

# The Sonoran Desert Conservation Plan

by Chuck Huckelberry



**When the tiny cactus ferruginous pygmy owl was listed as endangered, its presence in Pima County focused the need to address the impacts of development on Sonoran Desert ecosystems.**

*Photo by Glenn Proudfoot*

**(Opposite page) One of the treasures of the Sonoran Desert is Organ Pipe Cactus National Monument, which is managed by the National Park Service.**

*Corel Corp. photo*

Pima County, Arizona, covers a vast land base in the southwestern United States and includes a community of diverse cultures and interests. Within the boundaries that encompass our nearly 6 million acres (2.4 million hectares) of Sonoran Desert, we are proud to count as neighbors the country's second largest Native American Nation, the Tohono O'odham, ranch communities, federal land managers of every stripe, and urban communities that are enriched by our Hispanic origins and energized by the 20,000 new residents who move here each year.

We have consistently sought ways to express a love of, and concern for, the unique Sonoran Desert ecosystem that surrounds us with such unparalleled beauty. Until recently, translating that passion into a comprehensive land use plan has been a losing battle. Five decades of steady population growth outpaced the county's ability to establish and implement an effective regional planning tool. In 1998, however, we found the approach we were looking for in the promise of the Sonoran Desert Conservation Plan.

The need to address Pima County's growth issues intensified when the community experienced its first Endangered Species Act (ESA) listing that

affected development in upland areas. The cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) gained federal protection as an endangered species in 1997 after biologists found only 12 of the tiny birds in Pima County. We responded early by forging partnerships with federal land managers to address the regulatory expectations of the ESA and to meet the larger spirit and intent of that law. Tucson, Pima County's largest city, is a place where both entrepreneurial and conservation land ethics find extraordinary expression. Therefore, we set out to formulate a new kind of conservation plan, one tailored to the unique pressures we face here in Pima County.

Section 10 of the ESA allows for the kind of flexibility and balance we need. The economic certainty gained by regulatory assurances that are provided under a section 10 incidental take permit will meet the requirements of the business community, and the science-based conservation aspects of the planning process will allow us to address the problems that led to the owl's listing in the first place. In fact, we seek to reverse the decline of a host of vulnerable species by conserving and restoring large-scale natural systems in the Sonoran Desert ecoregion.

## Origins

In 1998, the Pima County Board of Supervisors initiated discussions on land use planning and conservation. We broadened the vocabulary of the growth debate to include biological and scientific concepts, and reframed the elements of regional planning to encompass the relation that the land has to natural and cultural resources. This was a bold

stroke by the board: to undertake science-based land use planning and depart from the practice of placing political considerations at the front of the conversation. Pima County has asked fundamental questions about resource capacity and the impacts of land and water uses. Answers to these important questions suggest reforms, strategies, and solutions that encompass the region without regard to the administrative constraints of governmental entities.

The proposed Sonoran Desert Conservation Plan steps away from conventional metropolitan and regional planning theory. It uses a concept that can be called “bio-planning,” or natural resource assessment and planning, as a necessary first step in determining urban form. Our method assumes that urbanizing areas are endowed with certain natural, cultural, and historical resources that should receive protection. This is the basic principle upon which the plan is based.

For the past several decades, Arizona has been one of the fastest growing states in the country. Between 1990 to 2000, the population in Arizona grew from 3.6 million to 5.1 million, an increase of 40 percent. Pima County has shared in this rapid population expansion. The county’s annual growth rate varies from 15,000 to 30,000 persons each year, and at the current rate the county consumes approximately seven to 10 square miles (18 to 26 square kilometers) of the desert each year. The Sonoran Desert, rich in biodiversity, provides habitat for more than 2,500 known pollinators and 500 migrating or resident bird species—a figure that represents almost two-thirds of the bird species in the United States, Canada, and northern Mexico, according to The Nature Conservancy.

#### **Elements of the Proposed Plan**

Most urban areas have plans or programs that give at least some protec-

***An endangered plant, the Pima pineapple cactus (Coryphantha scheeri var. robustispina) is roundish to oval in shape and can grow up to 18 inches (45 cm) in height. It occurs in low densities within southern Arizona and northern Sonora, Mexico. Threats to this rare cactus include urban and agricultural development, off-road vehicle use, overgrazing, mining, nonnative grasses, and illegal collecting.***

*Photograph by Jim Rorabaugh*





**Harris hawk (*Parabuteo unicinctus*) nesting on a saguaro (*Carnegiea gigantea*) cactus, an indicator species of Sonoran desert.**

*Corel Corp. photo*

tion to natural, historic, and cultural resources. Pima County was no exception even prior to the Sonoran Desert Conservation Plan proposal. What is different now is that all of the sometimes independent natural resource planning and protection activities have been integrated into the proposed Sonoran Desert Conservation Plan. The six elements of the plan are:

### **1) Ranch Conservation**

Ranching is a significant historical and cultural land use in Pima County. Ranch lands have largely determined the urban boundary in eastern Pima County, and ranching continues to maintain open space and other natural resources. But many ranchers in Pima County are under economic pressure to sell their land for subdivision and urbanization. By helping ranchers stay in ranching and by promoting good land management principles, we can better protect the open space of Pima County.

### **2) Riparian Restoration**

Riparian areas in a desert environment are very important natural resources, but they are the most vulnerable habitats in Pima County. Sixty to 75 percent of all species in Arizona rely on a riparian environment (including aquatic habitats) during at least part of their life cycle. Decades of unintended destruction, primarily in urban areas, should be reversed through some level of riparian restoration.

### **3) Mountain Parks**

Protecting the open and scenic beauty of the west has long been recognized as important. Tucson Mountain Park was established by the Board of Supervisors in 1929 and has been expanded periodically ever since. New mountain parks are still being created, primarily to protect scenic views from encroachment and destruction. Preservation of these vast tracts of mountain lands also protects their biological resources.

### **4) Historical and Cultural Preservation**

Pima County is rich in history, culture, regional character, and diversity. Unfortunately, continued urban expansion threatens our cultural and historic resources. It is important to preserve our past in order to face our future.

### **5) Critical Habitat and Biological Corridors**

The two elements that express the biological basis of the plan are critical habitats<sup>1</sup> and biological corridors. When work began on the proposed Sonoran Desert Conservation Plan, the scientific community did not have a list of vulnerable species of concern, a set of biological standards, or even a vegetation map that could serve as a starting point to determine which of the regions' species need protection or are in decline. These two elements of the original plan, now combined into one, recognize the need for biological interconnectivity between the areas that will be identified for conservation in the plan.

Each of these independent planning elements is being woven carefully into the Sonoran Desert Conservation Plan to provide the most comprehensive and scientifically defensible set of natural resource, historical, and cultural preservation goals.

### **6) A Conservation Reserve and Development Reserve**

The proposed Sonoran Desert Conservation Plan combines short-term actions to protect and enhance the natural environment with long-range planning to ensure that our natural and urban environments not only coexist but enhance each other.

The Conservation Plan is not about *whether* development in the county continues to grow but *where* it grows. Growth should occur in areas with the fewest natural, historic, and cultural resource values. The end product of the Sonoran Desert Conservation Plan will be to create a regional conservation reserve using the best science available. A conservation reserve will be formed by

combining a biological reserve with a historic and cultural reserve.

The Science Technical Advisory Team for the Sonoran Desert Conservation Plan has outlined a preliminary conceptual reserve based on the land needed to stabilize and recover plants and animals that are currently imperiled, threatened, and/or endangered. Land uses that are compatible with biological goals within the conservation reserve will be further defined in upcoming months. At this time, we do not know which lands within Pima County will be incorporated within the conservation reserve or how much acreage it will include.

Lands outside of the conservation reserve will become possible sites for establishment of a development reserve. Development reserve lands also will be defined in more detail later in the comprehensive planning effort. These areas do not have the values previously described within the conservation reserve and should be considered as preferred areas for urban conversion.

## Conclusion

The Sonoran Desert Conservation Plan has become increasingly innovative,

inclusive, and comprehensive as it develops. Two independent experts, conservation biologist Dr. Reed Noss and Laura Hood Watchman, the author of a book and numerous studies analyzing habitat conservation plans around the country, have conducted an independent review of the Sonoran Desert Conservation Plan and praised it as "a credible, science-based process designed to achieve clear and laudable goals for the long-term conservation of biodiversity in Pima County."

Pima County is designing its plan for the urban environment to work within a natural and cultural resource protection ethic, which in turn will give the issues of urban design and a sustainable economy new life. I believe Tucson will grow into itself through this planning initiative, shedding its limitations and realizing its potential. It is our love of the Sonoran Desert that will ultimately allow Pima County residents to turn the most ambitious habitat conservation effort in the United States into the grandest of community plans. Our efforts to date were recently recognized by the American Planning Association, which awarded the proposed Sonoran Desert

Conservation Plan its Outstanding Award for a Plan. We hope to have the approved plan in place by December 2002.

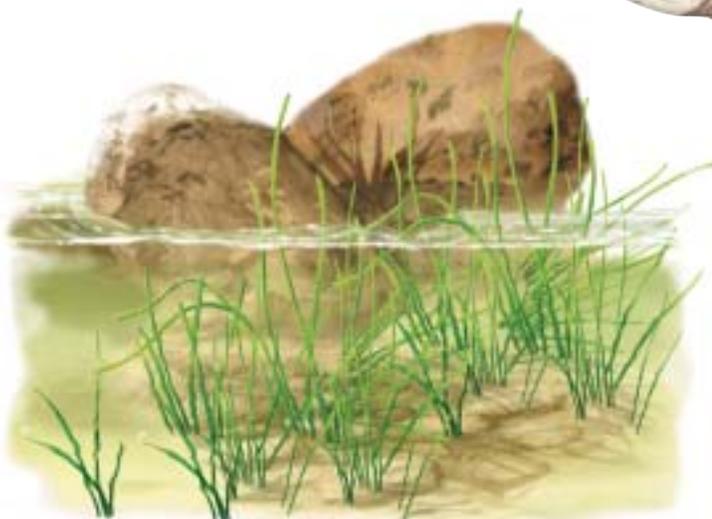
The Sonoran Desert Conservation Plan website, <http://www.co.pima.az.us/cmo/sdrp/>, contains a wealth of information about the proposed plan as it stands now and the process guiding its development.

It has been a privilege to work with the U.S. Fish and Wildlife Service, other federal agencies, and the local community as we establish the Sonoran Desert Conservation Plan and together find a mechanism for creative problem solving.

---

*Chuck Huckelberry is the Pima County Administrator. For more information about the plan, contact Maeveen Behan, Assistant to the County Administrator, at 520/740-8015 or [mbehan@exchange.co.pima.az.us](mailto:mbehan@exchange.co.pima.az.us).*

<sup>1</sup>For the purposes of the Sonoran Desert Conservation Plan and this article, the term "critical habitat" refers not only to regulatory designations of critical habitat under the ESA but also other habitats important to the conservation of species covered in the plan. In addition, the term recognizes unique Sonoran Desert habitat associations, such as ironwood stands, that are critical to sustaining the desert's biodiversity.



***(Left) A herbaceous, semi-aquatic perennial, the Huachuca water umbrella (Lilaeopsis schffneriana ssp. recurva) occurs in cienegas, springs, and healthy riverine systems in southern Arizona and northern Sonora, Mexico. Widespread loss of riparian habitats led to the decline of this endangered plant.***

***(Above) The Gila chub (Gila intermedia), a dark-colored minnow that can reach a maximum length of about 10 inches (25 cm), historically inhabited headwater streams of the Gila River in Arizona and New Mexico and likely the San Pedro and Santa Cruz river systems in Sonora, Mexico. This fish is on the Arizona threatened list and is a candidate for federal listing.***

*Illustrations by Bill Singleton*