Ramsey Canyon Leopard Frog

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SCIENTIFIC NAME: *Rana subaquavocalis*. From the Latin *Rana*, meaning frog, and the Latin *subaquavocalis*, referring to the fact that males vocalize to attract mates while completely submerged in water.

DESCRIPTION: Largest Arizona leopard frog; body length of 1.5 to 5 inches. Stockier than other leopard frogs, with eyes "upturned" (see BIOLOGY). Coloration above, olive green, or greenish brown, with darker "leopard" spots. Glandular fold on each side of back, breaking into short, inset segments posteriorly. Underside whitish with extensive dark mottling on the throat, and yellow in groin and on underside of hind limbs. Skin rougher than that of other leopard frogs (except Chiricahua leopard frog); many white-tipped tubercles (bumps) on posterior end. Typical leopard frog hind feet, with well-developed webbing. Very large adults have knob-like swellings on tips of fingers. Males and females similar in appearance, except males are a little smaller and have swollen, darkened thumb pads that help grasp the female during amplexus (mating).

HABITAT: Large permanent pools, in canyons. Little known about historical habitat; species unrecognized by science as a separate taxon before June 1993. Because males call for mates while submerged in two to four feet of water, prime historical habitat probably centered on large plunge pools and other deep waters in the mountains of southeastern Arizona and northern Mexico.

DISTRIBUTION: Among the most narrowly distributed vertebrates in Arizona. Only known from four permanent pools in the Huachuca Mountains, between 5,000 and 5,700 feet elevation.

BIOLOGY: Like other leopard frogs, this one is wary. During the day it is seldom more than a leap away from water or thick cover. It is highly aquatic and well-adapted to this lifestyle. The angle of the upturned eyes (eyes which look up at an angle, rather than straight to the side) allows it to remain nearly submerged, providing a safe vantage point away from predators while it's foraging or seeking mates. The short limbs facilitate quick direction changes should a zigzag aquatic retreat become necessary.

Like many frogs and toads, this leopard frog will try to eat anything it can fit into its mouth, including a variety of insects, other invertebrates, and possibly small vertebrates found near the water's edge. Predators of adults include raccoons, ringtails, herons, and snakes. Herons, garter snakes, fish, and large aquatic invertebrates (especially giant water bugs) feed on eggs and tadpoles.

The silence around the breeding ponds and the mysterious appearance of egg masses between April and July tipped Dr. James E. Platz of Creighton University to the fact that something was different about the leopard frogs in Ramsey Canyon. In 1989, Dr. Platz lowered a hydrophone (aquatic microphone) into the pond on The Nature Conservancy's Ramsey Canyon Preserve, and his suspicions were confirmed when he heard calling males! Dr. Platz also found these frogs to be distinct enough physically and genetically to prompt him to describe them as a new species.

STATUS: Because of its recent description, the Ramsey Canyon leopard frog has no status under the Department's list of *Threatened Native Wildlife in Arizona*, but the U.S. Fish and Wildlife Service may soon include it as a Category 1 candidate for listing under the Endangered Species Act.

MANAGEMENT NEEDS: The most urgent management need is to secure the future of the four known populations of Ramsey Canyon leopard frogs. In general, as the numbers and sizes of populations of a species decrease, the future of those populations is increasingly influenced by catastrophic events such as flash flooding, drought, or disease.

The Department, U.S. Fish and Wildlife Service, U.S. Forest Service, The Nature Conservancy, and a private landowner are cooperating to reduce the impacts of these events, and are exploring avenues to stabilize and enhance existing habitat.

Surveys to locate new populations are also needed. Dr. Platz was recently awarded a Department Heritage grant to fund several surveys to collect baseline population data and determine habitat requirements for this species.