Conservation Corner:

Returning a Lost Species to Waterton Lakes National Park: The Northern Leopard Frog

By Niki Wilson

The call of a northern leopard frog sounds like the opening of a creaky door, followed by what you might hear if you rub two balloons together. But to Kimberly Pearson and Barb Johnston, Ecosystem Scientists with Parks Canada in Waterton Lakes National Park (WLNP), hearing the male frogs call for the females this spring was the welcome sound of a lost species returning home.

This year marks the first time northern leopard frogs have bred in WLNP in decades. Historically, they were found in many habitats across the province—grasslands, parkland natural regions, and foothills. However, numbers sharply declined in the 1970s and 80s. The exact reasons are not clear, but may have involved a perfect storm of drought, disease, habitat loss, road mortality, harvest (for labs and experimenting), and the introduction of predatory non-native fish to waterbodies they didn't belong in.

This landed the northern leopard frogs as a *Threatened* species under *Alberta's Wildlife Act*, and as a federally listed species of *Special Concern* under the *Species at Risk Act*.

A couple of decades later, enough had changed to suggest it might be possible to return northern leopard frogs to the landscape. Crushing drought had abated, and there was more awareness about the importance of protecting amphibians from roads and other barriers during spring and fall migrations. WLNP officials had investigated translocation methods to minimize the risk of transmitting diseases. Provincial and federal legislation protected them from harvest, and WLNP was (and is) moving toward an aquatic restoration plan that included removal of non-native fishes.

To even begin considering a reintroduction, "it required a lot of homework," says Johnston. That, and patience. This latest round was the second try at a return of northern leopard frogs for the team at WLNP. In the first attempt, eggs were relocated from sites elsewhere in southern Alberta between 2007 and 2010. Though some of the eggs grew into tadpoles and froglets, they never grew old enough to breed.

They were stumped. Around the same time Johnston had worked on a success-

The northern leopard frog – the object of Waterton Lakes National Park's breeding program PHOTO: © PARKS CANADA

Kim Pearson and Leopard Frog Tadpoles.
PHOTO: © PARKS CANADA

ful reintroduction to a site approximately 50 km away at Beauvais Lake Provincial Park. There, the reintroductions had gone relatively well, with populations established ever since. Why not in WLNP? The team dove back into the research to look for clues.

One came when Pearson stumbled upon a comment on an article about another northern leopard frog reintroduction project. A frog ecologist from eastern Canada suggested the frogs have a genetic imprint that tells them which direction they need to go to get to their wintering grounds from their natal ponds. She and Johnston tucked this information away as they planned their next attempt.

This time, the eggs would come from Grasslands National Park, Saskatchewan. These eggs were a good genetic match, and would leave closer populations alone to strengthen their still tenuous numbers. In the springs of 2015 and 2016, armed with coolers, Johnston and Pearson travelled over 600 kilometres to Grasslands National Park to pick them up.

While there, the team paid careful attention to orientation of the overwintering habitat—a river—to the breeding ponds from which they harvested the eggs. Only a small percentage of the large groups of egg masses were removed. After the team traded off driving duties to minimize travel time home as much as possible, then deposited the eggs in carefully selected sites with similar orientation to overwintering habitat.

"Genetic orientation is a consideration you don't hear much about in leopard frog reintroductions, but it really makes sense when you consider that there have been thousands of generations of frogs moving in specific directions between a breeding pond and an overwintering site," says Pearson.

It's hard to know if that was the magic ingredient. The team had also gotten creative with predator protection strategies. They designed a "predator exclosure"—a plastic bucket with meshing on the bottom and the top, held afloat by a foam pool noodle— to protect the eggs and young tadpoles from critters like fish, birds, and raccoons that would try to catch them from above and below. The exclosures were removed once the tadpoles showed a predator avoidance response.

Whatever the team did, it appears to be working. "The 2015 frogs reached reproductive age this spring, and appear to be taking quite nicely to Waterton," says Pearson. It's an important step towards WLNP developing self-sustaining populations of northern leopard frogs.

With enough work, and collaboration with landowners, the Province of Alberta, and groups like the Waterton Biosphere Reserve Association, Pearson hopes that one day populations will be connected between WLNP, Beauvais Lake Provincial Park, and beyond.

Barb Johnston Collecting Leopard Frog Eggs in Grasslands National Park. PHOTO: © PARKS CANADA