Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation/NAISN | Operating Year(s): 2011–2012

| Planned Budget: | 2011 C$509,000 | 2012 C$584,000 |

**Strategic Priority/Objective: Healthy Communities and Ecosystems**

Increased resilience of shared ecosystems at risk and (secondarily) Improved environmental health of vulnerable communities in North America

**Project Summary:**

Strategic Objective 2 includes the concept of building collaboration among multiple agencies for improved management of transboundary landscapes. This is an important innovation in the new Strategic Plan for the CEC—reflecting a growing global trend to direct conservation efforts on the landscape scale—particularly to address growing stressors like the impacts of climate change on biodiversity and ecosystems. The current project centers on conserving the unique biological diversity in the Big Bend-Río Bravo region of Mexico and the US, using sound scientific data on challenges to ecosystem resilience to address the region's growing vulnerability to biodiversity loss and ecosystem degradation, and providing a model for collaboration among different decision-makers and partnerships focused on transboundary conservation work in other areas.¹ The North American Invasive Species Network (NAISN) support of the Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation Project will allow future extension of data-sharing protocols and best management practices to other multi-jurisdictional landscapes and landscape projects, such as the US-Canada border parks partnership.²

In addition, the tasks identified for the NAISN (Tasks 6 and 7), will develop trilateral capacity to build on national and trilateral activities that are already underway to develop capacity and collaboration among agencies and partners for improved understanding and management of transboundary landscapes, seascapes and watersheds. NAISN is a consortium that uses a coordinated network to advance science-based understanding of, and effective response to, non-native invasive species in North America (http://www.naisn.org/).

NAISN’s future efforts will include assessing resources, quantifying impacts, identifying thresholds, and supporting informed decision-making on a range of issues of common concern, such as conserving native biodiversity and the prevention of non-native invasive species introductions that threaten North America’s environment. Information on locations and expected spread of invasive species underpins management actions for sustaining community resources and development. Without shared data and models to predict the introduction and spread of invasive species, local communities risk the loss of biodiversity and the increased cost of production (and loss of productivity) for agriculture, forestry and mariculture, as well as the loss of ecosystem functions and risks to human, plant and animal health.

**Environmental Outcome:**

Big Bend/Río Bravo

¹ The National Park Service, the US Fish and Wildlife Service, US Geological Survey, and Texas Parks and Wildlife Department recently agreed to form the Big Bend Conservation Cooperative (BBCC). The BBCC is working with more than 30 conservation partners in the US and Mexico to formalize and organize a developing binational partnership, tentatively named the Big Bend-Río Bravo Conservation Cooperative (BRRBCC), to foster healthy ecosystems and communities along the border by increasing the resilience of ecosystems at risk

² There will be two separate groups of officials to coordinate the work related respectively to the Big Bend and invasives components of the project.
Improve ecosystem functioning and increase the resiliency of 250 river miles of the Rio Grande/Río Bravo (from Ojinaga, Chihuahua, Mexico/Presidio, Texas, USA, to Amistad Reservoir) and Chihuahuan Desert grasslands in the Big Bend-Río Bravo region. This includes, by 2015:

- river rehabilitation/restoration projects to enhance and maintain habitat and biodiversity;
- doubling the river miles of Rio Grande-Río Bravo riparian habitat treated to remove invasive vegetation and increasing native plant species in treated areas by 50 percent;
- increasing biodiversity in riparian and aquatic habitats;
- improving the status of the endangered Rio Grande silvery minnow;
- recruiting additional landowners for implementing grassland restoration; and
- increasing economic resiliency and environmental health of rural communities while protecting ecosystems, by encouraging citizen involvement in binational conservation efforts.

North American Invasive Species Network (NAISN)

This component will put science into action by reducing the risks and impacts from invasive species in Canada, Mexico, and the United States. It will prevent the introduction of invasive species in the region and contribute directly to sustaining healthy ecosystems that provide essential ecosystem services and resources for growing vibrant communities in North America.

Tasks necessary to reach the Environmental Outcome:

**Big Bend/Río Bravo**

1. Expand existing conservation partnership to include more partners in Mexico and to increase the ability to coordinate and implement conservation efforts in the US and Mexico.
3. Conduct scientific studies of the Big Bend Reach of the Rio Grande to define relationships between geomorphology and invasive species
4. Expand strategic planning and implementation of exotic and invasive species management.
5. Facilitate the development of sustainable economic and social tools for integrating the local communities of Boquillas, Coahuila, Mexico, and others along the border, with the binational conservation strategies for the Big Bend/Río Bravo region.

Additional activities also necessary to reach the environmental outcome for out-year funding or funding by other partners:

- Complete Rio Grande/Río Bravo Science Plan (this is currently funded and underway).
- Establish baseline understanding of sediment, invasive species and biodiversity in the Rio Grande and relevant US tributaries to the Rio Grande.
• Develop a binational strategy for conservation of the Rio Grande/Río Bravo
• Continue to restore the Rio Grande silvery minnow to the Big Bend reach of the Rio Grande/Río Bravo.
• Continue biodiversity studies on the Rio Grande/Río Bravo.
• Continue sediment and river studies on the Rio Grande/Río Bravo to inform adaptive management of river ecosystem health.
• Conduct water quality studies to be able to understand and remediate water quality issues.
• Implement pilot projects to mechanically restore Rio Grande/Río Bravo channel by improving sediment dynamics and increasing habitat diversity in selected areas.
• Continue to implement grassland restoration on public and private lands.
• Work with public and private land managers and researchers to develop and implement a series of landowner workshops to demonstrate effective grassland restoration techniques.
• Expand existing Chihuahuan Desert grassland bird monitoring in the Big Bend-Río Bravo region.
• Expand surveys and field work related to endangered and rare bat populations, habitats, and human dimensions.
• Continue to implement research, monitoring, and conservation actions related to rare and endangered species.
• Coordinate with US Department of the Interior (DOI) and Semarnat partnerships to assess and address climate change related to natural resource management.
• Prepare and plan for the reintroduction of desert big horn sheep and pronghorn antelope, including control of auodad/barbary sheep.
• Establish means to limit impacts, such as grazing and disease transmission, related to domestic livestock in sensitive species and habitats, including developing and implementing protocols and procedures for response to and control of animal diseases.
• Conduct environmental education and outreach related to binational conservation strategies for local citizens and tourists.

North American Invasive Species Network (NAISN)

6. Enhance network collaboration in NAISN through increased information sharing via the Global Invasive Species Information Network (GISIN) and the Early Detection and Distribution Mapping System (EDDMapS) and other partners.


Task 1: Expand existing conservation partnership to include more partners in Mexico and to increase the ability to coordinate and implement conservation efforts in the US and Mexico

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Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation/NAISN
| 1.1 Engage additional conservation partners in Mexico and the US. Conduct facilitated/translated bilingual technical meetings to share information, discuss annual priorities and work plans, and seek opportunities for increased cooperation, including travel assistance for partners in Mexico and the US: |
|---|---|
| • Binational coordination meeting for monitoring natural resources and rare species |
| • Binational technical team meeting related to the development and implement of scientific studies to inform adaptive management of river ecosystem health |
| • Annual meeting and conference of the BBCC/BBRBCC |
| Growth and development of binational partnership through active participation of Semarnat relevant agencies and officials: Conanp (Natural Protected Areas in Big Bend-Rio Bravo Initiative), INE (Conservation and Border Issues Area), Wildlife General Direction, Conagua, IBCW and through addition of at least three major Mexican NGOs, and at least one Mexican University |
| Facilitated/translated bilingual technical meetings to share information, discuss annual priorities and work plans, and seek opportunities for increased cooperation, including travel assistance for partners in Mexico and the US: |
| • Binational coordination meeting for monitoring natural resources and rare species |
| • Binational technical team meeting related to the development and implement of scientific studies to inform adaptive management of river ecosystem health |
| • Annual meeting and conference of the BBCC/BBRBCC |
| As we are building this international partnership, it will be imperative that we occasionally have in person meetings. Facilitated and translated bilingual technical meetings designed to assist cooperators in learning how to better communicate about technical projects and issues in both English and Spanish will improve our ability to function as a binational team and ultimately to identify, strategize for, and achieve our shared conservation goals. |
| | 2011–2012 | 2011 - $38,000 | 2012 - $60,000 |

| 1.2 Increase ability to hold teleconferences and communicate over the Internet by outfitting major |
|---|---|
| Major partners in the US and Mexico will be outfitted with computer-linked cameras, microphones, and software to |
| The ability to use technology to hold meetings online will save travel costs and reduce greenhouse emissions. The ability to meet more |
| | 2011 | 2011 - $10,000 |
| 1.3 Conduct stream restoration course focused on the Río Grande/Río Bravo for BBRBCC partners. | Provide an overview of hydrologic, sediment transport, geomorphic, and ecological principles applicable to (1) assessment of stream channel condition (2) developing approaches to stream management and restoration (3) evaluating project performance. The course emphasizes the inter-relatedness of hydrology, hydraulics, sediment transport, geomorphology, aquatic ecology, fisheries, and riparian ecology. | This course will ensure that BBRBCC conservation partners working on conservation of the Río Grande/Río Bravo have a strong scientific understanding of riverine processes and restoration upon which management decisions can be made. | 2011 | 2011 - $30,000 |
|---|---|---|---|
| 1.4 Develop and maintain a website for the BBRBCC to be used for both internal and external outreach, communication, and information sharing. | Develop and maintain a website for the BBRBCC, to be used for both internal and external outreach, communication, and information sharing. | A website will help us to more effectively communicate with each other, integrate communities and stakeholders into the partnership, and increase our opportunities for implementing conservation actions. | 2011–2012 | 2011 - $12,000 2012 - $5,000 |
| 1.5 Plan and implement a series of public meetings in Mexico and the United States on ecosystem services and river | Provide information to communities and other stakeholders and identify shared conservation priorities. Public meetings would be focused on | Public meetings will assist us in further identifying and understanding the conservation priorities and concerns of the communities we work in. This information can then | 2011–2012 | 2011 - $31,000 2012 - $25,000 |
management to provide information to communities and other stakeholders and identify shared conservation priorities. Public meetings would be focused on riverside communities and river and water users within the Big Bend/Río Bravo region.

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<tr>
<td>2.1. Develop a Conservation Strategy for the reporting on the state of science on the Rio Grande/Río Bravo, identifying information gaps, and building consensus on priority resources, desired future conditions, and a strategy for achieving them.</td>
<td>A Conservation Strategy consisting of: 1. An assessment of scientific knowledge describing the state of science on the Rio Grande/Río Bravo, identifying prioritized resources to be protected by reach and the desired future condition (DFC) for each resource, and a prioritized list of hypothesis-driven process/response studies to relate conservation status of management action. 2. Proposed preliminary plan for implementing scientific studies identified in above outcome (see number 1).</td>
<td>The Conservation Strategy will compliment the Rio Grande/Río Bravo Science Plan (currently being written), and will provide a scientific foundation that will allow stakeholders to describe a shared vision of the river and develop a prioritized series of &quot;next steps&quot; that guide future research to fill data/information gaps and more clearly define the binational conservation strategy for rehabilitation of the Rio Grande/Río Bravo. The strategy will also describe critical monitoring objectives.</td>
<td>2011 - Development of Report and conduct binational meeting to develop consensus vision and prioritized research needs.</td>
<td>2011 - $25,000</td>
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<tr>
<td>2.2 Evaluate and describe the conservation status on the Rio Grande/Río Bravo. Identify priority resources and processes in critical reaches (as identified in the Binational Conservation Strategy for the Rio Grande/Río Bravo).</td>
<td></td>
<td></td>
<td>2012 - Implement scientific studies related to conservation strategy.</td>
<td>2012 - $60,000</td>
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### Task 3: Conduct scientific studies of the Big Bend Reach of the Rio Grande/Rio Bravo to inform adaptive management of ecosystem health.

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| **3.1** Construct a GIS database, with maps and reports, of the human infrastructure and inundation potential of the river valley from Presidio to La Linda, TX, and key physical attributes of the river valley, as well as links to available scientific data and imagery via a web portal. | 1. An evaluation of the effects of sediment transport on priority resources and processes in critical reaches of the Rio Grande/Río Bravo.  
2. A GIS database and information sharing portal.  
4. A pilot study of the fate and transport of tributary supplied gravel. | Generally, this task and subtasks will allow us to better understand the relationship between sediment dynamics and invasive riparian vegetation, water quality, and flood flow routing  
The GIS database will ensure that all partners are operating with similar understandings of resource condition and with the same data foundation. A suspended sediment budget will help guide conservation and vegetation management efforts for the Rio Grande/Rio Bravo.  
The gravel supply and transport study will help in the development of projects designed to reduce flood risk to infrastructure near key regional tributaries and enhance aquatic habitat. | 2011     | 2011 - $35,000            |
| **3.2** Establishment and analysis of sediment study program for the Rio Grande/Rio Bravo. This will be integrated into ongoing suspended sediment monitoring. This will be conducted in concert with suspended sediment monitoring conducted on the main stem by other partners. |  |  | 2011     | 2011 - $35,000            |
| **3.3** Conduct a pilot study of the fate of tributary supplied gravel, and mobilization potential by main stem flows. |  |  | 2012     | 2012 - $90,000            |
## Task 4: Expand strategic planning and implementation of exotic and invasive species management

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<td>4.1 Develop short- and medium-term work plan for binational management of invasive species.</td>
<td>Annual and five-year work plans for managing invasive plants and animals on both sides of the Rio Grande/Río Bravo corridor. Document and project area maps in Spanish and English.</td>
<td>Annual plans will direct short-term on-the-ground exotic species management actions to improve environmental conditions of the Rio Grande/ Río Bravo. Five-year plan will direct strategies, identify partners and potential funding sources, and build capacity for long-term exotic species management. Specific details for 2012 and out-year projects and methods (subtasks 4.2-4.3) will be outlined in work plans, outlined in the binational invasives strategy document.</td>
<td>2011</td>
<td>2011 - $15,000</td>
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<tr>
<td>4.2 Establish baseline environmental conditions for long-term monitoring.</td>
<td>Field and satellite maps of invasive plant and animal species’ distribution, spread of biocontrol agents, and riparian plant communities Will feed data into NAISN</td>
<td>Assessment of current conditions, distribution, and abundance of invasive species (1.2), new infestations (i.e., Ruta Critica - 1.3), and native plant communities will provide baseline for evaluating effectiveness of management actions (2.4, 2.5). Will build on and expand Rapid Assessment (1.1) methods currently used for monitoring</td>
<td>2011–2012</td>
<td>2011 - $20,000</td>
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<td></td>
<td></td>
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<td>2012 - $15,000</td>
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underway on the Rio Grande/Bravo. Mapping of existing conditions (2.1), status (2.2), and effects (2.3) of biocontrol agents (saltcedar leaf beetle) will allow the most effective and efficient management tactics, strategies, and location of projects.

<table>
<thead>
<tr>
<th>4.3 Control invasive species in the Rio Grande/Río Bravo corridor.</th>
<th>Maintain the previously-treated 40 km of Rio riparian habitat and prevent re-invasion of invasive plants</th>
<th>Maintenance-level exotic species control will prevent re-invasion of previously treated sites, and riparian habitat will be in improved environmental condition (3.1, 3.2). Large areas kept free of invasive plants will provide data into the role of riparian vegetation in sediment dynamics and geomorphology. [Last sentence here deleted.] Expand existing feral hog control from 6000 to 8000 ha (3.2). Involving local communities and work crews will build a knowledge and experience base (CEC subtask 5.5) to maximize future effectiveness and efficiency of invasive species management (3.2). Shade trees (up to 1000) susceptible to attack will be protected from unintended damage from saltcedar beetle (4.1, 4.2).</th>
</tr>
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<tr>
<td>4.4 Identify and evaluate sites and methods for intensive</td>
<td>Map, description, and restoration prescriptions for sites with</td>
<td>Plans and methods will be in place for out-year or other fund sources</td>
</tr>
</tbody>
</table>
### Task 5: Facilitate the development of sustainable economic and social tools for integrating the local communities of Boquillas, Coahuila, Mexico, and others along the border, with the binational conservation strategies for the Big Bend/Rio Bravo region

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<tr>
<td>5.1. Identify stakeholders and facilitate partnerships amongst citizens, government agencies, companies, NGOs, and academia in the US and Mexico.</td>
<td>Draft Sustainable Economic Development and Environmental Outreach Plan for Boquillas, Coahuila, Mexico, and other communities along the border.</td>
<td>The rural riverside communities of the transboundary region are generally low-income and lack the resources to develop sustainable economic opportunities. This project facilitates the development of resilient economies and environmental health for rural communities while protecting ecosystems by encouraging citizen involvement in binational conservation efforts.</td>
<td>2011</td>
<td>2011 - $32,000</td>
</tr>
<tr>
<td>5.2. Inventory existing infrastructure and economic capacity in Boquillas, Coahuila, Mexico.</td>
<td>Implement the initial phase of the Plan as related to the opening of the Boquillas Crossing, including facilitation of training for local citizens related to: increasing the binational workforce for conservation actions, Boquillas-based boat operators, and CPR/first aid for local ecotourism guides.</td>
<td></td>
<td>2011</td>
<td>2011 - $15,000</td>
</tr>
<tr>
<td>5.3. Assist CONANP and NPS in compiling binational citizen input concerning sustainable economic development related to binational conservation strategies and the opening of Boquillas Crossing.</td>
<td>Facilitate opportunities for integrating the sustainable economic development of local communities with binational conservation priorities by developing a local workforce to implement conservation actions will promote values in the local community that are consistent with long-term conservation, promulgate environmental education for locals and tourists, and generate money via fee collection for conservation work in the protected areas in Mexico.</td>
<td></td>
<td>2011</td>
<td>2011 - $15,000</td>
</tr>
<tr>
<td>5.4. Synthesize stakeholder input into a draft Sustainable Economic Development and Environmental Outreach Plan.</td>
<td>Draft Sustainable Economic Development and Environmental Outreach Plan for Boquillas, Coahuila, Mexico, and other communities along the border.</td>
<td></td>
<td>2011</td>
<td>2011 - $12,000</td>
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5.5 Facilitate capacity building and training of local citizens related to integrating sustainable development with binational conservation strategies.

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</table>
| 6.1 Training and outreach for NAISN’s data providers | Semi-annual online training sessions for NAISN data providers, using the GISIN platform | • Improve capacity for data management and increase data interchange and cooperation among Network participants.  
• Increase awareness of the Network will improve organizations’ response to invasive species. | 2011–2012 | 2011 - $13,000  
2012 - $13,000 |
| 6.2 NAISN technical support | Technical assistance for users of the GISIN data aggregator system | • Outreach and communication improves user confidence in the Network.  
• Improve capacity to respond to Network’s information needs. | 2011–2012 | 2011 - $46,000  
2012 - $46,000 |
| 6.3 NAISN system development | Improved capacity for data exchange, based on the GISIN platform | • Effective decision support through achievement of adequate information infrastructure. | 2011–2012 | 2011 - $55,000  
2012 - $55,000 |
| 6.4 Mirror GISIN database on EDDMapS – combine data | NAISN distribution data security | • Provides backup security and additional service capacity for users; doubling the number of occurrence data records (2.6 million) for users across North | 2011–2012 | 2011 - $15,000  
2012 - $15,000 |
### 6.5 Develop a comprehensive catalog of resources available across the NAISN network.

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<tbody>
<tr>
<td>Catalog of resources available on each NAISN node’s website</td>
<td>• Provides users a choice of information for detection and management of invasive species.</td>
<td>2011–2012</td>
<td>2011 - $10,000 2012 - $10,000</td>
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### 6.6 NAISN virtual meetings

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<tr>
<td>Face-to-face meetings using webinar technology</td>
<td>• Provides additional users access to the latest technology developments and training for users unable to receive onsite training.</td>
<td>2011–2012</td>
<td>2011 - $10,000 2012 - $10,000</td>
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### North American Invasive Species Network (NAISN):

**Task 7: Implement community-based prevention, early detection-rapid response, and management of invasive species**

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<tbody>
<tr>
<td>7.1 Extend existing efforts to local communities.</td>
<td>Training and field technical assistance by phone and webinar</td>
<td>Extend and create ‘train the trainers’ course based upon Great Lakes Indian Fish and Wildlife Commission web services (<a href="http://www.glifwc.org/invasives/">http://www.glifwc.org/invasives/</a>)</td>
<td>2011</td>
<td>2011 - $10,000</td>
</tr>
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</table>
| 7.2 Two-day workshops in Mexico and Canada; lessons learned from Big Bend | Field use of NAISN data and modeling information to teach the trainers for other community-based prevention and EDRR projects | • Take training team to local community field sites selected by partners in Mexico and Canada – to share current successful examples, such as:  
  - ([http://www.for.gov.bc.ca/hra/Plan ts/application.htm](http://www.for.gov.bc.ca/hra/Plants/application.htm))  
| 7.3 Workshop on lionfish detection, eradication and control: Laguna Madre and western Gulf of Mexico | Training course tailored to marine and aquatic management of invasive species | Training workshop for on-the-ground resource managers to guide them in setting priorities for detection, eradication and control within marine environment Collaborative effort with marine | 2011 | 2011 - $10,000 |
Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)
The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply to activities funded through the NAPECA grant program.

**Does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council? How?**

This project addresses the “Healthy Communities and Ecosystems” priority, and the strategic objective #2, “Increased resilience of shared ecosystems at risk.”

**Big Bend/Río Bravo**

This project would advance the CEC’s strategic objective #2: Increased resilience of shared ecosystems at risk. The Big Bend/Río Bravo region is internationally recognized for its unique biodiversity and landscape form. The long-term ecological integrity of this region is challenged by a range of factors, such as climate change, drought, endangered species, and intensification of human activities, including urban and rural residential expansion, increased and diversifying recreational use, ever-greater extraction of natural resources such as water and minerals, and the growth of the physical infrastructure.

The health of the rural economies and indigenous communities in the Big Bend/Río Bravo region are highly linked to the natural resources of the landscapes. For example, in the Rio Grande/Río Bravo basin, with an over-allocated system and a rural population remote from normal infrastructure, communities are dependent upon a diminishing Rio Grande. Locally in the Rio Grande/Río Bravo basin, the communities of the transboundary region are generally low-income with poor access to health and security facilities and infrastructure and thus have fewer options for enacting adaptive response to stressors threatening the ecosystems upon which they depend. Work is already under way with local communities on both sides of the border in both regions to build capacity and enhance their ability to respond. However, climate change and population projections increase the need for a well-formed, science-based resource management approach that balances the immediate needs of stakeholders with the sustainability of landscape elements. This project will address landscape resilience issues by developing, implementing and sharing proven technologies and approaches.

**North American Invasive Species Network (NAISN)**

- A crosscutting issue, invasive species directly affect three of the four strategic objectives identified by the Council.
• Preventing the establishment and spread of invasive species increases productivity and environmental health for many communities—for example, by reducing the threat of West Nile virus or sources of dermatological afflictions such as giant hogweed, a phototoxic plant. Its sap can cause phytophotodermatitis (severe skin inflammations) when the skin that has contacted it is exposed to sunlight or to UV-rays. Lionfish have toxic spines—the venom of the lionfish, delivered via an array of up to 18 needle-like dorsal fins, is purely defensive. However, a sting from a lionfish is extremely painful to humans and can cause nausea and breathing difficulties.

• Removal of invasive species contributes directly to the resilience of shared ecosystems at risk—for example, rare or vulnerable biological communities are at increased risk when invasive species take hold, for instance, as in many Hawaiian ecosystems. Prevention and removal of invasive species helps ensure healthy ecosystems and communities in North America and will have a direct effect on the success of other CEC projects focused on ecosystem and species’ conservation.

**Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America?**

**Big Bend/Río Bravo**

This project focuses on a key transboundary area in the North American landscape and can provide a solid basis for deriving a set of approaches, best practices, and lessons learned for multi-jurisdictional landscape-scale conservation efforts that can inform similar initiatives across North America.

This multi-jurisdictional area includes diverse species that migrate across national and state boundaries, federal, community and private lands, and are increasingly stressed by a changing climate. Conserving functional habitat connectivity at the scale that wildlife requires makes complementary conservation planning across such landscapes essential, yet multiple jurisdictional authorities make such planning a challenge. Confronting the challenges facing this treasured landscape will provide an important proving ground for landscape-scale conservation strategies elsewhere on the North American continent.

**North American Invasive Species Network (NAISN)**

• The objectives of this proposal typify nearly all North American environments (marine, aquatic, and terrestrial) and are extremely relevant in preventing the entry and spread of invasive species to the region, building capacity across the region, and intended to contribute to the effort of maintaining healthy ecosystems and communities throughout the three countries.

• Due to its diversity, geographical position and level of trade, North America is a region particularly sensitive to the impacts of invasive species—a wide diversity of habitats in this region match the climatic envelopes of numerous countries of origin, enabling a large diversity of invaders to find a niche here. While much work has been accomplished, the efforts are not uniform across the region. Thus, a project of this kind will build on other efforts and boost current capacities.
Does the project identify specific clear and tangible results that will be achieved and how progress toward each result will be measured over time?

Big Bend/Río Bravo

Expected results include a shared understanding of ecosystem dynamics among partners and the ability to quantitatively evaluate effects of alternative decision options under a variety of scenarios for multiple resources, all of which will build capacity to implement an ecosystem approach for informed management decisions and increased resilience of transboundary landscapes. All of this results in on-the-ground restoration of wildlife species, their habitats, their migrations, and the culture that connects people to this landscape and all of its ecological components. This project will demonstrate, through numerous community-based conservation initiatives and partnerships, that ecological integrity can be sustained and, where necessary, restored through scientific inquiry, community participation, land acquisition, best management practices, and regulation. This effort can serve as a worldwide model.

Project success will be measured ultimately by tangible improvements in ecosystem and biodiversity indicators identified by decision-makers and stakeholders and, in the short term, by the number and quality of products delivered as outlined in the task matrix above. The transboundary data which will be developed, combined with multiple stakeholder participation in identifying critical watersheds, habitats, corridors and species targeted for restoration, will be available for this and other projects and will assist in restoring healthy habitats, reducing risks of flooding and other vulnerabilities, and protecting species’ migratory routes.

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- The project specifies clear and tangible results that will be measured over time. On-the-ground projects are identified. In some cases, initial measures for project subtasks have not been set; however, they will be determined during the project period. One important measure of success will be the increased coverage of the NAISN database network, including the following indicators: number of occurrences, number of participating organizations, number of people trained to use NAISN/GISIN, and geographic coverage of the projects spawned by NAISN/GISIN.

- Each country will be able to define its own indicators of environmental success in using NAISN for decision making.

Is the CEC the most effective vehicle for the Parties to undertake the project, considering:

- The value-added of doing it under the CEC cooperative program

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This project directly responds to the CEC’s strategic plan to approach conservation at an ecosystem level and build collaboration among multiple agencies to tackle the transboundary conservation of landscapes. While there is a diverse range of actors in the region, the CEC brings unique, neutral authority to convene multiple decision-makers and stakeholders from across jurisdictional lines and encourage them to embrace the paradigm shift that is needed to integrate conservation planning on a landscape scale. The CEC is also uniquely situated to assist the conservation partners in the Big Bend-Río Bravo Region in building a model for a transboundary, landscape-scale conservation partnerships and identifying, extracting, and disseminating lessons learned from this effort for application in multi-jurisdictional landscapes across the continent.

By focusing on transboundary conservation, cooperation, and communication and identifying linkages between communities and science-based resource management organizations, such as the Landscape Conservation Cooperatives and the Climate Change Science Centers, the CEC’s support for these efforts will produce and test in diverse settings a model that will demonstrate the feasibility and benefits of landscape-scale conservation cooperation and inform other transboundary conservation partnerships.

- Any other public, private or social organizations that work on such activities

Numerous federal, state, local and tribal authorities, NGOs and community organizations are key stakeholders in this landscape-level partnership. While we are seeking funding from various sources, we believe the CEC is particularly suited to support the tasks and subtasks identified in the table above, and critical to providing the seed funding to leverage other potential sources of funding.

- Opportunities to cooperate and/or leverage resources with such organizations

The CEC’s contribution will be invaluable in leveraging other potential resources to contribute to this effort. We believe that private foundations, for example, may be interested in following the CEC’s lead in investing in positive efforts to promote cooperation and conservation in North America’s border regions as a way to promote a positive counterpoint to public concerns about the security risks plaguing our border areas in North America.

In the Big Bend-Río Bravo Region, other possibilities for contributing to a broader and global environmental success include:

**Ihlet.** Sul Ross State University is participating in an international program known as Ihlet, which seeks to identify the ecological, social, and economic status of 12 international watersheds, the ecosystem services that contribute to the social-economic wellbeing of dependent communities, and ways to improve and sustain those communities. ([http://www.ihlet.org/index.php](http://www.ihlet.org/index.php))

**Global Environment Fund** - Texas State University and the University of Mexico are selected recipients for funds to be used to support conservation research and pilot projects in the Rio Grande Basin. A black bear project and exotic riparian vegetation control project are already on the approved list of projects.

**Climate Change Action Plan:** (first phase funded by NOAA and Coca Cola; additional funding pending notification from NOAA)

The BBRBCC, with leadership from the World Wildlife Fund, has initiated the development of a Climate Change Action Plan. Working with the BBRBCC, WWF has submitted a second proposal to NASA for the next phase, which will focus on facilitating discussions...
about climate change and river management with local communities and creating linkages with climate change science organizations, such as the Desert LCC and Central CSC.

Climate Change, Land Cover Change and Priority Avian Habitats: Decision support for desert grassland conservation

This project will provide guidance for the adaptation of conservation sites based on future habitat-climatic scenarios that affect the quantity, diversity and connectivity of Chihuahuan Desert grassland habitats due to climate change and human activity. The long-term outcome will be a strategy for prioritizing a network of key conservation areas for grassland birds and biodiversity in anticipation of future climate and habitat changes. This research can be directly incorporated into conservation strategies for bird species by federal and state agencies in the US and Mexico, Landscape Conservation Cooperatives, Joint Ventures, and others. The US Fish and Wildlife Service, National Park Service, and Bureau of Land Management will directly participate in this project, providing a link between research and monitoring and on-the-ground management of DOI lands and programs.

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- The value-added of doing it under the CEC cooperative program: Subject matter experts from Canada, Mexico and the US have identified the NAISN model as an ideal strategy for information-sharing to prevent the expansion of biological invasions. The CEC has been a key partner promoting new collaboration, and it has already raised awareness of the issue within a regional context.

- Any other public, private or social organizations that work on such activities: Previous projects at local and regional levels are the springboard for NAISN; this is the first effort to tie together the distributed past efforts into one network specifically designed to encompass the North American continent. NAISN is a unique model addressing a critical information gap identified by the SMEs. Invasive species are of global concern, recognized as the second most-significant cause of biodiversity loss, so all regional efforts will benefit a larger community that also needs information, and could benefit from successful North American experiences.

- Opportunities to cooperate and/or leverage resources with such organizations: NAISN has identified opportunities to leverage with GISIN, EDDMaps as well as other “hubs” across North America. See partners list:

  - **NAISN Partners:**
    - Center for Invasive Species & Ecosystem Health, GA US
    - Center for Invasive Plant Management, MT US
    - Institute for Biological Invasions, TN US
    - Northeast - Midwest Institute US
    - Great Ships Initiative, MI US
    - National Institute of Invasive Species Science, CO US
    - Invasive Species Research Institute Ontario, Canada
    - UF/IFAS Center for Aquatic and Invasive Plan
    - CONABIO, Mexico
    - Algoma Univ., Ontario, Canada
Does the project propose a clear timeline for implementation of the activities, including a target end-date for CEC’s involvement? Where applicable, describe how the work will continue after CEC involvement ends?

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The BBRBCC is a developing partnership that will continue beyond CEC involvement. We are actively seeking funding from multiple sources to accomplish our conservation goals and will continue to do so.

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The project clearly outlines that the project will end in 2012. NAISN relies heavily upon volunteers. NAISN/GISIN need core funding to support the development phase (two years). It is expected that NAISN will diversify its sources of funding through the development of a funding strategy. A second project may be presented to CEC, however, with a much lower request for supporting the core capacity.

As CEC support ‘winds down,’ NAISN will rely on new financing and on the volunteer efforts. CEC funding will provide critical and timely support for NAISN as it continues to identify other sources of financial support throughout North America. NAISN and GISIN support a transparent organizational structure that guides and allows for participation by all members/partners of the Network. Both NAISN and GISIN work across geopolitical boundaries at appropriate geographical scales.

Where applicable, does the project identify with reasonable specificity:

- Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication?
- The beneficiaries of capacity building activities that the project may include?
- The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome.
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This project will be complemented by the proposed projects on grasslands and invasive species. The continent-wide focus of those projects and the more place-based and community-level engagement focus of this proposal in a key transboundary subregion of North America are mutually reinforcing and will provide opportunities for synergy between these projects.

A wide range of communities, NGOs, and institutions in both landscapes are concerned about or engaged in conservation of rivers, watersheds, grasslands and other habitats. Within the last year the BBCC, for example, has supported, organized, or participated in more than a half dozen meetings where partners and stakeholders were able to participate in the identification of shared resource values. Funding under this proposal would assist in reaching out to a greater number of potential partners and communities in both Mexico and the US to inform them about the work of this partnership and integrate their ideas, concerns and/or data into the work.

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The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project? The target audience includes natural resource managers and leaders from local, state, provincial and federal agencies as well as NGOs and local citizens across North America. Managers and scientists need the information NAISN already collects to make on-the-ground and in-the-water decisions for conservation and increased productivity of fisheries and agriculture. Shared information is the first request made when users discover a new invasive species website – the core value of NAISN is to increase connectivity and provide scientific information in a timely and useful format for management decisions and action to prevent and control biological invasions.

The beneficiaries of capacity building activities that the project may include? The beneficiaries of NAISN projects include federal, state, provincial, tribal and local citizens. Community-based programs along coastal areas, reefs, protected areas, watershed conservancies and others will benefit from the information accessible in the NAISN distributed network of data providers. For example, a rancher may seek mapping applications to model the spread of weeds across the range, and find models available on NAISN to use for predicting the best management practices to use to reduce spread and increase range productivity. The linkages to NGO and governmental resources for management assistance will yield benefits to fisheries and agricultural interests. Managers of natural areas will be able to find documented success stories for early detection and rapid response to limit the impacts of newly discovered invasive species. Documentation of failed efforts will also inform managers on tribal, public and private lands and waters, providing management alternatives they can consider to reduce costs and increase effectiveness.

The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome. Relevant stakeholders include: North American communities that depend on healthy and vibrant ecosystems for critical services and resources, e.g., subsistence communities, indigenous communities, land managers, ranchers and farmers, natural resource agencies, researchers, modelers, educators, organizations (NGOs) and industries that manage and depend on
sustainable natural resources. Ranchers and farmers have fought weeds for centuries; fisheries biologists are increasingly attuned to the need to control invasive disease pathogens and competitive invasive species from similar habitats in other parts of the world. As species move from place to place by intentional and unintentional means, and at an accelerating rate, the importance of sharing information to limit the harm they cause only increases. Action taken today can greatly reduce the likelihood of invasion and limit the costs of irreversible change to North American ecosystems. NAISN serves that role: to put science into action to conserve biodiversity and to assure a more productive future for local communities.