#### Alberta Conservation Association 2007/08 Project Summary Report

Project name: Alberta Northern Leopard Frog Recovery Program

Project leader: Kris Kendell

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#### **Partnerships:**

Alberta Sustainable Resource Development Calgary Zoo Conoco Phillips Government of Canada Habitat Stewardship Program MULTISAR Parks Canada, Species at Risk Recovery Action and Education Fund TD Friends of the Environment Foundation University of Alberta University of Calgary

# Key findings

- On 20 July 2007 the first juvenile northern leopard frog (NLF) successfully completed metamorphosis and was observed at the reintroduction site in Waterton Lakes National Park (WLNP). This observation marked the first NLF sighting in the park since the species became extirpated around 1980.
- Increased awareness of the NLF by landowners, land managers, and producers led to their cooperation in the initiation and successful implementation of stewardship activities on their land.
- Through our disease surveillance work we have detected Chytrid fungus in Alberta NLFs. Chytrid fungus is believed to be partly responsible for the widespread global decline of amphibians. These findings will allow us to make informed decisions that will increase the probability of successful NLF reintroductions.
- Through our population monitoring efforts in 2007, and with the assistance of our NLF *Wanted* poster campaign, we documented three new NLF populations in the province.

### Introduction

The northern leopard frog (NLF) (*Rana pipiens*) has suffered dramatic population declines in many parts of its range in Alberta. Although little studied, the decline in Alberta does not appear to be part of a natural cycle. The species' reduced area of occupancy and fragmented populations have led to its listing as *Threatened* under Alberta's *Wildlife Act* in 1996, and reaffirmed in 2003.

The Alberta Conservation Association (ACA) is a member of the Alberta Northern Leopard Frog Recovery Team (ANLFRT) and is involved in the delivery of several strategies and actions outlined in the Recovery Plan (ANLFRT 2005). ACA is playing a key role in the implementation of NLF stewardship projects, the coordination of a genetic research project in partnership with the University of Alberta, the identification of NLF source and reintroduction sites, disease monitoring, and population inventories and habitat assessments.

### Methods

We conducted NLF surveys between late April and August 2007 following survey guidelines described in Kendell (2002) and the Alberta Volunteer Amphibian Monitoring Program - participants manual (ACA and ASRD 2006). Field personnel were assigned NLF sites and instructed to survey, for a minimum of four person/hours, all habitats where frogs were likely to occur. NLF *Wanted* posters were placed in strategic locations soliciting sighting reports from the public. All NLF sightings were submitted to the Alberta Government's Fish and Wildlife Management Information System (FWMIS). In addition, we coordinated the translocation of NLF eggs from source sites in the Oldman River basin to a reintroduction site in WLNP. We followed translocation methods outlined in Kendell and Prescott (2007).

We also assessed habitat threats at NLF sites in southern Alberta and identified candidate sites for stewardship activities. Breeding ponds that demonstrated habitat degradation and that occurred on sites with interested landowners were given priority to receive habitat enhancements.

We assisted Alberta Fish and Wildlife in disease surveillance for Chytrid fungus and Ranavirus by capturing and swabbing anurans and sending these samples to a specialized laboratory for analysis (see Whiteside et al. 2007, and Kendell and Prescott 2007).

#### Results

We surveyed for NLF eggs at six known NLF breeding sites within the Oldman River basin. In total, 3.5 egg masses were collected and transported to the WLNP reintroduction site. The number of tadpoles released at the reintroduction site was 13,625, and the maximum number of juvenile NLF observed at the reintroduction site during one survey was 70.

We completed stewardship activities in 2007 that included fence repairs at Prince's Spring NLF site, making operational a solar-powered off-site cattle watering system at the Jenner Springs NLF site, working with the MULTISAR program to establish a portable solar-powered off-site cattle watering system at the Red Creek NLF site, and the design and printing of a NLF conservation stewardship sign to be posted at stewardship sites.

In 2007, the ACA and partnering agencies collected a total of 993 amphibian tissue samples from 33 sites in Alberta to test for the presence of Chytrid fungus and Ranavirus. Of the samples collected, 883 were of NLF and the remaining 110 consisted of four other amphibian species. Based on results to date a small proportion of sampled sites have tested positive for Chytrid fungus.

Results of the NLF genetic research suggest that, among other things, the best source of NLF for reintroduction efforts in Alberta are those that are most genetically diverse, as well as ones that are locally adapted to specific environments (i.e., latitude, elevation, habitat, and presence of predators and diseases).

In addition to incidental NLF observations through stewardship, disease surveillance, and reintroduction work, we surveyed an additional 44 historical NLF sites. Only one of these 44 historical sites was found to be occupied by the NLF. An additional two NLF sites were identified through our *Wanted* poster campaign.

# Conclusion

The ACA is working cooperatively with a number of partners and stakeholders to ensure that the NLF remains an integral part of Alberta's natural heritage. This work includes the coordination of stewardship activities and reintroductions that will help to alleviate concerns associated with current populations, such as vulnerability to disease, human disturbance, and habitat changes. Through collaborative research, the ACA is also contributing to an increased understanding of the distribution and relative size of NLF populations in Alberta, as well as genetic and disease issues associated with the recovery of the species.

# Communications

- Northern leopard frog (Species at Risk series) brochure developed.
- Northern leopard frog *Wanted* poster campaign.
- Northern leopard frog conservation stewardship sign developed.
- Conference and meeting presentations delivered at: Canadian Amphibian and Reptile Conservation Network annual general meeting, First general meeting of the Canadian Society for Ecology and Evolution, Northwest Chapter: Partners in Amphibian and Reptile Conservation (PARC) conference, Prairie Species at Risk Beneficial Management

Practices Project Consultation Workshop, Ranid workshop, and Northern leopard frog recovery team meetings.

- Published reports: Northern leopard frog reintroduction strategy for Alberta, Alberta northern leopard frog survey: 2005, Northern leopard frog (*Rana pipiens*) population viability and reintroduction analysis, Northern leopard frog egg mass survey: Oldman River basin (2007), Diagnostic testing for emerging amphibian diseases in Alberta, Genetic evidence for single season polygyny in the northern leopard frog (*Rana pipiens*), Genetic assessment of potential source populations for the reintroduction of northern leopard frogs (*Rana pipiens*) to sites in Alberta, and Genetic diversity and structure in Canadian northern leopard frog populations (*Rana pipiens*): implications for reintroduction programs.
- Public presentations: Alberta Wilderness Association, Edmonton Reptile and Amphibian Society.
- Articles in: Enviro Vision, Croaks and Trills, The Alberta Wildlifer, Prairie Post, Westworld Magazine, What's on your plate? Exploring Alberta's livestock industry newsletter (special edition).

### Literature cited

Alberta Conservation Association and Alberta Sustainable Resource Development. 2006. Alberta Volunteer Amphibian Monitoring Program - participants manual. Alberta Conservation Association, Edmonton, Alberta. 46 pp.

Alberta Northern Leopard Frog Recovery Team. 2005. Alberta Northern Leopard Frog recovery plan, 2005-2010. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Recovery Plan No. 7. Edmonton, Alberta. 26 pp.

- Kendell, K. 2002. Survey protocol for the northern leopard frog. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Report No. 43, Edmonton, Alberta. 30 pp.
- Kendell, K., and D. Prescott. 2007. Northern leopard frog reintroduction strategy for Alberta. Technical Report, T-2007-002, produced by Alberta Conservation Association, Edmonton, Alberta, Canada. 31 pp + App.
- Whiteside, D.P., D. Prescott, K. Kendell. 2007. Diagnostic testing for emerging amphibian diseases in Alberta. Calgary Zoo Animal Health Centre, Calgary, Alberta. 6 pp.



Northern leopard frog. (Photo: Kris Kendell ACA)



Installation of solar-powered off-site cattle watering system at NLF stewardship site. (Photo: Kris Kendell ACA)



Northern leopard frog *Wanted* poster.