



Malinda Essig

An interpretive tapestry created by Arizona artist Ann Keuper who wove in items—using sausage casing—brought by attendees of the Celebration of Desert Cultures.

Sonoran Desert Network Weavers:

Surprising Environmental Successes on the U.S./Mexico Border

by Wendy (Gwynn) Laird-Benner and Helen Ingram

At a time when public opinion is consumed by concern over illegal immigration and border security and support for strengthening the border fence and military presence runs high, environmental activism should not be expected to make much headway. In the Arizona/Sonora border region the dominant discourse would seem especially toxic to collaboration. Yet some surprising environmental victories are occurring. The United States, Mexico, and environmental organizations are allocating Colorado River water to protect the Cienega de Santa Clara in Sonora, Mexico (per Minute 316 of the International Water Treaty among the United States and Mexico) and implementing a binational monitoring program.¹ A 70-square-mile reserve has been established for jaguar south of the Arizona border.² Water sampling, conducted by volunteers, has prompted the upgrade of a binational wastewater treatment plant, resulting in the recovery of native endangered fish in the Santa Cruz River.³ Historic wetlands in the Yuma Crossing National Heritage area are being restored.⁴

These and many other environmental accomplishments⁵ are the result of the strong network between a core group of border actors, fueled by a love of place.

We label these individuals “network weavers,” suggesting a tapestry interwoven and held together by a web of interrelationships. An actual tapestry hangs in the offices

of the International Sonoran Desert Alliance, binding together objects contributed by people from a variety of backgrounds and communities from across the Sonoran Desert (see cover photo). This article reports on interviews with 47 members of this network who have focused on conservation and cultural preservation in the Arizona/Sonora border. Our study reveals how they connect with one another, maintain and renew relationships, and make tangible progress despite a tough United States/Mexico border context. We find that the environmental successes in this border area can be attributed to the networked relationships, which frequently began as bridging ties spanning physical, political, social, economic, and ideological boundaries and then evolved into bonding ties with high levels of trust. These associations often started when the network weavers were in formative stages of their lives (e.g., as a student) and have continued for decades, some involving multiple generations. These networks, founded on face-to-face contacts and with sustained engagement, transcend the influence of contemporary events and forge bridging ties across geopolitical, socioeconomic, and cultural boundaries. This network is also supported by positive narratives about place, as well as stories that encourage resistance to negative portrayals of both people and place along the Arizona/Sonora border.

The Context

The Arizona/Sonora border region is a diverse landscape of terrestrial, freshwater, and marine ecosystems.⁶ These ecologically fragile and unique areas are prized for their rarity and visual beauty as well as their cultural significance.⁷ Figure 1 is a map displaying the array of federally protected areas and tribal lands in the Arizona/Sonora border region. Efforts to preserve these ecological treasures began in the 1930s with the establishment of Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Range, and continued with additions to state and federal protected areas up until 2001 with the dedication of the Sonoran Desert National Monument. Border region environmental protection reached

a high point in 1993 when Mexico created two national biosphere reserves, the Pinacate y Gran Desierto de Altar and the Alto Golfo de California y Delta del Río Colorado. The creation of these Mexican protected areas helped facilitate greater ties with sister protected areas in the United States (i.e., Organ Pipe Cactus National Monument and the Imperial, Cibola, and Cabeza Prieta national wildlife refuges).

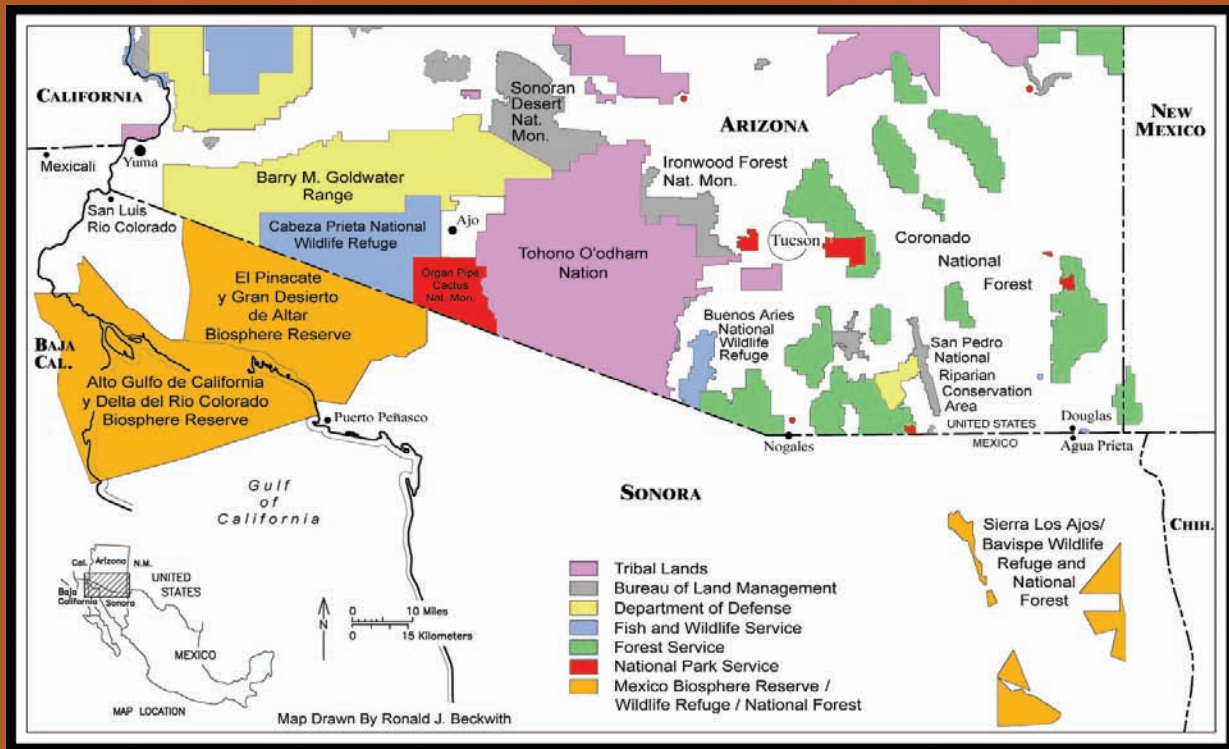
However, after September 11, 2001, attention and resources were diverted away from preservation of lands and towards security. Congress passed the Secure Fence Act (2005) and the REAL ID Act (2006) allowing for speedy construction of infrastructure at the border without compliance with national or state environmental laws. Agency officials and activists who had been engag-

ing in extending species protection were forced to attend to the immediate consequences of large-scale construction, increased traffic, installation of noisy and visible infrastructure, and landscape fragmentation.⁸ These new improvements geared at reducing illegal human as well as drug-related vehicle trafficking have resulted in disturbance to habitat, disruption of hydrology, and displacement of wildlife.

Weaving a Transboundary Network

Recent literature has identified social networks as important to successful environmental protection.⁹ Yet networks, which are defined as existing outside established institutions, are informal

Figure 1. Protected federal and tribal lands in the Arizona/Sonora border region.



Ronald Beckwith

and may be ephemeral. Our project aimed to identify the structure and function of the Arizona/Sonora border network that has managed to generate positive transboundary action among people who might reasonably be discouraged and alienated given the current border context.

We interviewed 47 individuals, from the United States, Mexico, and Tohono O'odham Nation, who are engaged in one way or another in the pursuit of environmental quality or cultural preservation in the Arizona/Sonora border region. Individuals were identified through a snowball sampling method where each person was asked to identify others involved and influential in the region. This method is good for revealing ties between individuals, though it does not necessarily produce a comprehensive list. A diverse group of individuals with varying backgrounds was identified through this method. Forty-one of these actors have been involved in the area for 20 years or more. Twenty-one are currently affiliated with a vari-

ety of nongovernmental organizations (NGOs), 14 are from academia, and 11 are government agency officials (three of whom have now retired). It must be noted that while these actors have remained focused throughout most of their careers on a given broad topic or geographic region, they have moved among academic, NGO, foundation, or government positions (sometimes working within several settings over the course of their careers).

Our interviews lasted about an hour and were recorded and transcribed. We asked a common set of questions, inviting open-ended responses with follow-up questions. We also probed interviewees to describe their first encounter with borderlands ecology/cultural preservation and with whom they first were influenced during these early years. Our findings stress the significance of deep ties that began in the formative years of one's career and continued to be geographically and topically connected for decades. That such linkages are forged between people on different sides of the

border is especially critical and a key to a number of subsequent environmental successes.

Face-to-Face Relationships

Direct interaction is especially important in creating strong ties.¹⁰ Most of the network weavers we interviewed had opportunities to engage directly with people in the borderlands early on in formative periods of their lives, first as travelers, participants in events, conducting research, or during their jobs. Several first met while in school pursuing undergraduate or graduate degrees at the University of Arizona, Universidad Nacional Autónoma de México, or the Tecnológico de Monterrey in Guaymas.

Mentoring played a significant role during the early years. Interviewees spoke of at least two generations of mentors. The first in the 1960s and 1970s included desert specialists like Julian D. Hayden and Paul S. Martin, as well as Gulf of California experts such as Don-

ald A. Thompson and Lloyd T. Findley. The second, contemporary generation of mentors includes ethnobotanist Gary Paul Nabhan, conservation ecologists Karl W. Flessa and William Shaw, and biologist Edward P. Glenn. Graduate students of these mentors are now key participants in the Arizona/Sonora transboundary environmental network.

Fieldwork was often cited as providing opportunities to interact with fellow researchers as well as to gain a greater appreciation for the natural resources. A deep commitment to place often was mentioned as growing out of these field experiences. Alberto Búrquez-Montijo, renowned biologist with the Universidad Nacional Autónoma de México (UNAM), noted, “Just walking and collecting species chang[ed] my perspective.”¹¹ Another remarked that fieldwork “tied the whole network together. We have all had life-changing experiences in the field that provide us with a vision

Renovation of the town’s historic Curley School ... brought both historic and architectural value to the community.

we all share.” Working side-by-side on issues also strengthens environmental understanding and cultural awareness. Gayle Hartmann, an anthropologist and long time environmental activist, said this about Native American collaborators: “One of the benefits I think I have from working in these areas is having friends who are such wonderful and interesting people, like Lorraine [Eiler] and Joe [Joaquin], who are very much of this world but retain the Tohono O’odham perspective on how people should relate to the land.”¹²

Bridging Structures

Fragmentation and value differences frequently obstruct networks¹³ and such problems are especially aggravated in contentious transboundary settings. Orjan Bodin and Beatrice I. Crona conclude, “The positive effect of bridging ties in natural resource governance extends beyond the exchange of information and knowledge. They can foster trust among previously unconnected groups which facilitates collective actions among different types of actors.”¹⁴ Our interviews suggest that transboundary bridging ties are especially important. One network weaver said that cross-scale linkages were critical in tying what was happening on the local level to national levels in both countries, and that it was also helpful to link together governmental and nongovernmental actors as well as scientists and specialists in public engagement on



Renovated Curley School wall mural painted by local Ajo, Arizona school children with design and oversight by Michael Chiago



Pedestrian barrier along the US-Mexico border at Lukeville, Arizona, adjacent to Organ Pipe Cactus National Monument.

both sides of the border. This attempt at integration resulted in a push for treatment of the ecological resources in a unified and transboundary manner, a critical factor for a jurisdictionally challenged setting.

Multiple environmental programs and conservation organizations are located on one side of the border, but see their work as needing binational integration. Many are connected and supported by individuals or organizations from the other side of the border. Noteworthy is the work of the Northern Jaguar Project, Intercultural Center for the Study of Deserts and Oceans (CEDO), Sonoran Institute, Ecological Association of Users of the Hardy and Colorado Rivers (AEURHYC), Pronatura Noroeste, International Sonoran Desert Alliance, and Community and Biodiversity (COBI). Federal and state agencies also have built bridging structures, coordinating United States interests that then serve to reach out across the border line (e.g., the U.S. Department of Interior's Field Coordinating Committee, which brings together federal and state resource agencies, land managers, and water agencies).

These linkages also tie together different kinds of issues. Culture and sustainable economic development are as much a part of the ecology as the physical features of the Arizona/Sonora border for most of the border network weavers we interviewed. Thus, moving between issue areas, even if retaining a fixed eye on a geographical place, is

common. Consider the work of Gary Paul Nabhan, whose books convey messages about banning the use of the slow-growing ironwood for manufacturing charcoal, banking native seeds, preserving the habitat of pollinators, and reviving appreciation of regional foods. Existing ties meld with new contacts as relationships are formed and renewed in the course of acting together on issues.¹⁵

The International Sonoran Desert Alliance (ISDA) embodies the notion of a bridging institution that transcends multiple issues, cultures, and boundaries. From the beginning, the ISDA was trinational, including members from the United States, Mexico, and Tohono O'odham Nation. In the early 1990s, participants articulated a three-part mission that included preserving cultural heritage and creating opportunities for economic vitality, as well as preserving and enriching the environment. Later, the ISDA board confirmed this goal, requiring that every project include at least two parts of this three-pronged mission. In addition to resource conservation efforts underway with staff in the Pinacate Biosphere Reserve, Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge, ISDA has focused its efforts on revitalizing the small community town center of Ajo, Arizona, in a manner consistent with preserving the rich and fragile surrounding ecosystem. Renovation of the town's historic Curley School, notes Tracy Taft, executive director of ISDA,

brought both historic and architectural value to the community, was economically beneficial, and drew new residents to the area who were attracted by the surrounding beauty.¹⁶ The Curley School is now home to low-income artists, who in turn celebrate various aspects of place and engage with the community, including school children.

Inclusiveness and Equity

Inequality of resources, capacity, and participation are serious impediments to transboundary collaboration. Great differences exist between the United States and Mexico, particularly economically. This resource imbalance has historically resulted in a disparity in capacity and unequal participation. To combat this, many of the network weavers have purposely engaged in capacity building. Faculty members at the University of Arizona regularly advise half a dozen graduate students from Mexico per year. These former students often move into leadership positions within the federal and state governments as well as civil society; several are now staff members of large United States foundations that fund a number of border projects. Others fostered local participation by facilitating the founding of local grass-roots organizations and are helping to train Mexican agency officials. One network weaver, Catalina Denman-Champion, professor and investigator for the Center for Study of Health and Society at the Colegio de

Sonora, stated, “Sonora [Mexico] has low participation in civil society and political life, but this is changing.”¹⁷

Engagement as equals builds a more robust network. Increased capacity in Mexico is now improving collaboration on many levels. As noted by Susan Anderson, who was instrumental in improving research and land management skills in Mexico as part of the Parks in Peril program of The Nature Conservancy, “They’ve turned paper parks in Mexico into real parks and Mexico is now directing significant resources to their parks.”¹⁸ Another noted biologist, Richard Felger, who began his work on the Gulf Coast in Sonora in the 1960s, told us, “When I first started work [in the region], people were not there and Sonora was kind of an ‘outback.’ Today I do not see any difference between people working in Mexico and here. I cannot say that one side is better. Everyone collaborates. In research it is almost as if the border is not there.”¹⁹ Equality of participation is especially important to tribal members we interviewed. Noted one, “I always felt that the Sonoran Desert and Upper Gulf was our land since the beginning of time. If someone was going to put together a biosphere reserve, I wanted to be involved.”

Closure, Longevity, and Trust

Network interconnections in which people have multiple links with one another, often through intermediary parties, create mutual accountability or closure—if for no other reason than people do not break faith with anyone in the network knowing that word will spread quickly to others with whom they need to work.²⁰ Though ecologically of global significance, the Arizona/Sonora border region has been cut off from the main agenda of global or national environmental groups. The area is a cultural and economic “backwater” to many in influential positions in Mexico City or Washington, D.C. This peripheral status provides an advantage that border weavers are not drawn away from the region, thus becoming more deeply involved, committed over time, and invested in achieving lasting success.

Culture and sustainable economic development are as much a part of the ecology as the physical features of the Arizona/Sonora border for most of the border network weavers.

The remoteness and isolation of much of the Arizona/Sonora border also fosters interdependence among activists. One individual explained that he had been given a narrow portfolio from his national environmental organization with an exclusive focus on binational conservation issues. The limited charge allowed this person to fly “under the radar” of the head office. As a result, he has spent more than a decade focusing on transboundary conservation and formed long-standing associations with tremendous success. As national interest in the border waxes and wanes, the network weavers we interviewed remain constant.

Trust is built through collaboration. Finding agreement, forging a shared vision, and/or overcoming barriers are some of the significant ways to build ties and trust. Francisco Zamora-Arroyo, program director of the Upper Gulf Legacy at the Sonoran Institute, explained the process in coming to agreement over an agenda for the Upper Gulf of California as follows: “When we [seven environmental organizations and agencies in the United States and Mexico] decided in 2002 was to write this conservation priority document... we brought everyone together and said

let’s sit for three days and ask what are the most important resources and what we want to achieve in the Delta.”²¹ The agreement was termed a “map of the possible” by another network weaver. Outlining priorities helped set an organizational focus, brought various strengths to the table, and reduced potential for conflict over resources and roles.

A Case Example

Many of the attributes that make the Arizona/Sonora border network successful, such as bridging institutional and disciplinary divides, face-to-face contact, longevity, and inclusiveness, can be exemplified with a case study. We selected the network of Osvel Hinojosa-Huerta, who works for a Mexican NGO, Pronatura Noroeste, with the primary objective to restore the Upper Gulf of California/Colorado River Delta. Data collected from our one-hour interview with Hinojosa are displayed in a point-and-line diagram, of a type commonly used in network research. Figure 2 shows each of the 20 individuals who Hinojosa named as important in forging his career and as collaborators on conservation in the Upper Gulf of



Photo taken by a motion-triggered camera located on the Northern Jaguar Reserve in Sonora, Mexico. Ranchers are given money for each cat caught live on camera.

Northern Jaguar Project and Naturalia

California. Obviously, an hour-long interview cannot capture all the key actors in any given network, and Hinojosa acknowledged that there are many others critical to the effort that he could have cited.

These individuals span either side of the border (top half are United States based and the bottom half from Mexico). It is notable that, of the ties Hinojosa mentioned, just as many are situated in the United States as in Mexico. Some of these individuals are United States citizens but head Mexican organizations, while others are Mexican nationals who are now working in United States organizations, attesting further to the interwoven nature of these transboundary relationships.

Seventeen of the 20 relationships Hinojosa mentioned are long-standing, extending more than 20 years back to his undergraduate and graduate school days working and researching Upper Gulf conservation issues. These associations, he noted during the interview, have continued despite some individu-

als transferring to different positions, moving to other organizations, or studying across the border (either the United States or Mexico). Seventeen of the 20 remain key players today in Upper Gulf/Delta conservation, with two moving and shifting their work focus and one retiring.

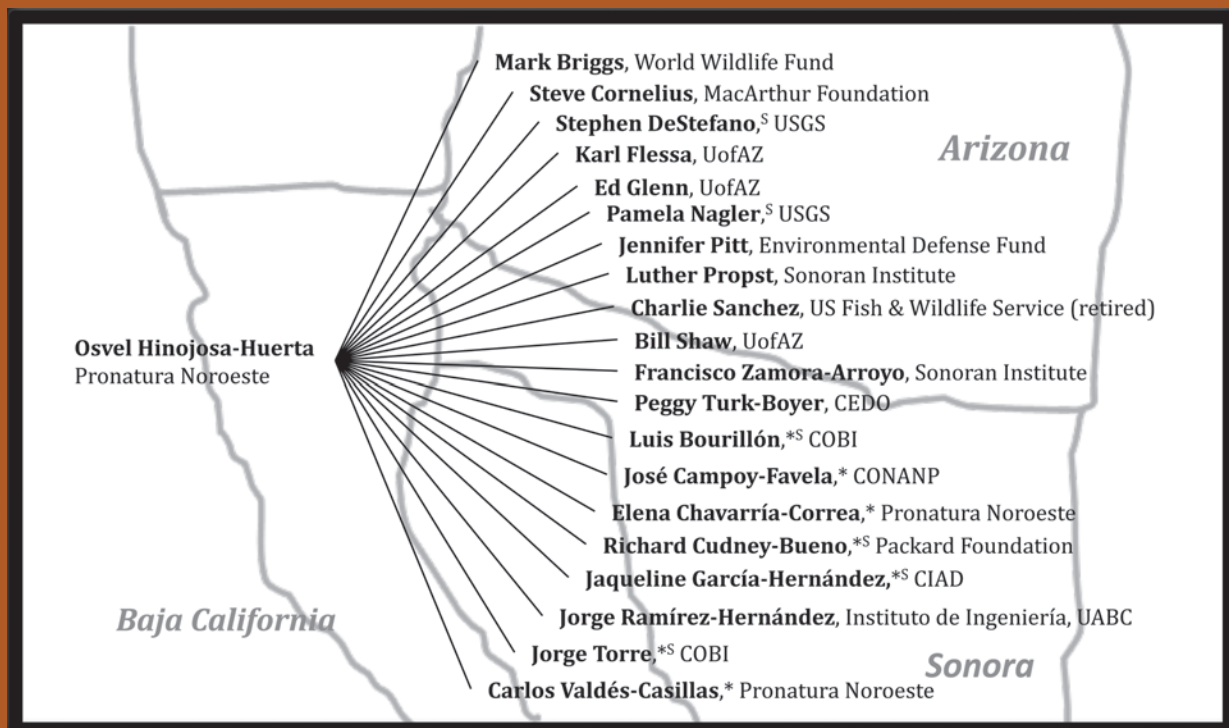
Hinojosa acknowledged that these early friendships forged while in undergraduate and graduate school made relating easier later on. Trust had been established during these formative years and so, despite working later for different organizations or in new settings, these relationships held firm, reducing potential conflict and the time that is often necessary in establishing trust. Face-to-face contact and fieldwork also played a key role in forming trust and building a cohesive network for Hinojosa. Fellow students and graduate school professors such as William Shaw and Edward P. Glenn, as well as his early internship at CEDO with Richard Cudney and Peggy Turk-Boyer, were cited as formative.

The interconnectedness and closure of Hinojosa's network are illustrated in Figure 3. Seven of the people he mentioned as associates were also people we interviewed as part of our snowball sample (represented in the figure as boxes). Figure 3 traces the extensive overlap among Hinojosa's network partners. Only four individuals that Hinojosa mentioned were not mentioned by the seven others we interviewed. The darker lines indicate that both parties mentioned each other. Eight such cross-references exist for the network we interviewed. Such interwoven connections make for high levels of trust since there are multiple checks on reliability and multiple lines of accountability.²²

Common Narratives

Narratives are part of the "glue" that binds actors together in networks and enables them to grow and withstand threats. People feel part of something when it becomes an essential part of

Figure 2. Transborder network of Osvel Hinojosa-Huerta.



*met while student at Tecnológico de Monterrey, Guaymas

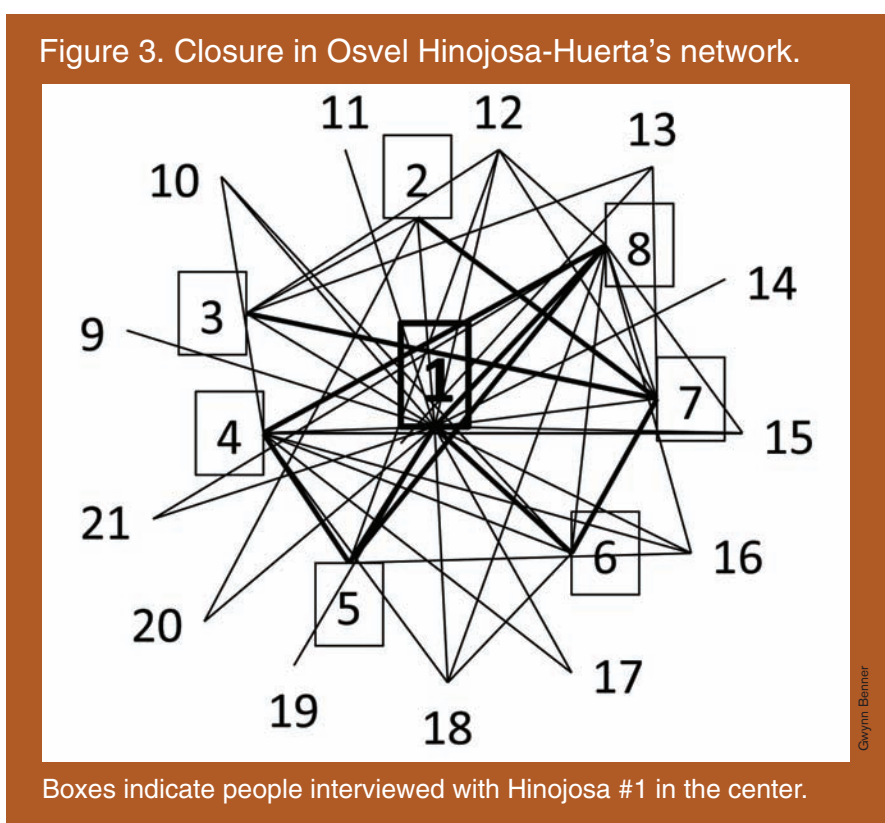
^S knew while graduate student with Dr. Bill Shaw at University of Arizona, Tucson

the story of who they are.²³ Narratives make sense of and bind together events at the same time they tie together diverse actors.²⁴ Engaging stories have turning points or breaches in the script and provide visions of the future.²⁵ Narratives also have a normative dimension, with trouble, resistance, and challenges explained so that they become bearable even if there is no favorable resolution.²⁶

We expected that network weavers would share a common story about loss and discouragement related to the border environment. We were surprised that many of the network weavers we talked to were determinedly upbeat. At a time of marked polarization over many issues related to the border, it is notable that the narratives we heard in our interviews were decidedly positive and optimistic. “It is important to celebrate the successes,” one person noted. Another said, “Even if you start feeling negative, the only thing to do is turn around and see it as an opportunity, not a time to pull back and get conservative.” Even when network weavers we interviewed were asked to identify adversaries they opted not to, but rather cited systemic forces. Border network weavers are linked together in part by a widely accepted narrative or story that focused on the special meaning of “place” in the Arizona/Sonora border region.

Commitment to Place

Border network weavers use the language of love rather than battle in describing why they invest time and energy on issues related to the Sonoran Desert. The Pinacate is one such place that elicits poetic description: “Some places are like touchstones for your soul,” notes Susan Anderson, project development and science director for Latin America at The Nature Conservancy, adding “the Pinacate is like a giant Zen garden with black lava flows, gray cinder plains, red cinder cones, white dunes, and splashes of wild flower color.”²⁷ Organ Pipe Cactus National Monument provided the inspiration for another. Adrienne Rankin,



archeologist for the Barry M. Goldwater Range, U.S. Air Force, told us, “I was driving down highway 85 when I saw the Crater Range and I fell in love with the desert and have been working out here ever since.”²⁸ In almost every case, network weavers spoke of visual beauty as well as direct and intimate personal experience motivating their actions. Artist/activist, Matilda Essig said, “There is something about the Sonoran Desert that has enabled me to manifest my artistic vision like no other place I have lived. I will be forever grateful for that and harbor a deep sense of responsibility towards it now.”²⁹

The culture of Mexico is the object of attraction for some. Tom Sheridan, professor in anthropology at the University of Arizona, recalled, “I went to a fiesta in Magdalena. It was just like falling in love. I was infatuated with how things looked, smelled, and sounded. From then on, whenever I had free time, I went south.”³⁰ Passion for culture transcends borders in this region, binding people together. One observer said, “Sharing the border ties

people together in the United States and Mexico and it creates a shared identity.” Members of the Hia-Ced and Tohono O’odham, such as Legislative Council member, Lorraine Eiler, express similar concept of the desert as “home,” leading to stronger ties and engagement in preservation and action, “We do not see the Sonoran Desert as outside ourselves—it is where we live.”

Transborder Ecology

The United States/Mexico border is often described as a third entity, an amalgam of both the United States and Mexico, independent of and not defined by the arbitrary lines drawn as political boundaries. The border network weavers we interviewed echo this notion, speaking of the transboundary nature of ecoregions in the Arizona/Sonora border with distinct binational weather patterns, wildlife corridors, and an indigenous culture that extends both north and south. Luther Propst, executive director



William K. Hartmann

A 1966 aerial photo using infrared film of McDougal crater, the largest maar in the volcanic fields of the Pinacate & Gran Desierto Biosphere Reserve in northern Sonora, Mexico.

of the Sonoran Institute, reflected, “The people I work with do not see the border as two cultures. They come from a life where people moved back and forth across the border with ease. They have a real knowledge of the resources.”¹⁰ The transboundary nature of the ecology is invoked to justify binational action. Friends of the Santa Cruz River, an NGO in the United States, helped fund construction of composting toilets in Mexico to reduce runoff pollution that ended up in the Santa Cruz River flowing north into the United States.

International rivers are particularly adept at confounding political lines. What happens upstream affects everything downstream, and collaboration becomes an imperative. One federal agency informant spoke of needing to trace the headwaters of the San Pedro River into Mexico in pursuit of protecting water quality in the reaches of the river his agency managed. Other ecological values that transcend borders include migratory animals (particularly birds and large mammals), air pollution, and aquifer depletion. These are all issues border network weavers are seeking to address.

Turning Points

Border network weavers consistently spoke of crisis as a positive turning point rather than setback. Often they traced their own long-term activism to an event or issue that was at the time treated as an emergency, but ultimately

catalyzed binational collaboration. Robert Varady, deputy director for the Udall Center for Studies in Public Policy at the University of Arizona, recalled the air pollution controversy in the “gray triangle” near Naco, Sonora, and Douglas, Arizona. At that time, in 1986, the copper smelters were shut down in Arizona and a new company threatened to expand operations in nearby Naco, Sonora. Varady remarked, “I learned that the University of Arizona could play an active role as a convener—putting people together in one room who otherwise would not talk to one another to find solutions.”³²

In the 1990s, wanting to temper controversy over the potentially damaging impacts of the United States–Mexico Free Trade Agreement (NAFTA: North American Free Trade Agreement), local, state, and federal agencies in Mexico as well as the United States poured resources into environmental activities along the border. Federal institutions and forums on both sides of the border were established to help coordinate efforts along one side of the border and then reach across the border to build ties (e.g., Field Coordinating Committee mentioned earlier, Sonoran Joint Venture, and Borderlands Management Task Force). State institutions and relationships were also given a new focus (e.g., the Arizona/Mexico Commission establishing an environmental working group as part of their forum). New binational water treaty minutes were signed into law, letters of agreement and memoranda of understanding (MOUs) estab-

lished, infrastructure funded and community project implemented.

Another later turning point in the narrative was the urgency around building and reinforcing a pedestrian and vehicle barrier along the length of the United States–Mexico border post 9/11. The border network weavers we interviewed uniformly regard the federal Endangered Species Act (ESA) and National Environmental Policy Act (NEPA) exemption for the construction of the border wall as a serious defeat. As constructed, the barriers interrupt migration of such species as the Sonoran pronghorn and desert tortoise. In addition, new and improved dirt roads now run the length of the fence; there is increased construction activity and development of an extensive electrical transmission system with creation of a controversial “virtual” fence within the boundaries of national parks such as Organ Pipe Cactus National Monument. These structures are incompatible with protection of the wilderness experience, a core mission and value of the Park Service and other land management agencies. The destruction of fragile ecosystems on the border is noteworthy, as Charles Conner, a biologist at Organ Pipe Cactus National Monument, said: “[During construction] they turned a lovely little *bosque* (forest) into a pile of wood chips.”³³

Though one would expect to hear this turning point as a grim change in events, some of the border network weavers we interviewed construe the story of the construction and existence of the border fence in a more positive direction. Monitoring the impact of the wall has made it a boundary object of sorts, one person we interviewed observed. The border “wall” brings people together and provides a focal point for dialogue. Network weavers we interviewed also took comfort in some of the victories they achieved. Barriers were redesigned and repositioned so that less damage to the environment resulted. Several suggested that once all of the barriers were in place, including the advanced technologies being implemented, then perhaps three or four years from now pursuers would interdict il-

legal border crossers before they actually impacted critical habitat. Another looked to a future when the wall would come down. He quipped, "In 20 years it will be considered the biggest transfer of materials from the U.S. to another country since the Marshall Plan." These narratives about a significant turning point render the border wall at least bearable, for some, because it is explained and resisted.

Counter Narratives

Tension and conflict are an integral part of human stories, and in the highly contentious border environment we expected to hear recriminations, negative characterization of the "opponent," and fear. Instead, long-time border network weavers appeared bemused about the concerns and prejudices of many who fear Mexicans and the border. The network weavers we talked to were effusively positive about their collaborators and sympathetic to other actors pursuing contrary goals. They were more likely to blame systemic forces rather than the ill-will of opponents for current setbacks. Only six of the 47 people we interviewed did not feel optimistic or positive about the future as a result of the current state of affairs at the border, saying that the wall and beefed-up border security made changes seem "hard-wired" and unchangeable.

Many described the political and media discourse related to the border as toxic, but took refuge in what they described as a kind of parallel universe where people understood one another and traveled across the border comfortably, if with a little more care than before. Joe Wilder, executive director of the University of Arizona's Southwest Center, observed that the border has always been portrayed as dangerous and potential violence has always been present "from the time of the Mexican revolution."³⁴ He noted that it is political and mass cultural attitudes not reality that have changed. In fact, several argued, relationships among land managers, constituency groups, and the Border Patrol are slowly being forged, even if slow and haltingly.

As author and activist, Bill Broyles, told the story, "There have been a lot of dialogues held about the border environment...they [even] began a program called Public Lands Liaison where fairly senior agents, knowledgeable people, would attend the public lands meetings. This coordination with public lands managers, the BLM, the Park Service, Fish and Wildlife Service, and [the Border Patrol] is of utmost importance, though tangible progress and improved stewardship has been haltingly slow. The Border Patrol and Department of Homeland Security have generally ignored environmental, archaeological, wilderness and endangered species acts. The Border Patrol can become a hero in this conservation story, or a villain."³⁵

The Interaction of Institutions and Networks

While institutions consolidate expectations and the rules of the game, our findings suggest that networks and narratives are essential to success. Networks are more flexible and less conservative than most institutions. Peter Warshall of the Northern Jaguar Project explained the advantages of non-institutionalized networks as follows: "They are nimble, can use money efficiently, have a passionate membership where everyone works; they can choose leaders without political criteria; they can learn cultural differences faster; they can develop a certain ease of trust so that if you screw up, it does not have a lasting effect."³⁶

However, other activists pointed with pride at the formal "institutions" established in the past two decades, such as biosphere reserves, parks, monuments, and protected areas. One United States scientist working in Mexico noted, "I cannot imagine we would have gotten so far without the [Pinacate and Upper Gulf] Biosphere Reserve." The network weavers who spoke most eloquently about the role of networked individuals look toward a formal park or preserve designation as a way to bring certainty and stability to land and habitat preservation. For instance, the ultimate goal of the Northern Jaguar Project, a private

effort to fund and acquire habitat land for the large cat, is to obtain a federal decree. Not only does legal recognition provide stability, it also grants stature. A member of the Tohono O'odham Nation regretted the lack of legal status afforded native peoples in Mexico, where he said that "not only do members on the other side of the line lack status they also lack laws that prevent digging in cultural sites without prior consultation with the community."

Success in Difficult Times

The largest lesson in our study of network weavers in the Arizona/Sonora border region is the staying power of human relationships and commitment to place. While environmental problems are vast and global, and headlines are often discouraging, human capacity to resolve problems may actually be growing at local and regional levels. Laws, institutions, politics, and governing arrangements are important, but they are far from the whole story. The capacity and resilience of dedicated people to transcend multiple barriers in cooperative efforts to save special places are equally important.

The struggle to preserve the ecology of the Arizona/Sonora border region continues, though the problems sometimes seem to mount faster than solutions. Even so, the network weavers we interviewed were crucial to a string of impressive successes. For example, there are the accomplishments of the binational Sonoran Pronghorn Recovery working group. In 2002, wildlife officials could count only twenty-one Sonoran pronghorn, an endangered species, in the Cabeza Prieta National Wildlife Refuge, with their deaths attributed to both drought and human impacts. Today there are 70 in the wild and 70 more in a captive breeding program.

The extensive additions of ecologically significant lands in protected status can also be demonstrated as marked successes of network weavers (see map above). These include creation of the Sonoran Desert and Ironwood Forest National Monuments, Pima County Sonoran Desert Conservation Plan, San

Pedro Riparian National Conservation Area in Arizona, and the Sierra los Ajos, Buenos Aires y la Purvia National Forest and Wildlife Refuge and the Bavispe National Forest in Sonora; expansion of Tumacacori National Historic Park; the establishment of wilderness in the Cabeza Prieta National Wildlife Refuge and Organ Pipe Cactus National Monument; and the designation of Pinacate y Gran Desierto de Altar and Alto Golfo de California y Delta del Río Colorado as biosphere reserves in Mexico. Perhaps one of the most significant impending initiatives is the agreement among federal, state, private, and a variety of civil groups in acquiring, storing, and moving water in the United States and Mexico to help protect and restore habitat in the Colorado River delta in Mexico.

Our findings also hold lessons about forging networks across international borders and difficult divides. Long-standing bridging networks, often forged early in one's career and maintained over decades, create strong bonds that are able to withstand the vicissitudes of political events. Actions that bring people together in unusual face-to-face encounters (i.e., field research), particularly when related to a special place, have long-term favorable effects for the environment. Such encounters need not be specific to environmental activism, but may also be related to cultural, economic development, food security, and other interests.

This message is especially important at a time when creating new opportunities for face-to-face interactions is difficult and transborder travel is restricted. Further, there may be a lasting adverse impact if, as some suggest, these barriers to establishing face-to-face interactions are "hard-wired." Collaboration may become increasingly difficult, thus further limiting the ability for actors to recruit, foster and support the weaving of a cohesive and strong network. A further important lesson is the importance of positive narratives built around the appreciation of shared places. Optimistic narratives that honor the contributions of people, celebrate successes, and envision an improved future help

sustain these networks and propel them into action, thus resulting in positive, ecologically sustainable outcomes.

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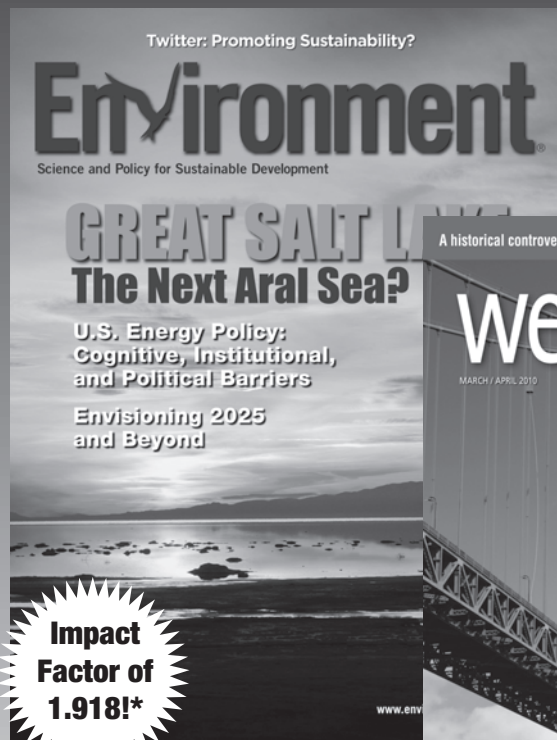
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