Proceedings of Border Institute VI: Transboundary Ecosystem Management

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Abstract—*Ecosystems are bisected by international borders along the United States-Mexican border; infrastructure and the heightened security activities bisect the north-south cores, corridors, and buffers essential to preservation of ecosystems. The Southwest Consortium for Environmental Research and Policy (SCERP) and its partners convened an annual policy conference, Border Institute VI, where participants developed 10 recommendations to affect change in current transboundary ecosystem management policies throughout the United States-Mexican border region. Recommendations addressed institutionalization of existing programs, sovereignty concerns, education of citizens, land use planning, funding and revenue streams, approaches to water protection, watershed assessment of the Rio Grande/Río Bravo and Colorado Rivers, a public relations campaign, and specific changes to existing border programs and origanizations.*

SCERP: Promoting a Brighter Future for the United States-Mexican Border Region Through Sustainability Science

The Southwest Consortium for Environmental Research and Policy or SCERP, a collaboration of five United States and five Mexican universities located in all ten States, assists United States-Mexican border peoples and their environments by applying research information, insights, and innovations. The five American universities are Arizona State University, New Mexico State University, San Diego State University, the University of Texas at El Paso, and the University of Utah. The Mexican universities are El Colegio de la Frontera Norte, Instituto Tecnológico de Ciudad Juárez, Instituto Tecnológico y de Estudios Superiores de Monterrey, Universidad Autónoma de Baja California, and Universidad Autónoma de Ciudad Juárez.

SCERP was created in 1989 and was first funded by Congress in 1990 to address environmental issues of the United States-Mexico border region and to "initiate a comprehensive analysis of possible solutions to acute air, water and hazardous waste problems that plague the United States-Mexico border region." Since then SCERP has implemented about 400 projects involving as many as a thousand individuals.

The collaboration works closely with the EPA-HHS-SEMARNAT-SALUD IBEP, Border XXI, and 2012 Programs and other multi-national organizations and has the multi-fold mission of applied research, outreach, education, policy development, and regional capacity building for the communities, our ultimate customers.

SCERP exists to address the rapidly deteriorating border environment, to protect and enhance the quality of life and health of border residents, and to support the educational mission of our universities. SCERP's vision is to have a vital region with dynamic and diverse economy, sustainable environmental quality, intact ecological systems and processes, and a more equitable quality of life.

The approach used by SCERP, is to integrate and focus trans-disciplinary academic expertise; binational, State, tribal, and local policy making; non-governmental organization advocacy capacity; and private industry attention and influence on trans-border issues.

SCERP informs the decision-making process without advocating for or against a particular position. By interpreting the results of unbiased scientific inquiry, it provides motivation to adopt comprehensive, regional, and long-term policies and solution sets.

SCERP is also the primary sponsor of an annual think tank-style policy conference, call the Border Institute, than convenes the 100 top decision-makers and stakeholders from the region to examine complex and critical issues and recommend policy actions.

Introduction: Heightened Border Security Presents Renewed Challenges

Already a difficult process, conservation of biodiversity—the biological variety found at multiple scales, from the gene pool, to species, to habitats, to ecosystems—is further complicated by jurisdictional boundaries where cooperation and planning have typically broken down (or never developed in the first place). At international borders where national security concerns have begun to take priority over other concerns, the reduced permeability of the fences, roads, ports, and other infrastructure associated with the border results in a bisecting of many ecosystems that could become permanent.

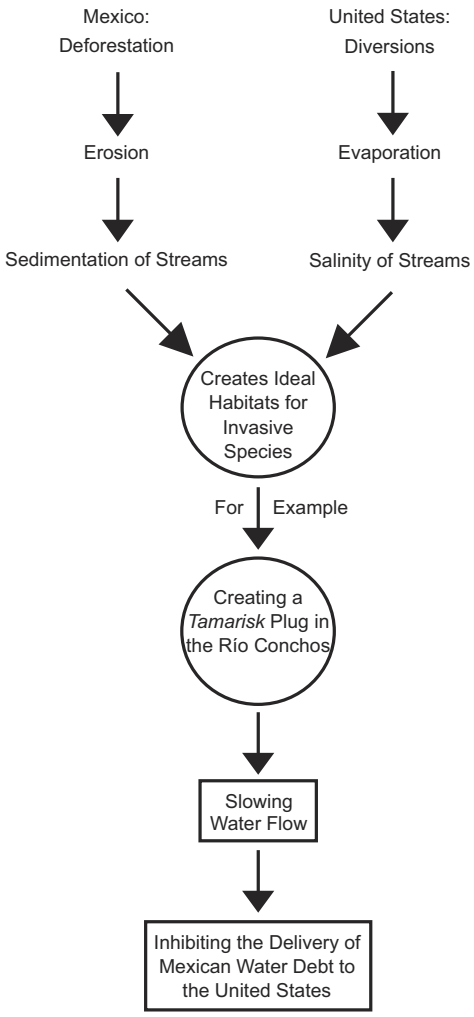

Figure 1—Effects of Mexican deforestation rate and U.S. out-of-basin water transfers.

The barriers at the border are compounded by population pressures that focus sprawl along that border and/or connect border urban areas across wildlands.

Such is the case along the United States-Mexican border, where infrastructure and the heightened security activities essentially sever the north-south cores, corridors, and buffers essential to preservation of ecosystems. The additional threats of water transfers away from nature, introduction of exotic species, and the intersection of varying traditions within each nation make many unique and rare ecosystems vulnerable. This also threatens the vitality and survival of nearly 100 individual species. For example, the deforestation rate in Mexico and the out-of-basin water transfers in the United States and their resulting direct and indirect effects have created a number of environmental hazards, ecological threats, and economic development obstacles (figure 1). They have even heightened international tensions. For example, in the transboundary Rio Grande Basin such factors as headwaters deforestation in the Conchos, large diversions for irrigation, and outdated reservoir operation have combined to stress the aquatic ecosystem, allowed large invasions of water-consuming non-native species such as salt cedar, and created binational tensions over water delivery obligations.

The Scale of Conservation: Large Tracts Need Saving

The most significant principle of biodiversity conservation involves the protection of the largest possible intact landscapes. This usually necessitates the crossing of political boundaries, a requirement that slows the process and creates difficulties in coordinating and reconciling differences between neighboring countries. While nations can easily and quickly agree to conserve migrating species in their territories, as in 1936 when Mexico signed on to the United States' Migratory Bird Treaty Act to protect migrating birds, protecting adjacent prime natural areas proves much more difficult. Often the protection consists of a convenient no-man's land of deserts and other uninhabited areas (usually Federally or State-owned), not necessarily where threats, vulnerabilities, hot spots, and threatened ecosystem processes exist.

A number of parallel policies and regulations, letters of intent to preserve adjacent natural areas, and similar land acquisition and easement mechanisms exist (see appendix; available on the SCERP website at www.scerp.org), but they are too few and scattered. And, without consistent political leadership and continuity of public policy, progress toward transborder ecosystem protection may be derailed. Such was the finding of an annual policy conference, Border Institute VI, convened by the Southwest Center for Environmental Research and Policy (SCERP) and its partners to address transboundary ecosystem management issues throughout the United States-Mexican border region.

Findings of Border Institute VI: Recommendations for Both Sides

At the culmination of the three-day conference, participants developed policy recommendations to enhance the management and conservation of transboundary ecosystems. Overall, participants concluded that the definition of transboundary environmental protection must include locally based, overarching visions, and it must be culturally sensitive, economically compatible, and include a region that has been defined by its stakeholders. Transboundary environmental protection also must incorporate issues of border security as they are affecting the border region at the current time. Differing local and national interests must be recognized as well. Specific statements and recommendations include the following:

1. Some individual officials and their agencies currently conduct conservation across borders in an effective way. When obvious mutual benefits appear, these small projects can be linked to achieve success regionally. Working within existing local agreements (binational liaison mechanisms, for example) and organizations' existing missions—in contrast to creating a new organization to coordinate biodiversity across the border—long-term, holistic, and regional visions can be gradually implemented. To achieve

this and continue existing successful efforts, job descriptions, objectives, and programs must be institutionalized to protect them from changes in political administrations and shifting priorities.

2. Where interjurisdictional issues and sovereignty arise, neighboring populations should rely on negotiation to address the most pressing issues in their countries. This will ultimately lead to proactive binational planning and implementation that integrates biodiversity considerations into other efforts such as water transfers or infrastructure projects. This starts with such tangible steps as transboundary environmental impact assessments (TEIAs), joint surveys, binational databases, border-crossing GIS, identification of priority natural protected areas to be joined, and designation of wildlife corridors. Each side can also learn from the success and failures of the other. For example, the United States can learn how to make land productive with less water just as Mexico can learn how to reforest lost habitat; both sides can learn how their own agriculture and other subsidies negatively impact natural systems.
3. Often the political motivation for a decision comes after education and mobilization of the public. Environmental education efforts must cross the borders they address and must include explanations about the economic, environmental, ecological, educational, ethical, and esthetic value of nature. Making conservation projects, such as the "river walk," the "nature trail," or the "greenway," into recreational household words helps produce a motivated and engaged public.
4. It is not enough just to buy land—once owned it must be properly managed, and that takes money and political will. Joint or shared funding of projects offers some solutions. An excellent example of this approach is the overall effort to control erosion and protect habitat in the binational Los Laureles Canyon in the Tijuana Estuary. California Coastal Conservancy funds were passed through the International Community Foundation and its sister philanthropy, Fundación Internacional de la Comunidad, to the municipal planning organization in Tijuana and the local Municipal Urbanization Unit. Matching assistance came from two branches of the Mexican Federal government, and permitting and technical assistance came from the U.S. Fish and Wildlife Service. In practice, the United States could help Mexico provide increased water from the Río Conchos by paying for part of the cost of removing the salt cedar plug from the lower Río Conchos, providing immediate benefits for important downstream protected areas (see figure 1).
5. Incentives and revenue streams do exist. If the goal is to achieve a sustainable rural economic development alternative, "experience tourism" can be developed around the themes of cultural, agricultural, natural, and tribal tourism, which by definition and practice must be conducted so that the carrying capacity of the destination is not exceeded either by residents or tourists. Other sources of income include auctions of hunting permits; oil, gas, and transportation fees and taxes; and the resources of non-profit foundations and international entities. Finally, cost-sharing by all entities on the border should be made a priority.
6. Water for nature must be sufficient and sustained. Rivers must no longer be seen as water supplies and must be valued for their own sake. Both the United States and Mexico should pass legislation recognizing international rivers, dedicating water to them, and allowing the purchase of water to maintain their flows—all the way to their mouths. The legislation should include consideration of drought and flood years, as well as long-term global climate change predictions. Specifically, participants recommended the passage of Senate Bill 1957 U.S.-Mexico Transboundary Aquifer Assessment.
7. A binational watershed assessment for the entire Rio Grande/Río Bravo, from Colorado to the Gulf of Mexico, should be undertaken to determine how much water is needed to sustain life. It is also important to determine which stakeholders need to be at the table to make decisions about the river and plant for future conservation, which ongoing assessments can provide helpful information, and to elect a body to oversee the assessment, such as the International Boundary and Water Commission (IBWC) and its Mexican counterpart, the Comisión Internacional de Límites ye Aguas (CILA). The assessment should be divided into subbasin levels, and then the coordinating body can harmonize the data. In conjunction with or after the assessment is complete, stakeholders should identify key areas in need of protection. Several successful small watershed pilot projects exist along the border, and then can be replicated for development in other areas of the border region. Existing organizations on both sides of the border should work together to develop long-term, holistic visions for their watersheds. As well, a water budget should be developed for the border region, and specifically, tribal input on it should be sought aggressively.
8. A communications campaign is needed to target audiences, stakeholders, and decision makers about the economic benefits of conservation on both sides of the border. The campaign can be effective when the messenger is credible, champions are enlisted, and emblematic species are highlighted. Non-governmental organizations are urged to further their advocacy activities.
9. Although land use planning is different in both countries, thus making binational planning difficult, land use planning is critical to enhancing and restoring long-term health and ecosystems. Stakeholders should use memoranda of understanding, letters of intent, local agreements, conservation easements, exchange of letters, and treaties (though treaties are not preferred) to carry out binational land use planning. Available data and information—including natural resources and cultural and socioeconomic data—on existing conditions and potential threats should be organized and disseminated to interested stakeholders. A gap analysis of this information should be conducted, and those gap discovered should be addressed using remote sensing and GIS tools, ecosystem modeling tools, and focused field surveys and monitoring. In the process, stakeholders must recognize

the United States' need for border security and develop methods and approaches to maintain landscape connectivity, such as using remote video surveillance systems rather than physical barriers.

10. Finally, certain specific recommendations were made for existing border organizations:

    - The Border 2012 Program must reintegrate the Natural Resources Working Group of its predecessor program, Border XXI.
    - IBWC-CILA must follow up on and broaden their use of a Science Advisory Council to explore ways of conserving biodiversity within their purview (which is addressed in their Minute 308).
    - The Border Environment Cooperation Commission (BECC) must include and elevate conservation and sustainability criteria and the North American Development Bank (NADBank) must expand its mandate to include ecosystem conservation.
    - The U.S. Department of Homeland Security (DHS) must consider non-invasive techniques—including seismic sensors, remote video surveillance systems, and laser crossing detectors—to monitor remote sites for illegal immigration and other security-related concerns.

Conclusions

The United States-Mexican border region has the highest rate of species endangerment in the United States. Some 31 percent of the species listed as endangered by the U.S. Department of the Interior are found in the United States-Mexican border region, and on the Mexican side of the border 85 species of plants and animals are in danger of extinction. The ecosystems in which these species are located provide services and renewable resources that humans worldwide under-appreciate, undervalue, and under-conserve.

Developed by the 60 top-level border organization representatives who attended Border Institute VI in April 2004, these recommendations aim to alter the course of the status quo. The recommendations will be widely circulated among all levels of the United States and Mexican Federal, State, and local agencies; tribal nations, NGOs; the private sector; and others who have a stake in the United States-Mexican border region. It is hoped that these recommendations will increase the inclusion of ecosystem considerations in the design and implementation of policies and projects along the United States-Mexican border.

References

Since 2000, SCERP has published volumes in its monograph series entitled the U.S.-Mexican Environment. They are available electronically at SCERPs Web site www.scerp.org/ or by contacting SCERP at scerp@mail.sdsu.edu. They are:

Clement, Norris. 2002. U.S.-Mexican Border communities in the NAFTA era.

Erickson, Christopher. 2004. Binational air emission reduction credit trading.

Ganster, Paul. 2000. A road map to a sustainable 2020 (findings of Border Institute I).

Ganster, Paul. 2002. Economy and environment for a sustainable Border Region, now and in 2020 (findings of Border Institute II).

Michael, Suzanne. 2003. Binational water management planning (findings of Border Institute IV).

Pijawka, David; Ganster, Paul; Van Schoik, Rick. 2003. Overcoming vulnerabilities; The SCERP research program (1990-2002) and future agenda.

Rohy, David. 2003. Trade, energy, and the environment: challenges and opportunities for the Border Region, now and in 2020 (findings of Border Institute III).

Sweedley, Alan. 2003. Air quality issues along the U.S.-Mexican Border.

Westerhoff, Paul. 2000. Water issues along the U.S.-Mexican Border.

Wilken-Robertson, Michael. 2004. Tribal Environmental Issues on the Border Region.