

THE DESERT TORTOISE COUNCIL NEWSLETTER

Winter 2003
OUR 29TH YEAR

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

2004 LAS VEGAS SYMPOSIUM NEWS

The 29th Annual Desert Tortoise Council Symposium will return to Sam's Town in Las Vegas for the second year in a row, from February 20 to 23, 2004.

Presentations will cover many aspects of tortoise ecology and management. Presentations made on Power Point must be on a virus-scanned compact disc and must be Power Point 2000 compatible. All Power Point presentations will be on computers we provide. No personal laptops and no zip disks! Slide presentations (35 mm) are still acceptable, but overhead projections are not. These rules will help the presentations flow smoothly and keep the sessions on time. Papers from presenters are due June 30, 2004.

The Program promises to be very diverse and with many new speakers. We will have sessions on many of the usual subjects, but also some new ones. Seven students from universities in five states will be giving presentations on their new projects. Richard and Shelley Franz from the Florida Museum of Natural History will give a featured presentation on "*Gopher Tortoise*

Evolution; West versus East: Rethinking Some Old Paradigms." They have been traveling throughout the United States to examine specimens at well-known collections, as well as small private collections. They are very excited about the field work they have been doing and the collection of new fossils at several field sites.

Dr. Robert C. Stebbins, renowned Emeritus Professor at the University of California, Berkeley, hopes to join us for a book signing in his honor. Signed copies of his new and updated *A Field Guide to Western Reptiles and Amphibians*, published in March of 2003, will be available for sale, and you can have him write something special in your book. Some of you may recall that Dr. Stebbins joined us at the symposium in Victorville several years ago, donated one of his splendid paintings of tortoises, and led a night field trip to the Mojave River. Please plan to bring all your Stebbins' books for autographs. We also will have the new 13-author book, *Road Ecology, Science, and Solutions* that was published in 2003 by Island Press. Both books will be available at a reduced rate to attendees.

www.deserttortoise.org

Dr. Bill Boarman is chairing a session on effects of roads on wildlife and habitat. Guest speakers for this session include Dr. Charles Peterson from Idaho State University, who will speak on effects of roads on reptiles, drawing from his research in the Great Basin and the Greater Yellowstone ecosystem. Another guest speaker on roads will be Dr. Scott Jackson from the University of Massachusetts, who has conducted research on passageways for salamanders in the Northeast. Jonathan Gelbard, from the University of California at Davis will speak about influences of roads on invasive plants in Utah. He has a recently published paper in Conservation Biology.

Bob Williams, Field Supervisor of the U.S. Fish and Wildlife Service's Reno Office and Chair of the Desert Tortoise Management Oversight Group, will summarize recent management actions. He and Dr. Richard Tracy will also speak about the Desert Tortoise Recovery Plan Assessment Committee Report. They will be part of a panel of government managers who will report on accomplishments and recovery actions. We expect this session to generate a lot of audience participation.

Several scientists and students will present papers on promising new techniques. Curtis Bjurlin and colleagues will discuss the scenting abilities of detector dogs for desert tortoise surveys. Jayson Barangan et al. will discuss a proposed study on perch guards for transmission lines to reduce predation on hatchling tortoises. Andrew Wald, who is part of a large team including L. Bol, David Delaney, and Dr. Larry Pater, will discuss the use of automated radio telemetry to monitor wildlife activity.

Dr. Mike Seltzer from the Naval Air Warfare Center and Dr. Kristin Berry will report on the use of laser ablation techniques for examining elemental distribution in scute tissues of tortoise shells. Dr. Dan Brown will present a paper on development of a field portable assay for detection of exposure of tortoises to *Mycoplasma agassizii*.

A wide variety of other subjects will be covered, including raven predation, tortoise shell colors (Drs. Berry and Alley), drought (Dr. Alice Karl), tortoise social behavior (Mark Massar; Dr. Berry, Kemp Anderson, Rachel Woodard), and modeling. Dr. Francesco Origgi will again come from Italy and discuss new research on tortoise immune systems. Dr. Jill Heaton, Rich Inman, and students will discuss various aspects of desert tortoise decision support.

The Symposium begins Friday, February 20 with the Annual Meeting first thing in the morning. Sessions will begin Friday morning and continue until Sunday afternoon. A number of abstracts for both poster and oral presentations have already been submitted. Field trips will occur on Monday. Current plans include a mixer and poster session Friday evening, continental breakfast Saturday morning, and the mixer and banquet Saturday evening. The photo contest (see below) and student paper awards will also occur.

A block of rooms at Sam's Town is set aside for February 19 to 23. Rates are \$45 Sunday through Thursday, \$80 Friday and Saturday. When making reservations (800-634-6371), use the following code: DESB04A. That is a zero. Rooms should be reserved before January 19, 2004 as the remaining unused rooms will be released into hotel inventory. Refer to the Sam's Town web page for additional information:

<http://www.samstownlv.com/main.cfm>

REGISTRATION INSIDE THIS ISSUE

You must register to attend. Preregistration as a member is the best value. The deadline for early registration is **January 15, 2004**. Note that the deadline for papers was December 1, because the Symposium is earlier than usual.

PHOTO CONTEST

The Council sponsors the annual Photo Contest to honor and encourage our members to participate in educating the public through photography. Tracy Bailey is managing the 2004 Photo Contest.

FORMAT. For 2004 the format is mounted print and digital photographs either in black and white or in color (no slides). All prints must be mounted with the following information placed on the back of the PRINT: common and scientific names of subject; location; date PRINT was taken; contestant's name, address, and phone number; and entry category. No names on the front, please, but titles and date are OK. This year, the Council encourages contest entrants to also submit electronic copies (in jpg format) of their entries so that they can be posted on the website before the Symposium.

AWARDS. Qualified winners will be awarded first, second, and third place ribbons in each of the eight categories. First Place awards will be \$50; second and third place winners will receive ribbons. The Best of Show will receive \$100.

CATEGORIES

1. WILD DESERT TORTOISES
2. CAPTIVE (PET) DESERT TORTOISES
3. OTHER DESERT REPTILES
4. DESERT MAMMALS
5. OTHER DESERT WILDLIFE
6. WILD DESERT PLANTS
7. DESERT SCENICS
8. TORTOISE CONSERVATION. This category covers a range of subjects, but must depict activities or subject matter important to the perpetuation of the species. Examples are research, impacts (i.e., raven predation),

improvements (i.e., fencing), and environmental education.

OTHER RULES. With the exception of Captive (Pet) Tortoises, all PRINTS must be taken of WILD (i.e., unrestrained and photographed in its natural habitat) subjects occurring **within the geographic range of the desert tortoise.** Each contestant may submit a maximum of two PRINTS per category. Photos must have been taken by the contestant.

SUBMISSION OF PRINTS. PRINTS must be available for viewing no later than 3:00 p.m. on Friday afternoon, February 20. You may either bring your prints and provide them to Tracy Bailey at the Symposium early on Friday or mail them to her at: 619 Pinon Court, Ridgecrest, CA 93555. PRINTS must arrive at this address by Wednesday, February 18, 2003. Photographers do not need to be present to win. To ensure that your entries are posted on the website before the Symposium, submit electronic copies (in jpg format) to the [DTC webmaster](#).

JUDGING. Prints will be judged at the Symposium by the attendees. Attendees will pick up ballots at the registration table and vote Friday and Saturday until 3:00 p.m. Winners will be announced at the Banquet on Saturday night.

PRINTS will not be returned, except upon advance request, and will become the property of the Desert Tortoise Council. The Council will have the right to use these photographs in its publications and educational programs, as well as to assign such permission to others, with full credit given to the photographer.

REGISTRATION FORM

Desert Tortoise Council Annual Meeting and Symposium February 20-23, 2004

Return to
Desert Tortoise Council, c/o Bob Turner
68 Isleworth Drive
Henderson, NV 89052

Please complete a SEPARATE form for each attendee.
Please print or type

Name: _____ Organization: _____
(First, Last) (Name to be used on ID badge)

Address: _____ City: _____ State: _____ Zip: _____

E-mail: _____ Daytime Phone: _____ Fax: _____

SYMPOSIUM FEES

		ENTER AMOUNT
Member Registration	\$85.00 (\$105.00 if postmarked after 1/15/2004)	_____
Student Member Registration	\$40.00 (verification required) (\$60.00 if postmarked after 1/15/2004)	_____
Non-member Registration	\$100.00 (\$120.00 if postmarked after 1/15/2004)	_____
Regular Membership Dues	\$15.00 (see dues schedule in newsletter)	_____
Banquet	\$30.00 Buffet	_____
Raffle Ticket(s) _____	@ \$1.00 each	_____

TOTAL ENCLOSED _____

Make check payable to **Desert Tortoise Council**.
Only checks or fully executed purchase orders are accepted.

Monday Field Trip
I would like to attend one of several Monday, February 23, 2004, field trips.
Yes: _____ No: _____

TECHNIQUES WORKSHOP

12th ANNUAL SURVEYING, MONITORING, AND HANDLING TECHNIQUES WORKSHOP A SUCCESS!

More than 100 students recently attended the DTC's workshop in Ridgecrest, CA, bringing the total 12-year enrollment to more than 900 participants.

The DTC would like to extend its sincere thanks to the donors who supported the workshop. Seven companies contributed monetarily toward this highly acclaimed event. The donors listed alphabetically include:

- AMEC Earth & Environmental
- CH2M Hill
- LSA Associates, Inc.
- Lilburn & Associates
- Romero Enterprises, Inc.
- Southwest Desert Environmental
- Tom Dodson & Associates, Inc.

We are further grateful to the Indian Wells Valley Water District, who has for the last 10 years provided the outdoor facilities for training attendees in the field survey and tortoise egg handling techniques.

The Council would like to thank the following speakers and instructors who donated their time and effort: Dr. Kristin Berry (UGSG-BRD), Ray Bransfield (USFWS), Paul Frank, Gilbert Goodlett (EnviroPlus Consulting), Becky Jones (CDFG), Dr. Alice Karl (Alice Karl & Associates), Chereka Keaton, Bob Parker (BLM), Daren Reidle (AGFD), Ray Romero (CH2M Hill), Sharon Romero, Liz Smith, Rachel Woodard, and Peter Woodman (Kiva Biological Consulting).

The Council would also like to thank the following volunteers who helped with the registration, audio/visual equipment, lights, and set-up of the outdoor plots. They include: Mike Bailey, Andrea Demmon, Paul Frank, Leticia Gallardo, Erich Green, Margie Harker, Brooks Hart, Kelly Herbinson, Tina Poole, Bryan Reiley, Ellen Schaufhauser, Lindsey Spenceley, and Rachel Woodard.

Finally, we would like to extend special Thanks to Gilbert Goodlett and Ellen Schaufhauser for again allowing us to use their audio/visual equipment; to Patty Glasco for providing her pet tortoises for the handling demonstration; and to Ed LaRue for his fantastic job being the master of ceremonies for the workshop and keeping it on schedule!

The DTC coordinates these workshops because we believe that well-trained, knowledgeable biologists and monitors for projects play essential roles in the conservation of tortoises and their habitats.

The next workshop is scheduled for November 6 and 7, 2004 in Ridgecrest, CA. If you'd like to be placed on the list, please e-mail: Bailey0714@earthlink.net.

FUTURE ANNUAL SYMPOSIA

The location for the 2005 and 2006 will be Tucson, though the venues have not been chosen. Suggestions or bids for future symposia locations and venues will be gratefully accepted. The 2005 meeting will be the 30th!

2005: Tucson

2006: Tucson

2007: Proposals/suggestions being accepted.

GALÁPAGOS 2004: July 19 - August 1

Come join Maggie Fusari for an 11-day cruise in the Galápagos Islands. As DTC members you enjoy a reduced trip cost of \$3550 plus airfare AND DTC gets a \$200 donation for each member who goes. You need to meet the giant tortoises (including Lonesome George) and the marine and land iguanas. You will see wonderful seabirds, feeding and nesting and flying all around you. You will get up close and personal with the Darwin's finches. You will visit northern, southern, and western islands. Last year we saw a pod of Orca feeding on a whale! We usually see many dolphins and the snorkeling is excellent.

Maggie is a long time DTC member and has been going to Galápagos for almost 10 years. She knows the animals and plants, the history of evolutionary study on Galápagos, and the current status of the islands well.

The goal is to fill the trip by early January. So log on to the website (<http://www.galapagostravel.com>), see the pictures and maps, read the details of payments, refunds, insurance, etc., and then call and make your reservation. E-mail Maggie if you have questions: fusari@ucsc.edu.

SIGN UP NOW!!

2002/2003 SYMPOSIUM PROCEEDINGS

The Editorial Committee of the Desert Tortoise Council is working on the Proceedings for the 2002 and 2003 Symposia. We plan on having the proceedings ready for the 2004 symposium.

ALL FLORIDA HERPETOLOGY CONFERENCE

Each year on a weekend in spring, hundreds of people converge at the Sheraton Hotel in Gainesville to participate in the 'All Florida Herpetology Conference,' the longest running regional herp conference in the country. The gathering brings together amateur and professional herpetologists for talks, workshops, sharing of information, and exhibits of books, art, paraphernalia, and information. Audiovisual presentations cover every aspect of herpetology, including biodiversity, natural history, conservation of wild amphibian and reptile populations, and proper husbandry of captive specimens. The camaraderie continues into the evening with a barbecue and many informal gatherings.

Call for Graduate Student Papers:

The Herpetology Conference; including the 27th Annual All Florida Herpetological Event, Friday and Saturday, April 9 to 10, 2004.

Held at the Paramount Resort (formerly the Sheraton), Gainesville, Florida. Student presentations will be 15 minutes long, with an additional five minutes for questions. We expect that students will present their own thesis or dissertation research carrying the endorsement of a faculty advisor. Please send abstract (200 words or less) with the following requested information via e-mail in MS Word format, or saved on a disk/CD and mailed to: Dr. Max A. Nickerson, Graduate Student Papers, University of Florida, P.O. Box 117800, Gainesville, FL 32611.

Deadline for submittal is February 6, 2004. More information about the conference can also be obtained by emailing: maxn@flmnh.ufl.edu or at the website: <http://www.flmnh.ufl.edu/herpetology/herpscconference/afhc.htm>

**NATIONAL WILDLIFE
FEDERATION'S
SPECIES RECOVERY FUND**

The National Wildlife Federation Species Recovery Fund seeks to encourage habitat restoration, species reestablishment, private land conservation activities, and other creative endeavors that directly improve conditions for species listed under the U.S. Endangered Species Act. During the past four years, the Federation has awarded over forty grants to support innovative species conservation efforts.

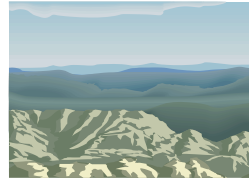
The Species Recovery Fund invites applications from any organization, agency, tribe, university, or individual working to improve on-the-ground conditions for imperiled species.

Preference will be given to local grassroots organizations and grant awards will range from \$3000 to \$7000. Key criteria are the degree to which the project will improve on-the-ground conditions of listed species and the degree to which the project will involve people that have not previously been involved with species and habitat conservation.

Deadline and other key dates: The deadline for submission of grant applications is February 16, 2004. Notification of the awards will be provided in April 2004, and grants must be spent, and final reports submitted, one year after the grants are awarded.

For more information about the Species Recovery Fund, including complete guidelines, please visit us online at:

<http://www.nwf.org/keepthewildalive/speciesrecoveryfund.cfm>; or contact Colleen Fahey at: (202) 797-6621, fahey@nwf.org; or Ron Ohrel at: (202) 797-6639, ohrel@nwf.org.



**CONSERVATION
NEWS**

**COURT REJECTS ADMINISTRATION
STANCE ON MINING**

The Administration's interpretation of federal law on hardrock mining was rejected 18 November, 2003 by the U.S. District Court of the District of Columbia. Contradicting the Administration's position on proposed hardrock mines, those designed to extract gold, silver, copper, and other precious minerals, Judge Henry H. Kennedy affirmed that the government has the power to protect the environment and U.S. taxpayers by denying proposed mines that will cause "undue degradation" on public land.

The case challenged regulations issued in 2001 by the Administration's Interior Department. Even while accepting much of the 2001 regulations, the judge clearly rejected the administration's position on several key policies. "We lost the procedural battle, but we may have won the greater legal war," said Steve D'Esposito of Mineral Policy Center, "This ruling sends a strong message that mines that threaten community health and clean water can be rejected. And we think they should be."

The watershed ruling definitively invalidates decades-old presumptions surrounding the primacy of mining on public lands. "The court agreed with the citizens' groups that the Interior Department has the obligation to protect public land from the most destructive mining practices," said Roger Flynn, a lawyer with the Western Mining Action Project. Flynn represents the plaintiffs in the case, nonprofit organizations Mineral Policy Center, Great

Basin Mine Watch, and Guardians of the Rural Environment.

“This decision shows clearly that the Interior Department not only has the authority to, but *must* deny mines that will unduly damage public lands,” said Tom Myers of Great Basin Mine Watch in Reno, Nevada. 2.8 billion pounds of waste were produced by hardrock mines in 2001, including 366 million pounds of arsenic, 355 million pounds of lead, and four million pounds of mercury, according to the most recent numbers released last month by EPA. Also according to EPA, “mining in the western United States has contaminated stream reaches in the headwaters of more than 40 percent of the watersheds in the West.”

The court also said the Interior Department has been incorrectly applying the law with regard to certain public land used by mining companies where no valid mining claims exist. Specifically, the court held that U.S. taxpayers must receive fair market value for mining activities on lands without valid mining claims. Mining without valid claims is a widespread practice among mining companies in the western U.S.

In his conclusion, Judge Kennedy said, “It is clear that mining operations have highly significant, and sometimes devastating, environmental consequences.” The court also found that “the 2001 regulations prioritize the interests of miners over the public interest of persons such as plaintiffs, who seek to conserve and protect the public lands,” adding that “such prioritization may well constitute unwise and unsustainable policy.”

The ruling should affect a number of controversial mine proposals across the West, including **Glamis Gold Company’s proposed Imperial project in California** and Sterling Mining company’s proposed Rock Creek mine in Montana’s Cabinet Mountain Wilderness Area.

Contact: Tom Myers, Great Basin Mine Watch, Reno, (775) 348-1986; Lexi Shultz, Mineral Policy Center, Washington, D.C., (202) 887-1872 x212, Roger Flynn, Western Mining Action Project, Boulder, (303) 473-9618.

* * * * *

Fact sheet FROM BLM: PROPOSED GRAZING RULE

The proposed grazing rule of the Bureau of Land Management, published in the Federal Register on December 8, 2003, proposes to revise existing federal grazing regulations under three categories.

Improving Working Relationships with Grazing Permittees and Lessees. In this category, the proposed rule is supposed to:

- ensure that BLM managers consider and document the social, cultural, and economic consequences of decisions affecting grazing, consistent with the requirements of the National Environmental Policy Act of 1969;
- allow the BLM and a grazing permittee to share title of certain permanent range projects (e.g. fence, well, or pipeline) if they are constructed under a Cooperative Range Improvement Agreement;
- phase in grazing decreases (and increases) of more than 10 percent over a five-year period whenever possible, consistent with existing law and in full recognition of the BLM's authority to respond as necessary to drought, fire, and other resource conditions; and
- expand the definition of "grazing preference" to include an amount of forage on public lands attached to a rancher's private "base" property, which can be land or water. This expanded definition, similar to one that existed from 1978 to 1995, when the "rangeland reform" rules took effect, makes clear that grazing preference has a quantitative meaning (forage amounts, measured in animal unit months) as

well as a qualitative one (precedence of position in the "line" for grazing privileges).

Assessing and Protecting Rangelands. In this category, the proposed rule is supposed to:

- require assessments and monitoring of resource conditions to support BLM evaluations of whether an allotment is meeting rangeland health standards. Currently, these evaluations may be supported by documented observational assessments rather than by the more in-depth information collection procedures used in monitoring;
- extend to 24 months, from the current 12 months, the deadline for initiating an appropriate course of action to make remedial changes in grazing practices that significantly contribute to an allotment's failure to meet rangeland health standards; and
- remove the current three-consecutive-year limit on temporary non-use of a grazing permit by allowing livestock operators to apply for non-use for up to one year at a time for conservation or business purposes.

Addressing Legal Issues and Enhancing Administrative Efficiency. Under this category, the proposed rule is supposed to:

- eliminate, in compliance with federal court rulings, existing regulatory provisions that allow the BLM to issue long-term "conservation use" permits;
- make clear how the BLM will authorize grazing if a Bureau decision affecting a grazing permit is "stayed" (postponed) pending administrative appeal;
- clarify that if a livestock operator is convicted of violating a federal, state, or other law, and if the violation occurs while he is engaged in grazing-related activities, the BLM may take action against his grazing permit or lease only if the violation occurred on the BLM-managed allotment where the operator is

authorized to graze;

- improve efficiency in the BLM's management of public lands grazing by **reducing** (*emphasis added*) the occasions in which the BLM is mandated to involve the interested public. With this provision, the BLM could involve the public in such matters as day-to-day grazing administration, but would no longer be required to do so. The BLM would continue to involve the public in all major Bureau planning decisions, such as grazing allotment plans and land-use plans;
- provide flexibility to the federal government in decisions relating to livestock water rights by removing the current requirement that the BLM seek sole ownership of these rights where allowed by state law;
- clarify that a biological assessment of the BLM, prepared in compliance with the Endangered Species Act, is not a decision of the Bureau and therefore is not subject to protests and appeals; and
- increase certain service fees to reflect more accurately the cost of grazing administration.

The proposed rule would make no changes in rangeland health standards and guidelines that were developed by the BLM's Resource Advisory Councils under the "Rangeland Reform '94" rules of August 1995. The proposal would not establish forage reserves known as "reserve common allotments," a concept that the BLM had been considering earlier this year, nor would the proposed rule allow grazing operators to temporarily lock gates on public lands.

In addition, the proposed rule would not affect the existing Resource Advisory Council system, from which the BLM receives recommendations and advice from 24 citizen-based Councils across the West. Also, the proposal would make no changes in the way the federal grazing fee is calculated.

Those interested in submitting comments about the proposed rule will have more than 60 days to do so; the deadline will be the same as that of the related draft environmental impact statement, which the BLM is supposed to publish later in December. Those submitting comments may do so by regular mail, personal or messenger delivery, or by electronic mail. For regular mail, the address is: Director (630), Bureau of Land Management, Eastern States Office, 7450 Boston Boulevard, Springfield, Virginia 22153, Attention: RIN 1004-AD42. For personal or messenger delivery, comments should go to the Bureau of Land Management, 1620 L Street, N.W., Suite 401, Washington, D.C. 20036. For electronic mail, the direct Internet response address is: www.blm.gov/nhp/news/regulatory/index.htm or www.blm.gov/grazing. Alternatively, comments may be e-mailed to WOCComment@blm.gov.

THE CURRENT BOARD OF DIRECTORS OF THE DESERT TORTOISE COUNCIL

Senior Co-Chair	Becky Jones
Junior Co-Chair	Bob Turner
Co-chairperson-elect	Doug Duncan
Treasurer	Mike Coffeen
Recording & Corresponding Secretary	Ed LaRue
Board Member	Tracy Bailey
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Board Member	Tom Egan
Board Member	Marc Graff
Board Member	Kristen Murphy
Board Member	Glenn Stewart
Board Member	Pete Woodman
Newsletter Editor	Doug Duncan
Products Manager	Pete Woodman
Webmaster	Michael Connor

BOARD MEETING

The next meeting of the executive board will be 10 January, 2004. The meeting will be in Las Vegas. Anyone interested in attending should contact a board member.

ANNUAL MEMBERSHIP REPORT

The membership list contains 486 entries: 301 regular members, 5 student members, 6 organizational members, 54 life members, 102 short-term memberships for workshop attendees, and 18 complimentary. For the newsletter, 256 are mailed out as a paper copy, 220 are e-mailed, and 10 members receive an e-mail notice that the newsletter is available on our web page. A large number of memberships expire in the next few months. Please send in your renewal and keep the Tortoise Council strong!

ART WANTED!

If you have any artistic talent and want to get that talent noticed, have we got the outlets for you! Small drawings for the newsletter and larger drawings for the symposium proceedings help make them more visually appealing. We both benefit. Your art work is displayed and DTC products look far better. Contact a board member if interested.

GET WELL DR. MORAFKA!

Dr. David Morafka, who many of you know, has been in ill health recently. If you would like to send him a card, address it to: 20 Clayton St., San Francisco, CA 94117-1110.

THE DESERT TORTOISE

Threatened Status

The desert tortoise (*Gopherus agassizii*) in the Mojave Desert, was listed as a threatened species on 2 April, 1990 by the US Fish and Wildlife Service. Populations have declined recently in many areas due to two main reasons attributable to humans: the direct loss of individuals and habitat degradation and fragmentation. Individual tortoises are lost to poaching, collection for pets, military activities, vehicular impact, livestock trampling, disease, and raven encroachment. Habitat degradation and fragmentation occur mainly through urban sprawl and livestock grazing practices. In addition to a historical encroachment by ravens associated with the presence of garbage dumps, desert tortoises also face the threat of a deadly upper respiratory disease, especially in the western Mojave.

Habitat Characteristics

Desert tortoises in the Mojave Desert are found on flats, alluvial fans, bajadas, and rocky terrain. Historically, flat terrain has lent itself to human survey on foot, skewing population estimates toward this gentler terrain. Evidence exists that desert tortoises also frequent rocky slopes, perhaps for protection from the desert heat. Soil friability, or its tendency to break apart, is another indicator of tortoise habitat. Desert tortoises need soils they are capable of digging into for burrows.

Plant species also play a major role in both defining desert tortoise habitat and their diet. Creosote bush, burrobush, Mojave yucca, and blackbrush generally distinguish desert tortoise habitat. At higher elevation, Joshua tree and galleta grass are common plant indicators.

Diet

Mojave desert tortoises generally emerge from their burrows in mid-March to feed on ephemeral plants. During a roughly six-week period fresh green grass and spring wildflowers are their primary nutritional source. Dry stems of grass and cactus pads provide sustenance in dryer times.

Introduced plant species have greatly encroached upon native plant species in the desert tortoise's natural range, degrading the existing natural ecosystem. Desert tortoises have, however, adapted to eating filaree and other nonnative species.

Life Span

Desert tortoises have delayed maturity (14-20 years) and long life spans. Their reproduction cycle is 25 years, with individuals living well over 50 years. However, the desert tortoises reproductive potential is low, laying relatively few eggs (3-14) in each clutch, and having a high mortality rate for juveniles that approaches 99%. Slow growth (~2.5 cm/year) and soft and flexible shells make them particularly vulnerable to predators at this stage of life.

Adaptations

Desert tortoises have unique characteristics that enable them to survive in the desert environment. Elephantine limbs and well-developed claws enable tortoises to burrow into desert soils to escape the heat of the day. Burrows may be more than three meters long with the tortoise emerging in the morning or late afternoon to forage from March to October. By November, most tortoises have begun hibernation until the following March, only emerging during winter storms to replenish water stores.

More Adaptations

Adapting to the lack of water, tortoises have developed unique mechanisms to deal with the dry desert environs. Desert tortoises may dig shallow basins in impermeable soil to catch rainwater. However, the desert tortoise may go for many years without drinking, ingesting most of their water from plants and then storing it in their bladders.

This page adapted from <http://geochange.er.usgs.gov/sw/impacts/tortoise1/>

Last updated Thursday, 10-Jul-1997 11:54:57 EDT.



Desert Tortoise Council
c/o Doug Duncan
P.O. Box 331
Tucson, AZ 85702

Check one: MEMBERSHIP APPLICATION/RENEWAL _____ CHANGE OF ADDRESS _____

DATE: _____ EMAIL ADDRESS: _____

NAME: _____ PHONE: _____

(Please Print)

(Include Area Code)

ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

___ Regular (**\$15.00** per year)

___ Organization (\$55.00 per year)

___ Contributing (\$50.00 per year)

___ Lifetime (\$300 or more)

___ Student (**\$10.00** per year- Requires endorsement of student's advisor or Major Professor)

NEWSLETTER FORMAT:

___ Mailed paper copy

___ Pdf file via e-mail

___ E-mail notice for web page viewing

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**

The Desert Tortoise Council does not release its membership list