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The Flat-Headed Myotis is Alive & Well
“Extinct”™ bat is rediscovered in northern Mexico
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The tiny, elusive flat-headed myotis weighs just 2.5 grams (about as much as two peanuts), and has a distinctively flat forehead and a known range that's barely two-thirds the size of Mexico City. Only three of these bats had ever been reported to science, the last one 36 years ago. IUCN, the World Conservation Union, declared it extinct in 1996.

Then we found not one, but eight of these elusive bats in the same forested region of northeastern Mexico where the species was originally discovered. This was not a chance event, but the result of a carefully planned scientific effort to determine whether these bats survived and, if so, to learn enough about them to conserve this critically endangered species, as well as other bats with similarly limited distribution. The work was supported in part by Bat Conservation International's North American Bat Conservation Fund.

The flat-headed myotis (*Myotis planiceps*) is one of the smallest bats in the world and its range is also among the smallest – less than 385 square miles (1,000 square kilometers). The species was first described in 1952, after an individual was collected in Coahuila state from a heavily grazed valley surrounded by forested mountains with elevations of more than 10,000 feet (3,000 meters). The second-known flat-headed myotis was found in Nuevo León under the bark of a Douglas fir in 1966. Then a juvenile female was captured over a dry arroyo in a pine forest in Zacatecas. Except for those three bats, there were no other records or studies of the species.

Our scientific team, through the Program for the Conservation of Bats of Mexico (PCMM), began focusing on the flat-headed myotis in 1997. Our first objective, of course, was to conduct intensive field surveys to determine if any living populations still existed.

After demonstrating that the flat-headed bat is not extinct, our second phase is to study this elusive species. This includes molecular assays and detailed studies of population, dietary habits and roosting behavior and requirements, as well as echolocation calls and habitat information. Understanding the biology and conservation needs of the flat-headed myotis will guide us in preparing a recovery and management plan.

All available documents regarding the species were examined, and a field team conducted initial surveys to assess the current status of the areas where the three flat-headed myotis were previously collected. The surveys suggested that the most likely habitats for mist netting were in transition zones between arid scrubland and high-country pine forest, places where yuccas grow with piñon pines. We selected several likely sites.

We acquired special mist nets with a very small mesh and took to the field in June 2004, setting our nets over streams and ponds. The nets were opened at sunset and checked periodically for three hours. We also surveyed for possible roost sites, in caves, crevices and gaps beneath the bark of Douglas fir and other trees.

For each bat taken from our nets, we recorded habitat data and detailed physiological information and took photographs. We also collected tiny tissue samples and external parasites from some individuals.

The first flat-headed myotis that became tangled in our net at the Los Pinos site was discovered at about 9:20 p.m. on June 14. Although the bat's flat forehead immediately produced some excitement, we were pleased to have on hand Richard LaVal, a leading expert on myotis identification and classification, who confirmed our identification. The flat-headed myotis had indeed survived in its tiny sliver of Mexico!

The next two hours of netting produced four more flat-headed myotis over an artificial pond at Los Pinos, in Coahuila. All five bats were females, and at least two were lactating. Four nights later, we caught another female flat-headed myotis (along with individuals of six other species) over the pond. We later caught another female and a male over water in two other sites.

We recorded flat-headed myotis' echolocation calls under both captive and field conditions and also monitored calls of foraging bats at all three sites where the bats were captured. The sites that produced the flat-headed myotis are all in or very near the proposed Protected Area of Sierra de Arteaga, which is being set aside to protect foraging and nesting areas of the endangered maroon-fronted parrot (*Rhynchopsitta terrisi*). Documenting the presence of the endangered flat-headed myotis provides more ammunition for promoting the conservation of this area.

The rediscovery of this species that was presumed to be extinct offers us a second chance to study this fascinating little bat, about which almost nothing is known, and to apply our knowledge to systematic conservation efforts. We are studying the behavior and habitat of the flat-headed myotis and exploring its diet, roosting ecology and acoustics. Tissue samples allow us to analyze its genetics to determine just where it fits into the evolutionary tree of myotis bats. We also hope to better understand the genetic diversity of such a geographically restricted species.

We have proven that the flat-headed myotis still exists. Now we must act to ensure its survival for generations to come.

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