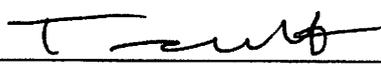


1502

**Arizona Water Protection Fund
Application Cover Page
FY 2015**

Title of Project: Restoring Sonoita Creek –Halting Erosion, Enhancing Flows and Promoting Riparian Vegetation and Wildlife Habitat											
Type of Project: <input checked="" type="checkbox"/> Capital or Other <input type="checkbox"/> Water Conservation <input type="checkbox"/> Research	Stream Type: <input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral										
Your level of commitment to maintenance of project benefits and capital improvements: <input type="checkbox"/> < 5 years <input checked="" type="checkbox"/> 5-10 years <input type="checkbox"/> 11-15 years <input type="checkbox"/> 16-20 years											
Applicant Information: Name/Organization: Borderlands Restoration L3C Address 1: PO Box 1191 Address 2: Patagonia City: Arizona State: 86335 ZIP Code: 520 906-9854 Phone: 520 906-9854 Fax: Tax ID No.: XXXXXXXXXX											
Inside an AMA: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, which AMA: <input type="checkbox"/> Phoenix <input type="checkbox"/> Tucson <input type="checkbox"/> Prescott <input type="checkbox"/> Pinal <input type="checkbox"/> Santa Cruz											
Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation											
Contact Person: Trevor Hare Name: Project Manager Title: 520 906-9854 Phone: Fax: e-mail: hare.trevor@gmail.com											
Any Previous AWPf Grants: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, please provide Grant #(s):											
Arizona Water Protection Fund Grant Amount Requested: \$ 98,123 If the application is funded, will the Grantee intend to request an advance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Matching Funds Obtained and Secured: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Applicant/Agency/Organization:</th> <th style="text-align: right; border-bottom: 1px solid black;">Amount (\$):</th> </tr> </thead> <tbody> <tr> <td>1. Applicant Tucson Audubon</td> <td style="text-align: right;">5,000</td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: right;">Total: 5,000</td> </tr> </tbody> </table>	Applicant/Agency/Organization:	Amount (\$):	1. Applicant Tucson Audubon	5,000	2.		3.		Total: 5,000	
Applicant/Agency/Organization:	Amount (\$):										
1. Applicant Tucson Audubon	5,000										
2.											
3.											
Total: 5,000											
Has your legal counsel or contracting authority reviewed and accepted the Grant Award Contract General Provisions? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A											
<p>Signature of the undersigned certifies understanding and compliance with all terms, conditions and specifications in the attached application. Additionally, signature certifies that all information provided by the applicant is true and accurate. The undersigned acknowledges that intentional presentation of any false or fraudulent information, or knowingly concealing a material fact regarding this application is subject to criminal penalties as provided in A.R.S. Title 13. The Arizona Water Protection Fund Commission may approve Grant Awards with modifications to scope items, methodology, schedule, final products and/or budget.</p>											
Trevor Hare	Project Manager 520 906-9854										
Typed Name of Applicant or Applicant's Authorized Representative	Title and Telephone Number										
	14 May 2015										
Signature	Date Signed										



BORDERLANDS RESTORATION

Proposal to the Arizona Water Protection Fund

15 May 2015

Title: Restoring Sonoita Creek –Halting Erosion, Enhancing Flows, and Promoting Riparian Vegetation and Wildlife Habitat

Executive Summary

Sonoita Creek flows NE to SW from just west of Sonoita, Arizona through the town of Patagonia and The Nature Conservancy's (TNC) Sonoita Creek Preserve to its confluence with the Santa Cruz River near the town of Rio Rico. The Creek has been highly modified by human activities including levees and impounding, farming and historic overgrazing, sand and gravel mining, an abandoned railroad bed, roads, culverts and bridges.

During the initial assessment and planning work on the Stevens Parcel we saw great opportunity to conservatively induce the creek to meander (increase sinuosity) at a ratio that will promote slowing the water, aggradation in the channel, floodplain development and vegetation recruitment. In a reference reach below the TNC Preserve the belt width (width across the creek corridor that the creek meanders) is significantly wider and sinuosity and floodplain access is greater than the project reach above town.

On the TNC Preserve and on the State Park we have identified two areas with active headcuts that we will address using Zuni bowls along with grade control structures to halt the erosion. In addition the State Park is dealing with trespass cattle in riparian areas from nearby state and federal grazing leases that we will deal with through a combination of repairing some fence lines and installing another

We are also proposing a restoration feasibility study from the Stevens Parcel to Patagonia Lake to identify and assess areas where we can enhance the bank storage and floodplain access, restore geomorphic processes, increase flow and hydro-period, and benefit riparian habitat and wildlife

Task 1 is to finalize the design and plan for the Stevens Parcel on upper Sonoita Creek and the two headcuts along the middle section on State Land leased by Arizona State Parks and on the Nature Conservancy's Sonoita Creek Preserve. Task 2 is to obtain all permits needed. Task 3: Replace or repair downed fence lines and construct new fence on the State Park. Task 4 is to restore Sonoita Creek on the Stevens Parcel and in two sites in the middle reach in partnership with TNC and ASP. Task 5 is to carry out a feasibility study along 10 miles of Sonoita Creek to identify and select restoration sites to enhance the bank storage, restore geomorphic processes, increase flow and hydro-period, and benefit riparian habitat and wildlife. Task 6 is to initiate monitoring of the restoration sites and Task 7 will be the development and submittal of a final report and an oral presentation to the commission.

Project Overview

Background:

Sonoita Creek flows NE to SW from just west of Sonoita, Arizona through the town of Patagonia and The Nature Conservancy's (TNC) Sonoita Creek Preserve to its confluence with the Santa Cruz River near the town of Rio Rico. The Creek has been highly modified by human activities including levees and impounding, farming and historic overgrazing, sand and gravel mining, an abandoned railroad bed, roads, culverts and bridges. TNC owns a parcel along 1.1 miles of the Creek adjacent to the Native Seeds SEARCH (NSS) Farm just east of Patagonia called the Stevens Parcel. The creek is incised 4-10 feet and has lost sinuosity along this reach, and with little bedrock control or floodplain, high sediment loads and scouring floods there is little recruitment of riparian vegetation or water infiltration, and continued erosion.

This project complements ongoing work by Borderlands Restoration along Harshaw Creek, and its recent purchase of the Three Canyons 1200 acre property adjacent to the Stevens Parcel and Native Seeds SEARCH Farm. It also complements ongoing work by Arizona Game and Fish Department, the Nature Conservancy and Arizona State Parks in protecting valuable riparian resources.

Goal:

Our goal is to reduce erosion, increase bank water storage and riparian vegetation, and promote wildlife habitat.

Objectives:

- 1) Develop a comprehensive restoration plan for Sonoita Creek
- 2) Implement a restoration project evaluated for actual impact to enhanced riparian recovery
- 3) A restoration feasibility study to identify other areas in need.

Statement of Problems/Causes

As stated above the creek is incised 4-10 feet and has lost sinuosity along the project reach (as it has along most of its total length) and with little bedrock control or floodplain, high sediment loads and scouring floods there is little recruitment of riparian vegetation or water infiltration, and continued erosion. In addition other constraints include State Highway 82 and its Right of Way on the north of the creek corridor, and the NSS Farm on the south side (see map below).

In addition other reaches of the creek through and below the town of Patagonia to Patagonia Lake on the Arizona State Parks (ASP) lease, have issues such as headcutting, sediment imbalance, invasive species, trespass cattle, and incision and loss of floodplain access.

Statement of Solutions

During the initial assessment and planning work on the Stevens Parcel we saw great opportunity to conservatively induce the creek to meander (increase sinuosity) at a ratio that will promote slowing the water, aggradation in the channel, floodplain development and vegetation recruitment. In a reference reach below the TNC Preserve the belt width (width across the creek corridor that the creek meanders) is significantly wider and sinuosity and floodplain access is greater than the project reach above town.

On the TNC Preserve and on the State Park we have identified two areas with active headcuts that we will address using Zuni bowls along with grade control structures to halt the erosion. In addition the State Park is dealing with trespass cattle in riparian areas from nearby state and federal grazing leases that we will deal with through a combination of repairing some fence lines and installing another

We are also proposing a restoration feasibility study from the Stevens Parcel to Patagonia Lake to identify and assess areas where we can enhance the bank storage and floodplain access, restore geomorphic processes, increase flow and hydro-period, and benefit riparian habitat and wildlife

Statement of Project Years of Benefit to the resource and general public

Working in partnership with the Audubon Society, the Nature Conservancy, Arizona State Parks, and Native Seeds SEARCH enhance, maintain and/or restore creek and riparian resources in Sonoita Creek that will provide direct improvements to increase water quantity, addresses degraded watershed health conditions or impacts to perennial streams through implementation of scientifically-based restoration projects. Matching monies or including in kind contributions have been provided by other sources. We will provide for the continued maintenance of the portion of the creek and associated riparian habitat that are enhanced by the project. This project includes broad based local involvement and support and will directly benefit Sonoita Creek.

Scope of work

Task 1: Finalize design and plan for the Stevens Parcel on upper Sonoita Creek and the two headcuts along the middle section on State Land leased by Arizona State Parks and on the Nature Conservancy's Sonoita Creek Preserve.

Description: In collaboration with TNC, NSS, and ASP set project scope, and develop site specific restoration plan. We will bring in an expert on Induced Meandering to help us finalize the conceptual plan for the Stevens parcel.

Purpose: To address urgent restoration needs and to prove efficacy of our approach and aridland restoration techniques.

Responsible Personnel: BR, TNC, TAS and ASP

Deliverable Description: Technical memo and supporting maps

Deliverable Due Date: March 2016

Task Cost: \$17,310

Task 2: Obtain permits

Description: Obtain and submit to the Project Manager all permits, authorizations, clearances and agreements, and perform any consultations necessary to complete the tasks listed in this Scope of Work. These may include but are not limited to:

Clean Water Act Section 404 permit from the Army Corps of Engineers

Clean Water Act Section 401 Certification from Arizona Department of Environmental Quality

State Historic Preservation Office (SHPO) clearance

Endangered Species Act Section 7 consultation with US Fish & Wildlife Service

Santa Cruz County Floodplain Use Permit

Access agreement(s) between Grantee and Landowner(s) (if different)

Purpose: To comply with all local, state and federal permit requirements, environmental laws such as NEPA and obtain legal access to project area.

Responsible Personnel: BR

Deliverable Description: Copies of all approved permits, authorizations, clearances and agreements.

Deliverable Due Date: June 2016

Task Cost: \$5,000

Task 3: Replace or repair downed fence lines and construct new fence on the State Park.
Description:

Purpose: To ensure only permitted cattle grazing occurs along the creek on the State Park.

Responsible Personnel: BR and ASP

Deliverable Description: we will replace, repair or install up to 2,000 feet of fencing.

Deliverable Due Date: March 2016

Task Cost: \$10,000

Task 4: In partnership with TNC and ASP restore Sonoita Creek on the Stevens Parcel and in two sites in the middle reach.

Description: During the initial assessment and planning work we saw great opportunity to conservatively induce the creek to meander (increase sinuosity) at a ratio that will promote slowing the water, aggradation of the channel, floodplain development and vegetation recruitment. In a reference reach below the TNC Preserve the belt width (width across the creek corridor that the creek meanders) is significantly wider and sinuosity and floodplain access is greater than the project reach above town.

Using Induced Meandering methods developed by Bill Zeedyk and Van Clothier, juniper post baffles (point-bar development), vanes (bank protection), and weirs (grade control), we can achieve the project goals in a low-cost, low-impact and conservative way that also protects private property and public infrastructure (see preliminary design below).

The preliminary design includes approximately 40 structures along the 1+ mile reach, 20 baffles that induce meandering and/or protect cutbanks, and 20 weirs that control the grade. Both types of structures are low profile, flow-through, and constructed of all natural locally sourced materials from forest thinning projects. In addition we will install erosion control structures along Harshaw Creek on the Stevens Parcel where tributary drainages are causing erosional issues.

Purpose: To restore a natural hydrology to Sonoita Creek, reducing erosion and enhancing riparian vegetation.

Responsible Personnel: BR, TNC and ASP

Deliverable Description: Technical memo with supporting maps, and signed landowner restoration agreements.

Deliverable Due Date: September 2016

Task Cost: \$51,320

Task 5: Carry out feasibility study to identify and select restoration sites to enhance the bank storage, restore geomorphic processes, increase flow and hydro-period, and benefit riparian habitat and wildlife.

Description: Activities under this task include

- Synthesize past research on the hydrology, geomorphology, habitat and vegetation community structure to develop a baseline of information and identify data gaps. See Bibliography/References for a list of pertinent studies.
- Enter into an agreement with interested landowners for access and study.
- Conduct interviews with longtime residents, researchers and managers to identify trends and other important information.
- Survey and assess collaborating parcels to identify potential restoration project areas
- Collect representative longitudinal profiles and cross-sections to assess geomorphic problems, constraints and opportunities.
- Develop GIS coverages that include cottonwood-willow stands; cottonwood-willow recruitment; erosional areas; aggradational areas; geomorphology and geologic control; invasive species; and length and duration of flows.
- In coordination with collaborating landowners and partners develop a prioritizing process to determine those sites most in need of work.
- Develop budgets to implement restoration plans and identify potential funding sources for future work.

Each priority site specific restoration plan will include information on past conditions and events that have caused degradation, desired future conditions and a goal statement along with objectives, descriptions of restoration techniques and expected result, and a long-term monitoring and management plan. We will design all the work to improve human safety and enjoyment, wildlife habitat, and flood control

Purpose: to identify problems along the creek and select future restoration site(s).

Responsible Personnel: BR

Deliverable Description: Technical memo with supporting maps, and signed landowner restoration agreements.

Deliverable Due Date: March 2017

Task Cost: \$7,310

Task 6: Initiate monitoring of restoration sites

Description: We will monitor the response of the creek geomorphology, surface water flows, and the vegetation to the proposed restoration. Methods will include cross-section and longitudinal profile surveys which will show trends toward a stable channel configuration, photo-points to show vegetation and channel response, wet-dry mapping to show trends in hydro-period, and greenline vegetation monitoring (Winward, 2000) to show trends in increased bank storage and channel stability through vegetation response.

Purpose: To prove efficacy of our approach and aridland restoration techniques, and to inform future restoration work along the creek.

Responsible Personnel: BR

Deliverable Description: Technical memo and supporting maps

Deliverable Due Date: Ongoing June 2016 – December 2017

Task Cost: \$11,510

Task 7: Develop and submit a final report and oral presentation.

Description: The final task of the project is to be submitted along with an oral presentation

Purpose: To summarize project accomplishments, identify next steps, and convey lessons learned.

Responsible Personnel: BR

Deliverable Description: Final report and oral presentation

Deliverable Due Date: December 2017

Task Cost: \$1,500

Detailed Budget Breakdown

Direct Labor & Outside Services Costs \$63,100

Other Direct Costs \$24,350

Capital Outlay & Equipment Costs \$0

Administrative Costs \$4,373

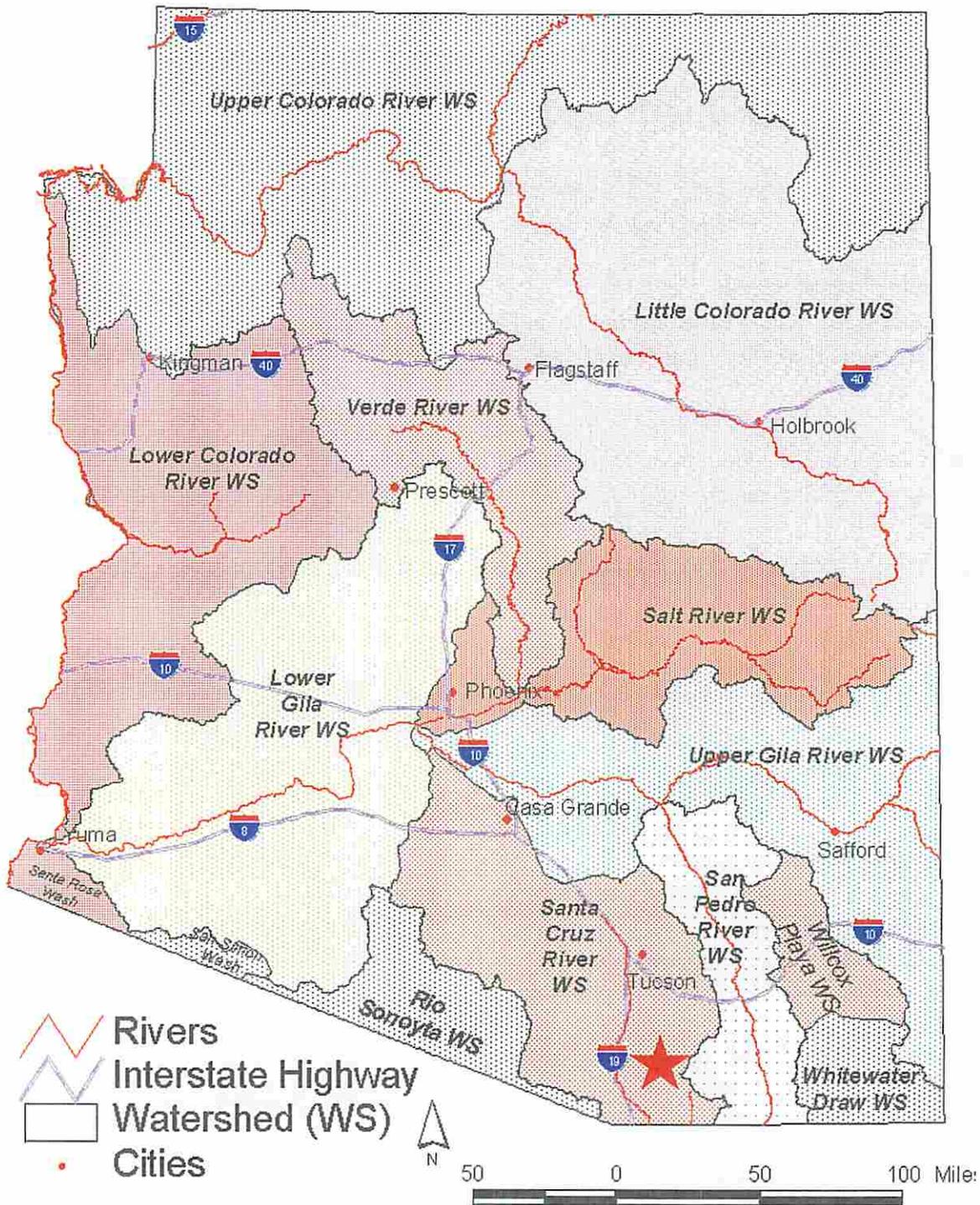
Detailed Matching Funds Breakdown

Direct Labor & Outside Services Costs \$5,000

Capital Outlay & Equipment Costs \$0

Administrative Costs NA

Project Maps and Schematic
Arizona Watershed Map



Project Location/Ownership Map(s)



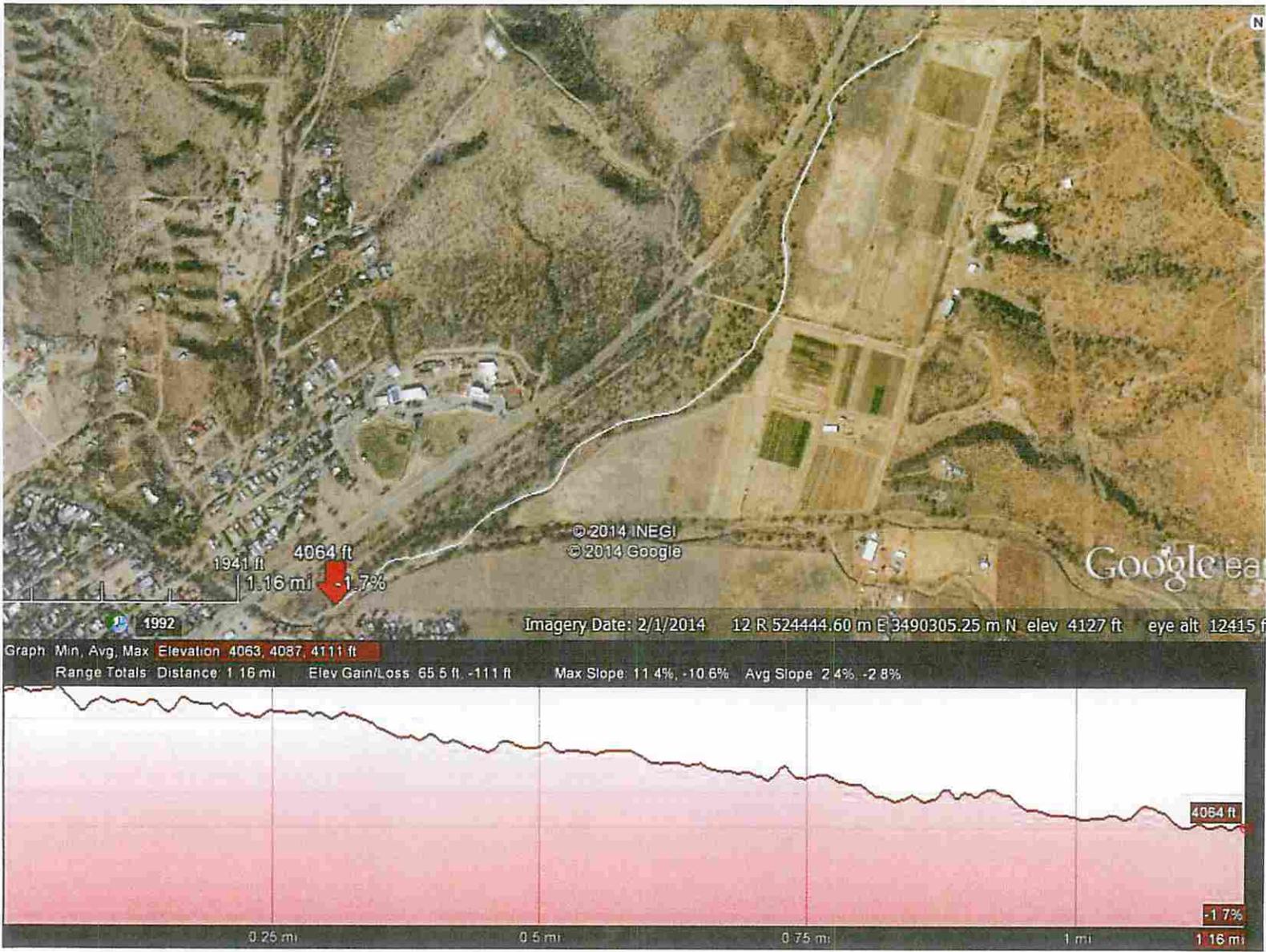
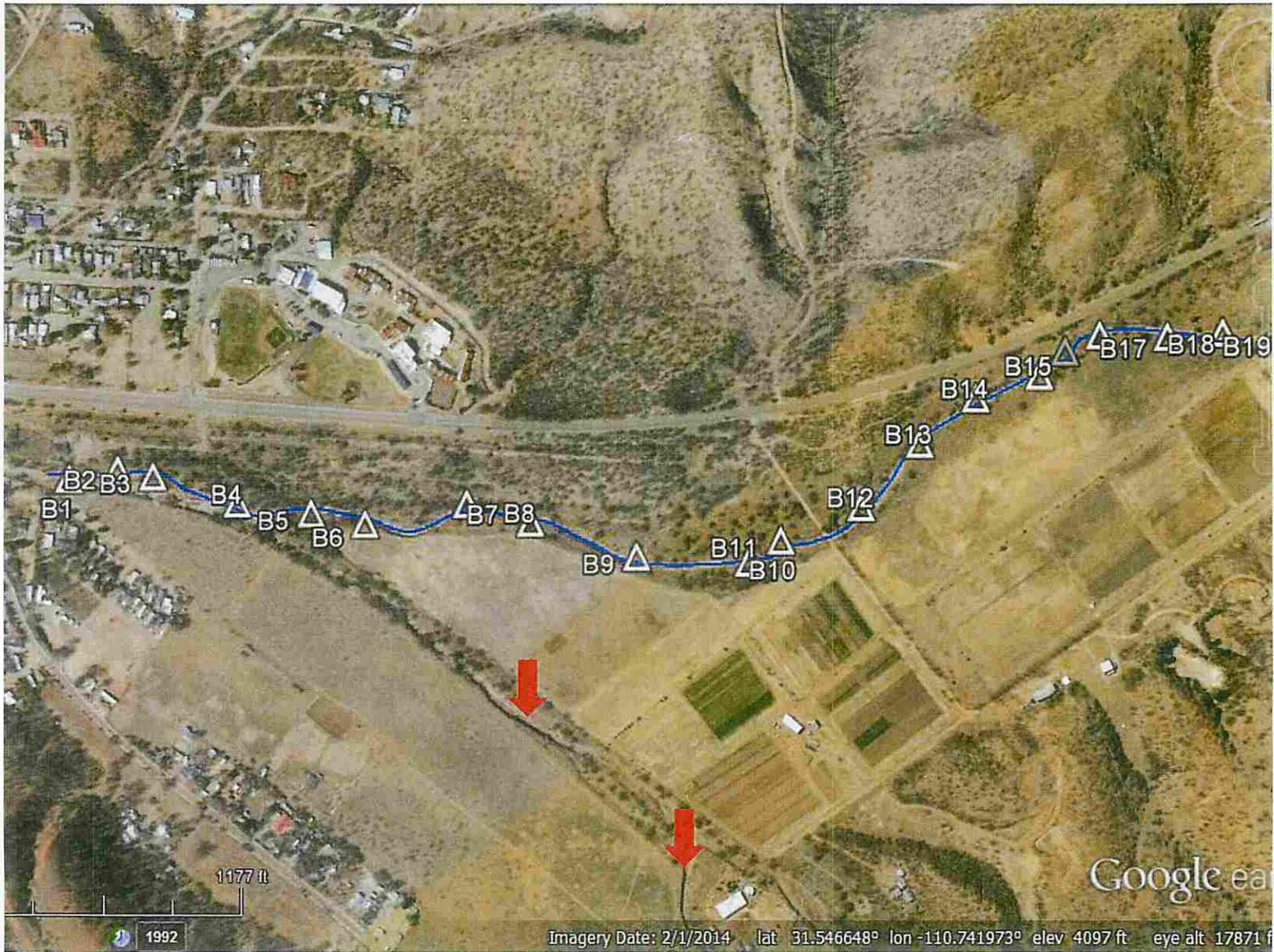


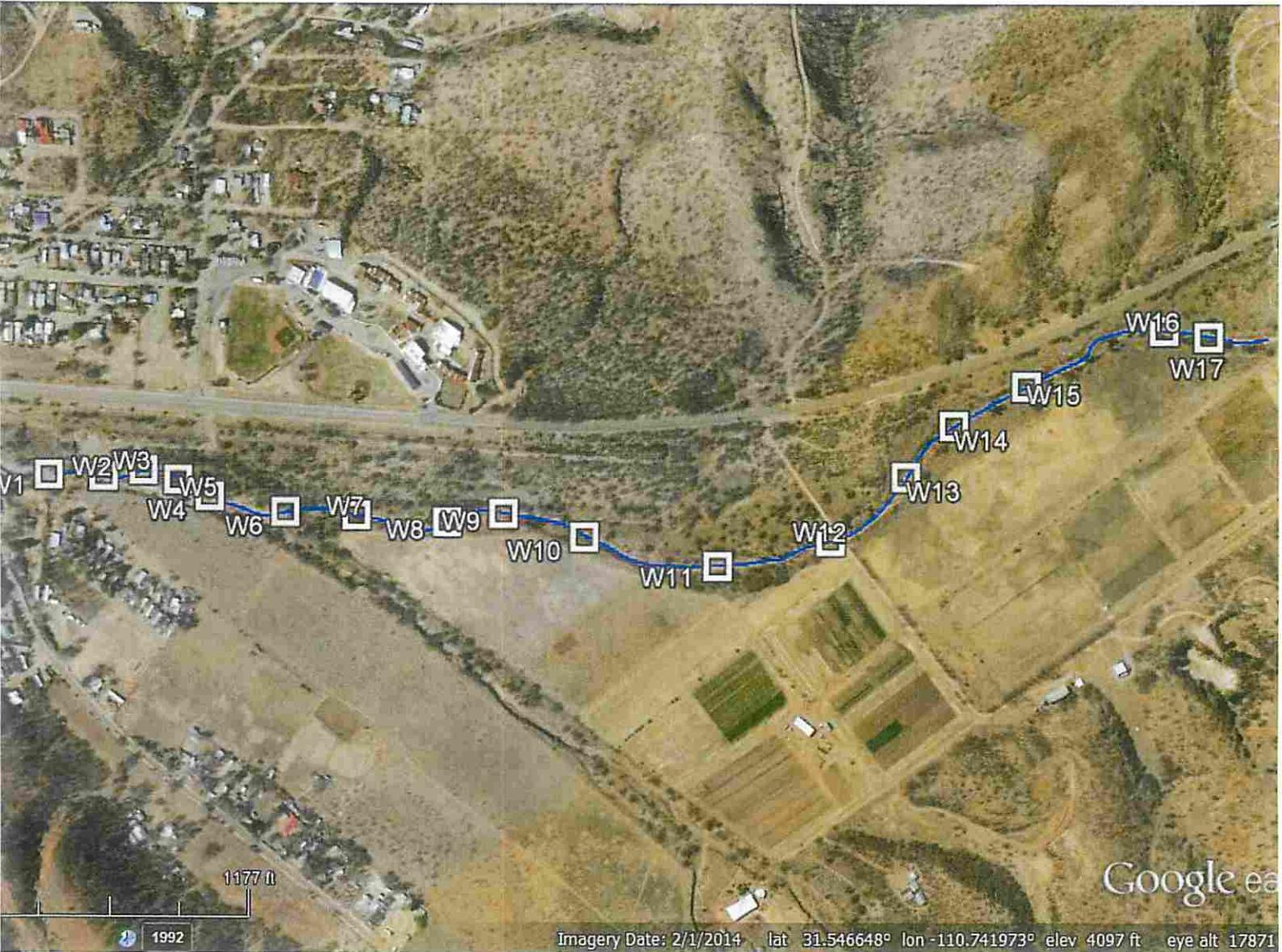
Image of Project Reach with Google Earth Longitudinal Profile



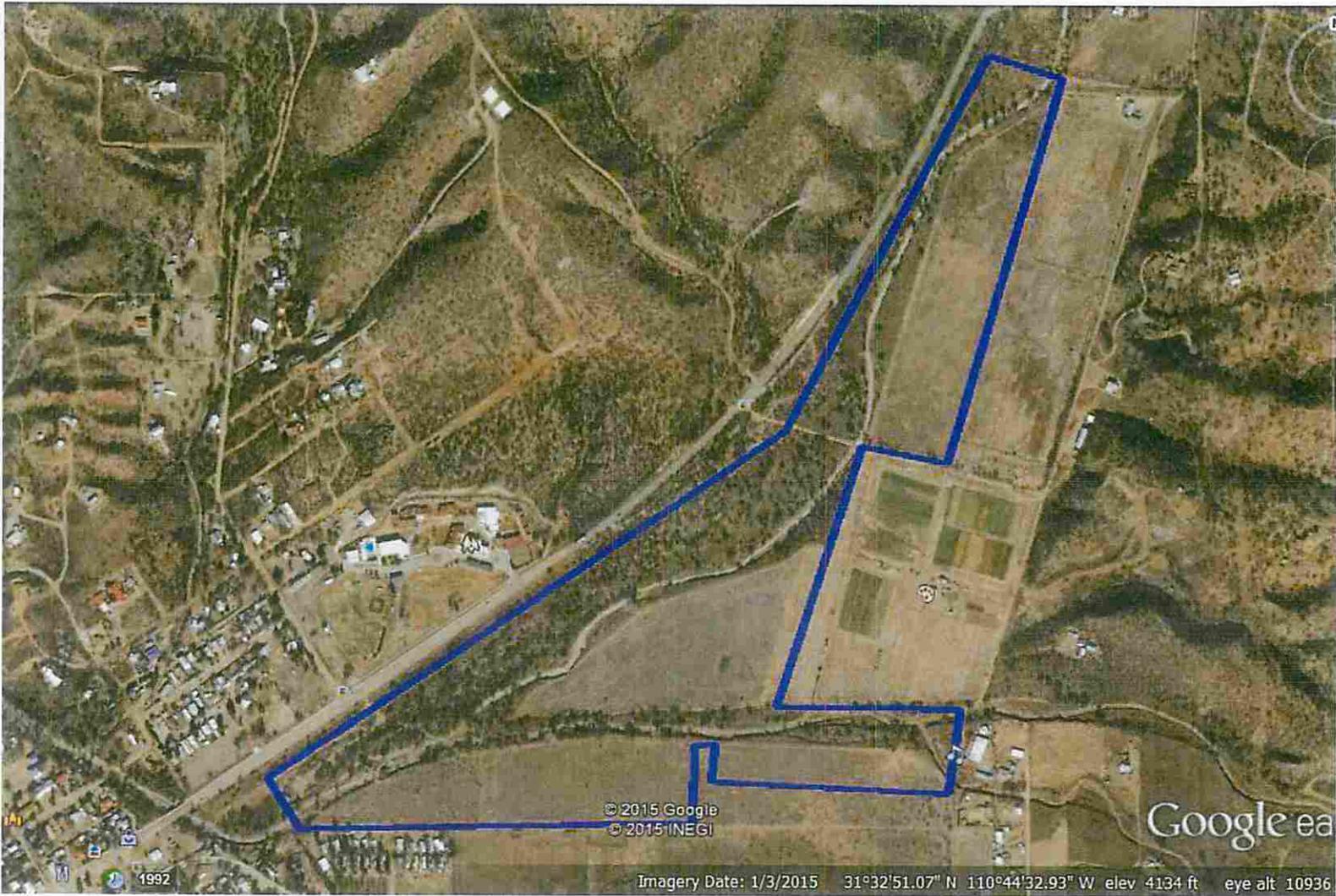
Closer Image of Project Reach



Baffle Locations and Harshaw Creek Erosional Areas ↓



Weir Locations



The Stevens Parcel –The Nature Conservancy



TNC Sonoita Creek Preserve with headcut location



Patagonia Lake/Sonoita Creek with headcut location

Supplemental Information

State Historic Preservation Office (SHPO) Review Form *

See Attachment

Organizational and staff expertise, qualifications and knowledge

Borderlands Restoration began in 2010 as collaboration between Cuenca los Ojos (CLO) and the Biophilia Foundation. It has now grown to include the Hummingbird Monitoring Network, the Bureau of Land Management, the University of Arizona Southwest Borderlands Food and Water Security Program, the Friends of Sonoita Creek, and others. The initiative uses the best of the restoration practices acquired from our partners' rich experience and seeks to apply these practices throughout the borderlands of southern Arizona and northern Sonora.

Borderlands Restoration, L3C employs a wide variety of strategies to achieve measurable outcomes with ranching families and other residents of the borderlands region, to protect biological diversity, and promote sustainable management of shared grasslands. We believe that biological diversity cannot be protected solely by designating and protecting nature reserves, and that more must be done to protect and restore diversity on working landscapes. To this end, we assist ranchers and other landowners who seek to develop plans to protect rare species, improve wildlife habitat values and conditions, increase range productivity, diversify ranch income streams, and establish conservation easements and other protected corridors.

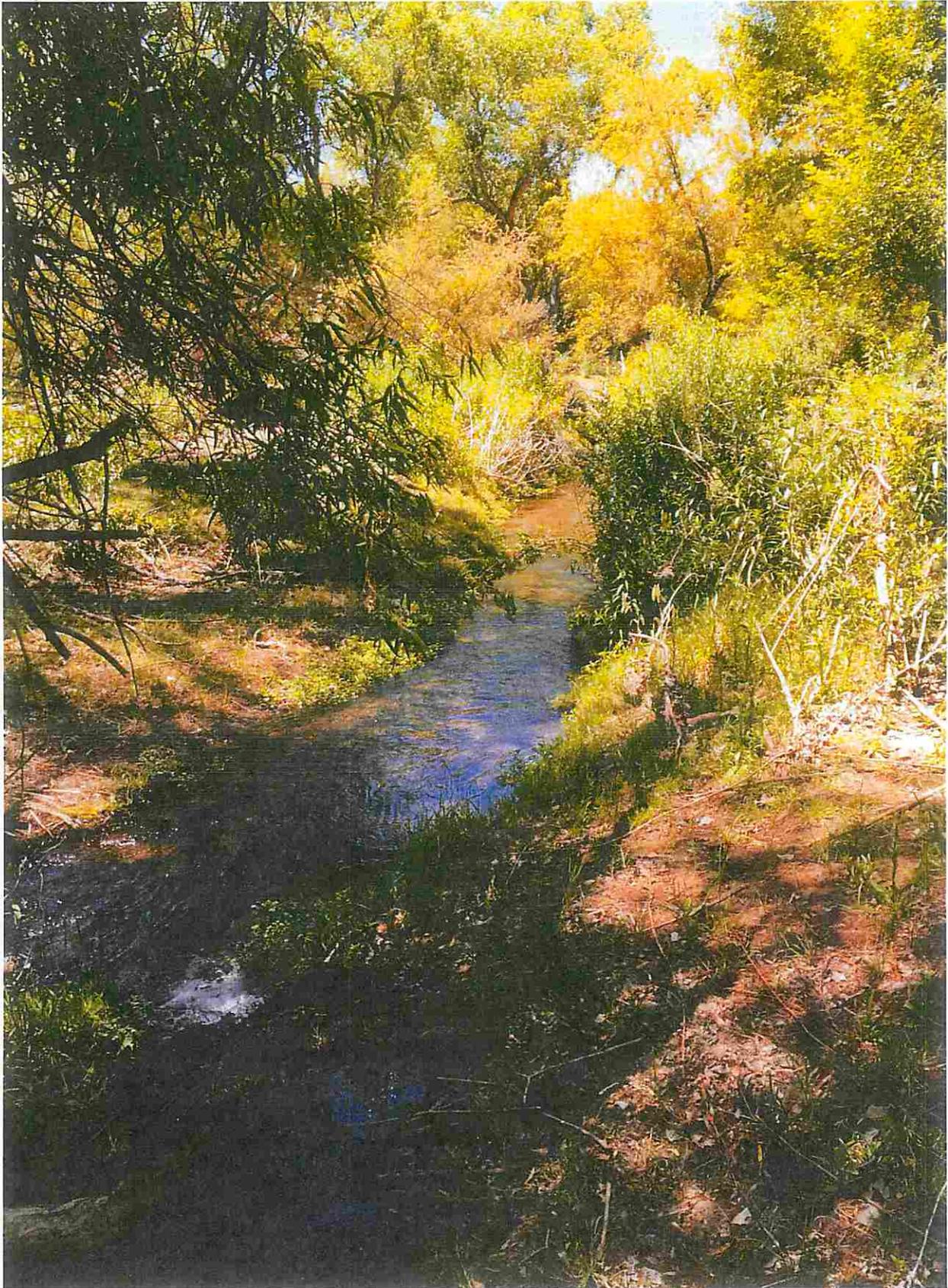
Borderlands Restoration L3C, in collaboration with the US Geological Survey is testing the idea that the most cost-efficient way to recharge the Sierra Vista sub-basin aquifer is to harvest rainwater in the tributaries of the San Pedro River. We are using low-technology water-harvesting methods and develop models to predict and closely monitor the impact of water harvesting structures on groundwater recharge and surface flow in the Babocomari River, a major tributary of the San Pedro. We use methods pioneered by BR L3C founding partners Valer and Josiah Austin, who have successfully restored surface flows to a five-mile stretch of the Rio San Bernardino in Sonora, Mexico.

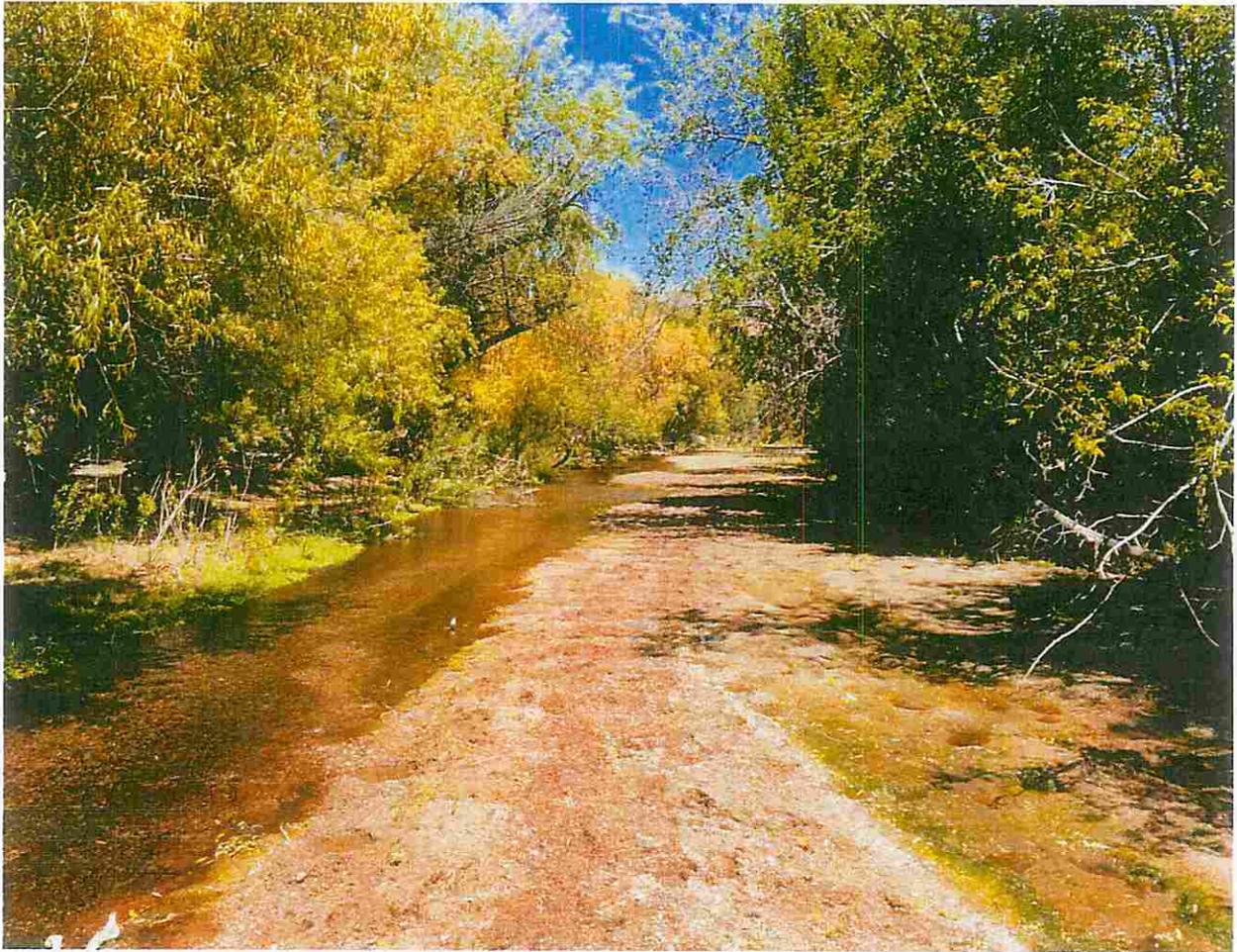
Executive Director: David Seibert grew up in Tucson and has been an Olympic-level hockey goaltender, a student of ancient garden design in Japan, and a logger, college instructor, wildland firefighter, horticulturist, and baker. He holds degrees in literature and philosophy (NAU 1990; UA 1995); linguistic anthropology (NAU 2004); and in cultural anthropology, historiography, and social memory (UA 2013), and will never, ever pursue another degree. David has practiced ecological restoration for more than 20 years by integrating erosion control, vegetation, fire, and cultural components on public and private land, including sacred site restoration work for the Hopi Tribe, Navajo Nation, and Zuni Tribe. He owns Seibert Ecological Restoration, LLC, and moved to Patagonia in 2012 in order to participate in a restoration economy that addresses the social and ecological challenges of the modern US-Mexico borderlands. Because of his experience and skill in grassland restoration, David joined Borderlands as a conservation director. His ability to manage teams and write grants led him to his current role as executive director.

Project Manager: Trevor Hare, Trevor graduated from the University of Arizona in 1991 with a degree in Ecology and Evolutionary Biology with a focus on botany. He worked on a long-term

project with the Arizona Poison Center studying the impacts of urban and rural development on rattlesnakes and Gila monsters for ten years. Trevor worked as the Sky Island Alliance Restoration Program manager for the last 11 years and developed a robust methodology for the identification, funding, assessment, planning and design, and implementation of both large-scale and small-scale riparian and upland restoration projects, which resulted in over \$800,000 of restoration work in the region. Trevor serves as the Science Advisor for the Coalition for Sonoran Desert Protection, and sits on the Pima County Conservation Acquisition Commission, the City of Tucson Technical Advisory Committee, the Town of Marana Technical Biology Team, and as a board member of the Ciénega Watershed Partnership and friends of Ironwood Forest National Monument. Trevor also serves on the Chiricahua Leopard Frog Recovery Team and the Sonora Salamander Participation Team. Trevor joins the Borderlands team to lead work crews with expertise in building erosion structures.

Project Site Photographs





Existing Plans, Reports, Information Relevant to the Project

Hydrogeological analysis of groundwater flow in Sonoita Creek basin, Santa Cruz County, Arizona, Muhamad Nassereddin, Thesis, University of Arizona, 1967.

This study looked at the relationship of the geology and water flows along Sonoita Creek.

Hydrologic Modeling of the Sonoita Creek Basin, Laura Norman, USGS Tucson, AZ, Presentation, March 2014.

This presentation describes a proposed modelling approach to better understand the hydrology of Sonoita Creek and impacts to the hydrology from various sources.

Sonoita Creek State Natural Area/Patagonia Lake State Park Habitat Recovery and Preservation Project. Arizona State Parks Natural Areas Program Advisory Committee, Undated Draft.

This project proposal outlines issues with trespass cattle grazing in the riparian corridor of the State Park.

Glinski, Richard L. 1977. Regeneration and distribution of sycamore and cottonwood trees along Sonolita Creek, Santa Cruz County, Arizona. p. 116-123. In Importance, preservation and management of riparian habitat: Proceedings of the symposium, R. Roy Johnson and Dale A. Jones (tech. coords.) USDA Forest Service General Technical Report RM-43, 217 p. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo.

This paper looks at the importance of sandbars and high flow secondary channels on vegetation recruitment.

Aquatic Biota of the Sonoita Creek Basin, Santa Cruz County, Arizona, W. L. Minckley, Arizona State University, Unpublished Manuscript, 1968

This report is a result of a 1967 intensive survey and earlier investigations. It describes the historical and current status of aquatic habitats of the area.

Streamflow in the upper Santa Cruz River basin, Santa Cruz and Pima Counties, Arizona, Alberto Condes de la Torre, Water Supply Paper 1939-A, 1971.

This analysis provides information on flow duration, low-flow frequency and magnitude, flood-volume frequency and magnitude, and storage requirements to maintain selected draft rates.

Letters of Community Support

Please see attached letters of support.

Evidence of Control and Tenure of Land including legal access

Borderlands Restoration and local partners are in negotiations with Arizona State Parks and the Nature Conservancy to acquire Landowner Access and Cooperation Agreements and we expect signed agreements to be finalized by July 1, 2015. Please attached template Landowner Access and Cooperation Agreement.

Letters from those pledging matching funds

Please see attached letters of support.

Citations:

Winward AH. 2000. Monitoring the vegetation resources in riparian areas. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Ogden, UT

Timeline

	2015	2016				2017			
Q	4	1	2	3	4	1	2	3	4
Task									
1 Design	█	█							
2 Permits		█	█						
3 Fence		█							
4 Restore				█	█				
5 Study			█	█	█	█			
6 Monitor				█	█	█	█	█	█
7 Report									█

Water Protection Fund Budget - Sonoita Creek Restoration Project
Period: from October 2015 - October 2019

		Request	Match	
Finalize design and plan for upper Sonoita Creek and two headcuts along the middle section				
Director, David Seibert	Provide technical assistance, 20 hours x \$50/hr	\$ 1,000		\$
Manager	Lead plan and design work, develop final design, 100 hours x \$50/hr	\$ 5,000		\$
	Provide technical assistance, 20 hours x \$50/hr		\$ 1,000	\$
Equipment	Survey and monitoring equipment, purchasing historic aerial and ground-based photos	\$ 4,000		\$
	Induced Meandering Specialist, 5 days incl travel/perdiem	\$ 5,000		\$
Person	Assist with recording and analyzing spatial data, and creating maps, 40 hours	\$ 800		\$
	10 trips, 100 miles each @\$0.51/mi	\$ 510		\$
Task 1				\$
Obtain permits for pilot restoration demonstrations				
Manager	Develop and submit permit applications, 100 hours	\$ 5,000		\$
Task 2				\$
Replace or repair downed fence lines and construct new fence on the State Park				
	2,000 feet of fence repair, replacement or installation	\$ 5,000		\$
Task 3				\$
Restore Sonoita Creek on the Stevens Parcel and in two sites in the middle reach				
Director, David Seibert	Provide technical assistance, 40 hours	\$ 2,000		\$
Manager	Lead restoration work, 200 hours	\$ 10,000		\$
Person	Provide technical assistance, 80 hours		\$ 4,000	\$
	Restoration work, 20 days @ \$1000/day	\$ 20,000		\$
	Posts and rock	\$ 10,000		\$
Equipment	Backhoe/others	\$ 1,800		\$
Supplies	Pollinator and habitat plants	\$ 1,000		\$
Supplies	Misc supplies	\$ 1,000		\$
	20 trips, 100 miles each @\$0.51/mi	\$ 1,020		\$

3					\$
out feasibility study to identify and select restoration sites					
r, David Seibert	Provide technical assistance, 20 hours	\$	1,000		\$
nager	Lead feasibility study analysis, site identification and selection, 100 hours	\$	5,000		\$
1	Assist with recording and analyzing spatial data, and creating maps, 40 hours	\$	800		\$
	10 trips, 100 miles each @\$0.51/mi	\$	510		\$
4					\$
Monitoring of Restoration Sites					
r, David Seibert	Provide technical assistance, 20 hours	\$	1,000		\$
nager	Develop monitoring sites, analyze and submit reports, conduct wet-dry mapping, photopoint and x-section and long pro, 100 hours	\$	5,000		\$
Equipment	Piezometers to monitor sub-surface moisture fluxes, data loggers	\$	5,000		\$
	10 trips, 100 miles each @\$0.51/mi	\$	510		\$
5					\$
Prepare and submit a final report and oral presentation.					
r, David Seibert	Technical oversight, 10 hours	\$	500		\$
Manager	Report development, 20 hours	\$	1,000		\$
6					\$
	5%	\$	4,673		\$
		\$	98,123	\$	5,000
					\$

**Project Location & Environmental Contaminant
Information FY 2015**

Project Location Information			
1. County: <u>Santa Cruz</u>	2. Section: 3, 4, 5 <u>5, 6, 7</u>	3. Township: <u>22S</u>	4. Range: <u>16E</u>
5. Watershed: <u>Upper Santa Cruz</u> 6. 8 or 10 Digit Hydrologic Unit Code (HUC): <u>15050301</u> 7. Name of USGS Topographic Map where project area is located: <u>ME. Hughes</u> 8. State Legislative District: <u>02</u> (Information available at: http://azredistricting.org/districtlocator/) 9. Land ownership of project area: <u>Private</u> 10. Current land use of project area: <u>Farming, Ranching</u> 11. Size of project area (in acres): <u>1200DIRECT</u> 12. Stream Name: <u>Santa Cruz</u> 13. Length of stream through project area: <u>10</u> 14. Miles of stream benefited: <u>2+</u> miles 15. Acres of riparian habitat: <u>15</u> acres will be: <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> Enhanced <input checked="" type="checkbox"/> Maintained <input checked="" type="checkbox"/> Restored <input type="checkbox"/> Created </div> </div>			
16. General description and/or delineation for the area of impact of the project within the watershed. <u>flow channel and floodplain</u>			
17. Provide directions to the project site from the nearest city or town. List any special access requirements: The Stevens Parcel and Harshaw Creek are approx a 1/2 mile east of Patagonia, AZ. The TNC Preserve is in Patagonia, and the State Park is approx 6 miles west of Patagonia			
Environmental Contaminant Location Information			
1. Does your project site contain known environmental contaminants? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: 2. Are there known environmental contaminants in the project vicinity? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: 3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			

STATE HISTORIC PRESERVATION OFFICE Review Form

In accordance with the State Historic Preservation Act (SHPO), A.R.S. 41-861 *et seq.*, effective July 24, 1982, each State agency must consider the potential of activities or projects to impact significant cultural resources. Also, each State agency is required to consult with the State Historic Preservation Officer with regard to those activities or projects that may impact cultural resources. Therefore, it is understood that **recipients of state funds are required to comply with this law** throughout the project period. All projects that affect the ground-surface that are funded by A WPF require SHPO clearance, **including those on private and federal lands.**

The State Historic Preservation Office (SHPO) must review each grant application recommended for funding in order to determine the effect, if any, a proposed project may have on archaeological or cultural resources. To assist the SHPO in this review, the following information **MUST** be submitted with each application for funding assistance:

- A completed copy of this form, and
- A United States Geological Survey (USGS) 7.5 minute map
- A copy of the cultural resources survey report if a survey of the property has been conducted, and
- A copy of any comments of the land managing agency/landowner (i.e., state, federal, county, municipal) on potential impacts of the project on historic properties.
NOTE: If a federal agency is involved, the agency must consult with SHPO pursuant to the National Historic Preservation Act (NHPA); a state agency must consult with SHPO pursuant to the State Historic Preservation Act (SHPA),
OR
- A copy of SHPO comments if the survey report has already been reviewed by SHPO.

Please answer the following questions:

1. Grant Program: Arizona Water Protection Fund
2. Project Title: Restoring Sonoita Creek
3. Applicant Name and Address: Borderlands Restoration
PO Box 1191, Patagonia, AZ 86335
4. Current Land Owner/Manager(s): Private
5. Project Location, including Township, Range, Section: 22S, 16E, S. 5, 6, 7
6. Total Project Area in Acres (or total miles if trail): 1200
7. Does the proposed project have the potential to disturb the surface and/or subsurface of the ground? YES NO
8. Please provide a brief description of the proposed project and specifically identify any surface or subsurface impacts that are expected: Installation of grade control and bank protection structures

9. Describe the condition of the current ground surface within the entire project boundary area (for example, is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, etc.). Estimate horizontal and vertical extent of existing disturbance. Also, attach photographs of project area to document condition: *Eroded creek channel surrounded by farm fields*
10. Are there any known prehistoric and/or historic archaeological sites in or near the project area? YES NO

11. Has the project area been previously surveyed for cultural resources by a qualified archaeologist? YES NO UNKNOWN

If YES, submit a copy of the survey report. Please attach any comments on the survey report made by the managing agency and/or SHPO

12. Are there any buildings or structures (including mines, bridges, dams, canals, etc.), which are 50-years or older in or adjacent to the project area? YES NO

If YES, complete an Arizona Historic Property Inventory Form for each building or structure, attach it to this form and submit it with your application.

13. Is your project area within or near a historic district? YES NO

If YES, name of the district:

Please sign on the line below certifying all information provided for this application is accurate to the best of your knowledge.

T. Hart *114 May 2015* *Trevor Hart*
 Applicant Signature /Date Applicant Printed Name

FOR SHPO USE ONLY	
SHPO Finding:	<input type="checkbox"/> Funding this project will not affect historic properties. <input type="checkbox"/> Survey necessary – further GRANTS/SHPO consultation required (<i>grant funds will not be released until consultation has been completed</i>) <input type="checkbox"/> Cultural resources present – further GRANTS/SHPO consultation required (<i>grant funds will not be released until consultation has been completed</i>)
SHPO Comments	
For State Historic Preservation Office:	Date:



A non-profit organization working to conserve, distribute and document the adapted and diverse varieties of agricultural seeds, their wild relatives and the role these seeds play in cultures of the American Southwest and northwest Mexico.

May 12, 2015

Re: Support for Borderland Restoration's Proposal for Sonoita Creek Restoration Project through a holistic community-based approach

To Whom It May Concern,

Native Seeds/SEARCH would like to convey our wholehearted support for Borderlands Restoration's grant proposal to the Arizona Water Protection Fund.

The Native Seeds/SEARCH Conservation Farm borders Sonoita Creek, and as part of the larger watershed we recognize that the proposal to restore Sonoita Creek and its stated mission to pilot a holistic community-based restoration model to preserve and enhance surface flows, riparian vegetation and wildlife habitat is directly in-step with our farm's conservation mission.

We have a significant partnership in the work of Borderland Restoration through the collaborations with our Conservation Farm. These collaborations are based on the shared goal of reconnecting people and the land in our region and in restoring the health of the watershed on which we depend. The Native Seeds/SEARCH Conservation Farm is implementing water conserving irrigation methods and improving soil as part of protecting water resources in our region. Our Farm serves as a demonstration farm for arid-land agriculture and we receive many visitors each year from throughout the Southwest region and beyond. The proposal to restore Sonoita Creek will bring a very

visible and striking example to visitors of the collaborative efforts in conservation taking place in Patagonia.

Native Seeds/SEARCH is committed to assisting Borderlands Restoration in coordination with other partner organizations by:

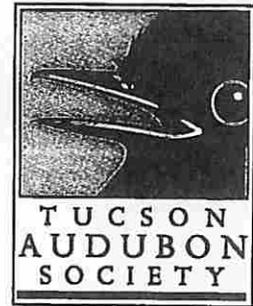
- Appointing a representative to the stakeholder group tasked with developing the restoration plan for Sonoita Creek.
- Technical assistance in planning and implementing the stream restoration project in relation to our Conservation Farm water conservation plan.
- Providing equipment resources if needed for the project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Larrie Warren', with a long horizontal flourish extending to the right.

Larrie Warren
Executive Director
Native Seeds/SEARCH

13.May.2015
Arizona Water Protection Fund



Re: Letter of Support for Borderland Restoration's Proposal for Sonoita Creek Restoration Project through a holistic community-based approach

*Leaders in conservation
and education since 1949*

To Whom It May Concern,

I am writing on behalf of the Tucson Audubon Society to convey our support for the grant being proposed to the Arizona Water Protection Fund by Borderlands Restoration to work along the Sonoita Creek.

Main Office
300 E. University Blvd., #120
Tucson AZ 85705
TEL 520.629.0510
FAX 520.623.3476

Jonathan Horst
Restoration Ecologist
520.971.6238
jhorst@tucsonaudubon.org

Preserving and enhancing the surface flows along the Sonoita Creek, restoring stream function, preserving intact stands of riparian vegetation and wildlife habitat are goals that mesh perfectly with Tucson Audubon Society's mission to protect and maintain regional biodiversity through enjoyment of birds and their habitats. The entire Sonoita Creek watershed is a key birding area and the project will impact two officially designated Important Bird Areas. Further, the holistic community-based approach being pursued with this proposed project will help ensure the long-term maintenance of work done far into the future.

Tucson Audubon Society will assist Borderlands Restoration in coordination with the other partner organizations by:

- Appointing a representative to the stakeholder group tasked with developing the Sonoita Creek restoration plan
- Providing technical assistance and background for planning and implementing stream restoration projects
- Providing information and resources for securing permits, native plant materials, volunteer recruitment, and stakeholder contacts associated with the project
- Participating in the restoration work and evaluating success through monitoring

The estimated value of Tucson Audubon Society's contribution to the successful completion of the grant objectives to be counted toward the match for this grant is \$5,000.

Sincerely,



Jonathan Horst
Restoration Ecologist



Karen Fogas
Executive Director