

Sonora Tiger Salamander

BY DARREN BOLEN • ILLUSTRATION BY ZACKERY ZDINAK

SCIENTIFIC NAME: *Ambystoma tigrinum stebbinsi*. From the Greek *Ambystoma* meaning, “to cram into the mouth” (a reference to feeding behavior) and the Latin *tigrinum* for the tiger-striped appearance of some individuals. The subspecific name *stebbinsi* honors noted herpetologist, Dr. Robert C. Stebbins. Species described by Lowe (1954).

DESCRIPTION: Length ranges from 45 to 165mm. Larvae (waterdogs) can be variably colored; immatures are often dark to sooty green. Metamorphosed salamanders have a color pattern ranging from an irregular network of a light colorization, often coupled with light spots, on a dark background, to a pattern of large, well-defined light or yellow spots or transverse bars, some of which encroach on the dark venter.

HABITAT: Presently lives only in earthen stock ponds (cattle tanks) in grassland and Mexican evergreen oak woodland habitats. Presumably occupied natural cienagas (marshes) that historically covered parts of the San Rafael Valley.

DISTRIBUTION: Found only in the San Rafael Valley in southern Santa Cruz and extreme southwestern Cochise counties. Not yet known from the San Rafael Valley in adjacent Sonora, Mexico, even though apparently suitable habitat exists within two miles of occupied Arizona localities.

BIOLOGY: Most Sonora tiger salamanders are neotenic; that is, they can reach sexual maturity and breed while still in larval (waterdog) form, complete with external gills. Totally aquatic, they reach sexual maturity during their first fall and winter. The larvae can either mature as gilled aquatic adults, called branchiate



adults, or metamorphose into terrestrial salamanders without gills. Only after they metamorphose (lose their gills and develop lungs) can salamanders leave the water.

Terrestrial adults spend the dry season sequestered in crevices, animal burrows, or rotted logs. They are surface active only at night during the rainy season. They return to ponds in the spring to breed; the jelly-coated eggs are deposited individually, or in clumps of about 50 on sticks, rocks, and aquatic vegetation.

Tiger salamanders eat a wide variety of mostly aquatic invertebrates, with proportionately more insects as they increase in size. Their diet also includes salamander eggs and an occasional tadpole. Cannibalism apparently does not regularly occur in the Sonora tiger salamander, although it is common in the barred tiger salamander, its nearest relative.

Except occasionally in very complex aquatic environments, tiger salamanders seldom coexist with fish, even small species, which eat salamander eggs or young waterdogs. Fish, snakes, herons, some raptors, raccoons, aquatic beetles, and many other predators prey on the Sonora tiger salamander.

STATUS: Known from less than 55 stock ponds nestled between the

Huachuca and Patagonia mountains. Federally listed as “Endangered” on January 6, 1997. Protected by a closure in Commission Order 41 on taking waterdogs in that portion of Santa Cruz County lying east and south of State Highway 82 and that portion of Cochise County lying west of the San Pedro River and south of State Highway 82. The taxonomic validity of this subspecies has occasionally been questioned, but studies indicate that Sonora tiger salamanders are more closely related to each other than to any other salamanders examined. Recent studies show possible evidence for genetic introgression by the barred tiger salamander.

MANAGEMENT NEEDS: The primary threats are potential genetic swamping by introduced bait-stock salamanders, disease outbreaks, limited distribution, and predation by introduced game fish and bullfrogs. Addressing these threats, along with monitoring and protecting existing populations, should allow a stable future for the Sonora tiger salamander in Arizona. ♣

Darren Bolen has been a wildlife biologist for the Arizona Game and Fish Department for five years and has been working on the department's tiger salamander project for the past two years.