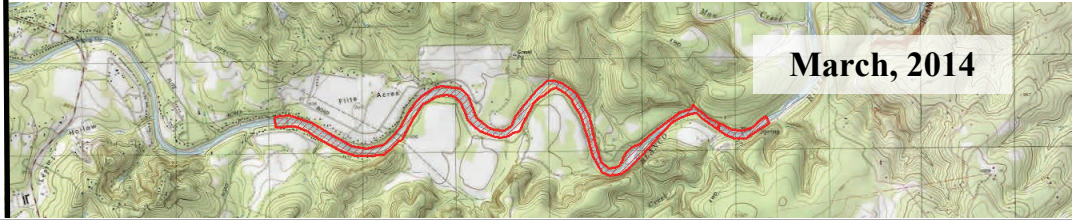
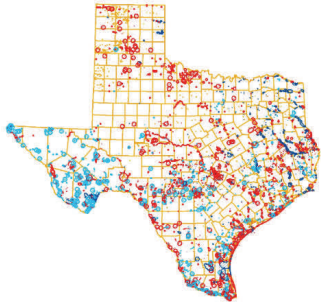




The TXNDD Report

March, 2014



Data Highlight: Massasauga Genetics

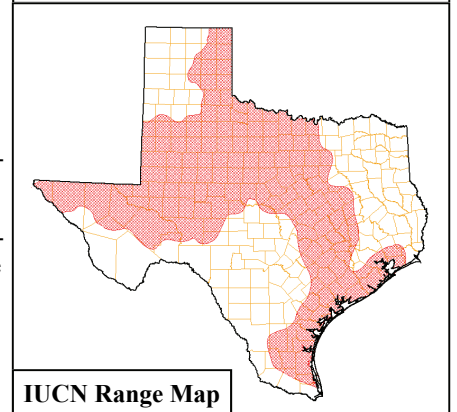
Each year, the Wildlife Diversity Program supports research that illuminates conservation challenges and provides data that is vital to the TXNDD. A good example of this is a recent study on the genetics and distribution of the desert massasauga (*Sistrurus catenatus edwardsii*) in Texas. This subspecies is considered a Species of Greatest Conservation Need because of concerns regarding potential impacts of habitat loss and fragmentation on relatively isolated populations. The conservation challenge for this subspecies is that there is another subspecies in Texas that is very similar and is not threatened, the western massasauga (*Sistrurus catenatus tergeminus*). If the two subspecies are difficult to tell apart, which populations do we target for conservation?

To answer this question, researchers sought the help of the naturalist community, which helped collect specimens and reported observations via the Herps of Texas iNaturalist project (www.inaturalist.org/projects/herps-of-texas). With this assistance, researchers were able to determine that the two subspecies of massasauga in Texas were genetically indistinguishable. As a result, the desert massasauga is less likely to be listed as threatened or endangered. However, researchers also identified a genetically isolated population of massasauga in South Texas, which could be a target for conservation. This study highlights the need for more research on this species, and demonstrates the powerful contribution to research that the naturalist community can make by collaborating with the Wildlife Diversity Program.

The Wildlife Diversity Program offers funding for external research on Species of Greatest Conservation Needs as funds are available through State Wildlife Grants and Horned Lizard License Plate grants. Over the past two years, they have funded work on Texas horned lizards, desert massasauga, crawfish frog, Texas tortoise, diamondback terrapin, black rail, big red sage, Tobusch fishhook cactus, Kisatchie painted crayfish, and endemic insects of the Monahans Dune System.



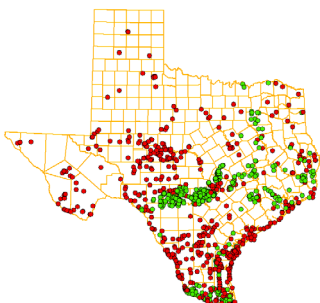
Massasauga Photo by Toby Hibbitts



IUCN Range Map

TXNDD Patterns: Reptiles and Amphibians

For amphibians and reptiles, the TXNDD has 1,060 Element Occurrences (EOs) in the database, **434 amphibian EOs** and **626 reptile EOs**. Of course, by the time you read this, additional records will have been added. These EOs represent 59 different species, including 25 species of amphibians and 34 species of reptiles. The concentration of reptile EOs along the coast are primarily marine turtles and the estuarine diamondback terrapin. The EOs along the Rio Grande are a reflection of the reptile diversity in South Texas. Meanwhile, the concentration of reptile EOs in West Central Texas is primarily due to one species, the spot-tailed earless lizard (134 EOs). Of the amphibians, over half of the species are karst salamanders in the genus *Eurycea*. Currently there are 14 karst salamander species represented in the database by a total of 268 EOs. However, like with the western massasauga (see article above), research indicates that some of these taxa may not be genetically defensible and the taxonomy of these species is currently under review. Any change in taxonomy will likely change the number of EOs in the database.



Amphibian and Reptile EOs

Element: Element of biodiversity, an element can be a species, a native plant community, or an animal aggregation such as a colonial waterbird rookery or a bat roost.

Element Occurrence (EO): an area of land or water where an element is or was present and has practical conservation value.

TXNDD's Most Wanted

The TXNDD tracks over 700 elements. An element is a species, animal aggregation (e.g. bat cave), or native plant community. Here are three high priority species of reptiles that we track with maps of counties with EO records.



Photo by Terry Hibbitts

Reticulate Collared Lizard (*Crotaphytus reticulatus*)

49 EOs in the TXNDD, mostly historical records.

Region: South Texas.

Habitat: Tamaulipan thorn scrub.

This is a diurnal species, can be found perched on rocks in the sun. This species is thought to be threatened by habitat destruction.

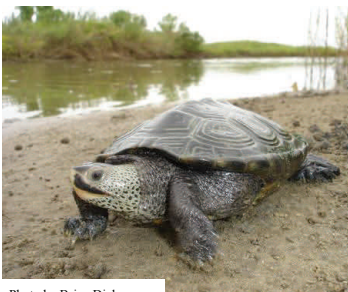
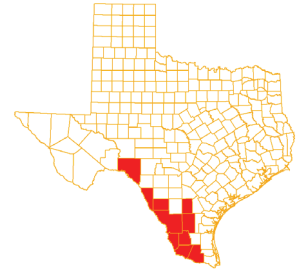


Photo by Brian Dickerson

Diamondback Terrapin (*Malaclemys terrapin ssp. littoralis*)

15 EOs in the TXNDD.

Region: Gulf Coast.

Habitat: Spartina marsh, brackish bays and estuaries.

Terrapins are threatened by the reduction of coastal habitats. In addition, crab traps will catch and drown terrapins, and abandoned traps can potentially kill terrapins for many years. In some areas, roads can be an important source of mortality during the nesting season.

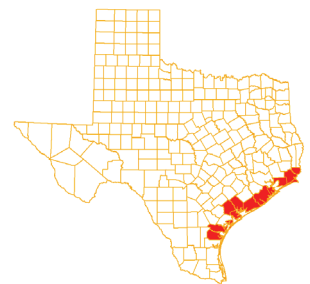


Photo by Greg Lasley

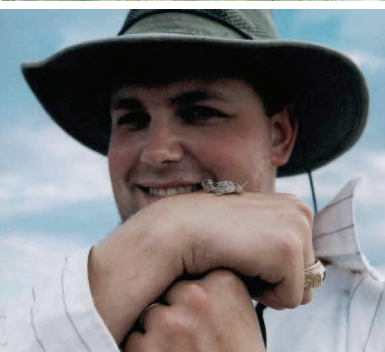
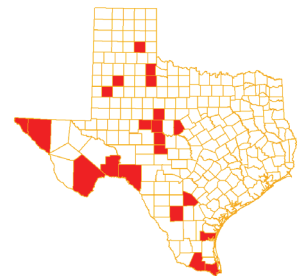
Texas Horned Lizard (*Phrynosoma cornutum*)

40 EOs in the TXNDD, 123 observations in the Herps of Texas Project.

Region: Throughout Texas.

Habitat: Open areas with sparse habitat.

Texas horned lizards have historically been found throughout Texas, but they have declined in significant portions of their range, especially in East Texas. Harvester ants make up a majority of their diet.



TXNDD Profile: Wade Ryberg

Wade Ryberg is a postdoctoral research associate at Texas A&M University. His research centers on the conservation and management of amphibian and reptile populations. He is currently involved in several projects related to the conservation and management of desert massasauga (page 1) and dunes sagebrush lizard populations in Texas and eastern collared lizard populations in Missouri. He has also conducted research on the conservation and management of American alligator populations in Texas and continues to play an active role in state public hunts. Research conducted by Wade and funded by our state Wildlife Grants is a good example of how we can tackle complex conservation challenges in an efficient way.

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