

## The Bolson Tortoise – a picture collage

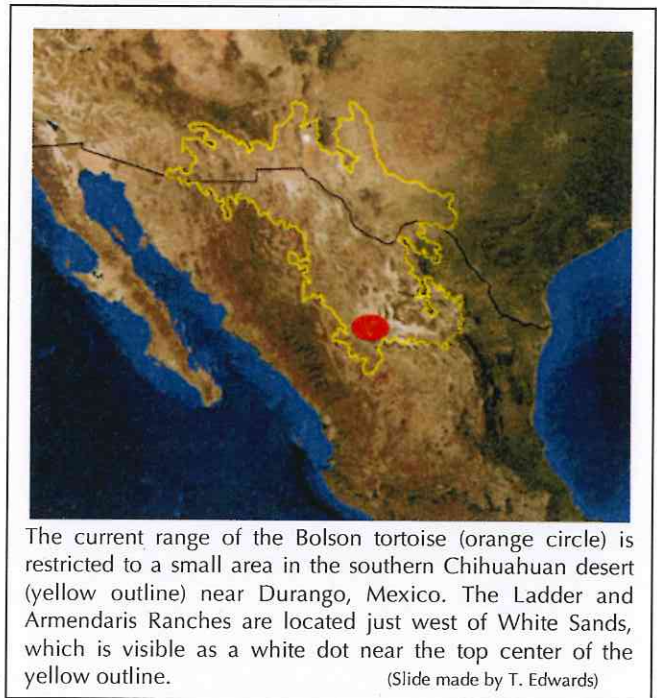
The largest of the five North American tortoise species, the Bolson tortoise (*Gopherus flavomarginatus*), is thought to have once roamed throughout most of the Chihuahuan desert (see map at right; yellow outline), but



its current range is restricted to a small -- and shrinking -- area in north central Mexico where the states of Durango, Chihuahua, and Coahuila meet. The last official Bolson tortoise population count was conducted by Dave

Morafka and Bruce Bury and colleagues in the early 1980s. Even then, the population was estimated to comprise a mere 8,000-10,000 animals, and Morafka and Bury predicted that the Bolson tortoise might be extinct by the turn of the century. Thankfully, their prediction did not come true, but habitat degradation and other pressures continue to threaten the Bolson tortoise populations that remain in the wild. Tortoise numbers today are likely to lie significantly below the 8,000 adults estimated by Morafka and Bury – a cause

for continued concern. To help protect and perhaps even save the Bolson tortoise from extinction, TESH is working towards establishing free-ranging Bolson tortoise populations on suitable sites in the species' (pre)-historic range, including the Ladder and Armendaris Ranches in New Mexico. TESH intends to catalyze - and then be a useful part - of a broad-based, bi-national recovery effort to save the Bolson tortoise from extinction.



The current range of the Bolson tortoise (orange circle) is restricted to a small area in the southern Chihuahuan desert (yellow outline) near Durango, Mexico. The Ladder and Armendaris Ranches are located just west of White Sands, which is visible as a white dot near the top center of the yellow outline.  
(Slide made by T. Edwards)



Bolson tortoises get their scientific name (*flavomarginatus* = yellow margined) from their yellow margins. Many individuals have yellow toenails as well. Known also as 'Tortuga Grande' and the 'Running Tortoise', their propensity to take off running to the nearest burrow distinguishes Bolsons from other tortoise species that are more likely to stay put and retreat into their shells. (Photos: Scott Hillard)



Adult female Bolson tortoises (like the one shown here) are ~15% larger than the adult males and can reach 390 mm (17 in) in length and >30 lbs.

### Current Bolson Tortoise research questions:

- What are the parameters of temperature-dependent sex determination?
- Do Bolson tortoises use multiple paternity as a strategy to increase genetic diversity?
- What are the best conservation strategies for the Bolson tortoise?
- What is the size, geographic range, and structure of the wild population?
- Can the Bolson tortoise be successfully reintroduced to the Northern portion of its prehistoric range?



Similar to the other North American tortoise species, Bolson tortoises weigh ~25-40 g (1-1.5 oz) at hatching but unlike other species, top out near 12-15 kg (26-33 lbs) as adults. They take at least 15 years to reach sexual maturity. The female tortoise shown in this picture has been producing eggs since ~1975. Female Bolsons lay 2-9 eggs per clutch and 1-3 clutches per year.



A Bolson tortoise hatchling emerges from its egg. (Photo: S. Hillard)



Bolson tortoise hatchlings are a lot like kittens: they keep going until they get tired and then sometimes fall asleep in mid-stride.



On rare occasions, two hatchlings emerge from one egg (twins). These two hatchlings shared a single yolk. They were surgically separated from the yolk (and thus from each other) to prevent injury to one or both hatchlings. Their scute patterns (which are unique and distinguishable like fingerprints) suggest that these two may be identical twins.



Globe Mallow – yummm!! -- but other plants turn out to be less tasty. Hatchlings will sample pretty much anything within their reach with a hearty bite or two. Food preference and nutritional requirements for Bolson Tortoise babies are an area of active research.