Photo courtesy of William I. Boarman, Ph.D.

Tortoise Times

Newsletter of
the Desert Tortoise Outreach Project
of the Desert Managers Group

August, 2008

Fort Irwin Expansion and Desert Tortoise Translocation

Backgound

In December 2000 Congress approved and the President signed legislation authorizing the expansion of the National Training Center at Fort Irwin, California. The United States Fish and Wildlife Service (USFWS) has been coordinating with the Department of Defense (DOD) and research groups on the disposition of desert tortoises that had been living in the Fort Irwin National Training Center expansion area. In order to minimize the impacts of military training activities to desert tortoises occupying the expansion area, USFWS determined through the Endangered Species Act's (ESA) section 7 consultation process that these tortoises should be translocated.

The translocation is being conducted as a scientifically-based research and monitoring program, guided by a peer-reviewed translocation plan developed by the U.S. Geological Survey (USGS). Suitable habitat was identified through extensive modeling and field visits. Beginning on March 26, 2008, 556 desert tortoises were translocated from Fort Irwin's southern expansion area to various sites in the Superior-Cronese critical habitat unit to the south. Only tortoises determined to be healthy based on detailed evaluation were translocated.

Translocation Monitoring and Research

It is critically important in an effort of this magnitude that we learn as much as possible about the effects and effectiveness of the translocation. Therefore, approximately 400 translocated and 350 resident and "control" tortoises are part of an intensive monitoring program and several research projects.

One USGS study is investigating physiological stress as a measure of the potential effects of translocation. Some theories suggest that translocations of wild animals into new habitats and populations may cause chronic stress that could have cascading impacts on immune function and other physiological factors. Alternatively, some mammal relocation research suggests that acute stress could boost the likelihood of early survival. However, this topic has been studied very little, especially in reptiles.

Another USGS study is monitoring the health of translocated tortoises over time, as well as investigating potential differences in survival and changes in health status between groups of translocated tortoises that a) have shell disease (a non-contagious condition), b) show visible trauma to the shell (e.g., chew marks from a dog or coyote), or c) appear completely healthy overall.

The ultimate measure of success is recruitment of translocation animals into the host population, so QNA and Smithsonian Institution researchers are measuring this using DNA.

QinetiQ North America (QNA) and its collaborators are studying various aspects of the translocation process itself, such as the affects of the distance tortoises were released from their original locations (e.g., do tortoises that are moved shorter distances do better/worse than tortoises moved longer distances) or whether providing an artificial burrow upon release provides a benefit to translocated tortoises. Another question seeks to determine whether tortoises released into 5-hectare pens

DMG Partners

US Department of Defense
Naval Air Weapons Station, China Lake
Edwards Air Force Base
National Training Center, Fort Irwin
Marine Corps Air Ground Combat Center
(Twentynine Palms)
Marine Corps Logistics Base (Barstow)
Marine Corps Air Station (Yuma)
US Department of the Interior
Bureau of Indian Affairs (Pacific Region Office)
Bureau of Land Management
Barstow Field Office
Desert District Office, Riverside
El Centro Field Office
Needles Field Office
Palm Springs Field Office
Ridgecrest Field Office
Fish and Wildlife Service
Carlsbad Office
Ventura Office
Desert Tortoise Recovery Office, Reno
National Park Service
Death Valley National Park
Joshua Tree National Park
Lake Mead National Recreation Area
Mojave National Preserve
Geological Survey
National Mapping Division (Menlo Park)
Water Division (San Diego)
Western Ecological Research Center
(Sacramento)
State of California
Department of Fish and Game
Department of Transportation
State Parks, Colorado Desert Sector
State Parks, Mojave Desert Sector
California State Counties
Kern County
Imperial County
San Bernardino County
US Department of Agriculture
US Forest Service

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fare better or establish home ranges in the area upon removal of the pen, compared to tortoises released without such penning.

The ultimate measure of success is recruitment of translocated animals into the host population, so QNA and Smithsonian Institution researchers are measuring this using DNA profiling to characterize the genotype of all translocated animals and as many resident animals and hatchlings as possible to determine the familial relationships of the hatchlings. An immediate measure of success or failure can be determined by monitoring reproductive activity. Translocated tortoises are being monitored to determine when they begin reproducing and the number of eggs produced. The habitats of source and destination areas (i.e., those areas in which the translocated tortoises establish normal home ranges) will also be evaluated to determine if animals end up settling in areas more similar to their original homes and if there are characteristics of areas that are more attractive to tortoises in general.

Nature's Monkey Wrench in the Project - Coyote Predation

Prior to the translocation, coyotes were preying on tortoises throughout the species' range, including both the expansion area and the release area (49 out of a total of approximately 1000 tortoises being monitored). The coyotes' normal prey base of rabbits and other small rodents has been reduced, likely in association with the recent and widespread drought, causing them to turn to less desirable prey items such as the desert tortoise. After the translocation this spring, coyotes began affecting a localized group of resident/control and translocated research animals at unusually high levels. Research animals west of the Manix Trail, both translocated and resident, were being killed at a greater rate than the surrounding area, putting the research at risk and thereby jeopardizing our ability to learn from this project. When this happened, the Department of the Army at Fort Irwin, Department of Agriculture Wildlife Services, Bureau of Land Management, California Department of Fish and Game, and USFWS together evaluated the situation and agreed to conduct focused predator control in this portion of the translocation area. Since predation of desert tortoises was near zero elsewhere in the translocation area, the agency partners agreed that coyote control efforts would be limited to the affected area rather than undertaking widespread predator control across the entire translocation area.

June 9, 2008 Update

Monitoring efforts and research activities for all projects are ongoing. As of July 7, 2008 thirty-nine (39) out of over 400 adult translocated tortoises (with transmitters) had been attacked or killed from all causes (most by coyote predation), an overall rate of approximately 9.5%. In comparison, 34 out of almost 400 adult, resident, telemetered tortoises had been

attacked/killed (not including those prior to the actual translocation), an overall rate of approximately 9.6%. Most predation is still occurring west of the Manix Trail, and coordination with Wildlife Services continues to try to address the problem. From these preliminary numbers, it is apparent that while mortality is somewhat elevated overall, at least relative to non-drought conditions, there has been no statistically detectable affect of the translocation itself on predation rates. It is clear that tortoises that have not been moved are just as likely to be preyed upon as tortoises that were moved.

Approximately 100 tortoises currently remain in the southern expansion area. There are plans to translocate these tortoises in the fall into areas that will not confound the research currently being conducted, as well as outside the areas currently affected by concentrated coyote predation. Surveys of the western expansion area have also begun. Final designation of release sites for the western expansion translocation, anticipated to occur in 2009-2010, remains to be determined. However, any translocations from the western expansion area will not occur in areas used for the southern translocation to avoid confounding the existing research and to minimize potential complications with over-saturating the habitat with tortoises.

California Desert Nature Festival

Last April at the California Desert Nature Festival, Mojave Max the costumed character made his debut. Max had a host of volunteer "handlers" to give away raven and tortoise brochures, information about desert tortoises and the Mojave Max Emergence Contest.

The California Turtle and Tortoise Club, High Desert and Low Desert Chapters, and the Desert Tortoise Preservation Committee, set-up an information table and assisted with children's activities. The activities included: button making, coloring pages, word games, and story telling. Two workshops were also provided. Thanks to all the volunteers!

Coordinator's Corner

On June 30, 2008 Mojave Max passed away. Max died of natural causes in his burrow at Red Rock Canyon Conservation Area, Nevada. Max was approximately sixty-five years old.

Mojave Max was more than a tortoise. He was an icon that helped lead the desert tortoise awareness campaign for nine years in Clark County, Nevada and three years in Southern California. Clark county staff will find a successor for the Nevada program. The Desert Managers Group (DMG) also hopes to find a suitable tortoise to represent Max for a separate California emergence contest.

The DMG desert tortoise workgroup decided it was desirable to have a local version to allow California students better access. Before the last work group meeting, we asked Mike Chedester if his organization, The Living Desert, would be interested in hosting California's Mojave Max. The response was a definite maybe.

At the last workgroup meeting, different locations and partners were considered for hosting Mojave Max in California. Some locations were too remote or did not have environmental education programs. The Living Desert is located in Palm Desert in the Coachella Valley along the Interstate 10 corridor, which would provide a greater possibility to reach a large target population. Currently their environmental education program serves 60,000 students. Workgroup members felt the location was right. In addition, The Living Desert has a wonderful facility with existing tortoise pens and a full service animal hospital. The Living Desert also has a much lower elevation than Red Rock; with the Palm Desert location we can anticipate California's Mojave Max will have an earlier emergence than the Nevada Mojave Max. In 2008 Max emerged on April 14 at 11:27 a.m., the latest he has ever emerged. The California version of the emergence contest includes eight counties: Inyo, Kern, Orange Imperial, San Diego, Los Angeles, Riverside, and San Bernardino. From a logistic prospective, organizing eight school events at the end of the year can be difficult. Keeping it local may be a win-win for everyone.

Discussions have begun with The Living Desert's management team to explore a partnership agreement.

Anne Staley
Desert Tortoise Outreach Project Coordinator

You Tube Video

Mojave Max - Dancing Tortoise

Mojave Max , performed by Allie Jimenez, is pictured here with video producer Anne Staley (left), dancing partner Anna Sammel (right), and singer, songwriter John Malcolm Penn.

http://www.youtube.com/watch?v=vhVKtuCKc0M

Tortoise Trunks

The Tortoise Trunks will soon be ready for classroom use. They will meet California curriculum standards for grades 3 through 6. These two trunks consist of lessons, games, activities and information for each grade level. They will allow children to have a better understanding and awareness of the desert tortoise, its habitat, and plight as a threatened species.

Development on the Tortoise Trunks started in 2005. They were developed by the environmental education staff at Joshua Tree National Park (JTNP) with assistance from many teachers, interpreters and students. The trunks have gone through an extensive review process. Teacher workshops have been held. Development for the tortoise trunks came from a grant provided by the National Fish and Wildlife Foundation.

For more information please contact:
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