Sitting on top of the world: Mountain marvels of French Polynesia

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This is the newly described Perrault?s predatory ground beetle, Mont Tohiea, Moorea; actual body size is 6 mm. Credit: Photo credit James Liebherr, Cornell University Insect Collection

Do you have it in mind to go to a mountain top and study beetles that nobody else has ever seen? Well, there are two fewer such mountains available now that beetle species discovered on Mont Tohiea and Mont Mauru in the Society Islands have been named. James Liebherr, Curator of the Cornell University Insect Collection, has just described 14 species of predatory carabid beetle, also called ground beetles, as part of a U.S.

National Science Foundation team that surveyed the insects and spiders of French Polynesia.

Liebherr described the species in two papers published in the on-line journal, ZooKeys, taking advantage of the recent changes to rules that now allow electronic publication of names for newly described animal species.

The new beetles are members of the genus *Mecyclothorax*, a group that seems to have found a home in remote Pacific Islands. The Society Islands have about 100 species, and the Hawaiian Islands support well over 200 species. Conversely, the Australian continent, where all this evolution presumably started, is home to a mere 25 species. Like the flightless Dodos of Mauritius, all the Pacific Island beetles are flightless, whereas many of the Australian species can fly.

This shows Mont Tohiea, Moorea, Society Islands. New beetle species were found only within the top 100 m elevation of the 1200 m mountain. Credit: Photo credit James Liebherr, Cornell University Insect Collection

Liebherr's discoveries of the seven new species on Moorea's Mont Tohiea expands the known distribution of the genus in the Society

Islands from Tahiti to the island of Moorea, mirroring the distribution of related beetles in Hawaii, where members of the genus are recorded from Oahu to Hawaii Island. In Tahiti and Moorea these beetles are very rarely recorded below 1000 m elevation, so the new species have very limited geographic distributions. "When we travel to a new mountain we find only new species. It's like moving to a different continent as far as these beetles are concerned" says Liebherr. Being able to identify these small areas of endemism is essential for justifying conservation programs that can maintain biodiversity.

The new species take their place in the Tahitian fauna next to 67 species revised by the late Dr. Georges Perrault, whose collection of Tahitian beetles is housed at the Natural History Museum in Paris. "Georges Perrault made this study possible through his valuable work describing the Tahitian beetle fauna. If he hadn't completed his work, we would not have been able to gain the support needed to expand upon his studies of this remarkable fauna" states Liebherr. These new species are not the end of biodiversity discovery for these beetles and their relatives.

Liebherr is working in the lab to name more collected from other mountains, and many more no doubt occur on unexplored peaks. Conservation programs in French Polynesia will be busy for a long time documenting these hidden gems of the Pacific.

More information: Liebherr J (2012) The first precinctive Carabidae from Moorea, Society Islands: new Mecyclothorax spp. (Coleoptera) from the summit of Mont Tohiea. ZooKeys 224: 37-80. doi: 10.3897/zookeys.224.3675

Liebherr J (2012) New Mecyclothorax spp. (Coleoptera, Carabidae, Moriomorphini) define Mont Mauru, eastern Tahiti Nui, as a distinct area of endemism. ZooKeys 227: 63-99. doi: 10.3897/zookeys.227.3797

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