



Surveys for Spring Breeding Toads

In the Verde Valley

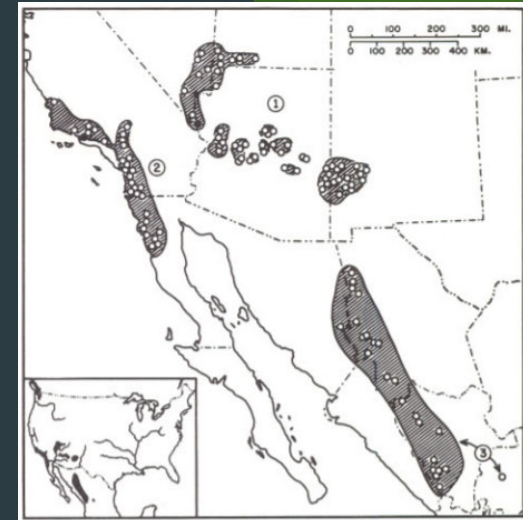
Why the Need?

- ▶ *Rare Toad: Anaxyrus* (formerly *Bufo*) *microscaphus microscaphus*
 - ▶ Common names: AZ toad, SW toad, Arizona southwest toad
- ▶ 2012 Petition to FWS to list 53 herp species (including the AZ toad)
- ▶ FWS initiated a status review in 2015
- ▶ FWS likely to list the species



Distribution of Arizona Toad

- ▶ Historic: AZ, CA, NM, NV, UT, and Mexico
- ▶ Current: AZ, NM, NV, and UT
- ▶ In the Verde Valley before 1960 occurred:
 - ▶ Verde River from Clarkdale to Camp Verde
 - ▶ Oak Creek (near Sedona),
 - ▶ mouth of Wet Beaver Creek



Map. Solid circles mark type-localities, open circles other records. The type-locality for *B. m. mexicanus* is too imprecise to plot.



Life History of Arizona Toad

- ▶ Looks most similar to Woodhouse toad and hybridizes with woodhouse
- ▶ Young have reddish warts as do young of other toad species
- ▶ Males have pale vocal sac when inflated
- ▶ Found in perennial flowing streams between sea level and 8,000 feet.
- ▶ Prefer shallow, permanent water or moderate flowing water over sandy or rocky substrate
- ▶ Breeding occurs Feb to April
- ▶ Breeding is not dependent on rainfall but they will stop calling if flows reach a certain level.



Life History, cont...

- ▶ Egg strings are laid at the bottom of pools or edges of streams.
 - ▶ Eggs hatch in 3-6 days
 - ▶ Tadpoles metamorphose in 1-3 months
- ▶ Like other toad species, they eat snails, crickets, ants, beetles, even their own young.
- ▶ Absent from more than half it's historical range due to:
 - ▶ Alternation of riparian habitats
 - ▶ Hybridization with woodhouse toads
 - ▶ An increase in non-native predators such as crayfish, bullfrogs and fish



Verde Valley Toads



Great Plains Toad
Red Spotted Toad



Southern (or Mexican)
Spadefoot Toad



Arizona Toad



Woodhouse Toad



Hybridization Index

A numerical score is assigned to four characteristics: ventral spotting, cranial crests, a dorsal stripe, absence of a pale bar across the eyelids.



Schwaner and Sullivan.—Hybridization between the Arizona Toad and Woodhouse's Toad



FIGURE 4. Dorsal views of *Bufo microscaphus* (right) and *B. woodhousii* (left) showing presence of dorsal stripe and cranial crests in *B. woodhousii*, and their absence and the presence of a pale head bar in *B. microscaphus*. Photographed by Brian K. Sullivan.

Ventral Spotting	Cranial Crest	Dorsal Stripe	Pale-colored bar across anterior of the eyelids
0-3 where 3 = presence of ventral spotting	0-3 where 3 = presence of cranial crest	0-3 where 3 = presence of dorsal stripe	0-3 where 3 = absence of bar



Scores near 12 (4 x 3) for *B. woodhousii* and 0 (4 x 0) for *B. microscaphus*.

Auditory Identification

- ▶ Arizona Toad - call is long musical trill rising in pitch at the start and ending abruptly. Trills can 5 to 20 seconds
- ▶ Red-spotted toad - prolonged and loud high pitched trill or scream, trill lasting 4-10 seconds
- ▶ Woodhouse Toad - call is a nasal “waaah!” resembling the call of a sheep
- ▶ Mexican Spadefoot - Metallic snore is reminiscent of running a fingernail along the teeth of a comb.
- ▶ Great Plains Toad - deafening chorus of long, high-pitched trills that individually can last up to 50 seconds

Presence/Absence Protocol

- ▶ Night Surveys:
 - ▶ Conduct weekly breeding call point surveys in March and April.
 - ▶ Perform 1-8 visits per site once pitch dark. A minimum of 3 visits necessary to determine site occupancy but more visits are preferred to better determine breeding season.
 - ▶ Their 5-20 second trill can be heard up to 933 meters (ave. of 536 meters).
- ▶ Daytime Surveys (for more remote locations):
 - ▶ Use Visual Encounter Survey to search for toads, egg strings, and tadpoles



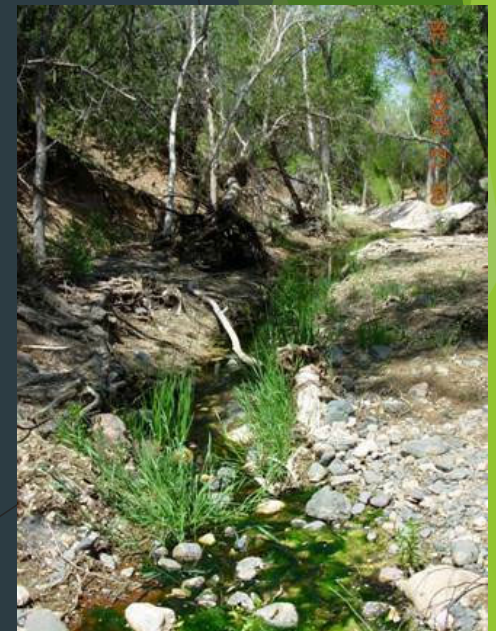
Presence/Absence Protocol, cont...

- ▶ Listen for calls for at least 3, preferably 5 minutes at each survey point.
- ▶ Qualify the amount of calling by:
 - ▶ 0 = no toads heard
 - ▶ 1 = non-overlapping calls heard
 - ▶ 2 = overlapping calls heard, but can distinguish individual calls
 - ▶ 3 = full chorus where individual calls can't be distinguished



Targeted Survey Areas

- ▶ Perennial flowing waters (rivers, streams and springs)
- ▶ High Priority Sites - far enough upstream of diversions, irrigation, and agricultural areas away from where woodhouse toads are expected and areas that are very accessible.
- ▶ Medium Priority Sites - outside of Woodhouse toad habitat with doable access at night that requires walking old roads, cross country, or along stream channels.
- ▶ Low Priority Sites - areas too close to Woodhouse toad habitat (streams with ponding, diversions, agriculture). Or very remote sites where it is recommended to put recorders out during a daytime visit but not to conduct nighttime surveys.



2018 Survey Effort

- ▶ Daytime and Nighttime Surveys conducted by:
 - ▶ 21 volunteers (~\$16,592)
 - ▶ 4 FS personnel
- ▶ 92 Sites were surveyed along:
 - ▶ 9 rivers
 - ▶ 8 streams
 - ▶ 16 springs
 - ▶ 1 lake
 - ▶ 8 sites on private



2018 Survey Results

- ▶ No Arizona toads were detected ☹️
- ▶ 8 sites had woodhouse toads (as early as 4/3)
- ▶ 3 sites had red-spotted toads (as early as 4/9)
- ▶ 1 site had canyon-tree frogs (4/9)
- ▶ The non-native Pacific treefrog was discovered along a three mile stretch of Oak Creek from Red Rock Crossing to Tlaquepaque.



Survey Plans for 2019

- Streams and springs away from agricultural areas that requires walking old roads, cross country, or along stream channels.
- Very remote sites where it is recommended to put recorders out during a daytime visit but not to conduct nighttime surveys.



Auditory Recording Units

- ▶ Deploy at priority locations.
- ▶ Start Units and leave for 4 weeks
- ▶ Change out SD cards once = 8 week deployment
- ▶ Volunteers to analyze acoustic data



For More information on Herps:

- ▶ <http://www.reptilesfaz.org/>
- ▶ Source of some photos in this educational presentation

