the overflow took place did not fill with sediment as rapidly as the main valley and is now occupied by the Blue Lakes and Laurel Dell Lake—commonly termed, collectively, the Blue Lakes. The location of the low divide where the temporary lake overflowed is probably about one and a half miles from the Blue Lakes gorge. At this point the wagon road crosses a low spur that runs out to within four hundred feet of the opposite side of the valley, which is here undercut by the stream.

Remembering the recent settlement of California, it is needless to say that the time of the Blue Lakes slide is prehistoric. Indian legends tell of the sudden creation of the Blue Lakes, but they fix no date and are hardly acceptable in a physiographic court. The trees on the slide and on the adjacent slopes do not differ in apparent age, but the mountains are not heavily wooded in this vicinity. The filling in of Scott's Valley and the cutting of the divide separating the new lake from Clear Lake give some suggestion of the time. As the waters did not overflow the landslide which at its lowest point is about one hundred and sixty feet above Blue Lakes, the erosion of the new channel must have been to a less depth than the height of the slide.

Brief mention should be made of another connection between the waters of Russian River and the streams of San Francisco Bay. Copeland Creek flows down the western slope of Sonoma Mountain and debouches on a fan that spreads out over the flat divide separating the Russian River from the Bay. The southernmost of the distributaries on this fan empties into Petaluma Creek and thence to the bay. The northernmost flows into the Russian River. These distributaries meet today at the head of the fan and in flood time Copeland Creek discharges both ways. This connection seems less important than that of the Blue Lakes, for it connects the Russian River with a small stream emptying into the salt water of the bay. The Blue Lakes slide transferred bodily a portion of the fauna of Russian River directly to the Sacramento River system.

RULIFF S. HOLWAY

FOWLER'S TOAD (BUFO FOWLERI, PUTNAM)

WE are all familiar with toads—they seem common enough in our gardens and fields, yet few are aware of more than one common species in the eastern states. One toad has been strangely overlooked. Considered rare and local for many years, it is beginning to be recognized as one of the commonest forms, with a range from New England to the southern states. In fact the popular term "common toad," in much of this territory better applies to the toad (*Bufo Fowleri*), until very recently considered so rare and limited in its range, rather than to the older and better-known species (*Bufo Americanus*).

Concerning the range of Fowler's toad, Miss Dickerson in her excellent "Frog Book," reports it only from Danvers, Cutty Hunk Island, Mass., throughout Rhode Island, and New York near the coast. My own observations of this toad for a period of over ten years, lead me to believe it is a common toad that has been almost overlooked. It is heard in great numbers all along the Maanixit River, throughout the region from Oxford to Worcester, Mass., where I first became acquainted with the toad while doing some collecting in connection with nature-study work at Clark University. During the years 1900–05, I spent the greater portion of the spring and early summer at Chapel Hill, North Carolina, a small town about twenty-eight miles northwest of Raleigh. Here also I heard the unmistakable droning cries of these toads. In 1906 I took up quarters in Washington, D. C., and during the serene May nights I heard a great many of these toads in and around the Fish Ponds just west of the monument grounds. In fact these toads were hopping about throughout the vicinity—apparently the only species of toad to be met with frequently in Washington. Very recently, also, I learned from a competent observer that these toads were extremely abundant around Cumberland, Maryland. He stated that he had seen great numbers along streams in this region during the month of June, making the nights fairly hideous with their noise. In August, 1906, I met *Bufo*

Fowleri very frequently in Granby, Connecticut. In fact *Bufo Americanus* seems to be very uncommon in this region. It is at once evident that the range of Fowler's toad is rather extended, and while I am inclined to believe its southern limit is pretty nearly reached in central North Carolina, from the fact that I heard it only scatteringly there in the Chapel Hill region, I found it very abundant—segregated in numbers during the mating season, along the Maanixit River from Oxford to Worcester, Mass. There is no reason to believe it is confined to this valley alone, however, although here it is not at all uncommon.

Dr. Stejneger, of the Smithsonian Institution, recently informed me that Miss Dickerson in a recent visit to Washington identified Fowler's toad as being the common species here.

One has only to visit the Fish Ponds during the warm May nights, to hear numbers in chorus, and find them hopping about under the electric lights almost anywhere in the vicinity.

I feel that the range of this toad will be greatly extended with more careful observation. In my home region, Oxford, Mass., I think it is the commoner toad by far, and this conclusion is borne out by the relative numbers that express themselves in voice among the two species.

Bufo Americanus in this region seems to prefer the smaller pools, and is often heard in early April singing, singly or in small colonies. Its notes are among the sweetest of the springtime—mellow, musical trills, expressive of repose and serenity. On the other hand, I have heard *Bufo Fowleri* only along the Maanixit River, and along quiet-flowing streams around Worcester. In these localities in late June, the great chorus of Fowler's toads, indicates the height of their love season. Only on one or two occasions have I heard the notes of a common toad mingling with those of Fowler's toad at this season.

The congregations of the different species of frogs and toads in certain ponds and streams at the love season have always seemed rather remarkable to me. Certain ponds seem to have collected all of one species, while other near-by ponds and mud-holes never or very rarely yield a note of this same species at the song season. I can not recall having heard Fowler's toad in Grassy Pond, only a mile from Maanixit River—a pond with every condition one would judge favorable to this toad. During all the years I spent observing batrachians in this region, I found it necessary to go several miles to the river banks to hear these puzzling toads. It seems that they make rather extended journeys to certain favored streams at the egg-laying season.

I have heard nothing in nature so weird and unearthly as the almost agonized wail of this toad, repeated at short intervals. *Bufo Americanus* is heard as much during the warm spring days as at night; Fowler's toad is heard almost entirely during the earlier part of the night.

In size and coloration one can seemingly separate the two toads. *Bufo Fowleri* is a much more trim, dapper, active little fellow than its relative *Bufo Americanus*. It appears less roughened and warty, and decidedly more gray in general coloration than the latter. The latter toad is spotted beneath, while the under parts of *Bufo Fowleri* are uniform grayish, the throats of the males being dark. Whether or not these color distinctions are always thus defined in the two forms remains to be determined.

Until Miss Dickerson gave Fowler's toad specific rank, it was regarded as an extremely local race of *Bufo Americanus*. It is remarkable that the toad should have been ignored so long, and even in localities where it is the extremely common form. In the lateness of its mating season, and in its song, Fowler's toad is totally unlike the common toad (*B. Americanus*), although comparisons in the laboratory, of preserved specimens, do not at first sight show strikingly different specific characters. It would be very interesting to determine definitely the relation of this toad to *Bufo Americanus*, and the more southern form (*Bufo lentiginosus*).

H. A. Allard
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