

## Further data on the butterfly fauna (Lepidoptera: Papilionoidea) of Mpanga Forest, Uganda, and the role of this forest in biodiversity conservation

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**Abstract:** We present records of further 87 butterfly species to the checklist of Mpanga Forest, Mpigi, Uganda, increasing the number of known species to 401. Over half of all newly recorded butterflies are skippers (Hesperiidae), also, a significant proportion of the new records pertain to species which tend to occur in more open habitats and forest-edges, also swampy areas or wetlands. Our records represent the easternmost occurrences of *Procampa admiratio* (Hesperiidae), *Bicyclus rhacotis* (Nymphalidae), *Pentila alba* and *Iolus schultzei* (Lycaenidae) with significant range extensions. The still increasing number of species further emphasizes the conservation importance of the remaining small fragments of the once extensive Lake Victoria outlier forest, which almost disappeared from shores of the lake between the Kenyan and Tanzanian border. The pressure from the steeply increasing human population and apparent lack of actual protection measures threatens the Mpanga forest ecosystem and its butterfly fauna, despite its educational and unique eco-tourism potential.

**Key words:** Checklist, Lake Victoria forests, forest fragments, distribution.

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### INTRODUCTION

The latest checklist of the butterfly fauna of Mpanga Forest in Eastern Uganda, containing 314 species, was published recently by Baron *et al.* (2017) and incorporated old data from Jackson (1961) and the more recent list of Davenport *et al.* (1996). The authors of the present paper visited Mpanga Forest subsequently and recorded a number of species not listed before. Further butterfly records were also identified from the photos taken by Rogers Muhwezi. The biogeographic and conservation importance of Mpanga is also further emphasized.

### MATERIAL AND METHODS

A large proportion of the new records were collected by Tomasz Pyrcz during a three weeks survey in October 2016. Butterflies were captured with standard entomological nets with extension handle, as well as with van Someren-Rydon traps baited with rotten/fermented banana bait. A transect of 40 traps was set in the forest in various types of habitat including forest edge, forest undergrowth, secondary forest, swampy areas. The traps were set at 1–2 m height. Additionally, 20 modified IKEA FÅNGST type traps were used set in the lower canopy

between 5–10 m height as described in Sáfíán *et al.* (2010), also in Maicher *et al.* (2018).

Specimens were identified in the Nature Education Centre of the Jagiellonian University in Kraków, Poland (CEP-MZUJ) and in the African Butterfly Research Institute, Nairobi, Kenya (ABRI) using their extensive African reference collection and various general literature sources (e.g. Larsen, 1991, 2005; d'Abrera, 2009; Vande weghe, 2010) and a number of more specific ones, cited below at the appropriate places. In search of further butterfly records from Mpanga Forest, the authors also examined various literature sources including the monograph and revisional notes on African skippers by Evans (1937, 1947) and the unpublished manuscript of the proposed book on Afrotropical Hesperiidae by the late Torben B. Larsen. Additional species were identified in Harald Selb's reference collection.

The identities of several taxonomically more difficult, externally similar species were cross-checked by examining their genitalia. Male and female genitalia were dissected by standard procedure, tissue was softened in 10% KOH solution, and female abdomens were stained in chlorazole black. Genitalia photographs were taken using Nikon digital camera DS-Fi1 and Olympus SZX9 stereomicroscope. After examination genitalia dissections are kept in glycerol-filled vials pinned under the corresponding specimens.

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The generic order of the checklist largely follows the work of Williams (2015, 2019). The species order within each genus varies according to the sources available. The subspecific status of a few species is in question, as no reliable source of information was available for clear decision. They are listed without subspecific name.

The following abbreviations are used in the manuscript:  
 DRC – Democratic Republic of Congo  
 LEPSOC – Lepidopterists' Society of Africa,  
 Johannesburg, South Africa  
 NHM – Natural History Museum, UK, London

## RESULTS

### Hesperiidae

#### *Coeliades bixana* Evans, 1940

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the ABRI collection.

#### *Coeliades libeon* (Druce, 1875)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Coeliades forestan forestan* (Stoll, [1782])

Pan-African, ubiquitous species, which was expected to occur in Mpanga Forest.

#### *Abantis contigua* Evans, 1937

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Celaenorrhinus perimitans* Libert, 2014

A single female specimen of this newly described species was recorded from Mpanga, confirming its presence in the Lake Victoria outlier forests.

#### *Scopulifera mulinzii* Libert, 2014

Two males of *Scopulifera* were captured hill-topping in 2016 belonging to the newly described species *S. mulinzii*, based on Libert's (2014) revision. The same species was reported from Mabira Forest recently by Sáfián (2014) under the name *Celaenorrhinus nigropunctata*, and probably all former records from the Lake Victoria outlier forests of the latter species refer to *S. mulinzii*.

#### *Apallaga ovalis ovalis* (Evans, 1937)

A single male of the nominate subspecies was captured in Mpanga Forest examined by Libert (2014).

#### *Bettonula bettoni bettoni* (Butler, 1902)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Eagris subalbida aurivillii* (Neustetter, 1927)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Eagris tigris* Evans, 1937

The nominate subspecies was recorded from Uganda and the DRC, while ssp. *kayonza* is known only from Uganda. The status of the latter is questioned, the taxon is therefore listed here to species level.

#### *Eretis lugens* (Rogenhofer, 1891)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Eretis vaga* Evans, 1937

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Sarangesa haplopa* Swinhoe, 1907

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

#### *Sarangesa brigida atra* Evans, 1937

The presence of this butterfly in Mpanga Forest was overlooked by Baron *et al.* (2017), despite having its type locality as Uganda, Mpanga Forest (Evans, 1937).

#### *Procampta admiratio* Larsen & Rawlins, 2014

Finding this newly described skipper is of great surprise, as the species was known only from the DRC south of the Congo River and western Uganda (Larsen & Rawlins 2014 teste Davenport). The Mpanga records show a significant range extension.

#### *Lepella lepeletier* (Latreille, 1824)

A widely distributed, mostly savannah-dwelling species, which frequents damp habitats such as swamps, floodplains and tall-forb riparian vegetation. Only a couple of specimens were found at the swampy edge of Mpanga Forest in 2016.

#### *Ankola fan* (Holland, 1894)

It is a typical forest-edge species, which is not usually found inside closed canopy forest. A few specimens were recorded from the swampy forest margin in Mpanga in 2016.

#### *Metisella midas midas* (Butler, 1894)

Like the species above, it inhabits forest edges, also tall grass in wet savannah. A couple of specimens were recorded from the swampy forest margin in Mpanga in 2016.

#### *Metisella orientalis orientalis* (Aurivillius, 1925)

Evans (1937) mentions the form *alpha* from Mpanga Forest.

*Metisella medea medea* Evans, 1937

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest with no further reference.

*Prosopalpus styla* Evans, 1937

A widely distributed forest skipper, which is easy to overlook for its small size. A few specimens were found at swampy forest edge in Mpanga.

*Prosopalpus saga* Evans, 1937

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Gorgyra aretina* (Hewitson, 1878)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Gorgyra kalinzu* Evans, 1949

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Gorgyra bibulus* Riley, 1929

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Teniorhinus ignita* (Mabille, 1877)

The presence of the species in Mpanga was mentioned in the monograph of Afrotropical skippers by Evans (1937).

*Ceratrachia semlikensis* Joicey & Talbot, 1921

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Ceratrachia brunnea* Bethune-Baker, 1906

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Rhabdomantis galatia* (Hewitson, 1868)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Semalea pulvina* (Plötz, 1879)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Osmodes adosus* (Mabille, 1889)

Two males and one female of this widespread forest butterfly were found in 2016. The species was previously collected in Entebbe (Larsen, unpublished).

*Osmodes adonia* Evans, 1937

The species was originally described from Entebbe (Evans, 1937). Only two males were found in Mpanga Forest in 2016.

*Andronymus caesar philander* (Hopffer, 1855)

The species is mentioned as recorded in Mpanga in Torben Larsen's unpublished manuscript (NHM). Further specimens were found in 2016.

*Chondrolepis leggei* (Heron, 1909)

De Jong (1986) lists the species from Mpanga Forest. It is a curious record as *C. leggei* is usually found in submontane forests (Larsen, unpublished).

*Mopala orma* (Plötz, 1879)

This widespread but rather rare skipper is usually found deep inside good quality forest with dense undergrowth. It should be crepuscular as even the disturbed specimens do not fly much during the day, definitely not spontaneously. Two specimens of the species were recorded during the most recent visit in September 2016.

*Artitropa reducta* Riley, 1925

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Leona leonora leonora* (Plötz, 1879)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the ABRI collection.

*Fresna nyassae* (Hewitson, 1878)

Larsen (unpublished manuscript) lists various specimens under different names from Mpanga. The majority of specimens are in NHM.

*Fresna netopha* (Hewitson, 1878)

In his unpublished manuscript Torben B. Larsen mentions the species recorded from Mpanga Forest. The specimen is found in the NHM collection.

*Monza? punctata* (Aurivillius, 1910)

There is taxonomic confusion about the subspecific division of this species, and therefore it is listed here at species level with a question mark. Evans (1937) gave the type locality "Mpanga Forest, Toro 4,800 ft" for *M. punctata crola* Evans, 1937, but Larsen (unpublished manuscript) suspects that this name could refer to *M. alberti* (Holland, 1896), which was identified from Mpanga by Baron *et al.* (2017).

*Monza cretacea* (Snellen, 1872)

A widespread and usually common forest edge species, its occurrence in Mpanga is, therefore, not surprising.

*Platylesches fosta* Evans, 1937

The presence of this butterfly in Mpanga Forest was completely overlooked by Baron *et al.* (2017), despite the fact that its type locality is Uganda, Mpanga Forest.

*Platylesches panga* Evans, 1937

As with the previous species, the presence of *P. panga* in Mpanga Forest was overlooked by Baron *et al.* (2017) despite the fact that its type locality is Uganda, Mpanga Forest.

*Platylesches rasta anka* Evans, 1937

As with the two previous species, its presence in Mpanga Forest was overlooked by Baron *et al.* (2017), despite its type locality being Uganda, Mpanga Forest.

*Zenonia zeno* (Trimen, 1864)

In his unpublished manuscript Torben B. Larsen mentions this species recorded from Mpanga Forest. As it is not directly associated with forest habitat, it could have been recorded in the surrounding agricultural land or on secondary grasslands on nearby hills.

*Borbo detecta* (Trimen, 1893)

Three male specimens of this Eastern and Southern African species were found during recent visits. It probably escaped detection on previous visits for inhabiting more open habitats. It was previously recorded in Entebbe.

*Borbo micans* (Holland, 1896)

A widely but patchily distributed skipper, which is always found near swamps, marshes and other wetlands. A few specimens were also recorded at the swampy forest edge of Mpanga.

**Nymphalidae***Amauris hecate hecate* (Butler, 1866)

Mpanga seems to be very rich in Danainae, with almost all Ugandan species recorded. *A. hecate* was added to the list in 2016.

*Telchinia aurivillii aurivillii* (Staudinger, 1896)

This widely distributed forest species is not rare in Mpanga.

*Telchinia encedana* (Pierre, 1976)

This widespread species is not rare near swamps and other wetlands. It was recorded mostly from the swampy forest edge in Mpanga.

*Acraea zetes zetes* (Linnaeus, 1758)

A widespread and common species, which inhabits disturbed habitats, mainly in mesic areas. Its occurrence in Mpanga was expected.

*Acraea neobule neobule* Doubleday, 1847

A Pan-African, ubiquitous species, its occurrence in Mpanga is therefore not surprising.

*Acraea formosa* (Butler, 1874)

This rare species is known mainly from Western Uganda and a few records from near Lake Victoria ([www.acraea.com](http://www.acraea.com)). A single male specimen was recorded in Mpanga in 2016.

*Gnophodes pythia* (Fabricius, 1793), currently a synonym of *G. chelys* (Fabricius, 1793)

According to Baron *et al.* (2017), two species of *Gnophodes* occur in Mpanga Forest, *G. chelys* and *G. betsimena parmeno* Doubleday, 1849. However, a number of new combinations and a new status are proposed for African Melanitini (Pycrz *et al.*, in press). Among other changes, it is shown that the two species are actually confused under the name *G. chelys* and that one species occurring in Mpanga belongs to *G. pythia*, rather than *G. chelys*, which is actually more of a montane species found in Uganda only in areas above 1400–1500 m in the western part of the country.

*Gnophodes harpa* Karsch, 1893, currently a synonym of *G. chelys* (Fabricius, 1793)

This species was considered as a junior synonym of *G. chelys* until the above mentioned revisional paper (Pycrz *et al.*, in press). Based on morphological and molecular data, it was proven specifically distinct and being sympatric with *G. pythia* through most of its distribution area. In Mpanga, as elsewhere, it is much less frequently encountered than its congener.

*Gnophodes parmeno* Doubleday, [1849], currently *G. betsimena parmeno* Doubleday, 1849

In their paper, Pycrz *et al.* (in press) will reinstate *G. parmeno* as a valid species, whereas the name *G. betsimena* is reserved to the taxon occurring only on Madagascar.

*Bicyclus buea* (Strand, 1912)

This common species was accidentally left out of the previous checklist.

*Bicyclus sophrosyne sophrosyne* (Plötz, 1880)

A few specimens were collected in Mpanga in fruit-baited traps.

*Bicyclus mesogena ugandae* (Riley, 1926)

A single male was recorded in Mpanga in 2016, it is more common in the western forests (e.g. Kibale).

*Bicyclus rhacotis* (Hewitson, 1866)

A single female of this Congolian forest species was recorded in Mpanga, a significant range extension along the eastern boundary of its distribution.

*Bicyclus safitza safitza* (Westwood, 1850)

A widespread, ubiquitous species, which prefers savannah and grassland areas, however, it also penetrates forests, usually during dry season.

*Charaxes paphianus subpallida* Joicey & Talbot, 1925

Three males were found in fruit-baited canopy traps in 2016.

*Charaxes virilis lenis* Henning, 1989

Two females were captured in fruit-baited canopy traps in October 2016.

*Charaxes catachrous* van Someren & Jackson, 1952

In Mpanga, this species seems to be rarer than the similar *C. ethocles carpenteri* van Someren & Jackson, 1957, still a few specimens were captured in fruit-baited canopy traps.

*Precis ceryne ceryne* (Boisduval, 1847)

A very widespread species, which occurs only patchily in wetlands in the northern savannah zone of Africa. Numerous specimens were recorded near open swampy areas in Mpanga.

*Neptis morosa* Overlaet, 1955

Savannah species, which can also occur in disturbed habitats in the forest zone. A couple of specimens were collected just outside of the Mpanga Forest in October 2016.

*Neptis puella* Aurivillius, 1894

A few specimens of a small *Neptis*, identified as *N. puella*, were found in Mpanga in October 2016. However, there is much variation within the species and more taxa might be involved under the name *N. puella*.

*Neptis nicomedes* Hewitson, 1874

Three specimens of this easily overlooked small *Neptis* were found in 2016.

*Neptis clareii* Neave, 1904

A few specimens of *N. clareii* were captured in Mpanga Forest, and their identity was confirmed via examination of male genitalia in comparison with Richardson's (2019) genitalia illustration of *N. clareii* from Kakamega Forest, Kenya.

*Neptis* sp. near *clareii*

A male specimen of a *Neptis* was captured in October 2016, which falls nearest to *N. clareii*, but its valvae differ significantly from those of *N. clareii* collected in Mpanga and that illustrated by Richardson (2019) from Kakamega Forest, Kenya. Congdon & Collins (1998) mention that specimens near *N. clareii* collected in Minziro Forest might belong to a different species. These could well be conspecific with the one found in Mpanga but their real identity could be revealed only with further comparative studies within the group, as their genitalia do not seem to match any of the species illustrated in the revision (Richardson, 2019).

*Neptis conspicua* Neave, 1904

Three specimens of *N. conspicua* were tentatively identified from Mpanga, based on consulting the original description (Neave, 1904) and other regional literature (Larsen, 1991). Their identification was confirmed via examination of one male's genitalia in comparison with Richardson's (2019) illustrations.

*Neptis nicoteles* Hewitson, 1874

Two specimens were recorded in Mpanga by Harald Selb.

*Neptis melicerta paralella* Collins & Larsen, 1996

This species was formerly considered to be *Neptis agouale paralella* Collins & Larsen, 1996. Its status was revised by Richardson (2019). Several specimens of this species were recorded in Mpanga by Harald Selb.

*Pseudacraea dolomena elgonensis* Jackson, 1951

Only a single specimen was recorded from Mpanga, the Ugandan subspecies is also known from other fragments of Lake Victoria outlier forests (e.g. Zika).

*Phalanta phalantha aethiopica* (Rothschild & Jordan, 1903)

A widespread and common species, particularly in open habitats. It was recorded only along the forest edges in Mpanga.

*Lachnoptera anticlia* (Hübner, 1819)

A widespread forest species, its presence in Mpanga Forest is not surprising.

## Pieridae

*Mylothris asphodelus* Butler, 1888

A widespread Congolian forest species, which reaches its eastern distribution limits in Mpanga. Several specimens were collected in 2016. The Mpanga population belongs to a new subspecies (Warren-Gash, in press.)

*Mylothris continua continua* Talbot, 1944

A single male specimen of *M. continua* was captured in Mpanga showing a distributional link between the Western Uganda population and its easternmost disjunct occurrence in Kakamega Forest, Western Kenya (Collins, 2008).

*Mylothris schumanni uniformis* Talbot, 1944

Only a couple of specimens of the eastern subspecies of *M. schumanni* were found in Mpanga. It reaches Kakamega Forest in Kenya as the easternmost occurrence of the taxon (Collins, 2008). Warren-Gash (in press) considers this taxon as a separate species.

## Lycaenidae

*Micropentila mpigi* Stempffer & Bennett, 1965

The presence of this delicate butterfly in Mpanga Forest was overlooked by Baron *et al.* (2017), despite its name referring to Mpigi town and its type locality: Mpanga Forest (Stempffer & Bennett, 1965). It is another Lake Victoria forest endemic butterfly, known only from a few localities from Eastern Uganda and North-Western Tanzania (Minziro Forest) (Congdon & Collins, 1998).

*Pentila alba* Dewitz, 1887

The species was mentioned from Kibale Forest in Baron *et al.* (2017). The single specimen recorded by Harald Selb proves a large range extension and indicates that the species could occur also in other Lake Victoria outlier forests.

*Axiocerses harpax ugandana* Clench, 1963

*A. harpax* is an inhabitant of open areas, including wetter types of savannah but also disturbed habitat and farmland in rainforest areas (Larsen, 1991, 2005). The eastern population ssp. *ugandana* is distributed from the Central African Republic to Western Kenya (Kakamega Forest) (www.abdb-africa.org), its presence along the forest edges in Mpanga is therefore not surprising. A few specimens were recorded during the most recent visit.

*Iolaus timon orientius* Hulstaert, 1924

The species appears on the previous list (Baron *et al.*, 2017) as it was recently found in the nearby Mitala Maria Forest, which used to be part of the same Mpigi forest complex. These few remaining forest patches are now completely isolated, with Mpanga being the most intact. The presence of *I. timon orientius* was confirmed by Rogers Muhwezi, who photographed a fresh specimen in 2018.

*Iolaus aequatorialis* Stempffer & Bennett, 1958

Two female specimens were found in the ABRI collection, both were collected by T.H.E. Jackson but his records remained unpublished. However, his specimens (4♂♂ 1♀) from the nearby Mawkota (Mpigi), Uganda have been designated as paratypes by Stempffer & Bennett (1958)

*Iolaus schultzei* Aurivillius, 1905

A male *Iolaus* with strongly deformed forewings was found in the ABRI collection collected in Mpanga Forest. Dissection of the genitalia (particularly the morphology of the aedeagus) confirmed that the specimen is a male *I. schultzei*, which was formerly known only from the type specimen collected in the Adamawa Plateau along the Cameroon/Nigeria border (Larsen, 2005). The record represents the easternmost occurrence of the species with a significant range extension. However, the recently described *Cigaritis stewarti* Bouyer, 2017 first recorded from Wak in the northern edge of the Adamawa Plateau in Cameroon (Bouyer, 2017) was also found recently in Central Uganda near Mubende (Sáfián, pers. obs.), so further butterflies are expected to be found with similar distribution patterns. They should also occur between these localities but butterflies in the northern transition zone of the Congolian rainforest in the DRC and the Central African Republic are very poorly studied. Based on genitalia morphology, *I. schultzei* is closely related to *I. menas* and *I. trimeni*, both savannah and woodland species and *I. schultzei* could also be associated with open habitats, rather than the closed-canopy high forest of Mpanga.

*Iolaus bellina exquisita* (Riley, 1928)

Only a single male specimen was recorded during the most recent visit in Mpanga. It descended from the canopy to rest in the shaded undergrowth.

*Iolaus nasisii* (Riley, 1928)

A single male of this East and Southern African woodland butterfly was captured by Zdenek Fric just outside

Mpanga Forest on a shrubby hilltop next to the Mpigi – Masaka road, during the field trip after the second Afrotropical Lepidoptera Workshop, held in Uganda in October 2016 (see Baron *et al.*, 2017). The record was of debate, since the specimen differed from those examined from Zambia and South Africa. However, the type locality of *I. nasisii* is “Nasisi Hills 20 miles N. of Munias” (misspelt version of Mumias???) in Kenya near Lake Victoria (Riley, 1928) and therefore the Ugandan collection should be considered as original *I. nasisii* and the status of other taxa involved need further clarification.

## DISCUSSION

After the publication of Baron *et al.* (2017) the checklist of butterflies of Mpanga Forest continued to grow at a considerable pace. To the 314 recorded species the authors added another 87 species, which is an increment of almost 30%. It is not very surprising that 47 species, over 50% of all newly recorded species, belong to the family Hesperidae, as skippers are generally overlooked by field researchers due to their similarities. Furthermore, many species are rare or rarely observed due to their microhabitat preferences (they are rather sedentary in the dense undergrowth of forests) or their crepuscular habit. A few skippers, listed in Baron *et al.* (2017) were actually collected at lights during moth trapping (e.g. *Zophopetes cerymica*, *Gretna cylinda*, *Chondrolepis niveicornis*), and the newly found *Mopala orma* is probably also active at dusk. All skipper records from Torben B. Larsen’s unpublished manuscript on Afrotropical skippers from Mpanga Forest were also incorporated, which increased the number of recorded Hesperidae by another 28 species.

A large number of newly recorded species (including also several skippers) were not actually found inside the closed canopy forest of Mpanga but were observed along forest edges or near more open swampy areas that edge the western corner of Mpanga Forest. *Metisella midas*, *Lepella lepeletier* and *Borbo micans* are generally associated with wetlands or damp grassy habitats, *Telchinia encedana* also occurs in more open areas, often near swamps.

Only eight species of the species-rich family Lycaenidae were added to the original checklist, but a few of them represent biogeographically interesting records. *Pentila alba* was known only from the Albertine Rift mid-altitude forests, until the first record from Mpanga, which indicates wider distribution also in the Lake Victoria outlier forests. *Iolaus schultzei* was collected for the first time in Uganda, a significant range extension from its original type locality, Adamawa Plateau, Northern Cameroon.

A special mention is needed for the genus *Euphaedra*. Hecq (2012) described in his last paper a number of new species, or validated some names proposed by previous authors, including several from central Uganda. Those include *E. latifasciata* Talbot, 1929, *E. lacteata* Talbot, 1929, *E. rufobrunnea* Stoneham, 1932, and he described

*E. lequeuxiana* and *E. sufflavus*. They are all considered forms of one extremely polymorphic species, which is common in Mpanga, and therefore all names reinstated by Hecq are omitted from the checklist. It is a matter of further taxonomic discussion, which name would actually be applicable to the *Euphaedra* species in Mpanga, either *E. olivacea* Grünberg, 1908, or one of the names proposed by Talbot or Stoneham.

The checklist of butterflies of Mpanga Forest now contains 401 butterflies. The recorded number of species would probably still continue to grow if more emphasis would be put on specific research on selected groups, such as Aphnaeinae, Theclinae or Liptenini of the Lycaenidae or on the family Hesperidae in general. Mpanga (besides from the much larger Mabira Forest) is one of the last intact fragments of Lake Victoria outlier forests, which harbours a high proportion of Congolian rainforest butterflies and a number of endemic taxa; the forests of Sango Bay actually show a slightly different diversity pattern and species composition (Congdon & Collins, 1998). Recently, quite a few species were newly found in Mpanga, which were originally known from Western Uganda as their easternmost occurrence. This 160–200 km range extension is actually quite significant and of biogeographical importance, because in present times the area between Bugoma or Kibale Forests (mid-altitude forests east of the Albertine Rift) and the Mpigi Forests are separated by a broad belt of savannah land and habitats heavily disturbed by agriculture and other anthropogenic impact. The high proportion of Congolian forest species in Mpanga further supports the theory of a once continuous forest belt not only along the slopes of the mountains of southern Uganda to Lake Tanganyika in Western Tanzania but another, rather loose connection between the eastern Albertine Rift mid-altitude forests and the Lake Victoria outlier forests.

With its proximity to Kampala and Entebbe, and its good accessibility, Mpanga could be developed into an education and conservation centre for butterflies and could also become a stopover for numerous nature tourists on their way to the more frequently visited Ugandan national parks. Baron *et al.* (2017) have already identified the conservation conflicts between local communities and the management of Mpanga Forest and the forest could fulfil its role protecting the butterfly communities, only when habitat degradation caused by the various human activities will cease.

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