

California Wildlife Habitat Relationships System
California Department of Fish and Wildlife
California Interagency Wildlife Task Group

NORTHERN LEOPARD FROG

Lithobates pipiens

Family: RANIDAE

Order: ANURA

Class: AMPHIBIA

A045

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DISTRIBUTION, ABUNDANCE, AND SEASONALITY

The northern leopard frog is widely distributed in North America, but uncommon and localized in California. Highly aquatic, leopard frogs occur in or near quiet, permanent and semi-permanent water in many habitats. The origins of the state's populations are uncertain, but many appear to be introduced. In the southern part of the state, this species occurs along the Colorado River, and in irrigated portions of Imperial, Tulare and Kern cos. In northern California, the leopard frog is established in Modoc Co. and possibly eastern Lassen Co. The status of introduced populations in the Tahoe Basin is unknown. Elevation range extends from sea level to 2130 m (7000 ft).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Adults are opportunistic feeders, taking a variety of aquatic and terrestrial prey. They primarily eat small adult insects, but sowbugs, spiders, leeches, snails, small fishes, amphibians (cannibalism has been reported), small snakes, and birds are also taken (Stebbins 1972, Nussbaum et al. 1983). Tadpoles probably feed primarily by filtering algae and diatoms, but may also consume some plant material and animal food incidentally encountered.

Cover: Shoreline cover, submerged and emergent aquatic vegetation, appears to be an important habitat characteristic. At colder localities, adults hibernate on the bottoms of unfrozen bodies of water. Submerged vegetation is apparently unnecessary for hibernation cover. Individuals do not hibernate in southern California, but may become inactive during the coldest periods.

Reproduction: For reproduction leopard frogs prefer cattail and sedge marshes, weedy ponds, or other water with aquatic vegetation (Nussbaum et al. 1983). Eggs are attached to emergent vegetation. Tadpoles use shallow water near shores.

Water: A highly aquatic species. Adults may be found up to a mile from the nearest water (Slevin 1928), but only during or following rains. Water at breeding sites must persist long enough to permit the completion of larval development.

Pattern: This species occurs near permanent or semi-permanent water in many habitat types.

SPECIES LIFE HISTORY

Activity Patterns: Terrestrial individuals may be active at all times of the day. In areas with mild winters, leopard frogs are active all year, but in cooler climates they undergo periods of inactivity or hibernation.

Seasonal Movements/Migration: Pronounced movements by adults are commonly observed during warm fall, winter, or spring rains. They may represent lengthy foraging excursions, or dispersal to breeding localities. During summer or fall (depending on local conditions), newly transformed juveniles travel long distances from water, presumably while dispersing from parental breeding sites.

Home Range: The home range of the leopard frog in California is unknown. Most adults probably move less than 12 m (37 ft), but make unpredictable and potentially extensive movements during or just after warm rains.

Territory: As in other ranid frogs, males defend territories for sexual display (Martoff 1953, Emlen 1968).

Reproduction: In California, breeding and egg-laying occur from December to June depending on local conditions. Females deposit up to 6000 eggs in flattened globular clusters 7.5 to 15 cm (3 to 6 in) in diameter attached to vegetation in shallow water. Eggs normally hatch within three weeks; tadpoles typically metamorphose in two to four months.

Niche: Natural dispersal of northern leopard frogs along systems of irrigation canals may be limited by interspecific competition with bullfrogs (Stebbins 1951, Hammerson 1982). Introduced leopard frogs in the Sierra might displace native frogs. Leopard frogs are extensively preyed upon by garter snakes, wading birds, and to a lesser extent by nocturnal mammals.

General Comments: The leopard frog is the principal amphibian used for biomedical research and teaching (Bagnara and Frost 1977). "Left over" frogs are occasionally released locally from high school and college campuses, and new populations may become established. The occasional discovery of leopard frogs at new localities is usually the result of introduction.

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