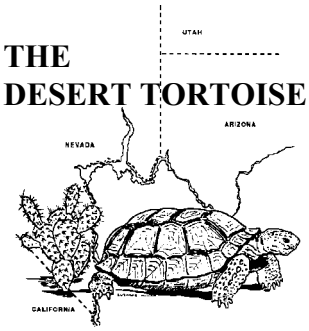
DESERT TORTOISE COUNCIL NEWSLETTER



LATE FALL 2000

OUR 25TH YEAR

Our Goal: To assure the continued survival of viable populations of the desert tortoise throughout its range.

SILVER ANNIVERSARY SYMPOSIUM REPORT

Although it can be difficult to be objective about one's own endeavors, it seems that the 25th Annual Desert Tortoise Council Symposium was a success.

Held at the Orleans Hotel in Las Vegas, the affair provided opportunities for old friends to renew acquaintances, professionals to network, and all of us a chance to reinvigorate our efforts to continue the important work of conserving tortoises and their habitat. Despite an Easter weekend date, the Symposium was well attended.

A strong program, deftly organized by Desert Tortoise Council charter member Dr. Kristin Berry, continued a long tradition of providing the latest information from the field's foremost scientist, managers, and activists.

I was particularly moved by Frank Wheat, who recently passed away. Frank captured the spirit of those of us who love the desert, and made the connection between that love, science, and political action in a way that only he could.

A wide variety of vendors were on hand displaying everything from high tech electronics to jewelry. Our partners from the Desert Tortoise Preserve Committee and Reno Tur-Toise Club added to the scene.

Artist Hamil Ma was a big hit, drawing tortoises and their friends in his unique style.

The Saturday night banquet was well attended. Our banquet speaker, Joan Berish, was outstanding.

This year the Council made an effort to recognize many who have toiled long and hard in the effort to understand and conserve tortoises. Awards were presented to nearly twenty individuals or groups in two categories: outstanding contributions to our understanding of desert tortoises, and outstanding contributions in the conservation of desert tortoises.

There were three field trips on Monday, providing symposium attendees with the opportunity to visit study sites around Las Vegas. All three went well.

The Desert Tortoise Council wishes to thank all of those who helped with the Silver Anniversary Symposium. In addition to the long time supporters of the Council, there were several new faces that really pulled us through.

The proceeds of the 25th Annual Symposium are planned to be published. Presenters are strongly encouraged to review the Submission Guidelines in this edition and get their papers in, in a timely manner.

We have begun the process of preparing for the 2001 Symposium, tentatively scheduled for next Spring in Tucson. We hope to see you there!

Thanks again to all those who helped prepare for the Symposium.

X

ADDRESSES

Please help us keep our mailing list and membership database current. If you move, if your name or address do not appear correct on the label, or if you fail to receive your newsletter please contact us at: Desert Tortoise Council, P.O. Box 3141, Wrightwood, California 92397, or email us at info@deserttortoise.org

FROM THE AUGUST 15, SAN BERNARDINO SUN.
DESERT TORTOISE POPULATION DYING: SHELL DISEASE DEVASTATING EAST MOJAVE REPTILES

CHUCK MUELLER
BARSTOW The threatened desert tortoise is dying out in the eastern Mojave desert, apparently falling victim to a shell disease, biologists say. No one knows what's causing the disease that's attacking the tortoises near communities such as Goffs in the Fenner Valley to the Ward and Chemehuevi valleys southwest of Needles. But pollutants in plants that aren't native to the area might be the villain, said Kristin Berry, a biologist with the U.S. Geological Survey in Riverside.

"It's essential that we take action immediately to address this catastrophic decline in our state reptile," Berry said. The plants the tortoises feed on may pick up toxicants from the soil or air and concentrate them, she said. When consumed, the plants may affect the reptiles' shells through a metabolic process.

"But we need more samplings to prove this," Berry said.
Unlike the west Mojave tortoise population, which has been devastated by an upper respiratory disease, off-road vehicle incursions, and attacks by predatory ravens, the east Mojave tortoises seem to be falling prey mainly to the shell disease.

CALL FOR VOLUNTEERS

The Desert Tortoise Council is an all-volunteer, not-for-profit organization that depends on the efforts of many people. Members are encouraged to participate in Council activities, including events such as the Annual Symposium and Techniques Workshop.

There are variety of responsibilities that we need help with, and we try to match volunteer assistance with the needs and desires of the individual.

If you are interested in doing more please contact any member of the Board of the Directors or email info@deserttortoise.org

We are also interested in your thoughts and ideas. Please pass along information/content for the newsletter.

If you wish to submit an article for the newsletter, contact Tim Duck at 435 628-7231 or electronically at tncduck@sginet.com.

In a north to south arc from Fenner Valley near Goffs to the Ward and Chemehuevi valleys, once-flourishing tortoise populations have dropped dramatically. "There's been a decline of 84 percent at Chemehuevi Valley, and Fenner and Ward Valleys are experiencing the same level of die-off," Berry said. "A once-pristine habitat near Goffs has become a tortoise graveyard littered with their carcasses."

For years, biologists have worried about the tortoises in the western Mojave Desert, home of the Army's National Training Center at Fort Irwin. The population of tortoises, listed as an endangered species in 1989 and then upgraded to threatened status in 1990, has been steadily declining.

A recent move by the Army to enlarge its National Training Center by 153,000 acres has sparked additional concern.
"The Army's draft bill, the West Mojave Desert Military Lands Withdrawal Act of 2000, ignores the findings of this spring's Fort Irwin tortoise panel," said Michael Connor, executive director of the Desert Tortoise Preserve Committee.

Members of a scientific panel agreed that loss of the acreage, considered critical habitat, would jeopardize survival of the tortoise.

Earlier research by Berry and others at tortoise study plots established by the U.S. Bureau of Land Management showed a

drop in tortoises by 90 percent in the west Mojave, from 1979 to 1992.

"The counts continue to drift downward there," she said. "That's typical of the area from Edwards Air Force Base (northeast) to Fremont Peak."

But recent research reveals that the eastern Mojave, considered a safer haven from human-induced threats to the tortoise, has experienced what Berry calls a catastrophic decline in the creatures over a seven-year period, from 1992 to 1999.

Tortoises studied at the Fenner Valley were considered "a stable population" between the late 1970s and 1994, the biologist said. Between 1980 and 1994, counts showed from 220 to 296 tortoises at the study site. This year, only 30 were found.

Researchers found shell and skeletal remains of 393 tortoises at the site, mainly representing deaths since 1994, Berry said. Findings at Chemehuevi Valley showed a 75 percent decline in adult tortoises from 1988 to 1999 and a similar drop in females from 1982 to 1988.

"Many of the dead tortoises and remaining live tortoises had or have significant, severe shell lesions," Berry said.
The research team salvaged shell and skeletal remains of 327 tortoises at Chemehuevi Valley, most dying since 1992. Berry said 113 were of breeding age.

At Ward Valley, tortoise counts dropped by 41 percent between 1991 and 1995. Adult females declined by 50 percent. Many of the dead and live reptiles had shell lesions, the biologist said.

Berry said no evidence of upper respiratory disease has been found in tortoises studied in the eastern Mojave region.

But Connor said the disease is slowing making its way across the desert.

"Once it has gone through, surviving adults start to recover but are still susceptible to it," he said. "That's why it's vital to reduce human-caused stress. "The tortoise is approaching extinction in many areas. It once was very common in many places but now it's rare. That's indicative of major ecological problems in the desert."

The only way to stop epidemics is by reducing stress on the tortoise, Connor said. "We must reduce or remove off-highway vehicle activities and livestock grazing and control mining," he said. "It's crucial that tortoises have the chance to live a long time. There must be normal replacement of adults by the young."

About 2 percent of adult tortoises die annually under normal conditions, and only 2 percent of the young reach adulthood. "If we are to save the species, we must save the adults," Connor said.

Meanwhile, three regional plans to help the tortoise regain a foothold in the desert are moving slowly. The major focus is to create desert wildlife management areas to protect the tortoises from human encroachment.

Earlier this year, a panel of scientists and environmentalists said the Army's plan to expand Fort Irwin must be tied to a trade-off of four huge pieces of land in the western Mojave to ensure survival of the desert tortoise.

The scientists called for establishing a 1.4-million-acre tortoise reserve within four proposed Desert Wildlife Management Areas to offset the 153,000 acres, including prime tortoise habitat, that the Army wants along the southern and eastern border of the sprawling fort.

Mining, livestock grazing, recreation and virtually all development would be banned in the reserve, and all roads would be closed.

The fort north of Barstow trains about 70,000 soldiers annually, providing the most realistic simulated combat training in the Army, said Brig. Gen. James Thurman, commander of the 640,000-acre military post. "It's vital to have more space to train for modern warfare," he said.

Berry is among several panelists who question the feasibility of relocating tortoises from Fort Irwin to other areas if the military post is enlarged. She estimates that from 2,000 to 10,000 tortoises could be lost if the fort expands south. "(That loss) plus habitat itself is extremely serious and difficult to offset, even with stringent and well-planned mitigations," she said.

Connor agreed. "If Fort Irwin expands, the tortoise will be in significant jeopardy," he said. "About 15 to 20 percent of the tortoise population in the west Mojave would be lost. We are typically reacting too late to easily reverse the decline."

The slow-moving tortoise has survived for millions of years, outliving the dinosaur. "The blue-ribbon panel of scientists says it's better characterized as endangered, not merely threatened," said Tom Egan, a Bureau of Land Management wildlife biologist in Barstow.

"We must do something about this catastrophic decline among desert tortoises, and I fully support upgrading it to endangered status," Berry said.

SANDPIPER TECHNOLOGIES EQUIPMENT GRANTS

Sandpiper Technologies, Inc. is accepting grant applications through December 31, 2000. The company offers three types of grants to wildlife biology graduate students:

1) Equipment Grants: Students receive the STI rental equipment free of charge.

2) Equipment Discount Grants: Equipment is sold to graduate students or universities at a discount.

3) Cash Grants: Formerly operating as Christensen Designs, Sandpiper Technologies develops wildlife research equipment and specializes in burrow probes, underwater and elevated video systems and time-lapse surveillance devices. For additional information contact:

Sandpiper Technologies, Inc.
535 W. Yosemite Ave.
Manteca, CA 95337
Phone: (209) 239-7460
Email: Ann@peeperpeople.com.

Information about how to apply for the grant is available from the STI website: http://Peeperpeople.com.

The current Board of Directors of the Desert Tortoise Council

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ARIZONA GAME AND FISH DEPARTMENT SEEKS SHELL DISEASE PROPOSALS

The Arizona Game and Fish Department is currently accepting Heritage grant proposals. Projects addressing the causes and population effects of cutaneous dyskeratosis in Sonoran Desert tortoises are being solicited in this grant application cycle.

Applications must be received prior to 5:00 p.m., on the last business day of November. Grant application manuals and preferred projects lists are available at any Game and Fish regional office. To receive a manual and preferred list by mail, send a request to Arizona Game and Fish Department, Director's Office, Funds/Planning Section, 2221 W. Greenway Road, Phoenix, AZ 85023 or call (602) 789-3530.

Arizona Game and Fish Department Heritage funding, derived annually from Arizona Lottery monies, supports external projects through the Department's Heritage Fund Program. The Game and Fish Department annually distributes over one-half million dollars to schools and agencies for wildlife projects.

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2221 W Greenway Road Phoenix, AZ 85023
602-789-3505
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The Desert Tortoise Project / Arizona Game and Fish Department

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.

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.

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.

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.

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 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 and mail it, with a check, made payable to "Nongame Donations Fund," to the address on the previous page:

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_____

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AUTHOR GUIDELINES FOR THE PROCEEDINGS OF THE DESERT TORTOISE COUNCIL SYMPOSIUM

Submit one copy of the manuscript (laser printer quality if possible) to: Ann McLuckie, 2242 E. 50 South, St. George, UT 84790. The copy of the manuscript should be complete, including tables, figures, etc. Also include one copy of the manuscript on computer disk and E-mail to: nrdwr.amclucki@state.ut.us The disk copy should contain text and tables if possible. WordPerfect 6.1 and Microsoft Word 6.0 or older are accepted software programs.

STYLE AND FORMATTING: Title Page: Should include the title, author(s), author(s) address, including e-mail address if available. Abstract: An abstract is required for all major papers. It should represent a concise statement of the objectives and results of the paper. Statistical results are not needed.

Main Body: Manuscripts should consist of the following six sections: Introduction (no heading), Materials and Methods, Results, Discussion, Acknowledgments, Literature Cited, Tables (each on a separate page),Figure Legends (grouped together), Figures, Appendix. Submissions formatted as Shorter Communications should follow the same sequence but should not use section headings (except for Acknowledgments and Literature Cited).

In-text References: Cite references in the text in chronological order, using a semicolon to separate citations. Use "et al. For three or more authors (e.g., Smith 1975, Jones and Jones 1987, Brown et al 1990). Papers accepted for publication should be cited as Smith (in press). Unpublished manuscripts (including manuscripts submitted for publication) should be cited as Smith (unpubl. Data), and should not be placed in the Literature Cited. Be very careful that all references cited in the text (including tables and figure legends) are included in the Literature Cited.

Literature Cited Format: The Literature Cited is one of the largest sources of errors. Please be sure that all entries in the Literature Cited are all also in the text (and vice versa), and that the format instructions below are adhered to carefully:

Article in a Journal:
Smith A.T. 1992. Ecology of rattlesnakes in Florida.J. Herp. 26: 100-105.

Book:
Smith, A.T. and J. Jones. 1995. Physiology of Amphibians and Reptiles. McGraw-Hill Inc., New York (page numbers not needed). Note that book titles are capitalized.

Chapter in a Book:
Smith, A.T. 1994. Systematics of frogs and toads. In J. Black and M. Lee (eds.), Systematics of Amphibians and Reptiles, pp. 52-65. Univ of Kansas Press, Lawrence.

Dissertation or Thesis Smith, A.T. 1991. Behavioral ecology of turtles. Unpubl. Ph.D. Diss (or Thesis), Univ. of Kansas, Lawrence. (Identify state if not obvious from the university name). Multiple citations for the same author should be organized as follows: single citations first, two-author citations second (in alphabetical order), three or more authors third (in chronological order).

Smith, A.T., and B. Black. 1991. Systematics and morphology of snakes. J. Herp. 25:100-105.
Smith, A.T., and J. Jones. 1989. Diamondback terrapins in Louisiana. J. Herp. 23:234-236.
Smith, A.T., W. White, and J. Jones. 1989. Mating behavior in Gila Monsters. J. Herp. 23:230-234.
Smith, A.T., A. Black, and J. Jones. 1995. Temperature relationships in garter snakes. J. Herp. 29:30-34.

Tables: Tables should be double-spaced and each table should be numbered consecutively and placed on its own page. Do not use vertical lines. The legend of the table should be concise but sufficiently detailed so the table can be understood without reference to the text. Avoid footnotes whenever possible.

Figures: Figures should be original drawings, laser prints, or high contrast photos. Black and white figures are recommended. Colored figures will be accepted on a case-by-case basis. Do not submit figures printed on dot matrix or inkjet printers. Be sure that lettering will stand reduction to the final size (try reducing the figure on a copy machine prior to submission). The figure headings should be placed on a single page and numbered in the order in which they are cited in the text.
Abbreviations: The following common abbreviations should be used: sec min h d wk mo yr km ml L (for liter) g N x P SD SE CV df. Please note that all measurements should be in metric units.

Desert Tortoise Council
315 Calle Violeta
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Make check or money order payable to the Desert Tortoise Council and send with this application to: Desert Tortoise Council, P.O. Box 3141, Wrightwood, California 92397