



TRUCKEE MEADOWS PARKS FOUNDATION

AWARENESS • APPRECIATION • STEWARDSHIP

Truckee Meadows Nature Study Area Concept Paper

Executive Summary

The mission of Truckee Meadows Parks Foundation (TMPF) is to improve the quality of life in northern Nevada by supporting and improving parks and open spaces. TMPF does this primarily by providing in-park programming with a special emphasis on underserved communities. Current in-park programs focus on raising awareness and appreciation of public lands through outreach and education, improving community health and wellness, and strengthening sense of place in all community members. TMPF is an independent, 501 (c) (3) nonprofit organization.

The property formerly known as the Rosewood Lakes Golf Course is one of the last vestiges of wetland habitat in the Truckee Meadows. This area has been heavily impacted by human activity and is now unused and in a state of disrepair with no environmental management plan. Over the past five years, this has led to the proliferation of invasive weed species and to the deterioration of wildlife habitat, disrupting and displacing the native communities and ecological processes found therein (Weber 2017). Not only is this property a rare wetland habitat capable of sustaining rich biodiversity, it is also located along the most important tributary to the Truckee River, Steamboat Creek (Horton 1997).

Furthermore, this decommissioned City of Reno golf course now provides no access to the general public for recreation nor for environmental education. TMPF believes that a well-stewarded nature study area, replete with rich native biodiversity and space for people to learn about and connect with nature, is necessary. The future Truckee Meadows Nature Study Area on the site of the former Rosewood Lakes Golf Course will make this a reality.

In partnership with the City of Reno, TMPF will repurpose the former clubhouse and a section of the surrounding parcel to create a nature center and nature study area. The goal will be to reopen the park as a publically accessible recreational area in the spring of 2020. In order to accomplish this, TMPF will remove invasive species on-site and, in cooperation with the City of Reno's Urban Forester, Horticulturalist, and Parks and Recreation Department Director, will work to restore and maintain native plant species. TMPF may also map, construct, and maintain new trail routes, construct and maintain bird blinds and other nature-viewing structures, write, design, and install interpretive signs, and manage community volunteers who will help in the removal of invasive species and planting of native species. During this initial phase, TMPF will work with Park Department staff to encourage public input and ensure that the establishment of a nature study area is in the best interests of the citizens of Reno. TMPF will also pursue federal and regional grants to defray any costs associated with the project. TMPF is not requesting City of Reno funding to begin this project.

This endeavor improves essential habitat for our region's native wildlife and provides areas for Washoe County school children and all citizens to experience nature and learn about the natural and cultural history of the Truckee Meadows. The Parks Foundation foresees this nature study area instilling a strong sense of place in young people as well as improving quality of life for all community members of our region.



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Program Design

1. Need:

The Truckee Meadows was once a vast system of wetlands before the second half of the 19th century when settlers harvested the riparian forest and converted much of the floodplain into agricultural lands (Ammon 2001). After the turn of the 20th century, the ecologically valuable wetlands of the Truckee Meadows were further degraded through draining, river channelization projects, agriculture, and livestock grazing (Horton 1997). In addition to these environmental stressors, invasion by non-native plant species has developed into a major cause of deterioration to wetland health in the Truckee Meadows. Riparian zones and wetlands are habitat types most susceptible to exotic species invasion (Bay and Sher 2008). As invasive species move into an area, they often displace native species that are essential food sources and habitat sites used by other native wildlife species. This can quickly have a cascading effect resulting in the loss of native biodiversity (Vilà et al. 2014). This process is evident in the last remnants of wetland areas in the Truckee Meadows.

Healthy wetland habitats are essential to many native species' survival, particularly in arid climates (Williams and Dodd 1978). Numerous bird species depend on wetlands in the Truckee Meadows. In the spring of 1868, Robert Ridgway recorded 107 species of birds while traveling on the lower Truckee River (Ridgway 1877). By the 1970's, only 65 bird species could be found, demonstrating a 40 percent loss in species richness since the 1800's (Ammon 2001). Bird species most heavily impacted were those that depend on wetland and riverine habitats.

These natural spaces are not only important to native wildlife species, but are also essential to human wellness. Riparian areas in arid regions are notably species-rich (Kauffman and Krueger 1984) and native biodiversity has been found to contribute to a sense of place and belonging for people in those areas. Therefore, loss of biodiversity negatively affects both human wellbeing and community identity (Horwitz et al. 2001). Numerous studies have shown that human health (Rohde and Kendle 1994; Sandifer et al. 2015; Townsend and Weerasuriya 2010; Liu et al. 2016.), child development (Kellert 2002), and human appreciation of the environment (Gould 1991) are inextricably linked and dependent upon contact with nature.

2. Program Details:

With funding from an AmeriCorps planning grant, Truckee Meadows Parks Foundation (TMPF) has hired Elena Larsen to serve as AmeriCorps Wetland Restoration Program Director. Elena will work with the TMPF Executive Director, Nathan Daniel, a wetland restoration advisory board, and the TMPF Board of Directors to develop a master plan and ensure that the scope of this project is feasible and appropriate. This planning grant runs from September 2018 through August 2019.

Following the one-year planning phase, an AmeriCorps operational grant will begin in September 2019. TMPF will place approximately 10 full-time, college-educated AmeriCorps members as Wetland Restoration Technicians whose primary service activities will include the removal of invasive plant species and the restoration of native plants at the Truckee Meadows Nature Study Area. This proposed scope of work will rehabilitate and transform this wetland area into a safe and usable recreation area.



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As part of their national service, AmeriCorps members will also construct bird blinds, trails, a boardwalk, interpretive signage, and create and maintain recreation areas on the property.

The future nature study area has been invaded by many non-native plant species commonly found in the Truckee Meadows including, but not limited to, tall whitetop (*Lepidium latifolium*), purple loosestrife (*Lythrum salicaria*), tumble mustard (*Sisymbrium altissimum*), cheatgrass (*Bromus tectorum*), storksbill (*Erodium cicutarium*) and musk thistle (*Cardus nutans*). At the same time many native species that would historically have been present on the site, such as Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), coyote willow (*Salix exigua* var. *nevadensis*), chokecherry (*Prunus virginiana*), rubber rabbitbrush (*Ericameria nauseosa*), big sagebrush (*Artemisia tridentata*), tule rush (*Schoenoplectus acutus*) and native sedges, rushes, and grasses, have been dramatically reduced in number or completely extirpated (observational account by Nathan Daniel, TMPF Executive Director).

In order to reverse this trend and restore this valuable wetland to a healthy, high-functioning system, restoration teams will remove the undesirable invasive species while concurrently planting and caring for native species—a proven methodology for native species recovery (Flory and Clay 2009). In cooperation with researchers at the University of Nevada, Reno, TMPF will begin by establishing long-term research plots and conducting an extensive baseline survey that will catalogue species richness, abundance, and environmental data including soil texture, structure, and moisture. Technicians will establish a series of photo-point sites to qualitatively assess the cumulative effects of the restoration efforts.

Additionally, the creation and management of this nature study area will provide a site for TMPF's existing Student Stewards Program to engage thousands of economically underserved Washoe County students in an exploration of nature while doing hands-on, experiential science for this and other citizen science projects. Beyond that, agencies and organizations such as the Nevada Department of Wildlife, Keep Truckee Meadows Beautiful, and Sierra Nevada Journeys will be able to access the site for their education programs. This infrastructure improvement project to restore an invaluable wetland area located on a public park will not only restore the habitat, but will serve to improve the quality of science education in the greater Reno-Sparks community.

Organizational Capability

In 2018, Truckee Meadows Parks Foundation (TMPF) began its fifth year as a recipient of an AmeriCorps VISTA grant and its third year AmeriCorps State and National grant from Nevada Volunteers. TMPF staff has the necessary experience to operate these ongoing federal grant programs.

TMPF's Executive Director, Nathan Daniel, has over eight years of experience in the field of science education. He holds a M.S. in environmental science from Ohio University where his thesis focused on the restoration of American chestnut trees in eastern forests. Much of the technical methodology TMPF plans to employ on this project Mr. Daniel utilized during his thesis work and subsequent employment as an ecological field technician. While working as Program Coordinator at Great Basin Institute, he managed the administrative component of over 60 AmeriCorps members serving through the Corps Network. Mr. Daniel played an integral role in the creation and implementation of the Student Stewards Program at TMPF.



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Elena Larsen is TMPF's Wetland Restoration Program Director. Ms. Larsen comes to us with five years of management experience. She previously served as an AmeriCorps Naturalist Educator at TMPF. Ms. Larsen holds a Master's degree in Biology from the University of Nevada, Reno where she focused on incorporating citizen science programs in schools as a means of making science more approachable. She was born and raised in Reno and brings an extensive knowledge of the area.

Haley McGuire serves as TMPF's Special Programs Manager. She began her career with TMPF in 2016 while serving as an AmeriCorps VISTA leader. Ms. McGuire will devote half of her work time to assisting the AmeriCorps Wetland Restoration Program Director and other team members in pursuing grants and other revenue streams to ensure adequate funding is secured.

Daily operations associated with the AmeriCorps-funded Student Stewards Program at TMPF are managed by its full-time AmeriCorps Program Director, Heidi Anderson. Heidi has five years' experience serving as Executive Director of the Children's Museum of Eastern Oregon and Executive Director of the Panhandle Humane Society. In this role she administered several federal grants. She also has four years' experience managing educational programs. While Ms. Anderson will not be working directly on either this planning grant nor the subsequent operational grant, TMPF anticipates using the future nature study area as an outdoor classroom where over 3,300 economically disadvantaged students who attend the Student Stewards Program will have the opportunity to connect with nature and engage in citizen science.

In its five-year operational history, TMPF has secured and managed multiple federal and private grants. Since beginning an operational AmeriCorps State and National grant in 2016, the Student Stewards Program has increased academic engagement and interest in science in more than 5,000 Washoe County Students. These results have been reported through both quantitative and qualitative analyses and lend credence to the assertion that TMPF has the technical knowhow and experience to manage a program of this complexity.

Cost Effectiveness and Budget Adequacy

Truckee Meadows Parks Foundation (TMPF) understands that a reasonable and well-conceived budget is necessary in order to implement a high-functioning project of this complexity. The one-year planning phase for this project will be funded at a cost of \$125,000. The Corporation for National and Community Service (AmeriCorps) will supply \$75,000 of this amount and TMPF will secure the remaining \$50,000 necessary to match the federal contribution. TMPF anticipates finding a regional foundation to cover these costs, but is prepared to use its general fund to cover the match amount.

In subsequent years, TMPF will rely on approximately \$250,000 in annual federal AmeriCorps funds to support this project and will match that amount with approximately \$150,000 in funds acquired through regional foundations and fee for service activities on-site.

Inquiries

Truckee Meadows Parks Foundation invites questions and comments on this exciting new project. Please direct them to Elena Larsen, Wetland Restoration Program Director, at elena@tmparksfoundation.org or 775-410-1702.



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Works Cited

- Ammon, E.M. 2001. Changes in the Bird Community of the Lower Truckee River, Nevada, 1868-2001. *Great Basin Birds* 5: 13-20.
- Bay, R. and Sher, A. 2008. Success of Active Revegetation after Tamarix Removal in Riparian Ecosystems of the Southwestern United States: A Quantitative Assessment of Past Restoration Projects. *Restoration Ecology* 16: 13-128
- Flory, S.L. and Clay, K. 2009. Invasive Plant Removal Method Determines Native Plant Community Responses. *Journal of Applied Ecology* 46: 434-442.
- Gould, S.J. 1991. Unenchanted Evening. *Natural History* 100:4-14.
- Horton, G. 1997. Truckee River Chronology: A Chronological History of Lake Tahoe and the Truckee River and Related Water Issues. Nevada Division of Environmental Protection: I-10 and II-18.
- Horwitz, P., Lindsay, M., O'Connor, M. 2001. Biodiversity, Endemism, Sense of Place, and Public Health: Inter-relationships for Australian Inland Aquatic Systems. *Ecosystem Health* 7: 253-265.
- Kauffman, J.B. and Krueger, W.C. 1984. Livestock Impacts on Riparian Ecosystems and Streamside Management Implications: A Review. *Journal of Range Management* 37: 430-438.
- Kellert, S.R. 2002. *Experiencing Nature: Affective, Cognitive, and Evaluative Development in Children*. The MIT Press: 117-151.
- Liu, H.X., Li, F., Li, J., Zhang, Y. 2016. The Relationships Between Urban Parks, Residents' Physical Activity, and Mental Health Benefits: A Case Study from Beijing, China. *Journal of Environmental Management* 190: 223-230.
- Ridgway, Robert. 1877. Report of the Geological Exploration of the Fortieth Parallel Part III: Ornithology. *Professional Papers of the Engineer Department, U.S. Army* 18: 572-573.
- Rohde, C.L.E. and Kendle, A.D. 1994. *Human Well-Being, Natural Landscapes and Wildlife in Urban Areas: A Review*. Department of Horticulture and Landscape and the Research Institute for the Care of the Elderly, University of Reading, Bath.
- Sandifer, P.A., Sutton-Grier, A.E., Ward, B.P. 2015. Exploring Connections Among Nature, Biodiversity, Ecosystem Services, and Human Health and Well-Being: Opportunities to Enhance Health and Biodiversity Conservation. *Ecosystem Services* 12: 1-15.
- Townsend, M. and Weerasuriya, R. 2010. *Beyond Blue to Green: The Benefits of Contact with Nature for Mental Health and Well-Being*. Beyond Blue Limited.
- Vilà, M., Rohr, R.P., Espinar, J.L., Hulme, P.E., Pergl, J., Le Roux, J.J., Schaffner, U., Pyšek, P. 2014. Explaining the Variation in Impacts of Non-Native Plants on Local-Scale Species Richness: the Role of Phylogenetic Relatedness. *Global Ecology and Biogeography* 24: 139-146.
- Weber, E. 2017. *Invasive Plant Species of the World*, 2nd Edition. CABI.
- Williams, J.D. and Dodd Jr., C.K. 1978. *Importance of Wetlands to Endangered and Threatened Species*. American Water Resources Association.



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PROPOSED TRUCKEE MEADOWS NATURE STUDY AREA

