Case Study A Potential Trinational Protected Area: The Campo-Tecate Creek Kumiai Corridor

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ABSTRACT

This paper outlines a "blueprint" for potential trinational protected area that would benefit the Campo Indian Reservation, the United States, and Mexico. On one end of the corridor the Campo Indian Reservation already boasts communitylead riparian protection programs, and 35 kilometers (km) downstream on the other end, Mexico has implemented a binational easement on sacred Kumiai lands at Servidumbre Cuchumá. These lands would serve as anchors for a 100 meter-wide biodiverse riparian ribbon through urban Tecate and rural San Diego lands. The benefits of a green corridor for the region would be ecological, hydrological, and social/cultural enhancement. Consistent with the Laguna Madre binational conservation area plan (TNC 2001), the blueprint uses two phases. In phase one, lands are protected within national boundaries, using a variety of instruments. Phase two "welds" the protected areas across boundaries. A seamless corridor might help bring greater attention, protection, and funding for the area from organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO). Long-term goals for the region include the incorporation of lands adjacent to the river and lands beyond the Kumiai anchors. Thus, the riparian protected area would begin in the Laguna Mountains and terminate at the Tijuana Estuary on the Pacific Ocean.

Estudio de Caso Un Área Trinacional Potencialmente Protegida: El Arroyo Campo-Tecate del Corredor Kumiai

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RESUMEN

Este escrito delinea un "plan" para el área trinacional potencialmente protegida que beneficiaría la Reserva India de Campo, los Estados Unidos y México. En un extremo del corredor Reserva India de Campo ya se tienen programas de protección riparia liderados por la comunidad, y en el otro extremo 35 kilómetros (km) corriente abajo, México ha favorecido la implementación binacional de tierras sacras Kumiai en Servidumbre Cuchumá. Estas tierras servirían de anclas para un lazo ripario de biodiversidad de 100 metros de ancho a través de tierras urbanas de Tecate y las rurales de San Diego. Los beneficios de un corredor verde para la región serían mejoras ecológicas, hidrológicas, y socio/culturales. Consistente con el plan de conservación del área binacional Laguna Madre

(TNC 2001), el "plan" usa dos etapas. En la etapa primera, las tierras están protegidas dentro de confines nacionales, usando una diversidad de instrumentos. La segunda etapa "fusiona" las áreas protegidas a través de las fronteras. Un corredor así podría ayudar a traer mayor atención, protección, y financiación para el área de organizaciones como la Organizacion de Educación, Cultura y Ciencia de las Naciones Unidas (UNESCO). Las metas a largo plazo para la región incluyen la incorporación de tierras adyacentes al río y las tierras más allá de las anclas Kumiai. Así, el área riparia protegida iniciaría en las Montañas Laguna y terminaría en el Estuario de Tijuana en el Océano Pacífico.

INTRODUCTION

Private conservation is understood as the use of legal mechanisms and incentives to protect land and private property in perpetuity (Terra Peninsular 2001; Pronatura 2002a). Many argue that the most effective conservation tools for maintaining ecosystems are regional planning tools, in contrast to site-based approaches (Noss and Harris 1986; Hebard 2001). Ecosystems operate within geographic boundaries such as biomes, watersheds, and migratory routes; they are not contained within political boundaries such as counties and countries (CEC 2000; Zbicz 1999). The coordination of all actors, laws, administrations, and cultures presents a challenge for conservationists. However, these challenges must be overcome to properly manage regional-scale ecosystems. This paper documents current attempts at private conservation in Mexico and suggests mechanisms for transboundary private conservation.

THE KUMIAI CORRIDOR

The potential Kumiai Corridor would start at Campo Creek on the U.S. side of the Campo Indian Reservation. The trinational riparian area follows Campo Creek to the U.S.-Mexican border through Joe Bill Canyon to the Tecate River, through the City of Tecate, and ends at an existing ecological easement at Rancho Cuchumá, property of Rancho La Puerta, A.C. The latter is a resort and foundation with an environmental and cultural focus. The corridor would encompass an approximate 35 kilometer (km) length with a 50-meter buffer on either side of the rivers and would provide the following services:

- Patrimonial and indigenous cultural preservation
- Links between protected areas in southern San Diego County with critical ecological areas in northern Baja California
- Wildlife movement corridors and contiguous aquatic habitat
- Allow for the regrowth of riparian vegetation, recharge of the aquifer, protection of surface waters, decrease of sediment load, and control of floods
- Recreational, educational, and research opportunities
- Cooperation between countries and agencies
- Restoration and enhancement of the ecological and hydrological functioning of the larger Tecate-Campo sub-basin and the Tijuana River Watershed

A Regional Context

Watershed scales are recommended units for analyzing regional natural and human processes (Dunne and Leopold 1978; Montgomery, Grant, and Sullivan 1995; Good Neighbor Environmental Board 2000). The Tecate-Campo sub-basin is situated within the Tijuana River Watershed and is a binational sub-basin that straddles the U.S.-Mexican border. The sub-basin encompasses 430 km², and is characterized by steep, hilly terrain, and a Mediterranean climate. It is dominated by chaparral and coastal sage scrub, wetlands (vernal pools), and riparian zones with oaks, cottonwoods, and willows (Delgadillo 2000). The sub-basin is predominantly rural and in 1998 was 88% non-developed (INEGI 2002).

Problems in the Subbasin

Conservation initiatives, such as watershed management, are often successful because they address many elements of the system including population pressure, human needs, groundwater, surface water, air basins, ecosystems, and socioeconomic issues. For this sub-watershed, it is important to realize that Tecate's population is expected to double by 2020 (Ganster, et al. 2002) and the demand for potable water has increased steadily. Imported water from the Colorado now serves 70% of Tecate in contrast to 0% in the early 1990s (Ramírez 2004). Lower water tables in the region cause the ratio of pure water to sediments, salts, and contaminants in some wells to be too high for human use, and may leave the area with insufficient local water for its population. Colorado River water is expensive to purchase and treat, and flow has become inconsistent due to the construction of dams and diversions upstream. If managed properly, restored riparian areas of the region may protect local groundwater and provide recharge for the aquifer.

Hydrology, stream geomorphology, biological systems, and recreational activities in the riparian areas have suffered from urbanization and sprawl (Pronatura 2002b). Loss of riparian habitat in the region has led to loss of connectivity for migratory animals, erosion of the banks, scouring of the streambed, increased flooding, sedimentation of downstream areas such as the Tijuana Estuary, evaporation of surface water, invasion of exotic species, diminished biodiversity, and decreased aquatic health of the river (Michel and Graizbord 2002; Ponce 2003). Physically, the loss of riparian habitat in Tecate has given access to sand miners, vehicular traffic, and squatters. Recreation in the Tecate River is unsafe due to high levels of contamination from industry and non-point source urban runoff (Gersberg, et al. 2000). Increased pavement has led to impervious areas encroaching on riparian habitat and blocking recharge of the groundwater systems that feed the river.

Kumiai communities in the area that could benefit from cultural links across boundaries include the Campo Band of Kumayaay Indians and the communities of San José de la Zorra, San José Tecate, Juntas de Neji, and San Antonio Nécua. Land use changes and economic activities, such as the globalization of commerce and the maquiladora industry, threatened traditional ways of life and

valuable indigenous knowledge bases such as language, ecological management, arts, and medicinal practices. Archeological sites near the Kumiai Corridor, such as Cuchumá, Bosque de los Encinos, Rancho Peréz, Casa Orendain, and San José Tecate (Pronatura 2002b), would gain attention and more protection.

Landowners and Stakeholders

The owners of the land that is traversed by the corridor are, from east to west: Campo Indian Reservation, U.S. private citizens, Bureau of Land Management, the County of San Diego, private ranchers, Comisión Nacional de Agua, and Rancho La Puerta, A.C. The potential stakeholders are listed in Appendix A.

Previous Research

Previous work in the region classified this riparian corridor as critical. Researchers identified the riparian zone of the Campo Creek and Tecate River as important biological corridors and potential transboundary protected areas (Ganster, et al. 2002; Michel and Graizbord 2002). Recent studies by the Conservation Biology Institute (CBI) have classified the U.S. section of the Kumiai Corridor as conservation "Gap 4"—not protected under law (CBI 2003). On the Mexican side of the corridor, the only legally protected area is Rancho Cuchumá. Pronatura has identified Joe Bill Canyon as a Conservation Priority I (a high priority) and an established recreational area (Pronatura 2002b).

In 2003, five workshops were held for the Binational Vision for the Tijuana River Watershed Project² in which stakeholders participated in exercises leading to an understanding of what residents want for their surrounding lands. Actions desired by the stakeholders were documented through small group activities and prioritized through an individual voting process. At the Campo meeting, 8% of the participants voted for the construction of wildlife corridors specifically in the back country (rural lands), the La Posta Corridor (see CBI 2003), La Gloria Canyon, Smith Canyon, Joe Bill Canyon, and from La Rumorosa to the Cuyamaca Mountains. At the Tecate stakeholder meeting, two of the most popular actions were watershed-wide recognition and respect for the Kumiai people (11% of votes), and identification of areas that are deforested, over-exploited, have sand mines, and stream meanders that are risks in the watershed (6% of votes).

The idea of a Tecate River Park has existed for several years, and began with research by the Institute for Regional Studies (Ganster, et al. 2002; Michel and Graizbord 2002). Cal Poly Pomona Studio 606 Department of Landscape Architecture developed a landscape architecture conceptual plan for a Tecate River Park in 2003. The students held several stakeholder meetings in 2002 to incorporate community needs and visions into the plan. Arizona State University's School of Planning and Landscape Architecture has been developing a conceptual plan for a Tecate River Park. The Centro de Estudios Urbanos,

A.C., developed the *plan parcial* (community plan) for the Tecate River Park in 2004, which is in the process of being approved by authorities (Espinoza 2004).

The methods used in this case study follow those proposed by the International Community Foundation (ICF), CBI, Pronatura, A.C., and The Nature Conservancy (TNC). These organizations are developing a binational conservation strategy for the border region that includes the corridor study area (Pronatura 2002b). The Las Californias Initiative project, scheduled for completion by August 2004, proposes to:

- Link existing protected areas
- Identify gaps in protected areas and targets for conservation
- Promote a binational park system
- Protect the border region's unique biogeography
- Implement General Land Acquisition Mechanisms

In general, the United States preserves more land for conservation, mainly because there are more incentives for protecting land than in Mexico. However, Mexico has developed some innovative approaches for protected areas management that incorporate human needs and activities. Table 1 (Corcuera, Steiner, and Guhathakurta 2000; UC Davis 1998; Vargas Téllez 2004; Ochoa 2004) partially lists possible tools for acquiring land in Mexico and in the United States. A short description offers insight on the incentives for using each method in the respective country.

THE CAMPO RESERVATION SECTION

The Campo Band is one of 12 U.S. bands of Kumayaay and five *ejidos* of Kumiai in Mexico. It has an approximate population of 5,000 (Connolly 2004). The Campo Indian Reservation, about 65 miles east of San Diego (see Map 1), measures approximately 25 square miles (65 km²) and contains two disconnected sections with some 350 residents. The area is threatened by sedimentation; grazing outside the reservation; septic systems contaminating groundwater; illegal dumping; hazardous wastes from drug labs; and invasion by Salt Cedar, Tamarisk, and other exotic species (Green 2003).

The Campo section of the corridor is currently the most protected and restored section of the Kumiai Corridor. A no-grazing program has been implemented, and community-based riparian restoration are under way at a number of locations on the reservation. Part of the restoration uses weirs, or "rock drops," which slow water flow and erosion, controls undercut, recharges groundwater, and creates wetlands during storm events (Green 2004). Sediments are also trapped in the standing water and behind the weirs, protecting downstream areas from scoured banks, infill, and pollutants mixed into the sediments. The projects can serve as models for downstream communities to restore surface flow and raise the water table.

All the land on the reservation is communally owned and overseen by the tribal government. Therefore, there is no need to create an easement. However, establishing a long-term management program would continue to set a good example for upstream and downstream neighbors and could lead to many real benefits for the reservation. For example, a protected area ordinance or program could be passed by the tribal council that allows sustainable use of the riparian area while protecting Campo Creek from potential dumping, overharvesting, development, channelization, and so forth. There is also the potential to generate income and foster cultural values for the residents through activities such as sustainable reed harvesting, traditional basket making and sales, a native plant nursery, medicinal plant harvesting, food harvesting, and ecotourism (Green 2004). This small step keeps the land in the hands of the Campo residents. By entering into the larger regional plan this way, the reservation opens up a dialogue on the best ways to promote sustainable development and foster riparian and cultural enhancement in the subbasin. The Campo Reservation could serve as a cultural hub or anchor of the corridor.

THE SAN DIEGO SECTION

The San Diego section could be protected in two phases, starting with immediate legal protection of the land, and later developing a River Conservancy to acquire additional lands and manage the land (see for example the San Diego Conservancy Law 2002). In the first phase, the San Diego section could create an easement of approximately 15 km, starting at the southern border of the larger Campo Reservation parcel, to the international border at Joe Bill Canyon (see Map 1). It would be necessary to develop separate easement contracts between each landowner, and a local and willing land trust that has the staff and resources to monitor and defend the easement terms would be necessary (e.g., The Nature Conservancy, Backcountry Land Trust, the San Diego Land Conservancy, or BLM). In addition to the 50-meter buffer zone, in some cases the entire parcel could be eased through donation (e.g., county lands and BLM lands) or with compensation (e.g., private landowners) (See Table 2). Each easement contract may stipulate conditions of use that, for example, may allow low impact grazing and agriculture where appropriate, but prohibit channelization, development, or water extraction.

THE TECATE SECTION

The Tecate section would start by protecting land in the most threatened area, a 10 km stretch in urban Tecate (see Map 2). After the formation of an urban river park, it would incorporate the upstream and downstream less-developed areas into the park. Some long-term goals of the actors involved are to expand the park to private lands adjacent to the river's federal zone, and eventually to connect the riparian corridor from Tijuana to Tecate.

The Tecate section of the Kumiai Corridor has the most momentum and is in the most advanced planning stages for protection, due to continued support from Mexican and U.S. stakeholders (see Appendix A). However, in Mexico there is

not an existing institution that combines all the duties and powers of a "river park conservancy" to implement the goals of the stakeholders, as in the United States (see San Diego River Conservancy Law 2002). What is needed to accomplish the goals of the Tecate Urban River Park stakeholders is a combination of actions, or a "conservation cocktail" (Guitierrez 2004). The following section outlines the steps discussed in securing the river park land for conservation.

Previous Steps in Tecate

The *plan parcial* (community plan) for the Tecate Urban River Park (Río Parque Tecate) extends from the San José Bridge to the Rincón district (see Map 2). The *plan parcial* calls for the use of "ecotechnology," such as sediment traps to slow erosion, reduce of water velocity, and build up the riverbanks. Permeable "geoscreens" on the banks will be used in place of concrete flood control structures to allow groundwater recharge and to host riparian vegetation. The riparian zone will be planted with native species. There are also plans to pump water from the Wastewater Treatment Plant (PTAR) and the Tecate Brewery to the bridge at San Jose in order to irrigate the riparian zone, recharge the groundwater, and possibly restore surface flow to the river (Ana Espinoza 2004).

The *plan parcial* for the river park involves the concession of administrative rights to the riverbed from Comisión Nacional del Agua (CNA), which holds title to the federal zone, to the Municipality of Tecate. Under the *plan parcial*, the 10-year flood zone would have a "no use" zoning, while the 1,000 year flood zone would have a mixed use zoning with recreational and permeable surfaces. Major obstacles to this proposed zoning will be the regular settlements (with services) and irregular settlements (squatters) that have been built in the federal zone. Currently, the *plan parcial* is being reviewed by the Municipality of Tecate and the State Secretary of Infrastructure and Urban Development (Secretaría de Infrastructura y Desarrollo Urbano, or SIDUE), and will soon be available to the public (Espinoza 2004).

At a meeting on the administrative concerns for the park stakeholders and Pronatura representatives in February 2004, Pronatura recommended a "road map" to creating the park. Many of the steps (namely 1, 2, 5, and 7) in the road map had already been accomplished. The recommended steps are included here to document the process and assist others with similar circumstances:

- 1. Convene stakeholders, landowners, and government officials
- 2. Agree on the objectives for the river park
- 3. Organize a media campaign to involve the public
- 4. Establish the functions of the different actors
- 5. Create a realistic timeline and budget
- 6. Map out the legal issues
- 7. Complete the concession of the federal zone from CNA to the city.

The process in Number 7 is new to Mexico. It would eventually end up with a Río Parque Tecate Paramunicipal (see definition in Table 3), which ideally would

embody the functions of a U.S. River Conservancy. The paramunicipal would develop plans, zoning laws, and issue development permits, among other administrative duties (see Table 3). Some river park stakeholders³ have developed a working draft of a Río Parque Tecate Paramunicipal called the Municipal Commission for the Administration of the Tecate River (Comisión Municipal para la Administración del Río Tecate, or COMART).

Definitions of Terms in Table 3

A *fideicomiso* operates under the Law of Operations and Credit (Ley de Operaciones de Crédito). A contract on rights of use is drawn and land and/or money is donated to a financial institution, usually the bank. The *fideicomitente* is the person giving the land or money to the *fiduciaria* (the bank). *Fideicomisarios* are morally and physically in charge of receiving the money and executing the objectives set forth in the internal rules of the *fideicomiso*. The *comité técnico* is the decision-making organization that oversees the process (Pronatura 2002b). Some of the Tecate river stakeholders⁴ have drafted a proposal to establish a *fideicomiso* for the park.

A *paramunicipal* operates within the municipal, state, or federal government with a specific purpose, similar to subcommittees in the United States.

The State Secretary of Infrastructure and Urban Development (Secretaría de Infrastructura y Desarollos Urbano del Estado, or SIDUE) will serve on the *paramunicipal* and will continue to oversee the protection of urban infrastructure, or any man-made structures such as bridges, within the federal zone.

CNA will continue to oversee water rights, concessions, and discharge into national waters and they would continue to own the land under the river, although the title and administration would be conceded to the municipality (R & G Associates 2002).

Additional Steps

The author recommends the following additional steps for long-term conservation of the river:

Create a servidumbre público, or easement, between CNA and another parcel, with third party NGO oversight

Creating an easement ensures that the riverbed is protected in perpetuity, is protected from local political swings in the *paramunicipal*, and is overseen by a third party with legal mechanisms to defend the land. An easement between CNA and another landowner (not necessarily adjacent, such as Rancho La Puerta, A.C.) could be created with terms of use that follow the objectives of the River Park as defined by stakeholders.

Create additional easements between CNA and adjacent landowner

To expand the park on either side, a "public mixed easement" would be created between CNA (which is still the legal owner) and each landowner. The *fideicomiso* could compensate landowners if funds are available. CNA would be the dominant party (receivers of environmental benefits), while the private parcels would be servient (providing environmental benefits). Separate contracts for each owner would lay out land use terms that could include low impact development. Again, a third party NGO would monitor the terms of the easement contracts and defend the lands against violations.

THE SERVIDUMBRE CUCHUMÁ SECTION

The other anchor of the Kumiai Corridor, Tecate Peak or Cuchumá (see Map 1), holds significant cultural richness and could symbolically serve as an anchor for the U.S. and Mexican Kumiai communities. Cuchumá is a sacred mountain for the Kumiai and biologically rich, containing endangered flora and fauna. In 2003, Pronatura helped negotiate an easement of Rancho La Puerta, A.C. Mexican lands into BLM lands on the U.S. side of the border. Pronatura acts as a third party for the easement contract, and monitors and defends the terms of the easement, which include no development or activities harmful to the environment. Interestingly, BLM, as the dominant party receiving the benefits, was not a necessary player in the contract (Vargas Téllez 2004; Ochoa 2004). This type of binational agreement could serve as a model to other areas along the border.

PHASE TWO: WELDING THE FOUR SECTIONS

Phase two involves merging the four sections: Campo, San Diego, Tecate, and Cuchumá. In phase one, the challenge was to merge management objectives between agencies, private parties, NGOs, and other stakeholders. Phase two is admittedly more difficult because it involves merging objectives and legal instruments across national borders. A clear example of how difficult this process is was learned from merging GIS data across the California-Baja California border (Wright, et al. 2000).

Because of the success of the *Servidumbre Cuchumá*, it is recommended to continue that ecological easement through Rancho La Puerta and other private lands until they join with the Tecate River. In those easements, low impact development or grazing densities could be stipulated. From the San José Bridge to Joe Bill Canyon, similar easements between the CNA federal zone and private landowners could be created. At the border, CNA lands could be eased to BLM lands in the United States in the same way Cuchuma was eased to BLM lands.

One setback in developing multiple easements in this way is that if each parcel uses different easement terms, the overall conservation objectives for a contiguous healthy corridor may not be met. For this reason, a trinational NGO could be created to bring upstream and downstream landowners and

stakeholders to the same table. The NGO could create a memorandum of understanding or similar agreement to define the overall conservation objectives for the corridor, and formalize the partnerships between the actors. The NGO could provide the third party oversight for the easement contracts, and/or advise the third party Mexican NGOs and U.S. land trusts on terms that are compatible with the Kumiai Corridor's objectives. Benefits to joining the NGO for landowners would be that economic resources may be stretched farther and resources and conservation activities shared.

LONG-TERM ADMINISTRATION AND FUNDING FOR THE CORRIDOR On the Campo Reservation, the Campo EPA and the tribal council are the natural resource administrators, and the council has the power to enforce the decisions made for the protected area. Financial support for conservation projects that improve the land may be available through the Department of the Interior or the Tribal Lands Initiative. Ecotourism, workshops, ceremonies, and sales of cultural products (e.g., baskets from riparian reeds) could bring funds to the reservation.

The San Diego easements would be legally binding, and the land trust would be responsible for monitoring the easement terms. If trails and picnic areas are built, the easement would need maintenance, which could come from fees the users paid to the trinational NGO or the land trust, San Diego County, or BLM agencies that currently earmark monies to maintain properties.

For the Tecate section, with approval from the *paramunicipal*, the *fideicomiso* could hire a salaried ranger to enforce the rules of the Tecate River Park. If there were insufficient funds, then residents would be the only rangers in the park. Trails would allow passage for resident rangers for recreation. Trails and interpretive signs could serve as demarcations for the river park boundaries; other protected areas stress demarcation as an important and necessary enforcement tool (Breymeyer and Noble 1996; Pronatura 2002a). An anonymous telephone hotline would allow residents to report violations without fear of reprisal. Fines would go toward cleanup of the illegal activity or mitigation projects elsewhere. With the proper management, the Tecate Urban River Park *fideicomiso* could act as a land mitigation bank, receiving "fines" from violators of municipal laws (e.g. *maquilas* that damage habitat), and purchasing sensitive land for the Kumiai Corridor.

After formal protection is established, a Man in the Biosphere Reserve (MAB) or a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage site could be developed to draw international attention, protection, or funds for the Kumiai Corridor. Biosphere reserves are areas where the coastal or terrestrial ecosystems serve conservation, human development, and research functions (UNESCO 2004a). UNESCO's "cultural heritage" status includes a monument, group of buildings, or the site of historical, aesthetic, archaeological, scientific, ethnological, or anthropological value. "Natural heritage" status involves physical, biological, and geological features (UNESCO 2002). The Kumiai Corridor does contain threatened species of outstanding universal value and places of universal cultural value (Pronatura 2003). Both the United States and Mexico would have to submit a separate application for inscription in the World Heritage List with a detailed management plan. UNESCO economic assistance is available for the preparation of plans and maintanence of sites (UNESCO 2004b).

Entrepreneurial opportunities for all three nations include ecotourism (cabins, hiking, horses, birdwatching, fishing), open markets, and wilderness pass sales. Trinational cooperation could gain U.S. funding (e.g. ICF) for the construction of structures such as a Kumiai community center, a *fronterizo* cultural center, archeological or cultural museum, research laboratory, water testing laboratory, river park offices, or camping and hiking rest stops, among many other ideas suggested by stakeholders at meetings for the Binational Vision for the Tijuana River Watershed in 2003.

Success of the Kumiai Corridor plan is important to measure (TNC 2000). Suggestions from the author include calculating the number of hectares protected, change in aquifer levels, change in well production, change in sediment loading, change in leaf area index (foliage), number of jobs created, number of dollars attracted, revenue of the "land mitigation bank," number of donors, and number of stakeholders involved in the NGO. Binational environmental indicators are needed to quantify other environmental impacts such as changes in air quality, water quality, biological integrity, etc.

CONCLUSIONS

The proposed trinational corridor brings many services to neighboring residents: more clean water, clearner air, wildlife, cultural heritage, green open space, and recreational opportunities. The challenge of identifying the optimal tools for conservation in each political and administrative unit is exemplified by this case study. The "conservation cocktail" offered here presents a few options for private conservation, but admittedly focuses on easements and perpetual mixed public servidumbres as long-term regional planning tools with a vision for the future.

Theoretically, phase one follows the approach of The Nature Conservancy seeking small, simple, "do-able" strategies (TNC 2000). Phase two becomes increasingly complex. However, in Mexico, for example, mixing approaches and organizations (e.g., the *paramunicipal, comité técnico, fideicomiso,* and a trinational NGO mentioned here) offers a robust solution that endures political and economic swings. Continued momentum for corridor protection could be greater with an "army" of vested entities and a variety of tools. The goal and challenge for the Kumiai Corridor blueprint is to reduce the possibility of outside political forces that threaten the plan, and to spread the accumulation of power and resources without creating bureaucratic chaos, competition, or confusion. A trinational NGO, a trinational memorandum of understanding, and clear

easement contracts could help the actors succeed. Sharing human, economic, and natural resources aids long-term cooperative bonds among the three nations. This blueprint may serve to inform other areas of the border about options and strategies for bridging political and administrative boundaries.

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APPENDIX A. POTENTIAL STAKEHOLDERS IN THE KUMIAI CORRIDOR

- Back Country Land Trust
- California Environmental Protection Agency (Cal EPA)
- Campo Environmental Protection Agency (Campo EPA)
- Colegio de la Frontera Norte (College of the Northern Border) (COLEF)
- Comisión Estatal de Servicios Públicos (State Commission of Public Services of Tecate)

(CESPTE)

- Comisión Nacional de Agua (National Water Commission) (CNA)
- Comisión Nacional de Areas Naturales Protegidas
- (National Commission for Protected Areas) (CONAP)
- County of San Diego
- Dirección General de Ecología (State Secretary of Ecology) (DGE)
- Fundación la Puerta, A.C. (La Puerta Foundation, A.C.)
- Instituto de Culturas Nativas (Native Cultures Institute) (CUNA)
- International Boundary and Water Commission (IBWC-CILA)
- International Community Foundation (ICF)
- Kumeyaay Indian communities: Campo Band of Kumayaay Indians, San José de la Zorra,
- San José Tecate, Juntas de Neji, and San Antonio Nécua.
- Mountain Empire Resources Information Taskforce (MERIT)
- Municipality of Tecate
- Pronatura, A.C.
- Proyecto Bioregional de Educación Ambiental
- (Bio-regional Environmental Education Project) (PROBEA)
- San Diego State University (SDSU)
- Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food) (SAGARPA)
- Secretaría de Infrastructura y Desarollo Urbano del Estado (State Secretary of Infrastructure and Urban Development) (SIDUE)
- Secretaría del Medio Ambiente y Recursos Naturales
- (Secretary of the Environment and Natural Resources) (SEMARNAT)
- Terra Peninsular, A.C.
- The Nature Conservancy (TNC)
- U.S. Environmental Protection Agency (U.S. EPA)
- Universidad Autónoma de Baja California (Autonomous University of Baja California) (UABC)
- University of California at San Diego (UCSD)

Tool	U.S.	Mexico
Land Donation	Can be stipulated in wills, land gifts by corporations, and living proprietors. The government offers estate tax breaks and charitable tax deductions.	Not common due to lack of incentives; the donor pays for the transfer of title and development rights, and the receiver pays property taxes.
Land Purchase	Land trusts or governments buy or transfer lands.	Has recently been exercised by U.S. and Mexican NGO teams (see Coahuila for example). Costs of property taxes and management of the donated land are high for land trusts. There area limits on how much land can be owned.
Easement donation	Landowners can donate conservation easements which for a stipulated time period (usually perpetuity) restrict some stipulated uses but maintain title to the land. Charitable deductions and estate tax breaks apply.	Must be signed between two plots of land (dominant and servient). The dominant can NGO which receives a gift of land (1 ha) as a gift from the landowner. Insignificant tax incentives. The NGO can be a third party overseer with legal power to defend the land, a more economic option.
Easement purchase	Same as above with monetary compensation for the development rights.	Most highly recommended by Pronatura. Economic compensation or other assistance is the immediate incentive, but management and title of the land stay in the hands of locals (see Bahia de los Angeles for example).

Table 1. Land Acquisition Mechanisms

Land transfers	Land trusts are intermediaries for the government organizations while they work on acquiring land. Incentives are that trusts avoid monitoring and enforcement costs, and free up monies to purchase other land, and it's a faster process in emergency situations.	Land could be incorporated by Instituto Nacional de Ecologia (INE) or similar government institutions. Political swings cause this to be risky. Also laws allow "compatible development" in biosphere reserves. Attempts are being made to incorporate private lands into reserves. Transfers generate transfer fees and taxes for the holder.
Transferable Development Rights, <i>"Permutas"</i>	Owner gives up the development rights in a sensitive area in exchange for a development rights in a more biologically appropriate site.	<i>Permutas</i> allow a government to offer land owners a parcel of equal monetary value in a more appropriate site. Zoning laws are weak and therefore there are few incentives. Has been used in Mexico City for historic preservation.
Usufructo		Rights to use and enjoy land or resources are sold to an NGO. The previous owners are given a parcel on which to live and work, and the contract expires with the landowner's death.
Fideicomiso	Similar to a Conservancy's ability to manage funds and land.	A contract on rights of use is drawn and land/money can be donated and sold via a financial institution (usually a bank). The terms of the contract are monitored.
Bequest	Donation after death. Avoids estate taxes.	Donation after death.

Table 2. Organizations and Actions for the San Diego Section				
Bureau of Land Management	BLM could contribute to conservation by easing its properties along Campo Creek. The BLM lands along the border are part of the Border Mountains area, which is administered as a Special Recreation Management Area (SRMA). Changes to the permissible activities might involve prohibiting off-highway vehicles in the easement (BLM 1994). BLM also has the ability to ease adjacent lands into its own and become the holder of eased lands (CBI 2003).			
County of San Diego	The county could ease its land into the Kumiai corridor along the riparian corridor by SR-94. The County could contributed to regional conservation of the easement by zoning the areas outside the easement for low densities in the General Plan 2020 and any insuring that any wetland activities require state and federal permits. Community groups and indigenous groups should work with the County Department of Planning and Land Use on these issues (CBI 2003).			
Private Ranchers and Owners	Low impact grazing and agriculture can be compatible with conservation objectives, and some citizens may donate or ease land within and beyond the 50 meter riparian buffer.			
Border Patrol	A written memorandum of understanding between the easement holder and the Border Patrol may help reduce vehicular impacts from Border Patrol activites. Remote sensing techniques have been studied at SDSU for the purpose of protecting sensitive habitats (Lina Masters 2002). Training for agents on where sensitive habitats are is essential.			

Table 3. Steps 2 and 4: Proposed Objectives and Actors in the Tecate Urban River Park

Objective	Organizations
Establish priorities for the Park	Stakeholders
Create recreational areas and open green space	Paramunicipal
Approve management and conservation plans	Paramunicipal uses the plan de ordenimiento de territorial.
Design and execute a development plan for the river zone	Paramunicipal
Establish development restrictions with legal backing. Protect the recharge zones for the aquifer	<i>Paramunicipal</i> zones river park land and issues development permits
Charge for services provided by the river park	Costs are decided by the <i>paramunicipal</i> (who serves as the <i>comite tecnico</i> of the <i>fideicomiso</i>) and carried out administered by the <i>fideicomisarios</i>
Acquire land through exchange or purchase; receive lands or other goods in the form of donations	Fideicomiso
Rehabilitate flora and fauna through restoration projects	<i>Paramunicipal</i> approves a project and hires workers through the <i>fideicomiso</i>
Maintain the streams and drainages in a natural state, avoid concrete channelization, and protect the slopes. Provide protection against erosion and flooding using natural materials that integrate into the environment	The <i>paramunicipal</i> advises on "ecotechnology" alternatives to concrete structures; CNA and SIDUE maintain oversight and both agencies are part of the <i>paramunicipal</i> advisory board
Contract personnel to monitor the park	Paramunicipal and fideicomiso

Map 1.



Map 2.

Urban Tecate Ownership in the Kumiai Corridor

