

Catalogue of American Amphibians and Reptiles.

Platz, James E. 1988. *Rana yavapaiensis*.

***Rana yavapaiensis* Platz and Frost**
Lowland Leopard Frog

Rana yavapaiensis Platz and Frost, 1984:940. Type-locality, "Tule Creek (elev. 670 m), 34° 00', 112° 16', Yavapai Co., Arizona." Holotype, Amer. Mus. Natur. Hist. 117632, an adult alcoholic male collected on 25 August 1971 by James E. Platz (examined by author).

• **Content.** No subspecies have been proposed.

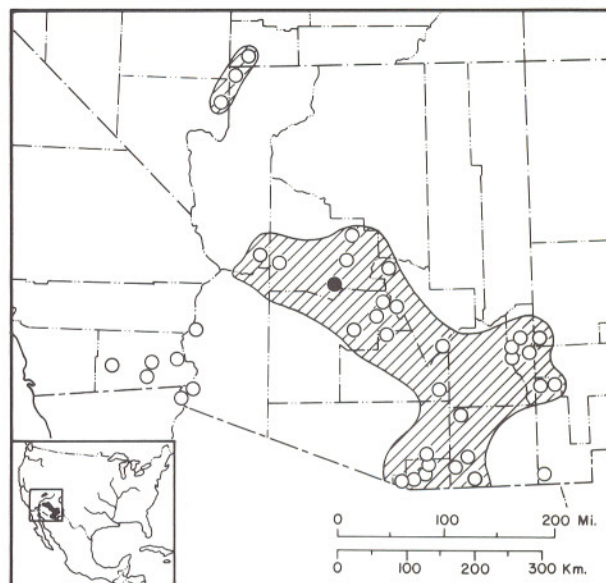
• **Definition.** A species of the *Rana pipiens* complex with an adult snout-vent length of 46-87 mm (males: 46-72 mm; females: 53-87 mm). Dorsolateral folds are present, and prominent, lighter in color than the dorsum, interrupted posteriorly and deflected medially in the sacral region. The supralabial stripe is incomplete (diffuse anterior to the eye). The venter is cream in color. Yellow pigmentation on the groin often extends onto the posterior venter and underside of the legs. The advertisement call is a series of short chuckles (notes) the first of which is longer than the six to fifteen notes that follow. The internote time tends to decrease in length as the call sequence progresses. The pulse rate is low (12 pulses/sec at 24 °C) and the pulse number per note varies decreasing from approximately 11 pulses in the first note to 3 or 4 in the last of a series. Harmonics above the dominant frequency of 1.8 kHz blend to convey the impression of a higher pitch when heard by the human ear. The call is typically offered as a series of notes (7-15) which may last 3 to 8 seconds depending upon total number of notes and temperature.

• **Diagnosis.** Specimens metamorphose at 25 to 29 mm in length and can be distinguished from the four other species of leopard frogs within its range. *R. blairi* has a complete supralabial stripe extending anteriorly to the tip of the snout. *R. pipiens* has a complete supralabial stripe, complete dorsolateral folds uninterrupted and undeflected in the sacral region. Adult *R. pipiens* have green pigment in the groin region, and males possess vestigial oviducts. The posterior surfaces of the thighs in *R. chiricabuenensis* have numerous small papilla, each surrounded by cream colored skin. Adult *R. chiricabuenensis* have a mottled venter, and males along the southern Arizona border have vestigial oviducts. *R. berlandieri* is native to New Mexico and has been successfully introduced in recent years to southwestern Arizona. Males, unlike *R. yavapaiensis*, possess prominent vestigial oviducts.

• **Descriptions.** Prior to formal description by Platz and Frost (1984), Platz and Platz (1973) under the description "Lowland form" briefly discussed morphological traits and outlined its geographic distribution in Arizona based on electrophoretic patterns of hemoglobin phenotypes. Platz (1976) discussed geographic patterns in discontinuous morphological characters as well as variation in mensural characteristics utilized in multivariate analyses. Electrophoretic variation was reported in nine loci.

• **Illustrations.** Dickerson (1906) included a colored plate (plate II, fig. 6) of a subadult erroneously identified as *R. onca* Cope. Wright and Wright (1949:477; 508) included 5 black and white photographs also labeled as *R. onca*. All (3 photographs, plate XCIX; 2 photographs, plate CIX, figs. 2,3) appear to represent the same individual frog, collected 2 miles southeast of Overton, Clark Co., Nevada. Fritts et al. (1984) published a black and white photograph of an adult, as well as line drawings depicting anatomical features of adults and tadpoles.

• **Distribution.** This species occurs in western New Mexico, Arizona and presumably in adjacent parts of Sonora, México. Specimens have also been collected (but not recently) in Imperial Co.,



Map. Solid circle marks the type-locality, open circles indicate other localities, shading estimates areas of continuous range.

California, Overton, Clark Co., Nevada, and near St. George, Washington Co., Utah. The distribution is otherwise more or less continuous with the exception of Littlefield, Mohave Co., in extreme northwestern Arizona and those in extreme southwest Arizona. Most populations occupy ponds, and stream and river pools at low elevations (below 1000 m) in scrub desert localities throughout south central and southeastern Arizona and adjacent tributaries of rivers flowing into Sonora, México and New Mexico. They are most abundant where pools are deep enough to provide a haven from predators. Some populations in Central Arizona (Yavapai Co.) reach 1700 m where they are occasionally sympatric with *R. chiricabuenensis*.

• **Fossil Record.** None.

• **Pertinent Literature.** Platz (1976) provided the most comprehensive survey of geographic variation of discontinuous and mensural morphological traits as well as an electrophoretic survey of protein variation within Arizona populations. Fritts et al. (1984) provided similar information for populations from New Mexico. Natural hybrids identified electrophoretically with marker loci were characterized morphologically. Marker loci indicate the level of natural F₁ and backcross individuals where sympatric with *R. chiricabuenensis*. Multivariate analysis of mensural traits provides a discriminant function which permits reliable differentiation of individuals from other widespread species of leopard frog in Arizona. Pace (1974) provided information on the morphology of the vocal sacs and conformation of the dorsolateral folds. Collins and Lewis (1979) reported on overwintering of tadpoles at the type locality as well as two breeding seasons per year. Frost and Platz (1983) provided a geographic distribution map, call data, extensive results from laboratory crosses with other Arizona leopard frog species, including meiotic chromosomal compatibility studies of F₁ hybrid combinations. They treated the reproductive ecology of Arizona leopard frog species, providing extensive breeding season data, and identified reproductive isolating mechanisms. Clarkson et al. (1986) reported sympatry with recently introduced populations of *R. berlandieri* at Yuma, Yuma Co., Arizona and discussed the relative abundance of native species and their future status. Ruibal (1959) discussed (as *R. pipiens*) salinity tolerance limits for embryonic and adult stages from San Felipe Creek, Imperial Co., California. Hillis et al. (1983) provided a cladistic assessment based on electrophoretic data from 50 presumptive loci involving all North American leopard frog species and many related forms from México. Taxonomic clades were compared from a zoogeographic point of view.

• **Etymology.** The name *yavapaiensis* (Latinized from Yavapai) refers to the county from which the type series was collected. The common name, Lowland leopard frog, recognizes its generally low elevation distribution in contrast to the more montane distribution of *R. pipiens* and *R. chiricabuenensis*. This common name was used in the literature prior to the formal description of *R. yavapaiensis*.

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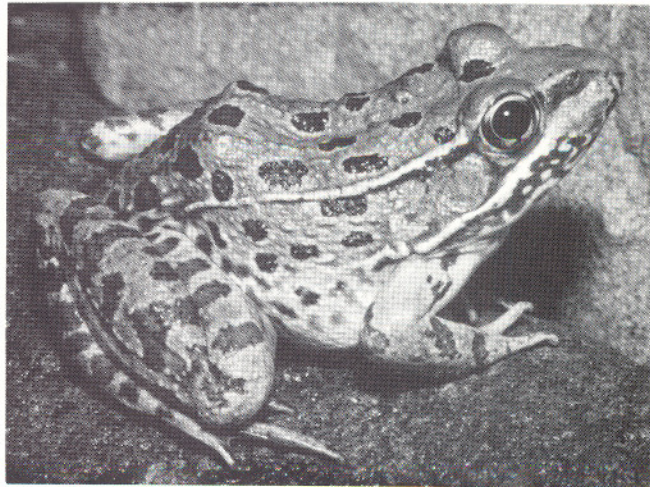


Figure 2 *Rana yavapaiensis* from Hooker's Hot Springs, Cochise Co., Arizona, AMNH 118178, photograph by R. Zweifel.

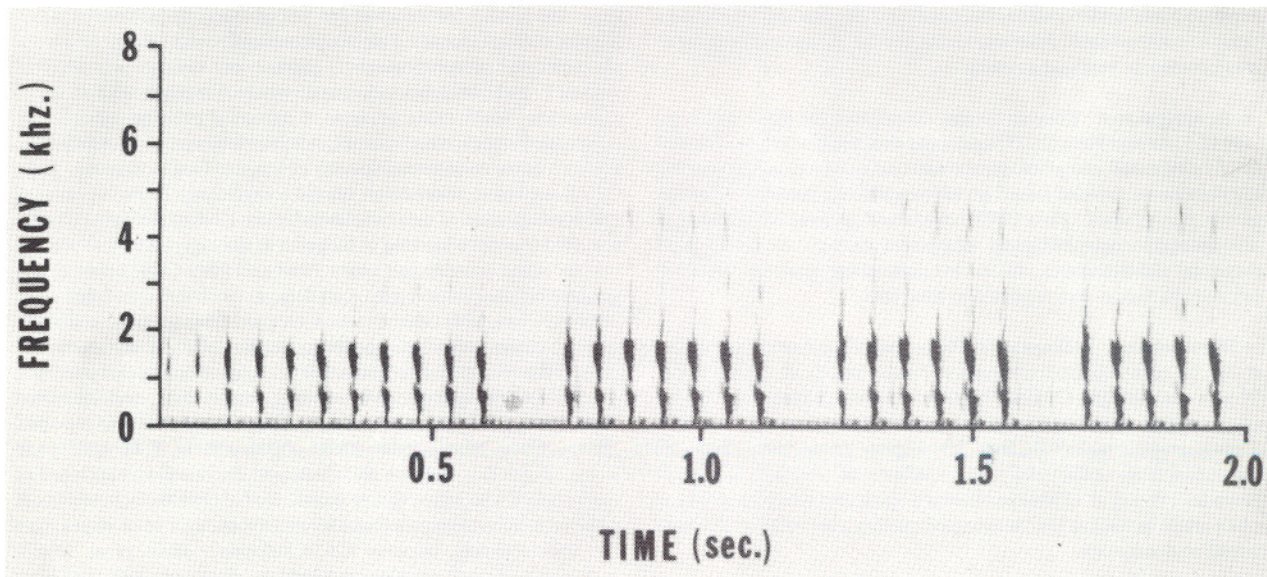


Figure 1 Audiospectrogram of the first and three of several succeeding notes of the advertisement call of *Rana yavapaiensis*: Tanque Verde Canyon (elev. 1250 m), Redington Pass, Pima Co., Arizona; 13 August 1974, body 26.2°C; recorded by J. Frost.