

The Desert Tortoise

Nichia Huxtable



Nichia Huxtable

Editor's Note:

This paper is the Second Place winner of the papers presented at the Society of Range Management Annual Meeting High School Youth Forum in Washington D.C. in January 1991. The author is from Tucson, Arizona.

Unless you have thoroughly explored the Southwest, or have been to a desert zoo, you have probably never seen a desert tortoise. Not the giant creatures that live on the Galapagos Islands, but the small, compact reptiles that cruise the Sonoran and Mohave deserts.

The desert tortoise is a dry land turtle and cannot swim. Its desert environment limits water availability, so this omnivore obtains most of its moisture from native grasses and plants. The desert tortoise does not require much moisture intake because its thick and scaly skin greatly reduces moisture loss. It is a cold-blooded animal, and uses the sun to regulate its body temperature. However, if it is out in the hot summer sun for too long, it will cook inside its shell.

The desert tortoise has few natural predators. If they are found, the thick camouflaged shell often proves to be more trouble than it's worth. The average tortoise life-span can exceed one hundred years. They don't reach sexual maturity until about 10 to 15 years of age. This makes sexing tortoises very difficult, since immature tortoises of both sexes appear identical. The undershell of a mature male is concave towards the posterior end. This concavity enables it to fit onto the upper shell of the female during mating. By contrast, the lower shell of a mature female is perfectly flat.

Two sub-species of desert tortoises exist in North America. The first, the Mohave population, includes all tortoises north and west of the Colorado River. The Sonoran population includes all tortoises to the south and east of the river. Because the Colorado River has proven to be an effective barrier between the two populations for thousands of years, some distinctive physical characteristics exist in each. For example, Mohave tortoises are generally square shaped with a highly domed upper shell, whereas Sonoran tortoises are more pear shaped with a flatter upper shell (Dickinson). However, the shapes of individual shells are so varied that it is very hard to determine the species without a geographic location. Mohave tortoises live in vast, flat deserts and use the dry washes and riverbeds as "tortoise highways". Sonoran tortoises live on the steep slopes of foothill regions. Perhaps the most important difference between the Mohave and Sonoran populations is the fact that the Mohave tortoise is

presently listed as threatened under the Endangered Species Act of 1973 while the Sonoran tortoise is not.

The Mohave desert tortoise has taken a long, hard road to gain the status that it now claims. It first received attention in 1980 when the northeastern corner of the population, sometimes called the Beaver Dam Slope sub-population, was listed as threatened in Utah. However, this population also encompasses tortoises in parts of Arizona and Nevada that were not listed (USDI, 1990, p 12179). On September 14, 1984 the U.S. Fish and Wildlife Service received a petition from The Environmental Defense Fund, The Natural Resources Defense Council, and The Defenders of Wildlife to list the desert tortoise also in Arizona, California, and Nevada as endangered under the Act, but its listing was delayed due to other listing actions of "higher priority" (USDI, 1990, p 12179).

To help protect the tortoises, the Arizona Game and Fish Commission (AGFC) made it illegal to take tortoises from the wild after January 1, 1988, but all tortoises legally held prior to 1988 could continue to be possessed, transported, and propagated. Captive-bred tortoises, in excess of the stated limit of one desert tortoise per person, may be kept up to two years after hatching, but then must be disposed of either by gift or as specifically directed by the AGFD. They cannot be sold, exported from the state, or released back into the wild (Arizona Interagency Desert Tortoise [AIDTT], 1990, p 17).

The next step towards their preservation was taken on August 4, 1989, when the Mohave population was determined to be an endangered species under an "emergency rule" and was officially listed as a threatened species under the Endangered Species Act on April 2, 1990. The Service's regional office in Albuquerque was expected to make a recommendation in January, 1991, on the listing of the Sonoran tortoise as either threatened or endangered.

Although many factors influence tortoise populations, the main reason in the listing was an upper respiratory disease that has reached epidemic proportion in the Mohave population (Dickinson). Upper Respiratory Disease Syndrome (URDS), a new and recently identified disease, has apparently spread throughout much of the Mohave desert tortoise population. Unobserved in the wild until 1987, this respiratory disease has been known for some time in captive tortoises. The epidemic is believed to have started from the reintroduction of diseased captive tortoises into the wild population, since the disease found in wild tortoises is clinically similar to that

described in captive tortoises. Only chronically ill tortoises have been observed to date, so the early symptoms of the disease are not yet known. The significant feature of URDS is rhinitis, or inflammation of the nasal cavities. Animals also show nasal discharge, which can completely close the nasal passages. Tortoises may rub their noses with their forelimbs, or their passages may be completely blocked, hiding a wet nose from detection. More advanced stages of the condition leads to dull skin and sunken eyes, due to dehydration. This disease only seems to affect the upper respiratory system, such as the nasal passages, with little or no effect on the lower tract, including lungs (USDI 1990, p 12187). No cure has been found for the disease, although antibiotics have shown to be a successful treatment. If the disease does go into remission, a relapse may occur if the animal is under stress. Tortoises with the active disease have been found to live up to one year, but that has only been in captivity. This disease can spread from tortoise to tortoise, or from person to tortoise. The respiratory disease has only been a significant problem in the Mohave population, where tortoises are in regular contact with each other due to their dense populations and flatland habitat. Hardly any evidence of URDS has been found in the Sonoran population, since the sparsely population Sonoran tortoises live on steeper slopes and mostly isolated from one another, preventing the quick spread of disease (Schwalbe).

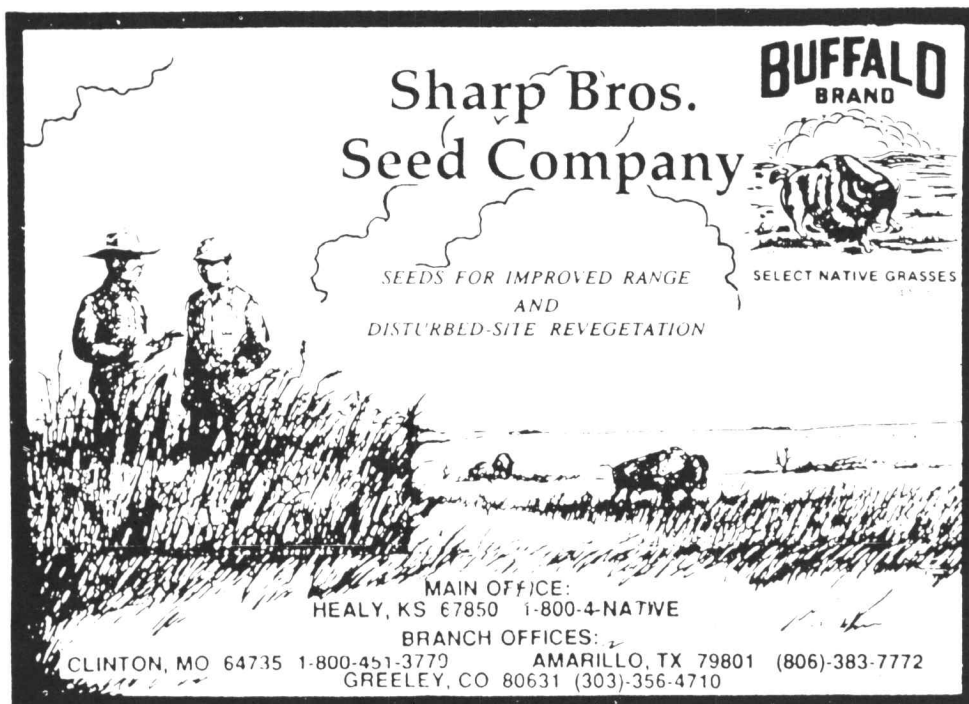
Another factor that may influence desert tortoise populations is cattle grazing. Cattle grazing occurs on most of the Mohave Desert within the range of the desert tortoise. The biggest concern with cattle grazing is dietary overlap.

The highest degree of overlap between tortoises and cattle occurs in April, right in the middle of the tortoise's active period (AIDTT, 1990, p 11). The desert tortoise must consume its forage requirements during the period of six weeks to five months out of the year (March to June, and September). If the vegetation produced is scarce or of poor quality, the tortoise does not have another chance to meet its nutritional requirements until the next year. Cattle are blamed for eating or destroying most of the available vegetation, but there is no actual proof of this. In fact, the only actual evidence of cattle encroachment on tortoise habitat is an occasional hoofprint or cow patty (Dickinson).

The desert tortoise remains such a fascinating creature perhaps because there is so little known about it. Only two years of intense Mohave tortoise research has been conducted, and only a half year on the Sonoran tortoise. Now what is needed most is research, and it will take many years to compound conclusive evidence regarding the factors affecting desert tortoise populations, such as URDS and cattle grazing. However, if we start protecting them now, we can get a head start on the future.

Literature Cited

- Arizona Interagency Desert Tortoise Team.** Draft Arizona Desert Tortoise Management Plan. April 1990.
- Dickinson, Vanessa.** Tortoise Biologist, Arizona Game and Fish Department, Personal interview on desert tortoise populations. Phoenix, Arizona, Dec. 7, 1990.
- Smith, Dewayne.** "Study aims to put tortoise in 'realm of facts'. The Phoenix Gazette, October 4, 1990: D:4.
- US Department of the Interior, Federal Register.** April 2, 1990. Vol. 55, No. 63, Part 17.



**Sharp Bros.
Seed Company**

SEEDS FOR IMPROVED RANGE
AND
DISTURBED-SITE REVEGETATION

**BUFFALO
BRAND**
SELECT NATIVE GRASSES

MAIN OFFICE:
HEALY, KS 67850 1-800-4-NATIVE

BRANCH OFFICES:

CLINTON, MO 64735 1-800-451-3779 AMARILLO, TX 79801 (806)-383-7772
GREELEY, CO 80631 (303)-356-4710