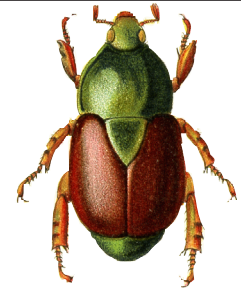


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Madagascan Scarab Beetles of Genus *Hexodon* (Coleoptera: Scarabaeidae: Dynastinae)

by Stéphane Le Tirant & René Limoges

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We have been interested in the Dynastinae for many years now. One of them, genus *Hexodon*, endemic to Madagascar, has always fascinated us.

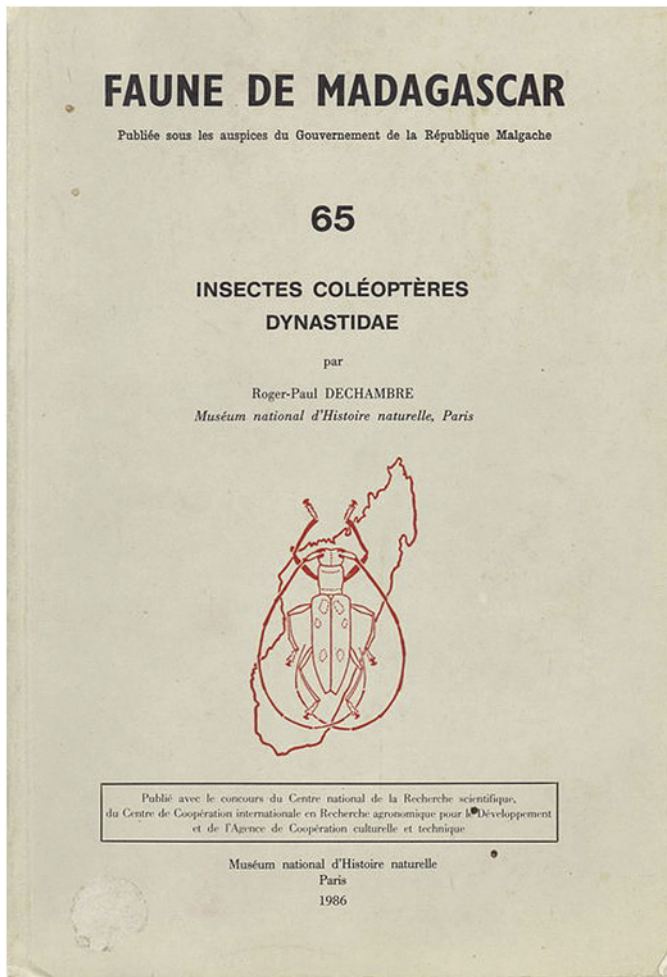
Over thirty years ago, we had the opportunity to meet Dr. André Peyrieras, a physician, naturalist, botanist, herpetologist, biologist and entomologist who spent most of his life in Madagascar. André founded the Mandraka reserve, located about 47 miles east of Antananarivo. This was his headquarters, where he bred rare species and conducted scientific research. He had an exceptional career, marked by amazing discoveries: more than 3,000 new species of insects, a number of chameleons, plants, and even a new lemur. Over the years, Dr. Peyrieras sent us numerous *Hexodon* specimens, and an Insectarium team visited him while shooting the *Insectia* television series.

The *Hexodon* are Dynastinae with primitive features. They have oval bodies. They are wingless, without horns or stridulatory organs. There is little sexual dimorphism, and they share some features with the *Pimelia* (Tenebrionidae). There are currently ten species of *Hexodon*, with a few subspecies. Most of them live in the southern part of the island. Little is known about their biology, and to our knowledge only one larva, similar to that of the Dynastinae, has been described by Dr. Paulian to date.

The *Hexodon* are diurnal species and are most often trapped on the ground in open areas. They sometimes hide under a layer of sand, and have occasionally been found in the sand on shallow beaches. Some *Hexodon* have been seen feeding on dried aquatic plants on beaches, but more often on decomposing ripe fruit or forest litter. They have not as yet



René Limoges at work.



No. 65 of *Faune de Madagascar*, 1986.

been bred in captivity. These Dynastinae are very interesting, and there is still a great deal to learn about them. Macrophotographs of *Hexodon* reveal the surprising colours of different species, as well as the striations and different patterns on the elytra.

The most recent publication on them is the excellent revision of the Madagascan Dynastinae by Dr. Roger-Paul Dechambre, of the Muséum d'Histoire naturelle de Paris, in the *Faune de Madagascar* series, No. 65, 1986.

Madagascan *Hexodon* checklist:

- Hexodon griseosericans* Fairmaire, 1901
- Hexodon kochi* Frey, 1957
- Hexodon latissimum* Arrow, 1912
- Hexodon minutum* Sternberg, 1910
- Hexodon montandonii* Buquet, 1840
- Hexodon patella* Arrow, 1912
- Hexodon quadriplagiatum* Frey, 1957
- Hexodon reticulatum* Olivier, 1789
- Hexodon unicolor* Olivier, 1789
- Hexodon unicastatum* Arrow, 1912

Renaud Paulian (deceased) was the dean of European scarab workers because of his very long and extremely productive career. Beginning in 1947 he served for 14 years as the Deputy Director of the Institut de Recherche Scientifique de Madagascar where he initiated the important series, *Faune de Madagascar*, of which there have been 90 volumes published (as of 2003). He then served as Director of the Institut Scientifique de Congo-Brazzaville



A live *Hexodon* on a sandy area in a Madagascan forest.

and head of the local university for six years and then as Head of the Université d'Abidjan in the Ivory Coast for three years. He returned to France in 1969 to become Recteur of the Academy of Amiens and then Recteur of the Academy of Bordeaux. He was an associate member of the French Academy of Sciences. Dr. Paulian published over 350 papers and several books, mostly on Scarabaeidae.

Roger-Paul Dechambre is now retired but continues to occasionally publish scarab papers.

Stéphane Le Tirant is the curator of the Montreal Insectarium.

René Limoges is an entomology technician at the Montreal Insectarium.

The authors wish to thank Brett Ratcliffe for updated information on Renaud Paulian and Roger-Paul Dechambre.



Baobab tree around Isalo area, North.



Beaches near Toliara area, south west of Madagascar.



Hexodon griseosericans Fairmaire, 1901.



Hexodon latissimum Arrow, 1912.



Hexodon reticulatum Olivier, 1789.



Hexodon minutum Sternberg, 1910.



Hexodon unicolor Olivier, 1789.



A variation of *Hexodon unicolor* Olivier, 1789.



Hexodon unicolor Arrow, 1912.



Hexodon montandonii Buquet, 1840.

The Scarab Collections at the University of Oslo, Norway (ZMUN) and the Institut Royal des Sciences Naturelles de Belgique, Belgium (IRSNB)

by Brett C. Ratcliffe

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In January 2016, I traveled to the University of Oslo in Norway to serve as an external examiner for a dissertation defense (on scarabs!) and took the opportunity to study the scarabs in their research collections (Zoological Museum, University of Oslo; ZMUN; <http://www.nhm.uio.no/english/>).



Fig. 1. Vladimir Gusarov, Curator, Zoological Museum, University of Norway.

The curator is Vladimir Gusarov (Fig. 1), who is a specialist in Staphylinidae. These collections are of moderate size, and, as you might expect, their holdings are primarily Palearctic and divided into Norwegian and World collections. The specimens are arranged well and housed in modern cabinetry (Fig. 2). Unit trays are employed in the drawers (Fig. 3) for facilitating curation.

The Norwegian collection documents species distribution within the country in detail, and the number of drawers is Lucanidae (1), Trogidae (1), Geotrupidae (3), Scarabaeidae (15). The World collection is essentially an amalgamation of a handful of beetle collections with most of the western Palearctic specimens from the Thomas Münster collection <http://www.nhm.uio.no/english/research/collections/zoological/insect/contributors/muenster/>. These specimens were collected a century ago and locality label data are often not detailed. Ejnar Fischer <http://www.nhm.uio.no/english/research/collections/zoological/insect/contributors/fischer/> donated an excellent collection of Australian beetles. The specimens were collected from 1912 to 1925

and were identified by leading beetle experts of the time, particularly those based in Australia and at the Natural History Museum in London. Leif Reinhardt Natvig donated his cetoniine collection of 55 drawers, which has global coverage. The number of World Collection drawers is Lucanidae (7), Passalidae (5), Trogidae (1), Glaseridae (1), Geotrupidae (4), Bolboceratidae (1), Ochodaeidae (1), Ceratocanthidae (1), Hybosoridae (1), Glaphyridae (1), and Scarabaeidae (136).

During the last 10 years the beetle collection has been substantially expanded thanks to recent collecting efforts in east Africa, western Europe and America north of Mexico. The main focus of these collecting efforts was staphylinids. The majority of specimens collected today are preserved in DNA-grade collection in 100% ethanol. The sorted part of this collection includes 37,000 samples with 180,000 specimens. Among them are 350 scarab (*sensu lato*) samples containing 645 specimens. All this material is preserved in freezers at -80°C . Thousands of additional specimens are still to be sorted.

There is space for visitors to work, either in the collection room or in a nearby office/lab area (Fig. 4), and a microscope is available. The collections are just a five-minute walk from the nearest metro stop, although you would need some guidance on which ways to turn out of the station in order to find the museum.

From Oslo, I flew to Brussels in Belgium for a couple of days of collections work in the Institut Royal des Sciences Naturelles de Belgique



Fig. 2. Insect collection range at the Zoological Museum, University of Oslo.



Fig. 3. Large drawers with unit trays in the scarab holdings, Zoological Museum, University of Oslo.



Fig. 4. Lab/office area for visitors, Zoological Museum, University of Oslo.



Fig. 5. Alain Drumont, Collections Manager, Royal Belgian Institute of Natural Sciences, Brussels.

(<https://www.naturalsciences.be/en/science/collections>). My host was Alain Drumont (Fig. 5) whose title is Expert in Collection Management and who is responsible for Scarabaeoidea, Caraboidea, Histeridae, Cerambycidae, and Buprestidae. His main interests are Palearctic scarabs and Oriental dynastines, but he also is a specialist on Palearctic cetonines. The museum's collections date from the independence of Belgium in 1830, and the city of Brussels donated the collections to the Belgian government in 1846, which is the official start date for the museum. The current name of the museum, Royal Belgian Institute of Natural Sciences, dates from 1948.

The Museum collections number an estimated 37 million specimens, making them one of the ten most important natural history collections in the world, as well as the largest in Europe after Paris and London (Anonymous 2016). The insect, spider mite, and centipede collections contain about 15 million specimens (with at least 15,000 type specimens) and are worldwide in scope. The entomology collections are housed in 75,000 large, glass-topped drawers in more than 800 oak cabinets (Figs. 6–7). The alcohol collection contains about 5,000 jars of spiders, scorpions and centipedes. The scarabs are contained in 48 large, oak cabinets each containing 100 drawers for a total of 4,800 drawers (not counting Lucanidae). Each drawer is organized in the older European fashion of rows of specimens with empty spaces left for new acquisitions accord-

ing to catalog listings of what might ultimately become available (Fig. 8). The level of curation for these collections was quite good, and there remains plenty of unidentified material in which to possibly find some nice surprises. I came to study their New World Gymnetini (and, of course, Dynastinae), the former of which also contains the large and important personal collections of Robert Alexis (deceased December 2015) and Jean Rouch. There is also the Gillet collection of dung beetles that is important for anyone studying Scarabaeinae and the Ley collection of Melolonthinae. They also maintain the types of Pol Limbourg's African Ruteliinae. Pol is a specialist at the museum who works on Afrotropical Ruteliinae, especially Anomalini, and he has been on the staff there for the last 15 years. If you need to study these collections, I recommend you go anytime but winter since the particular collection room I was in (Fig. 9) was unheated! The microtherms emanating from a 60-watt bulb above the work desk were feeble, and by lunchtime or quitting time my fingers were numb. Fortunately, I was able to have a brief respite and have lunch with Alain in his heated office. At the end of the first day, Paul Schoolmeesters (Fig. 10) came by to take my wife and I to his home in Leuven (about 16 miles east of Brussels) for a glass of wine with his wife, Nicole. Paul has a surprisingly small print library considering he is the god of scarab literature. We then had a pleasant evening walking tour of Leuven before going to a restaurant for dinner.

The express trains from the airport to the city in both Oslo and Brussels are



Figs. 6-7. Views of part of the scarab range, Royal Belgian Institute of Natural Sciences, Brussels.



Fig. 8. Drawer arrangement for lucanids, Royal Belgian Institute of Natural Sciences, Brussels.



Fig. 9. Visitor work area in the collection room, Royal Belgian Institute of Natural Sciences, Brussels.



Fig. 10. Paul Schoolmeesters at his home in Leuven.

very quick, easy, and convenient. From a hotel in central Oslo, the metro is fast and takes you to a stop within a five-minute walk of the Museum of Zoology. Depending on where you stay in Brussels, the train or bus might be convenient, but I stayed near the central train station and relied on a taxi rather than navigate the more complex public transport system in the city center.

Lastly, as a cultural aside, you must decide on your next priority after scarabs while in Brussels, which has a reputation for two very important products. Is it to be the multitude of Trappist-produced fine beers (Fig. 11) or world-famous Belgian chocolates (Fig. 12)? The answer is quite easy. Both . . . although perhaps not at the same time.

Acknowledgments

I thank Vladimir Gusarov and Alain Drumont for their collegiality during my visits to their museums and for the additional information they provided about the content of their collections, which is conveyed here.

References

Anonymous. 2016. Royal Belgian Institute of Natural Sciences. Available at: <https://www.naturalsciences.be/en/science/collections>. Accessed 26 February 2016.



Fig. 11. The choices for Belgian beers seem endless.



Fig. 12. The choices for Belgian chocolates are possibly even more endless.

An Introduction to Collecting in Nicaragua

by Rich Cunningham



Figure 1: A store on the main road of a town while traveling in the State of Caraza on the way to San Marcos.



Figure 2: The meat market!



Figure 3: The town fruit and flower stores.

This is the third mention of any collecting reports in *Scarabs* from the country of Nicaragua. Since this country in Central America has the potential to yield very interesting insects, especially scarabs, I intend to write a more comprehensive collecting report in the next issue of *Scarabs*. In this issue, we present a small bit of insight into what can be seen on a collecting excursion in this diverse part of our world.

Driving to and from collecting areas was always eye opening. Observing how people live in different countries is always interesting (Figures 1, 2, 3 and 4). The contrast from old to new, and modern to hundreds of years old, can be seen everywhere. You might be driving in what appears to be a more modern town yet be stuck behind a cart powered by donkey (Figure 5). Each town seems to have a central plaza where people gather to talk, relax and buy food or handmade items from the many street vendors (Figures 6 and 7).

As we drove on the main roads, habitat destruction was evident everywhere (Figures 8 and 9). Shade coffee (Figure 10) plantations do offer some habitat protection as the forest is not clear cut which helps to maintain ecological biodiversity (Figures 11 and 12). Because of this, they make very productive areas to collect insects (Figures 21, 22 and 23), and serve

as a refuge to many bird (Figures 13, 14 and 15), mammal (Figure 16), reptile (Figures 17 and 18) and amphibian (Figures 19 and 20) species. I leave you with four images of a great night of collecting (Figures 21, 22, 23 and 24) as a prelude to *Scarabs* 81.



Figure 4: Interesting use of a truck.



Figure 5: Donkey power: slow but steady and saves gas.



Figure 6: The central plazas of the towns and villages were beautiful. The trees in this plaza are home to tree sloths.



Figure 7: A busy plaza in a larger town is always interesting to walk around observing the sights and people.



Figure 10: Coffee plant on the Cerro Dantali shade coffee plantation.



Figure 8: Habitat destruction was evident everywhere. Slash and burn method, smoke and clear cutting was everywhere we looked.



Figure 11: View of the Cerro Jesus coffee plantation nursery from the veranda of the main residence where we were able to hang two sheets, one on either side of the walkway for the night's slaughter. Notice the flowering tree in the middle of the photo. These flowers yielded *Trigonopeltastes* spp. and *Giesbertiolus ornatus* Howden.



Figure 9: Eric van den Berghe walking down a path which was the type locality for at least one species of Buprestidae and one Cerambycidae. The whole area had been burned and was in the process of bulldozing. It will be complete destruction of habitat, bare soil. It would have been nice to put up MV/BL setups to collect at night before devastation.



Figure 12: View from the porch of our cottage for the night of a beautiful canyon on the Reserve Silvestre El Jaguar shade coffee plantation.



Figure 13: Collared Aracari Toucan (*Pteroglossus torquatus*).



Figure 14: Striped Cuckoo (*Tapera naevia*).

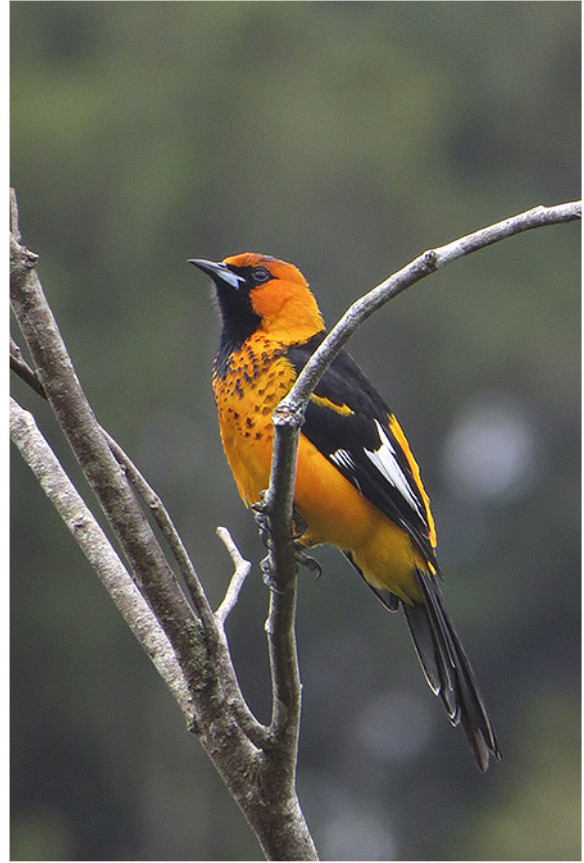


Figure 15: Spot-breasted Oriole (*Icterus pectoralis*).



Figure 16: A very rare opossum at the Reserva Natural Cerro Tisay Estanzuela on the Posada Tisay Ranch. Walking at night with headlamps and a strong flashlight was fascinating at all of our collecting sites.



Figure 17: This beauty crawled out of the garden onto the driveway at Cerro Jesus about 20 feet from the main residence. My first coral snake “in the wild.”



Figure 18: A type of rear-fanged snake.



Figure 19: One of the many tree frogs seen searching the forest at night.



Figure 20: A type of Glass Frog. The underside was transparent enough to see the beating heart and blood flowing from it to the body.



Figure 21: A pair of *Rothchildia saturniid* moths from the sheets at Cerro Jesus. Lepidoptera collectors would have thought they went to heaven if they could have collected from the Cerro Jesus site on this trip. We definitely hit the moth emergence just right.



Figure 22: Checking the contents of a killing jar used at one of the seven different mercury vapor and blacklight set-ups at Cerro Jesus! Fun!!



Figure 23: One of those set-ups at Cerro Jesus. There was an approximate 2.5 feet x 1.5 feet x 2 inch deep mass of microleps, etc. at the bottom of the sheet directly under the mercury vapor light.



Figure 24: Interesting material from the sheet in Cerro Jesus at the higher elevation site about three quarters if a mile up the road from the plantation headquarters. This site was adjacent to nice forest.

Asian Scarab Research

by Barney Streit

After acclimating to life in Singapore, I need to do a little research on the scarab collections here. For instance, is *Epipedesthus wangi* Lisle (see *Scarabs* 74, pages 19-20) found in any collections here? What other interesting species were or are still here?

Before I could begin research, though, I ~~de-~~manded politely asked Editors Rich and Olivier for an assistant. They gave me the “green light,” as long as she could put up with me and was of professional model quality. Readers may recall the sinister ingenious scheme master-minded by Editor Emeritus Bill Warner that finances *Scarabs* to this day. For a complete explanation, see *Scarabs* 58, pages 23-24.

The result of an intensive search is Abigail, a native Singaporean. I am confident she will be a great addition to our staff.



Abigail ready for work.