

City of Boulder Parks and Recreation

Conserving Northern Leopard Frogs on Colorado's Front Range

Lois Webster Fund Final Report – November 2017

The Northern Leopard Frog (pictured below, *Lithobates pipiens*) has experienced population declines throughout the global range, but especially in the American Southwest. In Colorado, this once-common amphibian has disappeared from many areas where it was once abundant and is listed as a Tier 1 Species of Greatest Conservation Need (SGCN) by Colorado Parks and Wildlife. In some areas in Colorado, Northern Leopard Frog (NLF) extirpations have been linked to the increasing abundance of the invasive American Bullfrog (*Lithobates catesbeianus*).

Project objectives

- Determine the presence/ absence of Northern Leopard Frogs and American Bullfrogs at ponds within Parks & Recreation properties,
- Determine whether reproduction of either species is occurring, and identify habitat features important for occupancy and reproduction
- Create a comprehensive list of other amphibian species also using ponds on Parks & Recreation lands
- Identify potential habitat improvements and management needs.



Methods

A total of 10 sites were chosen by City of Boulder Parks and Recreation (COB-P&R) staff to determine Northern Leopard Frog presence or absence. To best detect NLF's four different sampling techniques were used throughout the amphibian breeding window: auditory surveys, visual encounter surveys, funnel trapping (pictured below), and road surveys. All other herptile species found were also recorded.

Results

Sites were surveyed from April to July 2017. COB-P&R staff selected sites based on observations within the past 5 years of NLF's or their egg masses or potential habitat for the species.



Our project included:

- 41.6 effort hours spent conducting auditory surveys,
- 28.5 effort hours spent performing visual encounter surveys,
- 3.5 hours spent road cruising, and
- funnel traps being deployed for 169 trap-nights.

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Eight species of reptiles and amphibians were recorded, including the invasive American Bullfrog, but we did not detect Northern Leopard Frogs. A second SGCN species (Tier 2) was documented by City of Boulder Parks & Recreation staff in several areas around the Boulder Reservoir, the Common/ Red-sided Gartersnake (*Thamnophis sirtalis parietalis*).

Discussion

Although no Northern Leopard Frogs were found during the 2017 breeding season, there is still reason to believe that NLF's may occupy the sites in future years. The previous presence of NLF's at some sites could indicate viable habitat to be maintained. Like most other amphibians with complex life cycles, Northern Leopard Frog population size can fluctuate wildly over time due to variation in larval recruitment, terrestrial predation, parasitism, disease, and stochastic events such as droughts or severe winters.

During the project survey two predatory invasive species were identified. The two species were American Bullfrogs (pictured) and Red-eared Sliders and have the potential to negatively impact Northern Leopard Frog and other native herptiles. American Bullfrogs are one of the most ecologically destructive of invasive alien vertebrate species.

Management Recommendations

- 1.) Remove American Bullfrogs. This action alone will most significantly increase opportunities for all native wildlife, including Northern Leopard Frogs, to thrive and survive.
- 2.) Continue monitoring for Northern Leopard Frogs, and other herptile species, through staff and volunteer monitoring programs.
- 3.) Provide opportunities for re-colonization and reintroduction of Northern Leopard Frogs.
- 4.) Consider habitat alterations to favor native species, such as Northern Leopard Frogs.



Lois Webster Fund

The Audubon Society of Greater Denver Lois Webster Fund was a valuable asset to this project. Natural land properties managed by COB-P&R have resources allocated differently than our Open Space and Mountain Parks (OSMP) properties, and as such do not receive surveys as routinely, if at all. Thanks to being awarded our request for \$1308, we were, for the first time, able to survey not only known NLF sites, but potential sites as well. We also received matching grant funds from the Boulder County Nature Association (BCNA). These funds were a catalyst for partnering opportunities. In addition to you, we coordinated with and will be

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providing the report to the OSMP department, BCNA, Boulder County Parks and Open Space, and Colorado Parks and Wildlife in an effort to share information and increase collaboration.

Grant funding supported us visiting 10 properties instead of 3-7. Funding was also utilized to purchase the equipment needed to perform the surveys.

Estimated Lois Webster Fund Use:

Frabill 16.5" x 9" Crawfish Traps	15 units at \$7.00/unit (+s/h)	\$240.00
WILDSCO Amphibian Dip Net	2 units at \$159/unit	\$318.00
Additional properties for survey	2 Properties (mileage/ techs)	\$750.00
Total requested		\$1,308

Actual Lois Webster Fund Use:

Frabill 16.5" x 9" Crawfish Traps	23 units (including s/h)	\$231.72
WILDSCO Amphibian Dip Net	2 units (including s/h)	\$349.80
Additional properties for survey	2 Properties (mileage/ techs) = paid a portion of the contractor invoice	\$726.48
Total Spent		\$1,308

In light of the Tier 1 status of Northern Leopard Frogs, COB-P&R is invested in this project to bolster efforts for management and conservation of Northern Leopard Frogs on our properties while understanding their ecology better throughout the region.

Thank you for your support!

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**Boulder Parks
& Recreation**

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