BULLETIN DE L'INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE BIOLOGIE, 77: 119-121, 2007
BULLETIN VAN HET KONINKLIJK BELGISCH INSTITUUT VOOR NATUURWETENSCHAPPEN BIOLOGIE, 77: 119-121, 2007

Supplementary notes on the terrestrial molluscs of the Upemba National Park, Katanga, D.R. Congo, a minor biodiversity hotspot in Africa

by A.C. VAN BRUGGEN & J.L. VAN GOETHEM

Abstract

A re-assessment of the malacofauna of the Upemba National Park, incorporating a previously overlooked paper, leads to the conclusion that this area may harbour 27 endemic taxa of a total of 74, *i.e.* about 36.5 % of the observed species.

Key-words: Gastropoda, Pulmonata, faunistics, biogeography, conservation, biodiversity hotspot, Africa, D.R. Congo, Katanga, Upemba National Park.

Résumé

La faune malacologique du Parc National de l'Upemba a été réévaluée en tenant compte d'une publication omise précédemment. Il en ressort que ce parc héberge 74 taxons dont pas moins de 27 sont endémiques, soit 36.5 % des espèces recensées.

Mot-clefs: Gastropoda, Pulmonata, faunistique, biogéographie, conservation, hotspot en biodiversité, Afrique, R.D. Congo, Katanga, Parc National de l'Upemba.

In 2001 VAN BRUGGEN & VAN GOETHEM published a preliminary checklist of the land molluscs of the Upemba National Park (PNU) in south-east Katanga, D.R. Congo, a list based on collections made by Dr. W. ADAM in the years 1948-1949. The authors supposed that only ADAM, VAN BRUGGEN and VAN GOETHEM have worked and published on ADAM's collections and state on p. 152 "As far as is known, and somewhat surprisingly, no other people have worked on Upemba National Park mollusc material." This statement is not correct, since Dr. Eugène BINDER of the Musée d'Histoire Naturelle de Genève (Switzerland) did publish on the genus *Gymnarion* from the PNU in 1979, a paper inadvertently overlooked by the authors of the checklist of that national park. The additional data have some influence on their conclusions and therefore this modest supplement is presented here.

BINDER (1979) describes seven new species of *Gymnarion*, a pulmonate genus at that time considered to belong to the family Urocyclidae but nowadays (*e.g.* SCHILEYKO, 2002: 1230) recognised to form the well-defined endemic African family Gymnarionidae VAN MOL, 1970. Six of the species discussed are reported to occur in the PNU: *Gymnarion bequaerti* BINDER, 1979, *G. apertus* BINDER, 1979, *G. upembae* BINDER, 1979, *G. wittei* BINDER, 1979, *G. chinegris* BINDER, 1979, and *G.* spec. cf. *apertus*. Four of these are 'endemic' to the PNU: *G. apertus, G. upembae, G. wittei*, and *G.* sp. cf. *apertus*.

BINDER's data alter Table 4 of VAN BRUGGEN & VAN GOETHEM (2001: 164) to some extent so that a new version is presented here (Table 1). The student should keep in mind that only those terrestrial molluscs are represented that have been worked out over about the past sixty years. In fact, Table 5 (in loc. cit.: 164) draws attention to groups seriously underrepresented in the published results on the survey of the PNU.

'Endemic' taxa are defined by VAN BRUGGEN & VAN GOETHEM (2001: 153) as follows: "Taxa so far known only from the PNU (and the few localities directly adjoining the PNU included in ADAM's 1948/49 survey)". The following list enumerates the taxa 'endemic' to the PNU and also a few known from the PNU and elsewhere in (southeast) Katanga. Data are extracted from VAN BRUGGEN & VAN GOETHEM, 2001.

- Cyclophoridae (1)
Cyathopoma straeleni ADAM, 1987
- Vertiginidae (4)
Nesopupa (Afripupa) griqualandica musepagii ADAM, 1954
Nesopupa (Afripupa) pelengeae ADAM, 1954

Table 1. Number of species of land molluscs in the PNU collections (*i.e.* revised Table 4 in VAN BRUGGEN & VAN GOETHEM, 2001: 164).

Family	species also known from outside PNU	'endemics'	total
Cyclophoridae	-	1	1
Maizaniidae	2	-	2
Vertiginidae	5	4	9
Chondrinidae	1	-	1
Valloniidae	3	-	3
Cerastidae	-	1	1
Ferussaciidae	3	-	3
Achatinidae	1	-	1
Streptaxidae	21	14	35
Punctidae	2	-	2
Charopidae	2	1	3
Helicarionidae	2	-	2
Urocyclidae	6	1	7
Gymnarionidae	-	4	4
Total	48	26	74

Nesopupa (Afripupa) kanongae ADAM, 1954
Truncatellina obesa ADAM, 1954
- Cerastidae (1)
Cerastua upembae (VAN GOETHEM & ADAM, 1978)
- Streptaxidae (16)
Tayloria moncieuxi HAAS, 1934
Ptychotrema (?Ennea) ganzae ADAM & VAN GOETHEM, 1978
Ptychotrema (?Ennea) kibarae ADAM & VAN GOETHEM, 1978
Ptychotrema (Haplonepion) upembae ADAM, VAN BRUGGEN & VAN GOETHEM, 1993
Ptychotrema (Parennea) conicum ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) dubium ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) goossensi ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) jacquelinae ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) kazibae ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) lufirae ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) pelengeense ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) pseudomukulense ADAM & VAN GOETHEM, 1978
Ptychotrema (Parennea) wittei ADAM & VAN GOETHEM, 1978
Gulella albinus VAN BRUGGEN & VAN GOETHEM, 1999
Gulella coarti (DAUTZENBERG & GERMAIN, 1914)
Gulella (Silvigulella) turriformis VAN BRUGGEN & VAN GOETHEM, 1999
- Urocyclidae (1)
Upembella adami VAN GOETHEM, 1969
- Gymnarionidae (4)
Gymnarion apertus BINDER, 1979
Gymnarion upembae BINDER, 1979
Gymnarion wittei BINDER, 1979
G. spec. cf. *apertus* BINDER, 1979

The above list contains 27 taxa from only six families;

incidentally, species known from Katanga, but *not* recorded from the PNU have not been included. Emphasis should be placed on the fact that only part of the extensive PNU material was ever properly identified and published upon (see *e.g.* Table 5 on p. 164 in VAN BRUGGEN & VAN GOETHEM, 2001). As regards this list, a number of taxa in the Cyclophoridae (world-wide in the tropics) and the Vertiginidae (cosmopolitan) are known to be widely distributed, but both families also encompass a not inconsiderable number of species restricted to sometimes very limited ranges. Most of the Cerastidae (Afro-Asiatic tropics) with a few exceptions are not widely distributed. The majority of the here dominant Streptaxidae (16 of the 27 taxa; Afro-Asiatic and South American tropics) are restricted-range endemics, but a limited number of taxa enjoys a wider and sometimes even very wide distribution. The same more or less applies to the Urocyclidae. Almost all known Gymnarionidae are restricted-range taxa. Of course, whether such arguments strengthen the status of these (genuinely?) endemic forms here discussed, is a moot point. There is also the fact that widely ranging taxa, when studied in detail, sometimes have to be split up into more than one species. Incidentally, there is particular scope here for molecular studies.

A close scrutiny of the above list in view of our (modest) modern knowledge of the taxonomy and biogeography of the African terrestrial gastropods leads to the conclusion that obviously a large proportion of these taxa is indeed endemic or near-endemic to (southeast) Katanga. On a total of 74 taxa 27 amount to about 36.5 % endemism, *i.e.* more than 1 in 3 taxa in the PNU may be endemic. This is considerably higher than published figures for other animal groups, *vide* BROADLY & COTTERILL (2004) for reptiles (12.6 %) and COTTERILL (2005) for birds (<10 %). Unfortunately for most groups of animals (and plants) little published information on endemism is available.

Recently various authors, but particularly Dr. F.D.P. COTTERILL of Stellenbosch University (South Africa) (*vide* COTTERILL, 2005, 2006; BROADLY & COTTERILL, 2004), have drawn attention to the Katanga Province of the D.R. Congo as a somewhat minor, but nevertheless important, biodiversity 'hotspot' in Central Africa. This is one more reason to plead for renewed studies of the land snails of the Katanga area and also to emphasise the conservation value of the Upemba and Kundelungu National Parks. Indeed, the salvation and upgrading of both these areas should be a conservation priority in this part of Africa.

REFERENCES

BINDER, E., 1979. *Gymnarion* du Shaba (= Katanga) Zaïre (Mollusca, Pulmonata, Urocyclidae). *Revue de Zoologie africaine*, 93: 393-412.

BROADLEY, D.G. & COTTERILL, F.D.P., 2004. The reptiles of southeast Katanga, an overlooked 'hot spot'. *African Journal of Herpetology*, 53: 35-61.

BRUGGEN, A.C. VAN & VAN GOETHEM, J.L., 2001. Prolegomena for a checklist of the terrestrial molluscs of the Upemba National Park, Katanga, D.R. Congo. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Biologie*, 71: 151-168.

COTTERILL, F.P.D., 2005. The Upemba lechwe, *Kobus anselli*: an antelope species new to science emphasizes the conservation importance of Katanga, Democratic Republic of Congo. *Journal of Zoology, London*, 265: 113-132.

COTTERILL, F.P.D., 2006. Taxonomic status and conservation importance of the avifauna of Katanga (south-east Congo Basin) and its environs. *The Ostrich*, 77: 1-21.

SCHILEYKO, A.A., 2002. Treatise on Recent terrestrial pulmonate molluscs. 9. Helicarionidae, Gymnarionidae, Urocyclidae, Ariophantidae. *Ruthenica*, Supplement, 2: 1167-1307.

A.C. VAN BRUGGEN
Nationaal Natuurhistorisch Museum
P.O. Box 9517
NL-2300 RA Leiden, The Netherlands
bruggen@naturalis.nnm.nl

J.L. VAN GOETHEM
Afdeling Malacologie
Koninklijk Belgisch Instituut voor
Natuurwetenschappen
Vautierstraat 29
B-1000 Brussels, Belgium
Jackie.VanGoethem@naturalsciences.be