



Left: A view of Sierra Mazatán. Right: Chihuahuan oak. Photos by Thomas R. Van Devender.

Oaks, Cycads, Orchids, and Conservation in the Sierra Huérfana, Sonora

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The southwestern most Sky Island in Sonora is 80 km west of Hermosillo, a city of about a million inhabitants. It is called the Sierra Mazatán by the residents of Mazatán (from a Nahuatl Indian word meaning “place of deer” – the same as Mazatlán). But most of the mountain is in the Comunidad Agraria de Pueblo de Álamos, where it is Sierra Huérfana — or Orphan Mountain — a good name for a Sky Island! It is surrounded by tropical foothills thornscrub just east of the Sonoran Desert, with oak woodland on top in a landscape of whitish granite boulders.

The flora of the Sierra Huérfana, with reliable summer rains and granitic soils that hold moisture very well, is unique. Sanchez-E. et al. (in 2005) reported 357 species in a preliminary flora. Documentation of the flora is still in progress and a more complete flora will be published soon. The oak woodland is dominated by Chihuahua and willowleaf oaks, often festooned with ball moss (*Tillandsia recurvata*). Various thornscrub plants, including papelío (*Jatropha cordata*), kapok/pochote (*Ceiba acuminata*), torotes (*Bursera fagaroides*, *B. laxiflora*), and tree ocotillo (*Fouquieria macdougalii*) reach their upper elevational limits in this woodland.

In May 1957, Howard S. Gentry, the pioneering botanist who worked in the Río Mayo Region of tropical southern Sonora, collected a cycad in the Sierra Huérfana. In 1997, it

was described as *Dioon sonorensis*, a species endemic to Sonora and northern Sinaloa. *Palma de la vírgen* or *peine* (the serrated leaf edge looks like a comb) occurs in 5-6 populations in Sonora, and has a *Protegida* status under the 2010 Mexican endangered species law. There are 14 species of *Dioon* from Nicaragua northwest into Mexico. The Sierra Huérfana *D. sonorensis* are the northernmost cycads in the world. During the Triassic and Jurassic geologic periods 200 to 145 million years ago, cycad trees and shrubs along with conifers and ginkos dominated archaic dinosaur forests. Although cycads were once widely distributed over the Earth, including Alaska and Antarctica, the family Zamiaceae today only contains eight genera in Africa, Australia, and North and South America.

Other unusual plants in the Sierra Huérfana include the endemic Mazatán rock daisy (*Perityle reinana*, named in honor of Ana Lilia Reina-Guerrero), coral root orchids (*Hexalectris spicata* var. *arizonica*, *H. warnockii*, only Sonoran locations), a white morning glory/*trompillo* (*Ipomoea scopulorum*), and tiger flower (*Tigidia pavonia*). The red-flowered claret cup cacti in the Sierra Huérfana are mostly *Echinocereus santaritensis* var. *bacanorensis*, a southern, summer-flowering variety of the Santa Rita Mountains claret cup. There is also a record of *E. klapperi*, a rare species only known from here and near the El Novillo reservoir.

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Above, left: *Dioon sonorensis*, detail of serrated leaf edge. Photo by by Ana L. Reina-G. Center: *Hexalectris spicata* and Right: *H. warnockii*, coral root orchids. Photos by Michael F. Wilson. Below: Evening meeting of Pueblo de Álamos residents, CONANP personnel, and MABA participants to discuss the proposed Sierra Huérfana Protected Natural Area. Photo by James Rorabaugh.

Oaks, Cycads, Orchids *continued*

The Comisión Nacional de Áreas Naturales Protegidas (CONANP, the Mexican Park Service), is working on establishing the Sierra Huérfana as a federally-protected natural area. Pueblo de Álamos is a *comunidad agraria*, a federal designation that recognizes historical residence and land rights in an area. *Comuneros* use and manage the land, but cannot sell it. Otherwise the prime woodlands of Sierra Huérfana, so close to Hermosillo in the Sonoran Desert, would have been developed long ago.

In April 2014, 55 botanists, entomologists, herpetologists, and ornithologists, as well as agency biologists, photographers, journalists, and college students from the United States and Mexico joined local residents on a Madrean Archipelago Biodiversity Assessment (MABA) Expedition to the Sierra Huérfana. Over 1,000 biological observations were made and added to the MABA database



(Madrean.org), providing documentation of the unique biodiversity of this Sky Island (*Isla Serrana* in Spanish). The group's exuberant appreciation of natural history was contagious, and in July the residents of Pueblo de Álamos voted in favor of the new Áreas Naturales Protegidas.

We thank the Greater Good Foundation for support for the MABA Expedition.



Above: White-flowered morning glory (left) and Tiger flower (center). Photos by Erik Enderson. Right: Bacanora claret cup cactus. Photo by Stephen L. Minter.