UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES PROGRAM

TELEPHONIC INTERVIEW TIME (08:33)

RELICT LEOPARD FROG (HOST – BRYNN WALLING WITH MICHAEL BURROUGHS)

This transcript was produced from audio provided by USFWS Endangered Species Program

P R O C E E D I N G S

(Music plays.)

MS. WALLING: Hi, this is Brynn Walling for the U.S. Fish and Wildlife Service, and today I have on the phone Michael Burroughs. How are you today, Michael?

MR. BURROUGHS: I'm fine, thank you.

MS. WALLING: Michael is a wildlife biologist for the U.S. Fish and Wildlife Service, and he is going to tell us about the relict leopard frog. Could you start by telling us where the relict leopard frogs live, and what is their optimal habitat?

MR. BURROUGHS: Relict leopard frogs live in springs, streams and wetlands with both shallow and deep water. Frogs require shallow water for breathing, eating and basking, and deeper water for escaping predators, and it also includes root masses and undercut banks. They also use debris piles and upland or dry vegetation for cover in sites over winter. The extent of aquatic vegetation should be balanced with a sufficient amount of vegetation to provide cover in sites to deposit eggs, but not so dense as to impede their activity. Leopard frogs typically forge or feed along the water's edge and into the adjacent terrestrial habitat.

Naturally occurring relict leopard frog populations occur near the Overton Arm area of Lake Mead and in Black Canyon below Hoover Dam. There are additional relict leopard frog areas that have been established as part of a long-term conservation strategy for this species. It is also important to mention that

relict leopard frogs require one to two years to reach sexual maturity, and they live at least four to five years. Relict leopard frogs breed in the fall, and again from late January through March. Eggs are deposited in clusters, which we refer to as egg masses, which contain up to 250 eggs. The eggs are attached to vegetation near the bottom of shallow pools that are only two to three inches deep.

MS. WALLING: What are its primary threats?

MR. BURROUGHS: The four most important known or potential threats to the relict leopard frog are predation by non-native species, habitat degradation, disease, and climate change. Non-native predators, which include bullfrogs, crayfish, and predatory fish, are capable of consuming frogs at all their life stages, which includes eggs, tadpoles, and all sizes of frogs.

The second threat, habitat degradation – often due to human activities – occurs primarily as a result of ground water pumping or alteration of surface water flow. As you would expect, water is an extremely limited resource in the desert southwest, and the demand for water is mostly fulfilled by groundwater. Groundwater pumping may lower groundwater levels, and thus reducing spring flow and surface water, which is available to relict leopard frogs. Also, saltcedar are an invasive plant that occurs in riparian areas, reduces habitat quality by altering the microclimates or soil conditions that take up large amounts of water. The saltcedar plant, which is actually a tree, loses a lot of water through its leaves by a process referred to as evapotranspiration.

The third threat, disease, is an important potential threat to relict leopard frogs. The aquatic fungus of *Batrachochytrium dendrobatidis*, or Bd for short, was described in 1999. Bd affects the skin of amphibians, and it's unusual because it's the only chytrid fungus that is a parasite of a vertebrate animal. Bd is linked to devastating amphibian declines across the globe, and has been called the worst infectious disease ever recorded among vertebrates. Bd affects amphibians by damaging their skin, thus affecting their ability to absorb water and electrolytes. It was found in relict leopard frogs in 2010, and we are continuing to determine the distribution of the fungus at relict leopard frog sites. There have been no die-offs of relict leopard frogs observed up to this time, but we don't know to what extent disease may be affecting populations or the species.

And the fourth threat, climate change, is another unknown. We can't definitively tie changes in local southern Nevada climatic patterns to global climate change, but predicted patterns for the southwest include extreme precipitation, warmer than average temperatures and drought. We believe that ongoing management of the matrix of habitats that support the relict leopard frog is important to reduce the potential threat of climate change. While we recognize that climate change may result in loss or degradation of conditions at some of the smaller spring

sites, we expect the larger spring sites to maintain their function to provide the ecological needs for the species.

MS. WALLING: Can you tell us about what is being done to increase the number of relict leopard frogs in the wild?

MR. BURROUGHS: The most effective conservation tool that we have at this time involves establishing new sites and populations of frog using head starting and translocation. Each spring, we perform surveys to locate egg masses in the wild, and collect a portion of them for head starting. Head starting is a process that maximizes the number of offspring that survive by rearing them in captivity past early life stages when many offspring perish. The eggs are taken from the wild to a lab on Lake Mead national recreation area where they hatch into tadpoles. Some tadpoles are grown up to froglets and translocated, and others are translocated as late stage tadpoles.

Before head starting and translocation can occur, we must identify sites within historic range of the species that are capable of supporting frogs. A suitable site must provide sufficient water and habitat throughout the year. Many potential sites become dry during the summer, and therefore they don't qualify for potential sites. Potential sites should be free of non-native predators such as bullfrogs and crayfish. Once a site has been selected, then we move forward with translocation of head started tadpoles and frogs.

In 2011, 1,049 late stage tadpoles and 288 froglets were translocated to five sites. We continue to release frogs for several years, and monitor the frogs twice a year – once in the spring and once in the fall. Success is determined when released frogs become established, breed, and their young reach adulthood and produce young themselves. Other actions that we are taking for relict leopard frog conservation include habitat improvements, which includes saltcedar removal; non-native predator removal; and control, research, and population monitoring to determine how well a site is doing.

MS. WALLING: What is the current status of the relict leopard frog?

MR. BURROUGHS: You know, the most interesting fact about the relict leopard frog is that this is a species that was presumed extinct for almost 50 years before it was rediscovered in 1991 at seven sites and three relatively small areas. These areas were the Overton Arm area of Lake Mead in Nevada; Black Canyon, which is along the Colorado River below Hoover Dam in Nevada; and a spring on private land near Littlefield, Arizona. Since 1991, relict leopard frogs have disappeared from one of the sites near Overton Arm and we also lost the Arizona site. But new sites have been established.

The relict leopard frog is state protected in Nevada, Arizona, and Utah, and is a candidate for listing as a threatened or endangered species under the

Endangered Species Act. Today, relict leopard frogs occur at seven natural sites and eight translocation sites in Nevada and Arizona. Based on data from 2010 surveys, the estimate for the total number of juvenile and adult frogs in the wild ranges from 1,375 to 2,480. In 2011, the official U.S. Fish and Wildlife Service funded a project that would establish methods to allow us to estimate population numbers from the number of field observations.

MS. WALLING: Thank you so much for sharing all this information with us.

MR. BURROUGHS: You're welcome.