

Chihuahuan Desert Lessons

THERE'S MUCH THE DESERTS OF NORTH AMERICA CAN TEACH THE WORLD ABOUT GRASSLANDS CONSERVATION

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Assessing the risks of working in areas controlled by drug cartels doesn't usually figure into the project plans of grasslands conservationists. However, to be a conservationist in the northern Chihuahuan Desert means being sometimes willing to go places where even the Mexican military won't.

The remoteness of the countryside along the United States-Mexico border, which has traditionally offered a safe haven for migratory birds and mammals, has more recently made the region a player in international politics and criminal activities, with major implications for wildlife. US-built border walls on the north side of the Rio Grande, more daring efforts by desperate would-be immigrants to cross the border and increasingly bloody clashes between drug cartels operating under ever tightening security conditions, all impose barriers to animal migration and conservation work.

The historically free movements of bison herds, as well as pronghorns, coyotes and even, amazingly, the occasional jaguar, across the western rangelands of the Chihuahuan Desert may soon come to a full halt due to the over 900 km of a border wall recently built by the US. Further barriers to the migrations of grasslands birds are caused on both sides of the border by diminishing water sources, as ground water and aquifer levels are dramatically lowered to sustain largely unsustainable agriculture.

Welcome to the work of conservationists of the Chihuahuan Desert grasslands, where competing interests are earnest and where most players remain callous to conservation imperatives.

Yet there is plenty of conservation work that needs to be done and is indeed being done. Just as the challenges cross borders, so do collaborations to save the grasslands. And the border region, although important, is only part of the vast desert.

As the largest desert in North America, covering 65 million hectares, the Chihuahuan stretches from the southwestern US to the Central Mexican Highlands. It's a place of extremes, sitting at altitudes of 900 to 1,500 metres, where temperatures vary from cool winters and nights to summer day temperatures of over 38°C. And while very little rain falls in the region, one of the world's most famous, and endangered, rivers—called the Rio Grande on the US side of the border and the Rio Bravo on the Mexican side—runs through it.

This land of extremes is one of the biologically richest deserts in the world due to its great diversity: more than 130 species of mammals; 110 native freshwater fish species (nearly half of them either endemic or of limited distribution) and 3,500 plant species. As well, it provides nesting sites and migratory habitats for over 500 bird species. To maintain this diversity in the face of vanishing desert habitats and a water crisis exacerbated by climate change, we have drawn on continental efforts to develop joint projects and share lessons in conservation.



ABOVE Western Bluebird (*Sialia mexicana*), which breeds as far north as BC.
ANTONIO HIDALGO

LEFT The largest remaining black-tailed dog colony in North America is located here in Janos, Chihuahua.
JÜRGEN HOTH

Developing a Common Language

We have come a long way in the North American grasslands conservation community—and the most exciting developments are about to begin. This journey has included such basics as establishing a common geographic language to realizing the need to embrace change and uncertainty as we move towards concerted actions to address the impact of global challenges such as climate change.

Establishing a common language throughout North America involved two major parts. Geographically, it's only ten years ago since we agreed upon common descriptions for ecoregions within and especially straddling countries at the North American scale. This laid the foundation to give us a true ecological sense for our conservation planning and to understand North America by its biological connections and not so much by its jurisdictional borders. This understanding of interdependence and connectivity was further bolstered with the onset of the North American Free Trade Agreement (NAFTA), which included the realization for many that “North America” does not only include Canada and the United States of America, but also Mexico, something geologists had long ago realized due to our shared geological past.

The second part of establishing a common language required addressing semantics, like agreeing to what “grass” and “grasslands” means. This discussion bears not only direct implications on how we map and understand our grasslands world, but also what we do with that understanding. Although there is not yet agreement on a universal definition, ones such as that proposed by the World Resources Institute (2000) have proven useful as a basis to adapt them to specific regions: “Terrestrial ecosystems dominated by herbaceous and shrub vegetation maintained by grazing, fire, drought and/or low temperatures.”

Establishing Grassland Priorities

The next step has been to establish effective processes for deciding collectively what the main grasslands conservation priorities are. Here, Canada has a distinguished record and has helped other countries advance their grasslands conservation work. I refer to the Prairie Conservation Action Plans (PCAPs). Developed about fifteen years ago and initially promoted by the World Wildlife Fund, the plans soon took on a life of their own in Manitoba, Saskatchewan and Alberta as frameworks for aligning the efforts and aspirations of the key groups related to the beleaguered grasslands. The PCAPs are based upon the premise of sharing a vision and agreeing on the priorities to best conserve them. Further south, in the US, many diverse grasslands conservation initiatives have been also successfully established as Joint Ventures.

Much inspired by Canada's PCAPs, it's in just the past year, however, that Mexico has developed its own grasslands conservation framework, called Estrategia para la Conservación de los Pastizales del Desierto Chihuahuense (ECOPAD, or the Strategy for the Conservation of Grasslands of the Chihuahuan Desert).

This strategy, which reflects the aspirations and dreams of all eight Chihuahuan desert states, is now serving as the shared basis for developing individual state action plans. The importance and promise of these efforts is based on the recognition that many resources are already invested in grasslands regions, frequently with mutually exclusive results, and hence efforts must be better aligned to “pull” in the same direction to achieve conservation and sustainability. Concerted regional conservation action will moreover much facilitate contributions towards greater continental goals.

The influence of the Canadian plans is now reaching further south, as Mexico's ECOPAD is in turn serving as a conservation impulse for collaborative efforts between Argentina, Brazil and Uruguay conservationists who met in late November 2008 to begin developing their own strategy.

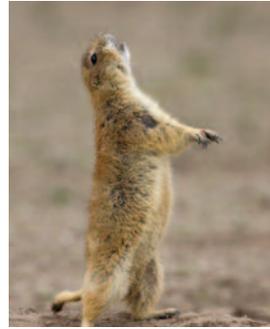
These emerging ecoregional and continent-wide joint efforts are essential if we want to face the formidable challenges ahead, such as climate change, especially since several models predict that arid areas, including grasslands, will be among the most vulnerable of ecosystems in a warming world. To give an example, *Nature* magazine pub-



STATUS OF NORTH AMERICA'S GRASSLANDS

- ▶ Combined grasslands of North America: 5,841,675 km².
- ▶ Less than 15-20% remain in natural grasslands; tall grass areas have been the most impacted.
- ▶ Of Chihuahuan Deserts' 629,000 km², less than 15% remains in natural grasslands.
- ▶ Most of the grasslands are now under private ownership, ranging from 94% privately owned in Mexico to 30% in Canada.

The grasslands of North America are very diverse. The map above provides a general representation of the grassland ecoregions. For greater detail, please see the *Compendium of Regional Templates on the Status of Temperate Grasslands Conservation and Protection*. The status information above is also from this report (click on Publications at http://iucn.org/about/union/commissions/wcpa/wcpa_work/wcpa_strategic/wcpa_conserving/wcpa_grasslandstf/)
The large map above is adapted from the Commission of Environmental Cooperation's *Ecological Regions* (www.cec.org).
The small map of the Chihuahuan Desert is from the World Wildlife Fund (<http://www.worldwildlife.org/what/wherewework/chihuahuandesert/>)



lished a recent country-wide study that assessed the probable impact of climate change by 2050. The study suggests that in a conservative change scenario, the Chihuahuan desert can expect to see a 40% species turnover due to migrations and extinctions.

There are many challenges such changes will bring to conservation efforts. For instance, we have customarily thought that by establishing a protected area, we would secure the given landscape and its components, as if on an island in the midst of a changing landscape. However, climatic changes may result in entire changes of the biota, hence making conservation a moving target. In this context, there is a clear need to expand our approach to conservation and to ensure that the much touted networks and corridors of protected areas are really established—and soon. This may only be accomplished if our societies look beyond officially recognized protected areas and acknowledge (and reward) the role privately-owned lands play in providing the ecological services of a healthy grassland and in ensuring the geographic connectivity of the grassland networks.

Mexico has already begun with a process to offer good grassland land stewards certification as protected area, which entitles landowners to receive financial assistance to further improve their lands without having to relinquish control of their lands. However, more, much more, needs to happen, including having the marketplace recognize the higher health value of beef obtained from healthy grasslands or having societies recognize the ecological services provided by these areas.

Despite current risks, we need to learn to surmount borders—physical, political and psychological. All things considered, however, perhaps the main lesson drawn from the last fifteen years of grasslands conservation work throughout the American continents is the importance of building and sharing a common view, one based on trust and the sharing of information and experiences that will help us secure the integrity of our shared grasslands and species and better face the changes to come.

References

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Why dedicate precious years of your life to work in the desert grasslands? Having lived in eight countries and worked in most terrestrial ecosystems from the tropics to the high arctic Jürgen Hoth finds there's something quite unique in working in grasslands conservation. For one, it is urgent, for grasslands are considered among the most threatened and least protected ecosystems worldwide. The urge to try to make a difference is only invigorated by the despondency of societies to dismiss the importance of this ecosystem, which was the cradle of civilization (providing us with corn, rice, wheat, sorghum, etc.). Today, its vulnerability perhaps makes it our best laboratory to study the challenges to be faced due to climate change. Enough to keep you at the edge of your chair... for many lives.

ABOVE LEFT: Rich grasslands wildlife has been appreciated for more than 1,000 years, as this rock etching of pronghorns and curlews shows.

JÜRGEN HOTH

ANIMALS ABOVE LEFT TO RIGHT: Black-tailed prairie dogs, red-tailed hawk, and burrowing owls of Nuevo Leon.

ANTONIO HIDALGO

RIGHT: Agua Caliente spring in Janos, Chihuahua. Unique water sources throughout the Chihuahuan desert grasslands are rapidly vanishing due the excessive depletion of aquifers for agricultural purposes.

BILL STEEN

