

Sister Parks: Challenges and Best Practices for Cross-Border Conservation in Parks and Protected Areas

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Abstract--Although increasingly separated by physical and political barriers, the lands on either side of the US-Mexico are united by shared ecosystems, watersheds, and conservation issues. Both sides of the border contain numerous protected natural areas, including parks, forests, and wildlife refuges, and some of the national parks in the two countries are designated "sister parks" in a formal program that encourages collaboration and mutual support. This paper, based on a workshop held at the Madrean Conference, explores the many challenges and opportunities in creating on the ground conservation partnerships across the border. A important issue for biologists, park rangers, and other government employees in both the US and Mexico is the difficulty in obtaining permission to cross the international border, so working with non-governmental organizations that provide greater travel flexibility is essential. Other challenges include language barriers that make communication more complicated, staff turnover that can affect established relationships, and barriers to sharing data that would aid conservation of shared wildlife species. Workshop participants agreed that while maintaining formal US-Mexico sister park and other conservation partnerships is difficult, the work is important and will only become more so. We provide examples of how barriers to cooperative cross-border conservation can be overcome, and highlight a few examples of successful programs, including spring and biodiversity initiatives in sister parks in southeastern Arizona and northern Sonora, and the pronghorn restoration project in the Pinacate-Organ Pipe-Cabeza Prieta region.

INTRODUCTION

The natural world rarely conforms to political boundaries. This is especially true in the Borderlands region of the United States and Mexico, where both countries share rich biodiversity, migratory wildlife, watersheds, and a host of environmental problems including air and water pollution (Liverman et al. 1999, Varady et al. 1995, Wilder et al. 2010, Scott et al. 2012). The two countries also share a number of threatened and protected species including jaguars (*Panthera onca*) and other felids, Mexican grey wolves (*Canis lupus baileyi*), Sonoran pronghorn (*Antilocapra americana sonoriensis*), desert bighorn sheep (*Ovis canadensis nelsoni*), and others that rely on habitat and cooperation among wildlife managers in both countries to maintain healthy populations (U.S. Fish and Wildlife Service 2018).

Mexico and the US have significant protected natural areas near the border in the states of Texas, New Mexico, Arizona, and California in the US, and Baja California, Sonora, and Chihuahua in Mexico. These include both private and public reserves with a variety of designations and protections. In the Sonoran Desert-Sky Island region, some of the largest areas are national parks that share a contiguous border, such as Organ Pipe Cactus National Monument and Pinacate Biosphere Reserve (El Pinacate y Gran Desierto Altar) in Mexico and are officially referred to as "Sister Parks" in the US and "Brother Parks" (parques hermanos) in Mexico (U.S. National Park Service 2018). The sister park designation is also shared by other parks that are not contiguous but have shared resources, such as Saguaro National Park in Arizona and Parque Nacional Constitución de 1857 and Parque Nacional Sierra de San Pedro Mártir in Baja California, all three of which are located in "sky island" mountain ranges that are surrounded by desert areas, and the southern Arizona national park areas Chiricahua National Monument and Coronado National Memorial, which are linked with Ajos-Bavispe National Forest Reserve and Sierra de Alamos - Rio Cucujaqui in Sonora (Swann et al. 2016).

Conservation relationships between the US and Mexico have a long history. The first U.S. and Mexico International Park Agreement was signed at an international meeting in El Paso, Texas more than 80 years ago, on November 24, 1935 (Greater Big Bend Coalition 2018). When US President Franklin Roosevelt signed the legislation creating Big Bend National Park in 1944, he expressed in a letter to Mexican president Manuel Avila Camacho that "I do not believe that this undertaking in the Big

Bend will be complete until the entire park area in this region on both sides of the Rio Grande forms one great international park.” Similarly, when the biosphere reserves were established in Organ Pipe Cactus National Monument (1976) and El Pinacate y Gran Desierto Altar (1993) it was with the goal of international cooperation and support. In the area of wildlife conservation, the two governments have often collaborated, with both signing the Migratory Bird Treaty Act with in 1936 and through creation of the Canada/Mexico/US Trilateral Committee for Wildlife and Ecosystem Conservation and Management (Mumme 2017), which meets annually to consolidate efforts for wildlife and ecosystem conservation and management.

Despite this history of ambitious efforts, maintaining conservation partnerships on the ground has always been challenging. In addition to the economic, cultural, and language differences between the two countries, domestic politics within Mexico and the US often influence the relationships between them (Liverman et al. 1999). In the past two decades immigration into the US from Mexico and smuggling between the two countries, as well as the law enforcement response on the US side, has dramatically impacted the border region (Cohn 2007, Flesch et al. 2010). Beyond the political difficulties between the two countries, there is still significant economic activity and legal travel between the US and Mexico, an active tourist industry, and a widespread belief that the need for shared conservation is greater than ever.

The purpose of this paper, based on a workshop at the Madrean Conference with about 20 participants from both Mexico and the US, is to explore the main challenges in developing shared conservation partnerships and how best to overcome them. Although there is a large literature on keys for creating successful private-partnerships and some papers on conservation partnerships, here we focus on the more specific question of current issues and opportunities in conservation partnerships along the US-Mexico border. In the workshop, we engaged in both one-on-one and group dialogue. We asked participants to share their stories and program examples of what works in helping achieve important shared conservation goals in the Sky Island-Sonoran Desert region and how to move forward in solving problems related to water, wildlife and other environmental issues.

ISSUES AND CHALLENGES

Workshop participants explored a wide range issues and challenges that are common to many partnerships, including the need for consistent funding and the importance of clear goals and consistent leadership. One of the more specific challenges for collaboration in the border area is the difficulty that government officials such as park managers, biologists, and managers have in traveling across the international border, which greatly limits face-to-face meetings and cross border visits to field sites. For examples, park officials from Sonora were unable to attend our session because they could not secure permissions to travel to the Madrean Conference. In 2016, an important meeting involving more than 4 US parks and 8 Mexico parks had to be cancelled at the last minute because National Park Service (NPS) officials were unable to cross the border due to security concerns. In-person meetings in the past have been important for training, developing shared protocols, fire management, and even for practical considerations such as exchanging equipment.

We agreed it is important to continue to work through these challenges and continue to meet wherever possible. Large meetings are more intractable at the present time but smaller trips, planned well in advance, may be possible. In addition, it is possible to use technologies such as Skype to hold virtual meetings across borders. An alternative way that government agencies can address the travel issue is by working with universities and non-governmental non-profit organizations (NGOs), which often have fewer travel restrictions to host or attend meetings, facilitate communication, provide training, and implement on-the-ground projects with the participation of government agencies supported through grants. NGOs such as the Sky Island Alliance (SIA), International Sonoran Desert Alliance, Arizona-Sonora Desert Museum, Greater Big Bend Coalition, and many others often form the core of efforts to achieve specific results in a wide range of restoration, research, and wildlife conservation efforts.

Conservation challenges and solutions can be unique to each nation, but often the needs and goals are similar on both sides of the border. Additional issues identified in the workshop that can affect cross-border conservation include limited financial support, language barriers, and barriers to sharing data among researchers and agencies. On the US side the Sister Parks programs have been financially supported by the Southwest Border Resource Protection Program, not only Arizona and Sonora, but also between Texas and Chihuahua, and between California and Baja California. These funds can be used to support borderlands conservation in parks through cooperative agreements with NGOs. Funding for collaborative projects

often seem the most effective way to overcome shared information gaps or border-related challenges in conservation programs.

Most individuals who work for agencies in Mexico and the US are not fluent in both Spanish and English; although they may speak some of the second language but are reticent about speaking it. We discussed how language barriers may be perceived as more consequential than they need be. We addressed this issue in a humorous way in our workshop by asking everyone to greet and converse with 2-3 people from the other country in their native tongue. However, clearly the most successful meeting and trainings, like the Madrean Conference, try to translate all the content to all participants, and have trained facilitators who are also skilled translators, which NGOs are often able to provide. Non-native language learners can also sometimes find support within their organizations to take additional classes or immersion experiences, but probably the most important step is for organizations in both countries to make the effort to hire more bilingual staff. Some NPS areas have taken steps to do this, hiring from a pool of bilingual returned Peace Corps Volunteers who are eligible for special hiring considerations in the federal government and come to the position with cross-cultural community development experience. At any rate, the language issue is significant but can be overcome with advanced planning and good selection of team members.

Barriers to sharing data are more difficult to address, as sometimes there are legal barriers, especially with sensitive species. However, most species are not sensitive and the tendency to not share data such as wildlife camera data, even within countries, is often more of a problem related to individual reluctance and lack of good systems for managing the data. Other workshops at the conference also discussed this issue and proposed some solutions. Some participants expressed that greater knowledge of mammal distributions on both sides of the border, as is occurring with reptiles and plants, would be an important step in regional wildlife conservation. Recognizing the value of open-source publications, with multinational authors, can also work to address data-sharing needs as many journals now require all data to be archived and accessible.

Finally, there is no way of getting around the significant issues related to politics and security along the US-Mexico border. Although there are great differences in the perceptions about these issues, workshop participants acknowledged that they have real and significant implications for how conservation programs and projects can be accomplished. Beyond travel restrictions, these implications include shifting financial and institutional support for international conservation programs, as well as changes in conservation priorities that may result from changes in border security, infrastructure, and enforcement.

EXAMPLES OF SUCCESSFUL PARTNERSHIPS

The Madrean Conference highlighted many of the best cross-border conservation projects in the region, including large programs such as the biodiversity surveys associated with the Madrean Archipelago Biodiversity Assessment and jaguar conservation projects associated with Naturalia, Northern Jaguar Project and other partners, as well as many smaller projects with literally dozens of partner organizations. In addition, there are some existing conservation partnerships at higher levels in the governments. Besides the Trilateral Committee, a major player is the US Fish and Wildlife Service's Division of International Conservation, which has a Mexico branch dedicated to strengthening Mexico's capacity to conserve its globally important biological resources (U.S. Fish and Wildlife Service 2018). In addition to wildlife conservation, the border region has several conservation projects related to water, especially in the Colorado River delta and the Big Bend/Rio Bravo area.

These programs share many similarities that help make them successful, so and in the remaining part of this paper we'll highlight just a few example projects that were discussed during the workshop that illustrate how these projects have addressed some of the challenges of doing work on both sides of the border.

Sister park project in Arizona, Sonora, and Baja California

During the past decade a project with the SIA, NPS, and Mexico's Comisión Nacional de Áreas Naturales Protegidas (CONANP) worked with Sister Parks in each country to share knowledge relating to conservation and education related to wildlife, pollinators, and springs. SIA has been a natural partner for this work, which is focused on long-term understanding of changes in wildlife populations and water resources within parks and national forests so as to ensure they will be protected for the future, because it has Spanish-speaking staff and a long history of working in Mexico and many existing connections in

Mexico parks and NGOs. Although NPS and CONANP park rangers and biologists are sometimes able to meet in person – in the past, they have shared equipment such as fire engines and even paint colors for park signs – travel between countries has become more difficult in recent years.

SIA has helped the partnership continue by holding trainings for park staff in their own countries including springs assessment workshops in Sonora with the Springs Stewardship Institute, and wildlife tracking workshops in the US for NPS staff. In addition, where travel has been possible, SIA has facilitated visits by CONANP staff to events in the US, such as a Borderlands workshop and bioblitzes at Coronado National Memorial, and facilitated visits by NPS staff to workshops on wildlife tracking and fire management in Área de Protección de Flora y Fauna Bavispe and Parque Nacional Constitución de 1857. An important role for SIA is to help overcome language barriers by facilitating messages between park officials and translations during meetings, including opportunities to speak via Skype at park events where travel is not possible. Over the past few years SIA has also developed partnerships with several key NGOs in Mexico including Naturalia and Cuenca Los Ojos.

One of the best results of the partnership has been the involvement of student-led groups from Mexican universities who have enthusiastically participated and even initiated bioblitzes, spring assessments, and pollinator conservation. These groups include Alianza Mariposa Monarca, a student group at Universidad de Sonora that monitors and carries out educational programs about monarch butterfly conservation; Grupo de Exploración de Manantiales de Sonora (Sonoran Springs Exploration Group) dedicated to search and assess springs in Sonora; and students from Universidad de la Sierra, who participate in pollinator blitzes. Through these efforts SIA has been able to expand the Sister Park concept to other organizations engaged in conservation and education work along the border. More importantly, the student groups not only help sustain the Sister Parks program in a time when it might otherwise be impossible, but they are inspiring to work with and bring new energy to the parks. It is extremely hopeful to witness new bonds being forged between future conservation stewards and leaders from either side of the border.

Sonoran pronghorn recovery project in Arizona and Sonora

The partnership to protect, monitor, and restore the Sonoran pronghorn has seen significant successes that would have been impossible without an international partnership of many organizations. This population of pronghorn, an endangered subspecies, is found nowhere else in the world outside of the Organ Pipe-Cabeza Prieta-Pinacate in the Sonoran Desert, was in decline for many years due to habitat loss, fragmentation, and severe drought. The population appears to have hit a low point during the drought of 2002 with only 18 individuals counted in the US (Christianson et al. 2017), with a higher but unknown number of individuals in Mexico.

The on-going effort to restore the pronghorn through captive breeding is a broad partnership that includes the US Fish and Wildlife Service, the Arizona Game and Fish Department, Organ Pipe Cactus National Monument, the US Bureau of Land Management, the US Air Force, the US Marine Corps, Wildlife and Sport Fish Restoration Program of the US, and El Pinacate Biosphere Reserve and the Instituto del Medio Ambiente y el Desarrollo Sustentable de Estado de Sonora. Collaboration with both state and federal agencies in Mexico has been essential because stock for captive breeding had to come from Sonora.

Collaboration has been further facilitated through partnerships with the University of Arizona and the University of Idaho to facilitate development of cross-border pronghorn population monitoring efforts and ecological research. Through grants and logistical support from US and Mexican partners, the universities have been able to develop consistent survey protocols and centralize, organize, and distribute data for all partners. Research projects are executed by university staff and students who can regularly cross the border to work with pronghorn biologists in both nations and maintain frequent face-to-face communication with sister park staff. Engaging universities formally in conservation efforts, such as through regular Sonoran Pronghorn Recovery Team meetings, further facilitates information transfer and ensures universities address knowledge gaps important to all stakeholders. We have noticed the universities serving as an important bridge, further linking agencies in the U.S. and Mexico. Like all agencies, international relationships with universities take time to build but can be highly impactful. The University of Arizona boasts several US and Mexican graduate students working on cross-border conservation supported by agencies and NGO's from both countries.

CONCLUSION

The importance of partnerships is widely recognized in achieving many societal goals, including conservation goals (e.g., McNeeley 1995). Key elements of success in partnerships vary widely depending on the specific needs, but universal elements include the need for: 1.) establishing clear goals; 2.) identifying the key stakeholders; 3.) identifying key risks; and 4.) building public support. A universal element in conservation partnerships is the understanding that federal government organizations alone cannot carry the full responsibility for protecting nature. Support from state and local organizations, and especially NGOs, is essential (McNeeley 1995). For conservation work in the US-Mexico border region, we identified several keys to success:

1. Having a range of partners from government organizations, universities, and NGOs who can bring different elements to help the project succeed, with 1-2 organizations providing leadership;
2. A consistent funding source to sustain the project, but with supplemental funds to add value for research and restoration, such as support for pronghorn water catchments;
3. Several key players who enjoy working in partnerships, are flexible, and can take on a leadership role if another key player leaves his or her position;
4. Spanish-English language capacity to help lead meetings and work easily in both Mexico and the US;
5. Recognizing that there will always be barriers to cross-border conservation, a long-term commitment from the different partners with as much institutional support as possible;
6. Capacity to bring in new individuals, especially students, who can add new value and technology to the project and work into leadership positions; and
7. Developing an open environment of mentorship to pass on experience and lessons learned to new leaders in cross-border conservation.

At the workshop, we were pleased to have the participation of some individuals with a deep history of working on both sides of the US-Mexico border, as well as younger individuals who are only beginning their conservation career. We all agreed that while it may be as difficult as it has ever been to work on conservation projects in both countries, at the same time there are probably more on-the-ground projects and more partner organizations than at any previous time in history. This reflects not only a growing recognition that wildlife and other environmental issues do not recognize the international boundary, but that the need to collaborate on environmental issues is greater than ever.

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