The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

Mexico: Sonoran Desert and Grasslands

El Pinacate Biosphere Reserve

Desert Volcanic Region Alive With Endemic Plant and Animals Species

ecoregion Sonoran Desert

targets bighorn sheep; Sonoran pronghorn antelope; desert iguana; fringe-toed lizard; long-nosed bat; gila monster; zone-tailed hawk; active dune fields; lava fields; pronghorn habitat; endangered and endemic species of plants, birds, reptiles, amphibians and fish

stresses spread of invasive species; unsustainable cattle ranching and agriculture; new road construction; off-road vehicular traffic; illegal hunting and poaching

strategies monitor and control the spread of invasive species; bolster reserve management; promote ecologically compatible tourism as a viable economic activity; purchase land in fragile core zone of the reserve

results collaborated in the development of a management plan for the reserve; supported reserve management; participated in the creation of education and outreach program for the community

partners El Pinacate Biosphere Reserve staff

2005 funding need $100,000 for conservation programs

leveraging opportunity The Nature Conservancy Wilson Challenge Grant Program

Large, active dune fields surround the volcanic shield in the El Pinacate reserve. © J. Durham

El Pinacate Biosphere Reserve is considered by many to be the heart of the Sonoran Desert. Located just south of the Arizona border in the Mexican state of Sonora, El Pinacate is a volcanic region whose stark and diverse beauty has remained mostly untouched by humans.

The reserve's 1.9 million acres contain a varied range of desert ecosystem types and dramatically contrasting topography, from sandy coasts to rugged mountains. It is composed of two subdivisions of the Sonoran Desert: the Arizona high plateau and the Lower Colorado River Valley. The Lower Colorado River Valley is the hottest division of the Sonoran Desert ecosystem.

El Pinacate includes geologic remnants that reflect an active volcanic history and dunes that are on par with those in Africa and the Middle East. A volcanic shield that is more than 5,000 square kilometers contains 10 giant craters, more than 400 black and red cinder cones, numerous lava tubes and lava caves and distinctive black and red cinder soils. The largest crater in the reserve measures 1,400 meters from rim to rim and is 460 feet deep. Some of the lava fields in El Pinacate were used during training for NASA's Apollo mission to the moon.

Forty species of reptiles and amphibians inhabit El Pinacate's desert habitats. © J.M. Andrews

Surrounding the volcanic shield are the largest active dune fields in North America, with some dunes reaching heights of more than 200 meters. A rare form of dune known as star dunes is found here. This unique dune environment is habitat for a number of rare and endemic flora and fauna species.

Diversity of Flora and Fauna

With high summer temperatures, low relative humidity, intense solar radiation and high evaporation, El Pinacate is one of the most arid places on the continent. Yet despite these harsh conditions, the reserve flourishes with plant and animal life, including more than 560 species of vascular plants, 40 species of mammals, 200 species of birds, 40 species of reptiles and amphibians and four species of freshwater fish in the reserve's unique habitats.

Residing in the reserve is rare wildlife like the endangered Sonoran pronghorn antelope, Sanborne's long-nosed bat, bighorn sheep, zone-tailed hawk, desert iguana, fringe-toed lizard and Gila monster. El Pinacate harbors three threatened, one endangered and one "special protection" species of plants; two endangered, 12 threatened and one "special protection" species of birds; 11 threatened, five rare and five "special protection" species of reptiles and amphibians; and one endangered and two threatened species of fish.

A Sparse Population

The area has long been host to human habitation, dating back over 20,000 years when ancient Indian tribes inhabited the land. Sacred sites of the modern day Tohono O'odham Indians still exist in the region.

Today, due to extreme conditions, few human settlements have been established in the reserve. The federal government created 67 ejidos (communal properties) within El Pinacate, but only 20 are minimally inhabited and none of those are in the reserve's core zone. Ranching is the typical economic activity in these communities, though it is usually a small scale, unpredictable endeavor that's dependent on each season's rainfall.

Invading Threats

Exotic species invasion poses one of the major threats to El Pinacate. Two invasive plant species — Brasica tournefortii (mustard plant) and Pennisetum ciliare (buffelgrass) — which were introduced along bordering highways, are making their way into the reserve, overtaking native plants.

Cattle ranching and agriculture has also led to the destruction of natural habitat for species such as the pronghorn antelope. Additional habitat fragmentation has occurred as a result of new road construction in the area and off-road vehicular traffic in the dune fields. Illegal hunting and poaching also pose a threat to the reserve's wildlife.

What the Conservancy is Doing

El Pinacate was decreed a biosphere reserve by the Mexican government in 1993. Not long after, The Nature Conservancy began supporting the reserve through its Parks in Peril program. Initial conservation strategies at the reserve focused on developing a management plan and establishing an on-site presence. Existing buildings and structures were renovated, vehicles were acquired, staff was hired and patrol routes were established. At the same time, environmental education and outreach programs were created to initiate contact with local communities.

Current conservation activities at the site involve monitoring and controlling the spread of invasive species and developing low impact ecotourism as a means to provide ongoing funding for local communities. The Conservancy is also developing a strategy to purchase uninhabited ejido lands located in the fragile core zone of the reserve.

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