Ecoregional Conservation Assessment of the Chihuahuan Desert

Second Edition, Revised July 2004

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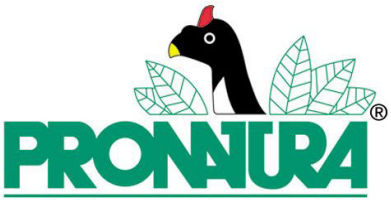

In partnership with

The Nature Conservancy

and The World Wildlife Fund

Front Cover Photo Credits: Aplomado Falcon – Profauna, A.C.; Collared peccary – Gary Bell; Yucca – Jennifer Montoya; White-sided jackrabbit – Profauna, A.C.; White-fin pupfish – John Rinne; Cactus and yucca woodland – John Karges; Todsen's pennyroyal – Rob Taylor; Black grama grasslands – Gary Bell; Cuatro Cienegas wetlands – John Karges.

Executive Summary

The Chihuahuan Desert (CD) Ecoregion encompasses some 70 million hectares occupying much of the Mexican states of Chihuahua, Coahuila, Durango, Zacatecas, large portions of San Luis Potosi, Nuevo Leon, and significant areas of Texas and New Mexico in the United States. The area is characterized by the basins and ranges of the Mexican Plateau, surrounded by the foothills of the Sierra Madre Oriental on the east and the Sierra Madre Occidental on the west. While wetter than some North American desert areas, the Chihuahuan Desert experiences hot summers, cool, dry winters, and intermittent rainfall mostly of monsoonal origins during the summer months. The vegetation of the ecoregion is typically grassland and desert scrub, with areas of chaparral and woodland in the mountains and narrow ribbons of riparian forest and scrub along stream channels and springs. With the notable exception of the Rio Grande and its tributaries, most river systems are within closed basins and many streams and springs are isolated.

Like other areas of the southern Great Plains and the Southwest, the Chihuahuan Desert has been subject to a long history of grazing by domestic livestock. Except along broader alluvial valleys there has, until recently, been little attempt at intensive crop agriculture. A number of large cities within the ecoregion, including El Paso, Ciudad Juarez, Durango, Saltillo, and Ciudad Chihuahua, are restricted to river valleys where water supply is adequate to support a large human population.

This conservation planning effort was carried out by an international partnership of conservation planners, scientists, and practitioners from three organizations: Pronatura Noreste, The Nature Conservancy, and the World Wildlife Fund. This exercise builds on past conservation planning efforts in the ecoregion, but our focus has been on acquiring the most robust dataset possible on the status and distribution of conservation targets, including species, natural communities, and ecological systems. Our goal was to use these data to build a conservation blueprint for the ecoregion in the form of a “portfolio”, a set of priority conservation areas which, if managed in ways compatible with the biological systems and species they contain, ensure the long-term survival of the biodiversity of the Chihuahuan Desert. This mammoth undertaking entailed gathering location data on more than 800 species and 24 ecological system and vegetation site targets (embedded in these 24 are over 40 fine-scale ecological systems, 93 landcover mapping units and between 500-1000 plant associations). We used the computer program SITES using a near-optimization algorithm called “simulated annealing” to create a portfolio of terrestrial conservation areas. To this was added a suite of aquatic conservation areas which was assembled manually. This draft portfolio was reviewed and edited by scientists and land managers to create a final portfolio of sites. The result is a portfolio of 125 high priority terrestrial conservation areas covering nearly 18 million hectares, 53 G1 data points that are part of the primary portfolio but are without delineated area, an additional 464 secondary terrestrial areas needing additional data and field verification, and an overlay of 74 aquatic conservation areas covering an additional 2.7 million hectares. The final portfolio covers approximately 30 % of the Chihuahuan Desert Ecoregion.

The vast majority of the portfolio is in private ownership, most of it in Mexico. The major land management entities in the Mexican portion of the ecoregion are ejidos and large ranch owners. Some areas are contained within National Park, Biosphere Reserve, or other recognized conservation status areas, but most receive little actual conservation attention. The Texas portion, like Mexico, is dominated by private lands and relatively large ranches with a few National Parks and State wildlife lands. Within the New Mexico portion of the ecoregion most of the portfolio is on federal and state lands. The largest landowners and managers are the Department of Defense, Bureau of Land Management, and National Park Service. Conservation action on this large and complicated portfolio will require a diverse set of innovative strategies, actions, and partnerships.

Although site-based conservation planning will be an important tool in moving beyond the generalities of this document toward more detailed conservation actions, the vast area of the ecoregion, the large number of conservation areas and the large number of wide-scale threats acting upon the biodiversity within these sites necessitate development of more efficient conservation strategies. This landscape is dominated by a strong, multiple generation ranching heritage with landowners working to maintain their rural way of life. Conservation success will require implementation of creative strategies to abate such threats as altered hydrology of streams and groundwater, poor grazing practices, and invasive animals and plants, working at multiple scales, and based largely on developing and maintaining partnerships with such stakeholders.