset years for Doug's collecting since after the passing of Noelline, he seemed to hang up his light traps, nets and collecting boots. He regularly retreated to the farm where we would reminisce, over a glass of wine or two (his favorite being merlot) and he spent much time pointing out various moths and other insects under the verandah lights to the uneducated like me! And so it was that year after year that he would return to Paardekraal, and I like to think that some of his happiest memories were there.

Retirement

After retiring from Safripol, and after Noelline had very sadly passed away, Doug spent his later years at the family's plot on the Vaal River. He continued to edit scientific journal articles and help others by giving advice on how to collect and catalogue moths and butterflies. He was involved in social clubs, such as The Lions for many years, later Rotary and listening to classical music with his friends.

At age 77, Doug married again and spent his last years happy and fulfilled, traveling overseas and touring around South Africa with his second wife Dr Jenny Pretorius. She says they just enjoyed talking and sharing their interests. For example Doug encouraged her interest in classical music, and they listened to many composers, some new to her. Doug also shared



Doug at his beloved plot near the Vaal River

his knowledge and expertise on many things, while at the same time he was keen to learn about Jenny's fields of expertise and all the countries she had visited. Their relationship was very close and happy up until his unexpected passing at home, in her arms, on the 2nd August 2020 at the age of 80.

Doug is dearly missed by Jenny, his daughter Heather and Andreas Kappmeier and their children Erich and Liezel, who shared the property on the Vaal, as well as by his two sons Mike and Cecil and his grandchildren Chleoni, Sam and Alex, (who all now live in Australia), and his younger brother Geoff.

Requiescat in pace

May he rest in peace



2018 Family reunion Back row: Emiko Kroon (Cecil's wife), Liezel Kappmeier (granddaughter), Cecil Kroon (youngest son), Heather Kappmeier (daughter), Erich Kappmeier (grandson), Mike Kroon (oldest son) and Andreas Kappmeier. Front row: Doug and Chleoni Kroon (granddaughter)

Lepidoptera – an abiding passion

As described above, Doug began to take an interest in butterflies and moths (Lepidoptera) from an early age, and this continued throughout his life. His travels took him all over southern Africa, at places such as Umduoni Park, Magoebaskloof, the (then) Rhodesias and (then) Beira in Mozambique. He obtained permits to enter forests and nature reserves throughout South Africa to collect specimens for study. Collecting for other collectors (be it beetles, dragonflies or even frogs) soon led to the formation of many friendships around South Africa and the world. Nothing was too much effort for Doug and he willingly helped any collectors in whichever way he could. His ability to show interest in and share with others impacted hugely in his life. On numerous occasions he was rewarded with invitations to visit areas which he otherwise would only have dreamt of.

He became world renowned for his work on butterflies and moths and authored four scientific books as well as many technical papers. He was a member of the Royal Society of South Africa and is a life member of the Museums Association of South Africa. He was also an excellent peer reviewer and was requested by numerous authors and scientific journal editors to peer review their work for accuracy, write forewords or to make technical contributions in the field of Lepidoptera. He continued to assist others around the world in the study of Lepidoptera and edited many scientific works throughout the years, even to the day he died.

Pennington's Butterflies

In 1978, with his friend Charlie Dickson, Doug compiled and brought to publication Pennington's Butterflies of Southern Africa, which was started by Ken Pennington but was never finished due to his passing away. This book was revised and updated in 1994 by Ernest Pringle, Graham Henning and Jonathan Ball and is still today the standard work on southern African butterflies.

The Transvaal Museum (now Ditsong)

Doug served on the Transvaal Museum board for a very long time and during that period, four different Directors were appointed at the museum. He spent 25 years compiling and refining a scientific book that included all the Lepidoptera species ever found or described from southern Africa. This became the definitive work on the subject and is used as checklist for all Lepidoptera. Before this work, the only available data on the subject was a card index system, housed in the museum. Doug was always very generous and he firstly donated his butterfly collection to the Ditsong Museum of Natural History (formerly Transvaal Museum). This process of collection had taken years to complete. In 2018–2019, he made his second significant donation, that being his vast moth collection of 125,000 specimens, also to the Ditsong National Museum of Natural History. As lepidopterists would know, each specimen in such a collection was individually labelled with exactly where and when it was caught and by whom, digitally catalogued, described in terms of taxonomy and uniquely identified. Years later he gave his disk, containing an electronic checklist of the butterflies and moths of South Africa, to the Director of the Transvaal Museum. Curators of Lepidoptera at the museum were tasked with updating this checklist as new information became available. The latest edition was published in *Metamorphosis* during 2020 by the late Martin Krüger.

The Lepidopterists' Society of Africa

Doug became one of the founder members of the Lepidopterists' Society of Southern Africa in 1983, launched by the first President Mark Williams. He served on the Society's committee from April 1984 until in 1988, when he became the second President of the Society, serving until 1990. He also served for two years (2000 & 2001) as the Editor of the Society's journal *Metamorphosis*, introducing standard formatting and language policies, and generally raising the standard of the articles. His dedication went to the extent that he spent his own money to fund printing, transport to printers on the Rand and for posting the journal. He was later awarded for these contributions with Honorary Life Membership of the Society.

Other awards and recognition of his work

Doug was also inducted as an Honorary Life Member of the Natural History Museum in London, a rare achievement and recognition granted to very few people. This was in gratitude for the many specimens, including holotypes and paratypes that he had donated to the museum.

In 2013, Doug received an award from the University of Cape Town for his notable contribution to a field of study outside of medicine, "for the significant impact of his work on the ecology and taxonomy of moths and butterflies", presented to him by the Vice Chancellor and Principle of UCT.

In addition, he generously donated specimens to taxon specialists, from all over the world, working on the South African fauna. He discovered many species new to science and a genus, 15 species and 2 subspecies were named in his honour (see full list below).

His legacy as a lepidopterist

Doug's passing has left a huge hole in the world of lepidopterology and condolences to his family were received from eleven countries across the world. Douglas Kroon was a giant of an intellectual, a generous loving husband and caring father, who always had a smile, time to chat and share a joke, or a glass of wine. He inspired many others to become as passionate about moths as he was, particularly the late John Joannou and Hermann Staude. Doug's publications were all very significant and challenging ventures in which he displayed enormous vision and preparedness to labour through mountains of data to reach an end product. He will be sorely missed by friends and family, as well as all lepidopterists who had the pleasure of knowing him, and he will live fondly on in all our memories, as the remembrances and tributes received below show.

REMEMBRANCES AND TRIBUTES FROM LEPIDOPTERIST FRIENDS AND COLLEAGUES

Very sorry to hear this sad news. He was indeed a prominent figure in African Lepidoptera. I never met him, but please pass on my sincere condolences if you are in touch with his family.
Anthony Kingston, United Kingdom

That is very sad. A man who added so much is gone. Our condolences go to his loved ones.
Simon Joubert, KZN, SA

So sorry to hear this. I have a species awaiting description for which I plan to use the name *Trichophysetis krooni*, both the known specimens were collected by him.
David Agassiz – NHM London, United Kingdom

Doug was a great help when Julia and I did our book *Bring Butterflies Back to your Garden*. He was extremely generous with both his formidable knowledge and his precious time. That will certainly remain my lasting impression of Doug: a man who was prepared to go the extra mile to advance butterfly literature.
Charles Botha, KZN, SA
My deepest condolences to Kroon's family. He will be missed. May he rest peacefully.
Linda Sogot, Tanzania

Doug Kroon was a giant intellect who contributed enormously to Southern African Lepidoptera, working tirelessly on these matters for many years. Condolences to the Kroon family.
Steve Collins, ABRI, Kenya

I knew him since my earliest days in LepSoc Africa, e.g. at the annual conferences, and also when we gathered at his place on the Vaal River for Xmas braais. Must be 30 or more years ago now. He also visited me a few times in Australia. My condolences to his family.
Rolf Oberprieler, Australia

My sincerest condolences and courage for the Doug Kroon family. Great pity for the world of African lepidoptera and lepidopterists.
Séverin Tchiboza, Benin

My condolences to all his loved ones.
Neville Curle, SA

Sad news when any of the greats has to leave us. Our sympathies to his family and friends. *Malcolm Bain, Mpumalanga, SA*

Thank you for the message and the sad news. Please convey my sincerest sympathy with his family - we had a long history of cooperation and friendship for many, many years. I will remember him as a stalwart of our Society, having the study and welfare of Lepidoptera at heart and in deeds.
Henk Geertsema, Stellenbosch, SA

We will miss him – his friendship, his vast knowledge, and his passion for Lepidoptera!
Mark Williams, Pretoria, SA

Sad news, I fondly remember the first time we met, he took us skiing on the river. At that stage he was passionate about breeding bagworms, a little known lepidopteran group.
Alan Gardiner, Zimbabwe

Doug was an inspirational example to aspirant lepidopterists with his dedication to a precise and scientific approach to his work. I learnt a huge amount from him about the role of editor of *Metamorphosis*, and his guidance is embedded in the way we conduct scientific publication, and continually strive for improvement. Sincerest condolences to the whole Kroon family.
Dave Edge, Knysna, SA

Doug was the guy who taught me how to write books – I owe him a lot.
Steve Woodhall, Durban, SA

Sad news – he was so passionate about his subject.
Kevin Cockburn, Greytown, SA

I did not know him, but his work has certainly enlightened me.
Marion Maclean, Montagu, SA

Jurate and I only met Doug once during a LepSoc Africa conference in Potchefstroom and we immediately liked him.
Willy & Jurate De Prins, Belgium

Sad news indeed. He was the man who got me interested in the Lepidoptera fauna of the Great Karoo Escarpment, and also proposed the area as a new project for me. We had plans to travel together to his brother's farm in the Camdeboo Mts for collecting additional material in 2020 or 2021. One of the Hepialidae species he collected there, *Eudalaca krooni* Mey, 2019, carries his name and keeps the memory of a passionate Microlepidopterist alive. The second volume of the Asante Sana project has been dedicated to the memory of Doug.
Wolfram Mey, Berlin, Germany

I hope Doug's funeral went well and you were left with good memories of him. It has been quite a year for the South African Lepidoptera community with these significant losses. Life is so short.
Pasi Sihvonen, Helsinki, Finland

We first met Doug when we were teenagers. My father Bill would take us to visit Doug in Sasolburg and we were friends from then on. I went on several trips with Doug and I spent a lot of time with him working on Pennington's 1978, where I did all the layouts for the plates and worked on the text. We drifted apart in later years as Doug turned to moths. One of our last encounters was when Doug was donating his butterfly collection to Ditsong Museum. He asked me to come around and help him check all his identifications and to lay out his collection. He was a true gentleman and I have very fond memories of the times we had together. Our sincere condolences to the family.
Graham & Stephen Henning, SA and UK

I was first introduced to Douglas by the late Arthur and Neville Duke and went on a number of collecting expeditions with him in his venerable old 4x4, including Lesotho, the Transvaal bushveld and up rough tracks in the Hogsback and Katberg mountains. In my later years, working as a volunteer in the Lepidoptera department of the (then) Transvaal Museum, my reference bible was his checklist of our Lepidoptera. We were often in contact to determine the identity of Pyralid moths and his advice was always valued and accurate. He regularly stayed overnight with me whenever he travelled to Pretoria. He kept urging me to publish, and to get all our knowledge on record before it was lost. He will be missed for his friendship and his deep interest and knowledge of the world of Lepidoptera and his willingness to share it with others. He was one of our giants!
Richard Stephen, Pretoria, SA

My condolences to Doug's family. His influence in many spheres of life was vast. I remember fondly the braais at his brother's Karoo farm where I spent much time with Doug having a good meal and a few drinks, while we analysed the universe under millions of stars. There were numerous discussions on moths in particular and Lepidoptera in general. His help with *Thestor camdeboo* was much appreciated, as was his introduction to the *Psychidae* as it included a day flying moth, now one of my interests. He also gave me insights into the world of the *Sesiidae* moths. I, amongst so many, will miss Doug.
Alf Curle, Gauteng, SA

My time working with the moths in the Ditsong Museum really made me realise what an incredible contribution Doug had made to the world of Lepidoptera here in South Africa. Trays after trays of specimens in their thousands. Almost too many to comprehend. I first met Doug in his later years and always found him friendly, cheerful and full of enthusiasm, and whenever I delivered a clearwing moth to him that had to go off to Germany he was like a little boy again. My sincerest condolences to the family. Doug I hope you are up there with the moths.
Peter Webb, Pretoria, SA

Vigorous, enthusiastic, determined, practical and knowledgeable – I doubt that anyone who knew Douglas Kroon would dissent from those descriptors. I first encountered him as the vibrant medical doctor who breezed into what was then the Transvaal Museum, where I worked for several years from 1975. I was fortunate to get to know him well, especially during

several Lepidoptera collecting fieldtrips, including to the Soutpansberg, the Tsitsikamma Forest area, Natal, and the Eastern Highlands of Zimbabwe (then Rhodesia). Douglas was at his energetic best on these excursions. That energy was channelled also into building his collection and authoring or editing substantive works – notably Pennington's butterflies and various checklists of southern African Lepidoptera. He used not only his knowledge of Lepidoptera to great effect in executing these substantive works, but also his considerable organizational skills and perseverance. I visited him and his family several times in Sasolburg – a happy and hospitable household. After I returned to the UK, we kept in touch sporadically, and we enjoyed a visit from Douglas and Noelline in London. Noelline's death was a great blow to Douglas, but he carried on and again found happiness with his second wife, Jenny. I was deeply saddened to learn of his death. The loss to the South African lepidopterist community is profound.

Malcolm Scoble, London, UK

We met Doug when we joined the society in 1993 and have great memories of time spent with him. We had informative chats about moths, databases and foodplants at MOTH'er evenings at Jo Joannou's place, and spent many hours at his home in Sasolburg, trying to teach him about modern databases, while he taught us about moths and host plants. Despite his fear of computers, he was the first South African Lepidopterist to database host plants and moths. We are missing his unexpected telephone calls at any hour of the day and his long chats about where we are heading with Lepidops. André will certainly remember Doug's warning about snakes when he began his interest in herpetology – Doug's warning coming after he had just read "I dreamed of Africa". RIP Doug.

Bennie and André Coetzer, Johannesburg, SA

Doug Kroon was an accomplished lepidopterist, becoming President of the Lepidopterists' Society of Southern Africa. Ken Pennington nurtured his love of butterflies. He was extremely energetic, and an expert of first our local butterflies and then our moths. I was privileged in having many meetings with him, both at his home in Sasolburg and then at Nature's Valley. He did some very productive light trapping at the latter site - in the Afro-montane forest there. Doug was enthusiastic, kind, persistent, a wonderful friend and one who wanted to see the 'bigger picture' in lepidopteran taxonomy, and the aut- and syn-ecologies of the butterflies and moths, about which he knew a lot. Both Doug and his wife Noelline were very knowledgeable about our South African plants and their biomes. A 'great tree has fallen', and many of us feel privileged to have known him, and to have become encouraged and enthused by his infectious love of our 'scale-winged' insect fauna.

Jonathan Ball, Cape Town, SA

I first met Doug on becoming editor of *Metamorphosis* in 1995. I made my way to Sasolburg for him to 'have a look at it' before printing, email was not an option in those days. It was awesome to finally meet the great man in person, his reputation preceded him. I was still astounded by all the minute errors he found in what we thought was a perfect edit and so began my regular visits to his place on the Vaal. Doug kindly had a last look at everything I ever submitted for publication thereafter and it was the beginning of a long friendship that sadly ended with his passing in August 2020. In addition to all the things he achieved in his life, as mentioned above, Doug was an active participant in the development of the information part of Lepidops and he photographed many hundreds of pre-identified moth specimens in the then Transvaal Museum. This resource has been an enormous help in being able to identify species in those moth groups that were not particularly in my sphere of interest. He loved rearing moths and together we put out a challenge to everybody in South Africa to rear more species in one year than what the two of us could. The response exceeded our expectations and this challenge culminated in the now successful Caterpillar Rearing Group. Doug, Noelline and I had many interesting discussions around the ecology of moths and their place in ecosystems, with Noelline's perceptions from the botanical side adding great insights. Noelline's passing was really hard for my friend and I only saw the sparkle in his eyes return years later after his wedding with Jenny. Doug and Jenny had a wonderful time together and I saw very little of him as he was always travelling.

May you rest in peace my friend.

Hermann Staude, Magaliesburg, SA

PUBLICATIONS BY DOUGLAS M KROON, 1973–2020

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- DICKSON, C.G.C., & KROON, D. [eds] 1978. *Pennington's butterflies of southern Africa*. Donker, Johannesburg: 1–670.
- KROON, D.M. 1985. A new form of the common pierid butterfly *Colias electo electo* [electo] L. *Entomologist's Record and Journal of Variation* **97(1–2)**: 6.
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- KRÜGER, M. & KROON, D.M. 1992. The main families of southern African Lepidoptera. pp. 20–23. In: Woodhall, S.E. (Ed.) *A practical field guide to butterflies and moths in southern Africa*. The Lepidopterists' Society, 223 pp.



A highlight of Doug's publishing career was the 2002 launch of the checklist of Southern African Lepidoptera in Canberra, Australia

- KROON, D.M. 1999. *Lepidoptera of southern Africa. Host-plants & other associations*. Lepidopterists' Society of Africa. i–xi, 1–160. (This book was dedicated to Noelline)
- VÁRI, L., KROON, D.M. & KRÜGER, M. 2002. Classification and checklist of the species of Lepidoptera recorded in Southern Africa. 385 pp. Privately published by the authors.
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TAXA NAMED IN HONOUR OF DOUGLAS M KROON

According to Martin Krüger's 2020 checklist of the Lepidoptera of Southern Africa (*Metamorphosis* **31(2)**: 1–201), and the book "The Lepidoptera fauna of a crater valley in the Great Escarpment of South Africa: The Asante Sana Project. Editors: Wolfram Mey and Martin Krüger. *Esperiana Memoir* **8**", a genus, 15 species and two subspecies were named in his honour:

Genus

Kroonia Lehman, 2010.

Species

Acalyptis krooni (Scoble, 1980)
Agdistis krooni Kovtunovich & Ustjuzhanin, 2009
Archaeotychia krooni Kallies, 2006
Cicinnoscelis krooni Bartsch, 2013
Entephrolema krooni Krüger, 2019
Eudalaca krooni Mey, 2019*
Eugnosta krooni Aarvik, 2019*
Gorgopis krooni Mey, 2019
Kobelana (Calleagris) krooni (Vári, 1974)
Kogelbergia krooni (Krüger, MS)
Pseudomaenas krooni Krüger, 1999
Psilocerea krooni Krüger, 2007
Scythris krooni Bengtsson, 2014
Taliporea krooni Sobczyk, 2019*
Thiacidas krooni Hacker & Zilli, 2007

Subspecies

Aloeides molomo krooni Tite & Dickson, 1973
Zintha hintza krooni (Dickson, 1973)

* Not in Krüger's 2020 checklist – published in *Esperiana Memoir* **8** – The Asante Sana Project

BOOK REVIEW: ICONOTYPES

Title Iconotypes: A compendium of butterflies and moths. Jones's *Icones Complete*. 668 pp.

Publishers Thames & Hudson Ltd, 181A High Holborn, London WC1V 7QX

ISBN 9780-500-024324 (UK)

Summary This wonderful book is a veritable tour-de-force. It is a marvellous blend of Aurelian history, taxonomy, art, biogeography, and thoughtful articles and anecdotes about the eccentric characters who have contributed to lepidopterology over the last three centuries. It is packed with stories and illustrations which will excite all lovers of Lepidoptera.

Contents

- 1) Foreword Professor Paul Smith, Director of the Oxford University Museum of Natural History 8–9
- 2) Introduction Richard I. Vane-Wright: William Jones (1745-1818) & the birth of the *Icones*. 10–35

This partial biography of William Jones addresses his work as a naturalist after he retired to Chelsea in 1780. It describes how he was welcomed by the scientific community in London, and was elected a Fellow of the Linnaean Society of London in 1791, three years after it was founded. Having become a butterfly collector around 1770, he continued to build his own collection and educate himself about Lepidoptera, whilst beginning to learn and enjoy the techniques of painting butterflies and moths. His earlier subjects were mostly British specimens, but as he acquired exotic material for his own collection and got to know other collections he broadened his scope. He was a self-taught artist and learned his techniques by studying the work of his contemporaries. He began painting the *Icones* around 1783, and it eventually consisted of 1300 illustrations of butterflies and moths in seven original volumes, painted in exquisite detail and close to life size. The *Icones* were not published, but were made accessible to Jones's fellow scientists such as Fabricius, Banks, Drury and many others. The *Icones* were inherited by his cousin John Drewitt, who bequeathed them to his son Frederick Dawtrey Drewitt, who later, being an Oxford alumnus himself, gifted them to the Oxford Museum of Natural History between 1925 and 1933. Several attempts have since been made to publish Jones's masterpiece but it has now become a reality through the combined efforts of Thames & Hudson and the Oxford University Museum of Natural History.

- 3) Icones The crowning glory of this book is the *Icones* themselves, with 576 pages of magnificent paintings. The systematic arrangement reflects the classification of that era. Jones's names on each plate were the best he was able to do from studies of contemporary collections in England, and some are unnamed. A pictorial index is provided at the start of each volume. The text below each painting lists the original name, the source of the specimen from which the painting was done, the collection, the geographic area of occurrence and the modern name. Commentaries on the names and the localities explain how this name was inferred.

Vol I	Equites: Troes & Achivi	Papilionidae	36–129
Vol II	Heliconii: Heliconinae, Acraeinae, and includes <i>Parnassius</i>		140–179
Vol III	Danai: Candidi & Festivi – Pieridae, but also includes many Nymphalidae (<i>Idea</i> , <i>Caligo</i> , <i>Brassolis</i> , <i>Opsiphanes</i> , <i>Euploea</i> , <i>Danaus</i> , <i>Gnophodes</i> , <i>Melanitis</i> , <i>Tirumala</i> , <i>Dynastor</i> , <i>Caerois</i> , <i>Taygetis</i> , <i>Magneuptychia</i> , <i>Calisto</i> , <i>Pareuptychia</i> , <i>Catoblepia</i> , <i>Amiga</i> , <i>Memphis</i> , <i>Bia</i> , <i>Erebia</i> , <i>Proterebia</i> , and <i>Ypthima</i>); Hesperidae (<i>Heliopetes</i> and <i>Pyrrhocalcia</i>), Castiniidae (moths) (<i>Amauta</i> , <i>Ceretes</i> , <i>Telchin</i> , <i>Xanthocastnia</i> , <i>Synpalamides</i> , <i>Prometheus</i> and <i>Geyeria</i>) a riordinid genus (<i>Eurybia</i>) and a lycaenid genus (<i>Oboronia</i>).		182–261
Vol IV	Nymphales: Gemmati & Phalerati – all the standard subfamilies		264–353
Vol V	Nymphales: includes Limenitidinae, Satyrinae and Charaxinae		364–459
Vol VI	Plebeji: includes Lycaenidae and Hesperidae		474–575
Vol VII	Papiliones. This final volume includes paintings that were copied from other paintings and not directly from a specimen.		590–663

- 4) Maps At the end of each volume a map depicts (with many uncertainties and assumptions) where the *Icones* specimens came from (Europe, North & Central America, South America, Asia, Africa and Australasia)

5) Feature articles

Alberto Zilli:	Early study of Lepidoptera	132–139
Alberto Zilli:	A flowering of Lepidopterological activity	264–275

These first two articles trace the fascination with Lepidoptera from Neolithic cave painters through the Chinese

domestication of silk worms, to the Egyptian iconographs, the works of Aristotle in Greece, and to the discovery of light trapping by the Roman writer Columella. It was only post-Renaissance that serious studies of Lepidoptera resumed, leading in the 15th and 16th centuries to the assembly and study of natural history collections, but preservation of delicate specimens such as Lepidoptera was difficult. During the early 17th century methods improved and particularly in the second half of the century the availability of microscopes led to better understanding of anatomy and metamorphosis. The Linnaean revolution in classification and standardisation of names then laid the foundation for modern taxonomy. As the incredible diversity of the world's Lepidoptera became apparent large collections were assembled, nearly all by wealthy amateurs such as Dru Drury, and many of the *Icones* were painted from specimens in his collection. Fabricius then used the *Icones* to describe 231 new species in his *Entomologia Systematica* in 1793, and the *Icones* thus contributed part of the foundations of modern taxonomy and systematics.

Arlene Leis: Collecting in the 18th & 19th centuries 356–363

The author gives an account of the “raison d'être” behind the collection of natural history specimens and how it became an important and lucrative activity of the imperial nations. She pays particular attention to female collectors, mostly from the aristocracy, such as the Duchess of Portland.

Stefanie Jovanovic-Kruspel: Art of painting butterflies 462–473

The painting of natural history subjects straddles the border between art and science, with Ulisse Aldrovandi (1602), Maria Sibylla Merian (1705) and Eleazar Albin (1720) making important contributions to the development of the art form. Taxonomic identification began to rely on illustrations rather than just words. Jones's *Icones* paintings were mainly based on specimens from the collections of Sir Joseph Banks, Dru Drury and John Francillon. He set out to refine Linnaeus's system so that images and specimens became the focus of species comparisons and diagnosis. He studied the theory of colours to get the most accurate and life-like paintings, so that shape, pattern and colour became the epitome of species definition.

Francisco Sánchez-Bayo: The decline of Lepidoptera around the globe 578–589

The general decline of Lepidoptera and indeed all insects around the world is lamented by the author. He attributes this principally to the destruction of habitat to expand agriculture, forestry and mining and urban areas; and latterly to the wide-scale use of pesticides and herbicides which directly kill Lepidoptera or eradicate many of their larval host plants. Climate change is another biologically destructive phenomenon, which results from the exponentially increasing use of fossil fuels and growth of the human population. The losses of insects in the “first world” countries has been alarming as well as tragic to witness, but nowadays no part of the world is immune from the ongoing extinctions.

6) Conclusion Richard I. Vane-Wright: The legacy of William Jones 664–671

- a) The Jones iconotypes have contributed to zoological nomenclature, and from them Fabricius (1793) was able to describe 231 new species, 127 of which are still names in current usage, and the other 104 were later found to be synonyms of already described species.
- b) The *Icones* is a lasting record of the exotic material assembled in London at that time, and will be of great value to trace the original type localities of the taxa illustrated.
- c) Jones also made significant advances on the Linnaean system of classification, which relied only on size, colour and wing shape, Jones being the first to use wing venation for higher level classification.
- d) He also developed a system of common names that popularised the study of Lepidoptera amongst those not comfortable with Latin names.
- e) He studied the ecology of butterflies by creating “bionomic tables” to record and analyse the data.
- f) His collection and his intensive study of British butterflies are a good source for finding out how many butterflies were present at that time on the British Isles.
- g) The *Icones* is most of all a priceless work of art as well as demonstrating the unity of art, science and aesthetics.

7) Appendices Full Listing of Jones's Iconotypes 672–675

This list tabulates all 231 iconotypes with columns “volume/plate (J); epithet (F); page no (F); current status (species, synonym, homonym, form, etc); current name; habitat = geographical origin (F); inferred origin; collection source (J); family; page in this publication”. Note that (J) refers to the *Icones* and (F) to Fabricius (1793).

Reviewer David A. Edge
orachrysops@gmail.com

BOOK REVIEW: ASANTE SANA

- Title** The Lepidoptera fauna of a crater valley in the Great Escarpment of South Africa: The Asante Sana Project.
- Publisher** Hermann H. Hacker, Jahnstraße, 96231, Bad Staffelstein, Germany.
- Journal** *Esperiana* (2019) Memoir 8: 5–550.
- Editors** Wolfram Mey and the late Martin Krüger.
- Summary** This excellent publication is important for all students of Karoo Lepidoptera. It is the first of two books, and covers about half of the lepidopteran families recorded at Asante Sana. 124 new species are described by world renowned experts on Afrotropical Lepidoptera.

Contents

- 1) Foreword: Wolfram Mey 6
- The Asante Sana Project was a research collaboration between the Museum für Naturkunde, Berlin and the Ditsong National Museum of Natural History, Pretoria, and resulted in the first all taxa inventory of Lepidoptera on a local scale in South Africa. All available specialists for the various families were invited or co-opted onto the project, and their scope included specimen preparation, analysis and descriptions. This first publication on the project covers about half of the families and subfamilies encountered, and a second volume will follow in a few years' time. Tribute is paid to the role played by the late Martin Krüger, and the book is dedicated to his memory.
- 2) Introduction: Wolfram Mey & Martin Krüger† 7–24
- The origin of the project is described and preliminary visits to the study area in the eastern Sneeuwberg led to a clear definition of the project's scope. A wider area of study was originally contemplated but it was eventually decided to concentrate on the lepidopteran fauna of the private game farm Asante Sana (12 000 ha). It was also decided that all Lepidoptera would be studied, even taxa that were relatively unstudied and poorly known. The duration of the project was 15 years.
- The study area is described and aspects covered are geomorphology, hydrology, geology, climatic conditions, vegetation and historical land-use. The collection sites and dates are then documented. Materials and methods included automatic light traps, light towers, and 160 W bulbs at night; and use of hand nets during the day. The aim was to maximise the yield rather than to make any ecological or biodiversity generalisations. The processing, deposition and curation of the collected material is briefly outlined, and a summary tabulation of the material collected by family and subfamily presented.
- 3) Vegetation: V. Ralph Clark & Joao D. Vidal 25–38
- The principal author of this chapter conducted extensive botanical exploration at Asante Sana from 2005 to 2017 and recorded 575 plant species (48% of the total known Sneeuwberg flora). 19 local and regional mountain endemics have been recorded at Asante Sana, of which six are endemics new to science. The vegetation comprises four Biomes (Albany Thicket, Grassland, Nama–Karoo and Azonal) with six recognised and six putative new vegetation types. Non-native and invasive species are also covered, with some serious problems being caused by an invasive South American cactus in the lowlands and in the montane areas *Nasselia trichotoma* (serrated tussock grass), which not only threatens biodiversity but also livelihoods where it takes over from palatable native grasses.
- 4) Description of the lepidopteran fauna:
- Each chapter includes an introduction, biology, taxonomy, (material) & methods, (results), species review (treatments), discussion, acknowledgements, tabulations, references (literature) and illustrations. A total of 124 new species are described, and four new genera erected. The colour plates include photos of adult moths and genitalia dissections

Families, subfamilies	Author	Pages
Hepialidae:	Wolfram Mey	39–48
Nepticulidae:	Erik J. van Nieukerken	49–84
Tischeriidae:	Jonas R. Stonis, Arūnas Diskus & Wolfram Mey	85–98

Cecidosiidae, Adelidae:	Wolfram Mey	99–118
Eriocottidae:	Wolfram Mey & Thomas Sobczyk	119–124
Psychidae:	Thomas Sobczyk	125–156
Dryadaulidae, Tineidae:	Wolfram Mey	157–176
Gracillariidae:	Paolo Triberti	177–188
Bucculatricidae:	Wolfram Mey	189–200
Yponomeutidae, Plutellidae:	David Agassiz	201–206
Lyonetiidae, Bedelliidae:	Wolfram Mey	207–212
Elachistidae:	Lauri Kaila	213–216
Coleophoridae:	Giorgio Baldizzone	217–250
Scythrididae:	Bengt Å Bengtsson	251–256
Gelechiidae:	Oleksiy V. Bidzilya	257–294
Carposinidae:	Wolfram Mey	295–298
Crambinae:	Graziano Bassi	299–312
Tortricidae:	Leif Aarvik	313–348
Lacturidae:	Wolfram Mey	349–356
Cossidae, Metarbelidae:	Wolfram Mey	357–364
Geometridae:	Martin Krüger	365–410
Erebidae: Thyritini:	Lukasz Przybylowicz	411–414
Erebidae: Lithosiini:	Martin Krüger	415–428
Erebidae: Nolidae, Noctuidae:	Hermann H. Hacker	429–537

BOOK REVIEW: MYLOTHRIS

Citation Warren-Gash, H. *Mylothris*. A revision of the Afrotropical pierid genus with descriptions of new species. 219 pp., 43 colour plates.

Publisher Hayden Warren-Gash **ISBN** 978-1-5272-7453-2

Printer Biddles Books

Distributor NHBS Ltd (UK), 1-6 The Stables, Ford Road, Totnes, TQ95LE.

Review The genus *Mylothris* Hübner, [1819] (Lepidoptera: Pieridae) was last revised more than 75 years ago by Talbot (*Trans. Roy. Ent. Soc. Lond.*, **94**: 155-186; 1944). This author recognized 23 valid species in the genus. At the time that the current revision was done there were 69 recognized species in the genus, which has now increased to 105.

Preceding this revision the author and three collaborating workers published a paper in 2020 dealing with the systematics and evolutionary history of the genus (*Nota Lepi.* **43**: 1–14). A robust phylogenetic hypothesis, based on the analysis of six gene regions, was presented for the first time. This provided the basis for the classification of the taxa in the revision.

In preparing the revision the author studied the original descriptions of all putative taxa and attempted to trace and examine all type specimens. Large series of specimens were examined, especially those in the extensive holdings in the collection of the African Butterfly Research Institute in Nairobi. The male genitalia of all putative taxa were examined, as well as those of numerous females.

For each taxon the following information is provided: the reference to the original description, the type locality, distribution, diagnosis, a discussion (where appropriate), and the host-plants, where known. All of the taxa are illustrated in 43 excellent colour plates.

The only criticism is a number of minor errors in the text, which could have been avoided by better proof-reading. This criticism in no way detracts from a meticulous, magnificent body of work, for which the author is heartily congratulated. This revision has provided a solid foundation for further studies on the difficult *Mylothris* clade and is an absolutely essential addition to the library of anyone interested in the Afrotropical butterfly fauna.

Reviewer Mark C. Williams
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November, 2021.

BOOK REVIEW: BUTTERFLIES OF BOTSWANA

- Title** Torben Larsen's Butterflies of Botswana and their Natural History
- Citation** Collins, S.C., Dobson, J.C.H. & Williams M.C. 2021. *Torben Larsen's Butterflies of Botswana and their Natural History*. 200 pp. (ISBN 978-0-620-95246-0)
- Authors** Stephen Collins, Jeremy Dobson & Mark Williams
- Publisher** JCD Publishers, South Africa.
- Distributor** Lepidopterists' Society of Africa
www.lepsocafrika.org
- Review** This excellent book was produced from the unpublished manuscript of the late Torben Larsen, that he wrote approximately 30 years ago. At that time, it was thought there wasn't a large enough market for the book to be formally published, and as such the document was not widely available. The only other publications specific to the butterflies of Botswana until now, were three out-of-date obscure checklists compiled by Eliot Pinhey back in the 1970s. These checklists are not widely available to the general public.
- Torben was a well-known expert on African and Middle Eastern butterflies. He published over 400 papers, popular articles and books on butterflies, with most of those focussing on the Afrotropical fauna.
- The natural history of the 289 or so Botswanan butterfly species covered in this book is described in detail. The species dealt with included those have been confirmed as occurring in Botswana, as well as those that could possibly be found in the country. Also, an undescribed species of *Lepidopchrysops* is incorporated.
- Starting with the Introduction, the history of the book's development, as well as a brief biography of Torben Larsen and his works, are outlined. This is followed by the species account section, which makes up the bulk of the books contents. For each species the following information is provided: Species name with author, latest common English name, wingspan, identification characteristics, habits, early stages and distribution. Furthermore, most species are well illustrated with photographs of both dorsal and ventral surfaces, making species identification a simple process. Following the species accounts, a gazetteer of all places referred to in the book are listed, along with a summary of the butterflies found at each locality. This is an extremely nice addition to the book, and as far as I am aware no other book on the African butterflies provides such a detailed and comprehensive gazetteer. A comprehensive and updated Bibliography follows the gazetteer. Finally, the book is completed with a detailed Index.
- All three authors are well-known African butterfly specialists, who have published widely on the African fauna. They have updated Torben's unpublished manuscript to reflect the latest information and taxonomies. The book is beautifully produced and has been printed on high quality A4 size paper. It is available in both hard and softcover. The book is available through the website of the Lepidopterists' Society of Africa (www.lepsoc.org).
- Finally, the book is written in Torben's characteristic first-hand experience style, and makes for easy and informative reading. The authors must be commended for producing this wonderful volume, and as such it is a must have for anyone interested in African butterflies. No doubt, it will stimulate further research on the these fascinating Botswanan insects.
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November, 2021.

BOOK REVIEW: BUTTERFLIES OF THE AFROTROPICAL INDIAN OCEAN ISLANDS

Citation Lawrence, J.M. & Williams M.C. 2021. *An Illustrated History of Butterflies of the Afrotropical Indian Ocean Islands*. 248 pp. Siri Scientific Press, Manchester, U.K.

Publisher Siri Scientific Press <https://siriscientificpress.co.uk> **ISBN** 978-1-8381528-3-3

Distributors Siri Scientific Press, Pemberley Books **Price** c. £ 30

Review I remember paging through Bernard d'Abraera's *Butterflies of the Afrotropical Region* for the first time: my eye would frequently be drawn to some image of an extraordinary butterfly or a species unknown to me. More often than not, when referring to the text, these butterflies were found to be from Madagascar or some other Indian Ocean Island. Wouldn't it be great to have a book dedicated to the butterflies of this region? Well now of course, there is one!

An Illustrated History of Butterflies of the Afrotropical Indian Ocean Islands is the work of James Lawrence and Mark Williams and while it is a relatively small book, it is absolutely packed with wonderful illustrations and interesting information.

The book covers the butterflies of Madagascar, Comoros, Seychelles, Réunion, Mauritius, Rodrigues and Socotra. A total of 391 butterfly species have been recorded from these islands, many of which are endemic. While not all currently described species are covered in detail, most are at least referred to in the text. A unique and compelling feature of the book is the use of hand-painted illustrations, often taken from rare or little-known books. These include several iconotypes, sometimes hundreds of years old.

This book is much more than a field guide – it contains snippets of geological and historical interest, a review of related literature, and numerous illustrations that very few people will have seen before: an absolute must for anyone interested in African butterflies.

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December, 2021.

