Project title: Young Stewards Promoting Border Resiliency

Project focus area: Habitat Restoration/Conservation

Project abstract:
The Border Region of West Texas, Southern New Mexico and Northern Chihuahua is uniquely situated in the critical ecoregion of the Chihuahuan Desert which faces a variety of threats: habitat loss, deterioration of freshwater resources and climate change. The Border Region (82% Hispanic and poverty rate of 22%) is an underserved community. Working in partnership with the Rio Bosque Wetlands Park, 30 high school students, a restoration manager, and an aquatic scientist, the Young Stewards Promoting Border Resiliency project will restore one acre of riparian wetland habitat adjacent to the Rio Grande River in El Paso, Texas. After removing invasive species and followed by the transplanting of native vegetation within the wetland, this project will help restore a small portion of this river-valley environment.

What environmental issue will your project address?
The Border Region of West Texas, Southern New Mexico and Northern Chihuahua is situated within the sensitive Chihuahuan Desert Ecosystem with a long history of region-specific environmental challenges, for example water quantity and quality. According to the National Park Service, the Chihuahuan Desert is considered one of the most diverse deserts of the world, and a critical reservoir for conserving biodiversity. Clean and readily available water is just one of many environmental concerns facing the Border Region. EPA EJSCREEN Reports generated for the Border Region reflect higher levels of environmental concern than other regions in Texas across all indicators.

Though the Border Region faces multiple environmental challenges, a number of adult organizations are actively engaged in environmental stewardship, but few youth programs exist. West Texas is geographically isolated from the state environmental education services in central regions of each state. Moreover, the Chihuahuan Desert and its environmental issues cross city, state and national boundaries in the Border Region.

El Paso City and County planners have primarily focused on tapping into the binational workforce unique to this region, and thus have dedicated projects and funding to commercial, industrial and residential growth. Unprecedented rates of urban sprawl have put farmers and environmentalists at odds with government planners. Despite this, un-impacted native open space within the region remains. Understanding the importance that native, diverse habitats contribute to the well being of people and wildlife, The Young Stewards Promoting Border Resiliency project will address habitat conservation/restoration. Specifically, working on restoration efforts at Rio Bosque Wetlands Park.

Wetlands and riverside forests once dominated the banks of the Rio Grande in the Border Region. They were the most productive natural habitats in the region, but today they are virtually gone as a result of channeling and damming the Rio Grande River, land conversion and border fence building. Wetlands serve as a vital habitat for plants and animals, serve as a natural filter for water, decrease erosion and promote land stability, and provide aesthetic value. Since 1997, partnerships among the University of Texas at El Paso and other entities have worked to rebuild the wetland. As a result, the wildlife has increased in diversity and density, and natural progression of vegetation has reclaimed several of the previously cleared areas. There are still areas in the wetland that need active restoration to ensure connectivity throughout the entire 372 acres. This project proposes to restore at least one area at the boundaries of the wetland by clearing invasives and replanting native vegetation.

It is well established that coastal (Crooks et al., 2018) and riparian wetlands play a significant role in

carbon sequestration (Tan et al., 2019). Though quantitative measures have not been taken from this site, if its sequestration potential is anything comparable to its functioning as a flourishing habitat, then the Rio Bosque is confidently a considerable environment for carbon sequestration. This not only has a positive impact on local environmental health, but globally as well as we face global environmental and climate change.

How will your project address this environmental issue?

The Young Stewards Promoting Border Resiliency project will entail conserving and restoring cleared and altered areas within the riparian wetland of Rio Bosque. This effort will address the environmental issue of land conversion and shrinking wild habitats. The Rio Bosque not only provides critical habitat for resident wildlife but also serves as a part of a larger corridor for migratory bird species along the Upper Rio Grande Valley (Finch and Yong, 2000). Recently, it has been found that land use and riverine health have gradually reduced winter habitat for wintering waterbirds to limited reaches of the Rio Grande (Boggie et al., 2018). Expanding the restoration efforts of the Rio Bosque and thereby increasing the natural habitat will have a positive environmental impact.

Project goals and activities:

1) Prime and educate students about habitat conservation/restoration and the issue of land conversion and urbanization.
   Students will participate in educational workshops and presentations describing the environmental and ecological importance of habitat conservation/restoration.

2) Teach students ecological methodologies in assessing habitat health.
   Students will partake in hands-on activities, for example water quality testing, vegetation and bird surveys, to better understand how to quantitatively measure ecological parameters.

3) Removing invasive saltcedar trees and weedy species.
   Students will perform a pre-assessment of the area and identify invasive species to be removed. Removed vegetation will be quantified (weighed) to determine the amount of biomass removed from the restoration site.

4) Transplanting native vegetation.
   After learning about native, wetland species, students will transplant vegetation into the restoration area. New transplants will be monitored by students.

5) Communicating project objectives and outcomes with the wider community.
   (applicant's organization - name redacted) staff, project supervisors, volunteers, and students will collectively document and share the project's progress and accomplishments throughout the duration of the project through a variety of ways (see question 32).

6) Foster career development in STEM fields.
   Students will learn about different STEM careers through a series of presentations by volunteers.

To prime the next generation of young stewards and ensure project sustainability, students will recruit underclassmen to join the Environmental Stewardship Club and participate in cleanup/ workdays. Students will also provide tours to the public which will launch a meaningful outdoor experience for locals to enjoy for years.

What are the desired outcomes of your project?

The Young Stewards Promoting Border Resiliency project is possibly the only opportunity many of the students involved will have to gain a hands-on, interactive experience with their local environment. As

a result of this project, students will restore approximately one acre of wetland habitat by removing invasive species (~500 lbs of vegetation) as well as planting and maintaining approximately 100 native species plants. This restoration effort will also expand habitat for the hundreds of resident animal species of the Rio Bosque and provide sanctuary for over 190 migratory bird species. It is postulated that these numbers will increase with the expansion of riparian wetland habitat as a result of the restoration project. These outcomes will demonstrate our project's success by providing tangible measures that reflect the students' work.

Who will be involved in this project and how?

(applicant's organization - name redacted) will coordinate the Young Stewards Promoting Border Resiliency project and will dedicate one staff member (applicant - name redacted), the Environmental Education Coordinator at (applicant's organization - name redacted) to direct all project activities, manage project budget, complete and submit progress reports and ensure project goals are met at indicated time frames.

Two individuals from the University of Texas at El Paso's Center for Environmental Resource Management (CERM) will provide project supervision and guidance - (name redacted), CERM Program Coordinator and Rio Bosque Wetlands Park Manager and (name redacted), CERM Associate Director and professor from UTEP's Department of Biological Sciences. (name redacted) will also recruit graduate and undergraduate students from her lab to act as mentors to the high school students participating in the project, and will also share a STEM presentation with hands-on activities for the students.

(name redacted), Botanical Curator of UTEP's Centennial Museum and Chihuahuan Desert Gardens and representative of the El Paso Trans-Pecos Audubon Society will lead students in plant and bird survey exercises where they will learn the skills and knowledge to conduct surveys of the restoration site.

The Frontera Land Alliance, a non-profit 501(c)3 organization whose mission is to to protect in perpetuity a network of lands chosen for their natural and cultural values will develop educational presentations and hands-on activities to teach students about local environmental topics and issues, and the importance of land/habitat preservation.

The Young Stewards Promoting Border Resiliency project will incorporate students from the (applicant's organization - name redacted) Environmental Stewardship Club which consists of approximately 30 high school student representatives from seven different local high schools in grades 9 through 12. This club was founded in 2020 and is open to any local high school student. At least three high school science teachers from the representative schools will be recruited to participate. The students will carry out the habitat restoration activities including removal of invasive and weedy species and planting of native riparian vegetation. The students will maintain and monitor the progress of their restoration efforts through the duration of the school year.

A number of STEM professionals will provide scientific support and STEM career presentations including: an aquatic biologist, a wildlife biologist, and a systems ecologist. (see question 31)

Whose permission do you need to complete your project?

The Rio Bosque Wetlands Park is an El Paso city park managed by The University of Texas at El Paso through its Center for Environmental Resource Management (CERM). To complete this project we would need permission from UTEP's CERM. (name redacted) who is the park manager has granted permission for the fulfillment of this project and his letter of support has been included with this application. Furthermore, the Associate Director of the CERM, (name redacted) will serve as a

project supervisor.

What activities will the project involve?
This project aims to inspire young community members to be stewards of their environment far beyond the duration of this project. Outlined below is the project proposed implementation plan.

(applicant's organization - name redacted) will host a planning meeting early August with project supervisors, (two names redacted) as well as other strategic partners including representatives from the Audubon Society, (two names redacted), and individuals from the Frontera Land Alliance, (name redacted) (Director) and (name redacted) (Education Program Manager). The planning meeting will finalize the schedule of activities, delegation of tasks and responsibilities, ordering of project materials and other project variables. Planning meetings will be conducted every three months to ensure project progress and address any issues. Also, the first of two media announcements will be shared with local news and radio outlets.

Initial meetings with students will be in mid-August. At that point, students will learn about the project and will be encouraged to recruit classmates from their respective schools. Because the (applicant's organization - name redacted) Environmental Stewardship Club (ESC) consists of students from several local schools, we have the unique opportunity to connect with a diverse group of students from various backgrounds.

Priming the students for the restoration project is vital so there is a clear understanding of the task at hand as well as the significance of their work. To do this, students will participate in a number of presentations and activities that will introduce them to ecological and restoration concepts. These activities will be prepared by (applicant's organization - name redacted) and the Frontera Land Alliance. Guest speakers will share their experiences and knowledge about the STEM careers through presentations (detailed in question 31). These sessions will take place in a hybrid format: virtually using ZOOM; presentations with a hands-on component will take place at the site. The first session will include administering the two pre-test surveys, and an introduction to ecology and habitat restoration presentation. Subsequent sessions and workshops will be spread out throughout the project period.

September students will be introduced to the restoration site. During this field trip students will tour the entire wetlands. Volunteers from the Friends of the Rio Bosque (a volunteer-support group for the wetlands) will guide the students through the wetland trails. Students will be shown the restoration site and have a presentation by (name redacted) discussing the history and restoration of the wetlands. Students will be introduced to strategic partners who will discuss the project. ESC social media officers will begin to document the project through videos and photos and share on social media platforms.

Mid-September students will learn how to conduct vegetation and bird surveys led by (name redacted) and volunteers from the Audubon Society. Students will conduct the site pre-assessment. Random plots will be selected and flagged where students will monitor their restoration efforts. These areas will include areas with invasives that will be removed and replanted with native vegetation. Students will manually record their results and later transcribe to spreadsheets. During this month a presentation by (name redacted) (information technology) will be given.

Late September students learn about wetland hydrology. A virtual presentation will be given by (name redacted) (water issues and wetlands' role in water quality/quantity). Students will participate in a virtual presentation and Q&A session about the history of the Rio Grande by (name redacted). The students will visit the wetland to participate in hands-on water quality testing led by (name redacted) and volunteers from her lab.

Early October students will learn about wetland ecology and invasives through presentations and lessons developed by (applicant's organization - name redacted) and Frontera. Students will visit the site to begin the removal of invasives and weeds. Students will conduct a vegetation survey at the predetermined plot to record the results of the invasive removal. Students will also conduct a bird survey. They will, with the guidance from (name redacted), begin planting native vegetation in areas where invasives were removed. New transplants will be flagged and vegetation measurements (e.g. height, canopy cover) taken.

November, students will have a presentation and workshop by (name redacted) (ecological restoration/ water harvesting). If further transplanting is needed, it will be done during this time. Insights and strategic partners will have a planning meeting during this time.

Vegetation and bird surveys will be repeated in December. Removal of weeds/invasives will continue as needed. ESC social media officers continue to disseminate information to the public through social media and begin working on a video montage of their work.

January, students will participate in a virtual presentation by (name redacted) discussing the importance of land conservation in the Chihuahuan Desert.

Students will repeat the vegetation and bird surveys in February and during this field trip (name redacted) will present. Students will partake in hands-on activities where they will use field instrumentation to collect data (e.g. leaf/soil moisture/temperature, PAR, NDVI). Insights and strategic partners will have a planning meeting during this time.

In March, students will amass video and photo documentation to begin preparing to present at the El Paso Environmental Summit. With guidance from (applicants organization - name redacted) and (name redacted), students will prepare a presentation and learn how to communicate their project and preliminary results with the general public. The ESC will nominate two students to present at the summit.

Students will present their project at the Environmental Summit in April. The event will be shared on our social media platforms inviting the wider community to come learn about the project. All partners and volunteers will be invited to attend.

The month of May will conclude the project. Post-test surveys will be administered to students. The site post-assessment will be conducted (final vegetation and plant surveys). Results will be input into the data spreadsheets for analysis by (name redacted). The final press release will be shared and the wider community will be invited to tour the site.

(name redacted) will present the project at national conferences and will write up for publication during the summer.

Data & Collection Activities:
This project includes a number of data collection activities. Students will learn to collect physical data within the restoration area at several intervals within the project timeframe. Insights will collect data on student perceptions and learning outcomes.

To document and understand restoration activity results, vegetation surveys will be conducted during the site pre-assessment, at bimonthly intervals, and during the post-assessment upon project completion. Vegetation surveys will be conducted by randomly assigning points within the restoration site and recording the species present and the area they cover in 3-meter-square quadrants. This will

help to determine what species are present where, and which areas of the project have a high density of invasive species. Newly planted vegetation will be flagged so that growth measurements can be taken by the students. Also, each plant species will have multiple predetermined values assigned to it, such as its conservation value (how rare it is and how often it is encountered in a high-quality habitat) or wetness value (whether the plant is found mostly in wetlands or uplands). Tracking those in each quadrant over time will allow us to measure progress in restoration, such as possible increase in conservation and biodiversity values, decrease in invasive cover, or increase in moisture-prone plants. Those values can also be compared to the values of reference wetlands. Data will be collected manually at the site and then transcribed by students into Google Worksheets that will be saved on Insights' Google Drive. Statistical analysis will be performed using SigmaPlot and R Statistical Software at the end of the project.

Monitoring wildlife within a habitat can provide a good measure of habitat health. Since birds are easily seen and identifiable at the Rio Bosque Wetlands, students will learn to identify birds by visual observation and sound. Working in groups and alongside an Audubon Society volunteer, students will conduct point-count bird surveys to determine the relative abundance of birds. Surveys will be conducted during the site pre-assessment (before restoration activities begin), bimonthly until the project's completion which will conclude with a final survey. Surveys will generally be taking place in the early morning hours when most birds are at peak activity. Data will be collected manually at the site and then transcribed by students into Google Worksheets that will be saved on Insights' Google Drive. Statistical analysis will be performed using SigmaPlot and R Statistical Software at the end of the project.

To access student learning and perceptions of riparian wetland restoration, we will use two abstract survey techniques. The Draw-an-Ecosystem Approach (Sanford et al., 2017) consists of a pre-test and post-test in which students draw and label an ecosystem and is graded based on a rubric including eight categories (abiotic/biotic mass transfer, energy input, trophic interactions, human activities, hydrologic cycle, atmosphere, system/environmental issues) each with a 0–3 score, where 0 represented no display of that category and 3 represents a comprehensive response. We will also investigate the effects of hands-on educational programing on children's environmental perceptions using Bogner and Wiseman's Model of Ecological Values using an Environmental Perception (ENV) scale (Bogner and Wiseman, 2004). Multiple choice questionnaires regarding wetland habitats will be scored on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree". The pre-test for both methods will be administered before students are introduced to any habitat/restoration concepts, and the post-tests will be administered upon completion of the project. The Draw-an-Ecosystem approach will be administered at the first meeting with students and hand drawn by students, graded at a later point, and statistically analyzed once the pre and post tests are completed. Results and statistics will be compiled on spreadsheets stored within Insights' Google Drive. The Bogner and Wiseman's Model of Ecological Values survey will be administered digitally using Google Forms and results will be stored on Insights' Google Drive and statistically analyzed upon project completion.

Which STEM careers will students learn about during the project?

(Planet Stewards Note - A common error made by applicants completing this section is to focus their discussion of the STEM skills engaged in by professionals who may be involved in projects of this type rather than the careers themselves. Planet Stewards wants career paths and skills students will have to acquire to realize a specific career to be presented and discussed, in addition to the skills STEM professionals are imparting to them during the project)

Through the longstanding partnerships (applicant's organization - name redacted) holds with many local organizations, we plan to introduce students to a variety of STEM careers through several activities including: presentations with Q&A sessions, hands-on demonstrations and activities.

Outlined below are some topics and individuals who will engage students in their experiences within STEM fields.

Restoration Planner/Manager: Wetland Restoration by (name redacted), Rio Bosque Wetlands Park Manager who will also provide project supervision.

Conservationist: Land conservation and preserving open spaces presentation and Q&A by (name redacted), Wildlife Biologist and President El Paso Trans-Pecos Audubon Society.

Aquatic Biologist: Aquatic science research incorporating hands-on demo and water sampling activities by (name redacted), Aquatic Biologist (UTEP) who will also provide project supervision and mentorship provided by graduate students.

Hydrogeologist: Hydrogeological sciences presentation and Q&A by (name redacted), Hydrogeologist El Paso Water.

Habitat Restoration Specialist: Water harvesting and desert restoration presentation, class activity and Q&A by (name redacted), biologist.

Hydrologist: Water conservation/management presentation and Q&A by (name redacted), retired director of UTEP's CERM.

Earth Scientist: Climate change in relation to desert ecology, remote sensing and land use/ land change presentation and hands on data collection activities by (name redacted), systems ecologist, UTEP.

Biologist: Plant and bird survey workshops by (name redacted), Botanical Curator and representative of EP Trans-Pecos Audubon Society.

Information Technologist: IT, data management, and compu.sci/enviro.sci synergies presentation /Q&A by (name redacted), Research Assistant, UTEP Systems Ecology Lab.

How will you conduct outreach within your community? Describe your specific communication and outreach plans.

Before starting the project:
Habitat conservation/restoration is a community issue, particularly the El Paso region where urban sprawl is increasing at unprecedented rates. Therefore, (applicant's organization - name redacted) would extend the opportunity to participate in the Young Stewards Promoting Border Resiliency project to the broader community. To do this we plan to have the project shared by local media outlets including radio and T.V. stations. Along with informing the local community about the project's award from NOAA and project goals, Insights will provide information on how interested parties can become involved with the project. Also, the city of El Paso manages a community calendar to which (applicant's organization - name redacted) would share major activity dates and invite volunteers to join the project efforts. News of the funded project would also be shared on our social media outlets, which have a far reach (over 5,000 followers across social media platforms) throughout the region. Lastly, as mentioned, (applicant's organization - name redacted) through its 40+ years of providing STEM education programs to the El Paso community, has developed and maintained strong partnerships with a variety of non-profit environmental organizations. We plan to invite these partner organizations to share their expertise with the students and recruit their networks of volunteers to help with the hands-on restoration work for this project.

During the project:
In the spirit of full programmatic transparency, (applicant's organization - name redacted) staff, project supervisors, volunteers, and students will collaboratively document and share project progress and outcomes with the community by contributing to a shared information hub. Insights will host and maintain the web-based framework for all participants to upload photos, share relevant project resources, document the restoration project, and results from project evaluations. The (applicant's organization - name redacted) website will provide a webpage solely for the dissemination of the project progress and outcomes, and will serve as an open source online hub for the community of the Border Region.

Arming high school students with the knowledge and resources necessary to affect environmental change empowers not only student participants, but an entire community of traditionally economically, environmentally, and educationally disenfranchised citizens. Thus, using the power of social media and students' keen ability to communicate through this means, students will document and share their experiences and progress with their peers and the broader community. This will help recruit other students and elucidate efforts that young people can partake in.

After the project:
Communicating habitat conservation/restoration activities is not only beneficial for the sake of showing what was accomplished, but has a profound impact in changing the attitudes and behaviors of stakeholders and the wider community at large. (applicant's organization - name redacted) will issue a press release highlighting the project's accomplishments and students' contribution. Local media outlets will be invited to tour the restoration site and we will invite the community to visit as a meaningful nature experience the whole family can partake in. Final restoration efforts will also be shared through our social media outlets by the students who will invite peers to see the fruits of their labor.

Because environmental education and stewardship among young people is of high importance, the project coordinator, (name redacted) will present the project outcomes and evaluations at a nationally recognized conference, Texas Association for Environmental Education, North American Association for Environmental Education and/or the Ecological Society of America, for example. (applicant - name redacted) has a PhD in Ecology and Evolutionary Biology and has presented her own research at numerous conferences nationally and internationally. (applicant - name redacted) understands the importance of communicating research findings and project results to a wider audience. Therefore, this project, its outcomes, evaluations and lessons learned will be published in a peer reviewed journal such as The Journal of Environmental Education. Lastly, students will also be invited to share their experiences and results of their restoration efforts in a poster session at a local conference, the El Paso Environmental Summit, which occurs during the Spring. This will pose an opportunity for students to make a meaningful connection with the local community, inspire others to follow in their footsteps, and give students valuable experience in communicating the importance of habitat conservation and restoration.

Project Budget

Item Description	Purpose	Quantity	Cost	Total Cost	Notes
Travel	Transportation of 30 students to restoration site	8 trips	$150.00	$1,200.00	Bus transportation to be paid to local district

Work Gloves	Protect hands while conducting restoration work, e.g. pulling weeds/planting vegetation	8 (pack of 10)	$11.00	$88.00	https://www.lowes.com/pd/HandCrew-One-Size-Fits-All-10-Pack-Unisex-Nitrile-Nitrile-Dipped-Multipurpose-Gloves/1002675444
Digging Shovels	Digging out invasive and weedy species; digging holes for transplanting	15	$17.00	$255.00	https://www.lowes.com/pd/Truper-Short-handle-Wood-Digging-Shovel/1000377415
Refreshments	Light snacks and drinks for field days for 30 students	8 trips	$50.00	$400.00	https://www.samsclub.com/p/mm-water-45-16-9-oz-45-16-9-oz/prod21063721?xid=plp_product_1 ; https://www.samsclub.com/p/quaker-chewy-60-ct-chocolate-variety/prod21330316?xid=plp_product_1 ; https://www.samsclub.com/p/nv-oats-n-honey-49-ct/prod17660203?xid=plp_product_2
Waste Removal	Removal of uprooted weeeds and invasives by Environmental Services Dept. of El Paso	3	$50.00	$150.00	Contract through the City of El Paso Environmental Services Dept.
Native vegetation - Cottonwood (*Populus deltoides)*	Transplant native seedling (1 gal) x 10	10	$35.00	$350.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Screwbean Mesquite (*Prosopis pubescens)*	Transplant native seedling (1 gal) x 10	10	$20.00	$200.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Gooding Willow (*Salix gooddingii*)	Transplant native seedling (1 gal) x 10	10	$30.00	$300.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Honey Mesquite (*Prosopis glandulosa*)	Transplant native seedling (5 gal) x 10	10	$30.00	$300.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Wolfberry (*Lycium torreyi*)	Transplant native shrub (2.5 qt) x 10	10	$24.00	$240.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Four Wing Saltbush (*Atriplex canescens*)	Transplant native shrub (1 gal) x 10	10	$10.00	$100.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Coyote willow (*Salix exigua*)	Transplant native shrub (1 gal) x 10	10	$13.00	$130.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)

Native vegetation - Seepwillow (Baccharis salicifolia)	Transplant native shrub (5 gal) x 10	10	$25.00	$250.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Saltgrass (*Distichlis stricta*)	Transplant native grass (1 gal) x 10	10	$8.00	$80.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Native vegetation - Alkali sacaton (*Sporobolus airoides*)	Transplant native grass (1 gal) x 10	10	$14.00	$140.00	Local nurseries if available otherwise: Las Pilitas Nursery (https://www.laspilitas.com/); Mountain States Wholesale Nursery (https://mswn.com/)
Field Tape Measure	Tool to help conduct plant surveys	5	$20.00	$100.00	https://www.amazon.com/Lufkin-FE150D-Engineers-Fiberglass-Measure/dp/B001R1Y7W8/ref=psdc_553284_t3_B002KS196E
Flagging Tape	Mark and identify plants of interest for surveying and monitoring	1 (pack of 5)	$20	$20.00	https://www.amazon.com/SE-ESF2036-5-Survivor-Visibility-Marking/dp/B01MSANQAP/ref=sr_1_2_sspa?dchild=1&keywords=flagging+tape&qid=1622657501&sr=8-2-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEyT09VRVhFR1YyQllOJmVuY3J5cHRlZElkPUEwMDU2OTkyM1UzVkpYVDU4N0RCSiZlbmNyeXB0ZWRBZElkPUEwMDg1MTY2RE85SkNNS1VEOUU4JndpZGdldE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ==
Bird Field Guides	Sibley Birds West field guides to assist students in bird identifications when conducting bird surveys	10	$14.00	$140.00	https://www.amazon.com/Sibley-Birds-West-Western-America/dp/0307957926/ref=sr_1_1?dchild=1&keywords=sibley+birds+west+field+guide&qid=1622657714&sr=8-1
Binoculars	To use when conducting bird surveys	10	$42.00	$420.00	https://www.amazon.com/SkyGenius-Powerful-Full-Size-Binoculars-Sightseeing/dp/B01MQVXHUM/ref=sr_1_1_sspa?dchild=1&keywords=binoculars&qid=1622657884&sr=8-1-spons&psc=1&smid=A3G20NDO3H60P2&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEyNTVYQjZFODEwNlNCJmVuY3J5cHRlZElkPUEwNTExMDA4M01WSjVRSTlHWjNIOCZlbmNyeXB0ZWRBZElkPUEwNTc0MzI4M0EwMTgwSDJPTzI0TSZ3aWRnZXROYW1lPXNwX2F0ZiZhY3Rpb249Y2xpY2tSZWRpcmVjdCZkb05vdExvZ0NsaWNrPXRydWU=
Poster Printing	Printing service for posters to be presented at conferences	2	$68.50	$137.00	Printing Services at the University of Texas at El Paso
			Total:	**$5,000.00**	