

Arizona Game and Fish Department's

Sponsor – a – Tortoise Project

Project Background

Desert tortoises occur in two major populations in the United States and Mexico, the Mojave Desert and the Sonoran Desert populations. The Mojave population occurs north and west of the Colorado River and in 1990 was listed by the U.S. Fish and Wildlife Service as threatened. The Arizona Game and Fish Department considers the tortoise a species of special concern throughout Arizona, including the Sonoran population south and east of the Colorado River.

Desert Tortoise Ecology

An important difference between the two populations is the absence of tortoises in valleys in the Sonoran Desert. Sonoran tortoises generally live on steep desert-mountain slopes in rocky burrows, while their counterparts in the Mojave Desert live primarily in valley floors and low mountain bajadas.

Studies in the Mojave Desert suggest that local populations need 20,000 to 60,000 tortoises to ensure survival of future generations. Local populations in the Sonoran Desert occur in isolated mountain ranges, most probably containing fewer than 20,000 tortoises. Their habitat has been fragmented and isolated by roads, canals, and agricultural and urban development, possibly severing corridors of dispersal. Currently, we do not know how many tortoises each local population in the Sonoran Desert needs to survive.

Information Needs

The Desert Tortoise Project is working to determine how the relatively small tortoise populations in Arizona persist, and to predict the likelihood of their persistence into the future, by asking the following questions: At what rate do desert tortoises reproduce? How does reproduction vary by year and by individual? What factors affect reproductive rate? Also, the study of tortoise movements and home range may help identify other factors limiting local population sizes, such as specific habitat features necessary for shelter (e.g. boulder cover sites).

Desert tortoises can live to at least 30 years of age (some may live to 100), so information collected over many years is important to determine how reproductive rate, movements and home range, and survival vary during tortoises' long life spans. Obtaining this information will help ensure that tortoises in the Sonoran Desert do not become endangered in the future.

Project Methods

The Desert Tortoise Project relies primarily on the use of radio telemetry to study tortoises in the wild. We attach small radio transmitters, each with a unique frequency, to individual tortoises. By tuning a receiver to a particular tortoise's frequency, project biologists can locate the same individual repeatedly over time. By tracking a number of individuals in this manner, we can

determine activity patterns, rates of movement, home range size, and patterns of burrow use. Radio telemetry does not harm the tortoises and has allowed us to find individual tortoises in concealed or cryptic shelters (e.g. boulder piles, rock crevices filled with packrat nest debris).

Radio telemetry also allows us to monitor reproduction. During the reproductive season, project biologists locate female tortoises and transport them to a base camp where each tortoise is radiographed with a portable X-ray machine. Eggs appear on the developed radiographs as ping pong ball-shaped circles (see illustration). This technique allows us to determine how many tortoises lay eggs each year and how many eggs they lay.

Sponsor-a-Tortoise

The *Sponsor-a-Tortoise* program provides an opportunity for interested individuals or organizations to support conservation and research efforts for desert tortoises. You can sponsor a tortoise by making a tax-deductible donation to the Desert Tortoise Project. The following suggested levels of contribution provide support for varying types of research supplies (examples in parentheses), but most contributions will be applied toward radio transmitters.

- \$25 Egg (misc. field supplies)
- \$50 Hatchling (X-ray film & supplies)
- \$100 Juvenile (refurbish 1 transmitter)
- \$200 Adult (1 new transmitter)

All sponsors will receive a color photograph of “their” tortoise, contributors of \$50 or more will receive a project summary at the end of the year, and contributors of \$100 or more will also receive a more specific account of their sponsored tortoise for that year.

If you would like to sponsor a desert tortoise, please complete the form on the back panel (or a copy) and mail it with a check, made payable to “Nongame Donations Fund,” to:

The Desert Tortoise Project
Arizona Game and Fish Department
Nongame Branch
2221 West Greenway Road
Phoenix, AZ 85023-4399

Yes, I would like to sponsor a tortoise at the level checked below.

Egg (\$25)

Hatchling (\$50)

Juvenile (\$100)

Adult (\$200)

Other _____

Please make checks payable to Nongame Donations Fund.

Name _____

Address _____

City _____

State _____ Zip _____