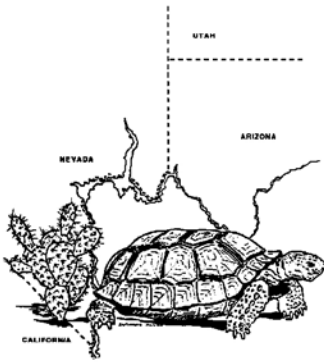


THE DESERT TORTOISE COUNCIL NEWSLETTER

Summer 2011-OUR 36th YEAR

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



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THE DAZED AND CONFUSED IDENTITY OF AGASSIZ'S LAND TORTOISE, *GOPHERUS AGASSIZII* (TESTUDINES, TESTUDINIDAE) WITH THE DESCRIPTION OF A NEW SPECIES, AND ITS CONSEQUENCES FOR CONSERVATION

Robert W. Murphy, Kristin H. Berry, Taylor
Edwards, Alan E. Leviton, Amy Lathrop & J. Daren
Riedle

2011. ZooKeys 113: 39–71

Abstract: We investigate a cornucopia of problems associated with the identity of the desert tortoise, *Gopherus agassizii* (Cooper). The date of publication is found to be 1861, rather than 1863. Only one of the three original cotypes exists, and it is designated as the lectotype of the species. Another cotype is found to have been destroyed in the 1906 San Francisco earthquake and subsequent fire. The third is lost. The lectotype is genetically confirmed to be from California, and not Arizona, USA as sometimes reported. Maternally, the holotype of *G. leptocephalus* (Ottley & Velázquez Solís. 1989) from the Cape Region of Baja California Sur, Mexico is also from the Mojavian population of the desert tortoise, and not from Tiburon Island, Sonora, Mexico as previously proposed. A suite of characters serve to diagnose tortoises west and north of the Colorado River, the Mojavian population, from those east and south of the river in Arizona, USA, and Sonora and Sinaloa,



Morafka's Desert Tortoise (*Gopherus morafkai*)

Image © Taylor Edwards 2011

From: <http://www.cnah.org/detail.asp?id=1421>

Mexico, the Sonoran population. Species recognition is warranted and because *G. lepidocephalus* is from the Mojavian population, no names are available for the Sonoran species. Thus, a new species, *Gopherus morafkai* sp. n., is named and this action reduces the distribution of *G. agassizii* to only 30% of its former range. This reduction has important implications for the conservation and protection of *G. agassizii*, which may deserve a higher level of protection.

See the "NEWS" Section for more information...

A pdf of this article is available from the CNAH PDF Library at http://www.cnah.org/cnah_pdf.asp

A color image of the new species may be viewed at <http://www.cnah.org/detail.asp?id=1421>

Much more information on this change can be found at the USGS WERC Outreach website:

<http://www.werc.usgs.gov/outreach.aspx?recordid=82>

BOARD OF DIRECTORS

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FROM THE EDITOR

Since most of the newsletters are being received electronically, we would like to invite everyone to send us your photos. Have really great pictures of tortoises or other wildlife? Send them to us and we will put a few of them in the newsletter each issue. Any other updates or news items are welcome as well.

Please make sure you update your mailing and email addresses.

In an effort to conserve time, money, and paper, we strongly encourage all of our members to receive the newsletter electronically rather than hardcopy.

Send your photos and any other updates to sdaly@burnsmcd.com.

ANNOUNCEMENTS

Address Updates!!!

Please renew your addresses, including e-mail. Every time we e-mail newsletters, 10 to 20 percent of the e-mail addresses we have are bad.

TWENTIETH ANNUAL INTRODUCTION TO DESERT TORTOISE SURVEYING, MONITORING, AND HANDLING TECHNIQUES WORKSHOP

TWO WORKSHOPS
NOVEMBER 5 & 6, 2011
NOVEMBER 7 & 8

The 2011 handling workshop will be held in Ridgecrest Saturday & Sunday November 5-6 and again on Monday & Tuesday November 7-8. We currently have over 400 names on the list and hope to accommodate as many as we can.

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. We hope that you will be able to join us!

The Desert Tortoise Council Tortoise Handling Workshops are held once a year in the fall. The Desert Tortoise Council's 2-day workshops are structured to provide information on the handling, monitoring, surveying and biology of desert tortoises.

Instructors include: Desert Tortoise Council officers, public and private sector biologists, and personnel from the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and California Department of Fish and Game (CDFG).

The Desert Tortoise Council Tortoise Handling Workshops are recognized by the USFWS and CDFG, BUT a certificate of attendance and participation does not guarantee a USFWS or CDFG permit. However, completion of the Workshop should help with the permitting process. If you have questions or comments or want to be about the workshop or want to be placed on the wait list email me at: tortoiseorg@gmail.com.

Maggie Fusari

The "Turtle World" (www.turtleworld.nebio.in) is an international newsletter of Turtle conservationists and biologists, dedicated to provide an open forum for the timely exchange of information concerning the conservation, research, management, legal status and survival prospects of all turtle species in general and freshwater turtles and tortoises in particular along with the biological issues. The newsletter is published twice a year (July and December). The Newsletter covers all areas of the subject.

Call for Articles

Turtle World welcomes the submission of articles on all areas of research and conservation on turtles

and tortoises. Manuscript should be submitted online in editable format i.e. **.doc or .docx (MS Word)** to

Editor-in-Chief, Turtle World
turtleworld.newsletter@gmail.com

NOTICE FOR BYLAW CHANGE

The intent of the DTC Board at the time the bylaws were written was to cover the entire range of *Gopherus agassizii* as then defined. Because there has been a split into 2 species (*G. agassizii* and *G. morafkai*) the Board will now consider appropriate wording for an amendment to the bylaws to make that intent clear. Any amendment to the bylaws must be voted on by the members at the next annual business meeting in February

**DESERT TORTOISE COUNCIL
ECOSYSTEMS ADVISORY COMMITTEE**

Biological Studies at Fort Irwin

It has come to our attention that the "long-term" studies on desert tortoise translocations at Fort Irwin are being terminated after 3 years of research, rather than completing the 5-year study as planned. The biological opinion issued by FWS in March 2004 referenced an "extensive research, monitoring, and management program for translocated animals" and noted that "monitoring and research will attempt to identify sources of mortality that may be affecting translocated desert tortoises."

Ivanpah Solar Electric Generating System (ISEGS)

On April 18, DTC urged that a new Biological Assessment of ISEGS be completed. The Council urged, as well, that FWS consider a jeopardy finding in its revised Biological Opinion.

Ridgecrest Solar Power Project (RSPP)

Solar Trust of America (formerly, Solar Millennium) notified CEC on June 17 that it is "exploring" redesign of RSPP to utilize photovoltaic technology and submitted a motion

requesting a waiver to continue CEC jurisdiction over RSPP even if the project would no longer be solar thermal. The Desert Tortoise Council filed a statement of opposition to the motion on July 6, 2011. Statements and decisions are at http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/index.html

Stateline Solar Power Project (First Solar)

At the Ivanpah Valley Regional Assessment meeting of May 20, developer First Solar proposed a cumulative biological assessment (limited to the Ivanpah Dry Lake watershed) to be included in the EIS for the Stateline project. DTC urged that any Ivanpah plan encompass the entire Valley and that a primary objective of the plan be to conserve desert tortoise populations.

WEMO

DTC wrote California Desert District Manager Teri Raml on May 10, 2011 to express concerns regarding WEMO Plan route designation implementation. The letter includes the observation that the BLM's plans "...do not appear to follow the fundamental direction adopted in the West Mojave Plan for furthering desert tortoise recovery in the western Mojave Desert."

** Tom Egan, Bruce Palmer, Ray Saumure, Sid Silliman, and Glenn Stewart are the current members of the DTC Ecosystems Advisory Committee. Please contact Sid Silliman at gssilliman@csupomona.edu if you would like to join the Committee and assist with its work.

2012 ANNUAL MEETING AND SYMPOSIUM PLANNING

Program planning for the 37th Annual Meeting and Symposium of the Desert Tortoise Council have been underway for the last few months. The event is scheduled for February 17-19, 2012 at Sam's Town Hotel and Casino in Las Vegas, Nevada. The Call for Papers is included in this issue. Already arrangements have been made with Dr. Wade Sherbrooke for organizing a special Saturday morning session on horned lizards. Dr. Sherbrooke

is the world's authority on horned lizards in North America and a very popular speaker. Cristina Jones is organizing a session of Arizona papers on the recently described *Gopherus morafkai*. The new recovery plan for *Gopherus agassizii* has just been published, and we anticipate papers associated with this topic and the regional implementation teams. Please put the symposium on your schedule now, plan to attend, and of course, if you are so inclined, to present a paper.

NEWS

GENETIC ANALYSIS SPLITS DESERT TORTOISE INTO TWO SPECIES

RIVERSIDE, Calif. – A new study shows that the desert tortoise, thought to be one species for the past 150 years, now includes two separate and distinct species, based on DNA evidence and biological and geographical distinctions.

This genetic evidence confirms previous suspicions, based on life history analysis, that tortoises west and east of the Colorado River are two separate species.

The newly recognized species has been named Morafka's desert tortoise (*Gopherus morafkai*) and represents populations naturally found east and south of the Colorado River, from Arizona extending into Mexico.

The originally recognized species, the Agassiz's desert tortoise (*Gopherus agassizii*) is listed as threatened under the federal Endangered Species Act. It represents populations naturally found west and north of the Colorado River in Utah, Nevada, northern Arizona and California.

The U.S. Fish and Wildlife Service (FWS), which manages the recovery of threatened and endangered species, had already been treating tortoises on each side of the Colorado River as distinct populations. The genetic evidence simply backs up previous observations, such as differences in life history and reproductive strategies.

"The two species have different habitat preferences," says Kristin Berry, a USGS biologist who has studied desert tortoise biology for more than 40 years and a coauthor on the study. "Morafka's tortoise prefers to hide and burrow under rock crevices on steep, rocky hillsides, while the Agassiz's tortoise prefers to dig burrows in valleys."

Roy Averill-Murray, the desert tortoise recovery coordinator for the Fish and Wildlife Service said, "We appreciate the efforts of USGS and other researchers to increase our scientific knowledge about the taxonomy of the desert tortoise. The study's finding that the Morafka's desert tortoise is a new species confirms the Service's decision to evaluate this population independently from the Agassiz's desert tortoise, and will not change the status of either species under the Endangered Species Act or change existing recovery plans."

Distinguishing the two species required some historical detective work by the researchers. Desert tortoises were first described in 1861 by an Army physician, J.G. Cooper. But two of the original specimens were lost, possibly as a result of the San Francisco earthquake and fire of 1906. Fortunately, Cooper had sent a third specimen to the Smithsonian — and its DNA helped researchers in their analysis 150 years later.

The study is published in the journal *ZooKeys* and authored by Robert Murphy of the Royal Ontario Museum in Canada, Kristin Berry of the USGS, and colleagues from University of Arizona, California Academy of Sciences and Lincoln University (Mo.). Field research and travel for this study was supported by contracts from University of California Los Angeles, California State University Dominguez Hills, US Army Fort Irwin, USAF Edwards Air Force Base, USMC Air Ground Combat Center Twentynine Palms, California Department of Fish and Game, the Bureau of Land Management and the USGS.

Read a detailed FAQ about the study on the USGS Western Ecological Center webpage.

More information on desert tortoise research by USGS biologist Kristin Berry:

<http://www.werc.usgs.gov/boxsprings>

See the original press release here:

<http://www.usgs.gov/newsroom/article.asp?ID=2842>

FAQ: NEW DESERT TORTOISE SPECIES

The tortoise family has grown! A new study coauthored by USGS Western Ecological Research Center biologist Kristin Berry has recognized a new species of desert tortoise.

Q: Why was this study done?

A: For more than 20 years, biologists and land managers in the desert southwest have recognized differences in shell shape and mitochondrial DNA (DNA generally inherited through the mother's line) between the desert tortoises on each side of the Colorado River, as well as between the northern part of their geographic range in the U.S. and the southern part of the range in Sinaloa, Mexico. Desert tortoises are an important component of balanced desert ecosystems, and to improve the management of these reptiles, land managers need to know how many species actually exist and what their respective geographic boundaries are.

Q: Who is the new desert tortoise species named after?

A: The study authors named *Gopherus morafkai* after Dr. David J. Morafka, the late biologist and professor at California State University Dominguez Hills. Professor Morafka was a renowned desert ecologist who was recognized for his many contributions to the biology and conservation of both bolson and desert tortoises, and his efforts at facilitating collaborative research, even among researchers with very different perspectives.

Q: Why are desert tortoises important to the desert ecosystem?

A: Tortoises are often called sensitive species, flagship species or umbrella species for many reasons.

First, tortoises are burrowing animals (hence the genus name *Gopherus*, referring to its gopher-like habits) and spend a substantial amount of their lives in digging new burrows or improving an existing burrow. Tortoises that live in rock shelters or caves also dig and move soil too. They are soil engineers, moving substantial amounts of dirt and nutrients. Tortoises show great fidelity to their winter and summer burrows and shelters and are often found year after year at the same sites. Throughout their long lives, they share these homesites with many other animals: insects, spiders, rodents, lizards, snakes, kit foxes, and burrowing owls. Agassiz's desert tortoise, for example, shares its burrow with the state-listed threatened Mojave ground squirrel, a species endemic to the western Mojave Desert. Tortoise burrows protect other desert animals from extreme winter and summer temperatures.

Second, tortoises are an important part of the food web. They are prey for many predators and provide food during all life stages. Their eggs are excavated and eaten by Gila monsters, kit fox, badgers, and coyotes. The juveniles have been called "walking ravioli" by Dr. Morafka, and indeed, the juveniles with their soft shells are eaten by ants, ground squirrels, foxes, coyotes, skunks, ravens, road runners, and snakes. Even adults serve as food for golden eagles, ravens, coyotes, foxes, badgers, and mountain lions.

Third, desert tortoises are long-lived and serve as sentinels for the condition of the environment. They are herbivores with preferences for specific groups of native wildflowers, and as such, do not thrive in highly disturbed landscapes. In many areas in the desert southwest, invasive, non-native grasses and forbs introduced through human activities have replaced a substantial portion of the vegetation and have contributed to an increase in frequency of large wildfires. The fires can be deadly to desert tortoises and smaller, less mobile organisms.

Fourth, tortoises, because of their longevity, can concentrate contaminants, such as arsenic and

mercury, which in turn weaken their health. The sources of such contaminants can be dust from old or recent mining activity, recreation, road construction, and other developments -- and linger as a signal of past landscape disturbances in a tortoise's body.

USGS studies on the roles of tortoises in the natural desert landscape will help inform the landscape and species management efforts of government agencies.



Range map of the two desert tortoise species. Adapted from Figure 2 of Murphy et al. 2011.

Q: If wildlife managers long suspected that desert tortoises are comprised of multiple species, why did it take so long to recognize them?

A: Many issues needed to be resolved -- ranging from when and where the original specimen was collected to the genetics of different populations. In part, the analysis of chemically preserved tissue from the original tortoise specimen, collected 150 years ago, was not possible until recently. The laboratory techniques needed to be developed. The authors needed to confirm the genetic identification to distinguish these desert tortoise species.

The desert tortoise (*Gopherus agassizii*) was first collected and described by a medical doctor and scientist, James Cooper, in 1861 on the basis of three young tortoises. But due to museum fires in the early 1900s, only one specimen appeared to remain in museum collections. Further, confusion existed about where the specimens were collected -- whether from the mountains of California or Ft. Mohave, Arizona. The source of the original collection was critical, because populations differ from one side of the Colorado River to the other. The situation was further complicated in 1989, when a new species of desert tortoise was described from Baja California. The genetic relationship of this new species to desert tortoises in the U.S. and Mexico also needed to be clarified.

Authors of this study painstakingly retrieved historical records spanning 1861 to modern day to figure out where specimens were collected and where they now existed. In the end, they learned that only one of the original *Gopherus agassizii* specimens remained and it was at the Smithsonian. The authors were able to use genetic material -- mitochondrial DNA and microsatellites (a repeating sequence in DNA) -- from the 1861 specimen and the Baja California specimen to compare with genetic samples of tortoises throughout the geographic range today.

The DNA analysis confirmed what scientists had observed in the past about differences in life histories and behaviors of the tortoises. The authors found that the original specimen, collected in 1861, had the genetic makeup of a California tortoise, so the authors then were able to assign the original name, *Gopherus agassizii*, to tortoises occurring north and west of the Colorado River. Tortoises living south and east of the Colorado River in Arizona, and in the states of Sonora and Sinaloa, Mexico, were given a new name, *Gopherus morafkai*.

As for the Baja California tortoise, DNA analysis showed that it was from the Mojave Desert of California, probably transplanted by humans.

Q: Are there potentially more species of desert tortoises?

A: The existing genetic and morphological (the outward form and structure of the animal) evidence points to one or more additional species in the southern part of the range, in the southern parts of the state of Sonora and in Sinaloa, Mexico. Genetic samples have been collected from hundreds of desert tortoises throughout the Mojave and Sonoran deserts from California south to the tropical deciduous forests in Mexico. Field studies on habitat preferences and additional genetic analyses will confirm the boundaries of additional species in Mexico, one of which may be a forest-dwelling tortoise!

	Agassiz's desert tortoise <i>Gopherus agassizii</i> (Cooper 1861)	Morafka's desert tortoise (new species) <i>Gopherus morafkai</i> Murphy et al. 2011
Geographical Distribution	North and west of Colorado River	South and east of Colorado River
General Shape of Shell	Box-like, high domed in CA Box-like, low-domed in UT	Flatter, pear-shaped
Preferred Topography	Predominantly in valleys; digs and hides in burrows	Predominantly on slopes and rocky hillsides; hides and burrows under rock crevices
Preferred Habitats	Mostly in Mojave Desert, around salbrush scrub, creosote bush scrub, desert scrub, tree yucca woodland	Mostly in Sonoran Desert, around uplands, thornscrub and grasslands
Egg Laying Season	April to mid-July	Early June to early August
Federal Status	Threatened	Not listed
Namesake	Louis Agassiz, eminent 19th Century biologist and Harvard professor	David J. Morafka, late distinguished biologist and California State University Dominguez Hills professor



Comparison of the two desert tortoise species. Adapted from Table 1 of Murphy et al. 2011. Image Credits: Ken Nussear and Steve Wessells, USGS.

Q: Does this study change the way we manage for desert tortoises?

A: The naming of a second species of desert tortoise provides scientific support for managing the two species separately, although management actions are ultimately the decision of resource

managers at federal, military, state, county and city agencies. Please contact the respective agencies for their answer to this question.

Recognizing that tortoises in two distinct geographic ranges are two different species would imply that tortoises in one range cannot serve as a genetic reservoir or population source for the other - such as for translocation and other species management options. This could underscore the importance of habitat availability in each species' respective geographic range.

Compiled by USGS Western Ecological Research Center and USGS Office of Communications

See the original FAQ here:

<http://www.werc.usgs.gov/outreach.aspx?recordid=82>

NEW TORTOISE CLASSIFICATION COULD SNAG ENERGY DEVELOPMENT IN SOUTHWEST

Scott Streater, E&E reporter

A new federal study formally recognizing Sonoran Desert tortoises as a unique species has thrilled environmentalists, but the new classification is leading to concerns that the distinction could ultimately slow down renewable energy development across the Southwest.

The scientific paper led by the U.S. Geological Survey and published this week in the journal ZooKeys found that Sonoran Desert tortoises living south of the Colorado River in west-southwest Arizona and in Mexico are a separate species from Mojave Desert tortoises that reside north of the river in Southern California, Nevada and Utah.

That is significant because the Mojave Desert tortoise is listed by the Fish and Wildlife Service as threatened under the Endangered Species Act. FWS last year evaluated the Sonoran tortoise population independently and placed it on a "candidate" list of

species that warrant federal protection but cannot be listed due to a backlog of other deserving species.

But environmentalists say the new study highlights the need to list the Sonoran tortoises as threatened or endangered to protect its dwindling habitat.

When the Mojave and Sonoran tortoises were considered a single species, their combined habitat extended for millions of acres, and mitigating the impacts of large-scale renewable-energy projects was simple because there was still plenty of land for displaced tortoises to relocate. But if the tortoises are two distinct populations occupying two distinct -- and thus significantly smaller -- regions, that could complicate renewables development.

"Before they could say, 'If the Mojave Desert population dies out, hey there's more'" tortoise in Arizona, said Michael Connor, California director of the Western Watersheds Project in Reseda, Calif. "Now we're in a different boat, because if they do die out, there's no more. They're gone."

FWS officials, however, do not appear to share that view, noting they already consider the two tortoise populations to be separate.

"We appreciate the efforts of USGS and other researchers to increase our scientific knowledge about the taxonomy of the desert tortoise," Roy Averill-Murray, FWS's desert tortoise recovery coordinator, said in a statement.

But he added the new study "will not change the status of either species under the Endangered Species Act or change existing recovery plans."

Environmentalists say they might move to challenge that conclusion by filing a new petition requesting FWS designate the Sonoran tortoises as threatened or endangered, said Ileene Anderson, a staff biologist for the Center for Biological Diversity in Los Angeles.

"This is new information that could be folded back into a new petition to list it as a fully protected species," Anderson said. "I think the science is there. The data points to the fact that they should be listed."

Impacts to solar industry

The new study comes at a time of unprecedented solar energy development on federal land in California, Nevada and Arizona.

Last year, the Bureau of Land Management permitted nine commercial-scale solar plants that when built over the next five years would have the total capacity to generate almost 4,000 megawatts of electricity (Land Letter, Dec. 23, 2010).

This year, the Interior Department has identified 10 solar plant proposals as top priorities for 2011. Cumulatively the projects would cover more than 13,000 acres of mostly BLM land in Arizona, California and Nevada and have the cumulative capacity to produce 2,950 megawatts of electricity - enough to power about 1.1 million homes (Land Letter, March 17).

Yet, concerns about Mojave Desert tortoises have already played havoc on at least one large-scale solar project in Southern California and caused significant problems and project revisions for several others.

Solar-energy projects affect the tortoises more than other renewable sources because solar-power plants require wide swaths of land to be graded over to place mirrors or photovoltaic panels. This particularly affects Mojave Desert tortoises, which like to burrow in the sand in low-lying valleys.

BLM in April temporarily suspended construction activities on parts of two units of the Ivanpah Solar Energy Generating System in San Bernardino County, Calif., because more federally protected desert tortoises were found at the site than originally estimated.

FWS lifted the suspension this month after concluding that the project's developer, BrightSource Energy Inc., had an adequate plan in place for relocating and protecting the iconic desert species (Land Letter, June 16).

Sonoran vs. Mojave Desert tortoises

The Sonoran Desert tortoises should cause fewer problems for solar-power projects in Arizona. That is because Sonoran tortoises, unlike their Mojave Desert cousins, prefer to burrow under crevices along steep, rocky hillsides, according to the USGS-led study.

"The two species have different habitat preferences," said Kristin Berry, a USGS biologist who has studied desert tortoise biology for more than 40 years and is a co-author on the study.

That is good news because the Sonoran Desert is one of the most attractive solar development sites in the nation, ranking second only to the Mojave, which spans the California-Nevada border (Land Letter, Feb. 25, 2010).

BLM is currently considering 31 large-scale solar power permit applications in Arizona, most of which are in the southern reaches of the state where the Sonoran tortoise is found. If fully built, the projects would cover roughly 400,000 acres and have a generation capacity of 19,473 megawatts -- enough to power about 7 million homes, according to federal data.

For its part, the solar-power industry says it will continue to strive to protect sensitive wildlife habitat at project sites.

"This is all about striking a balance between meeting our demand for clean energy and preserving habitat and being environmentally sensitive," said Monique Hanis, a spokeswoman for the Solar Energy Industries Association. "We're just now seeing the first projects on public land finally making progress, and I know that the companies have done a lot to get through the permitting process. And even in the construction process they've made adjustments to adapt to situations as they come up, and will continue to do so."

To see the original article, visit. www.eenews.net
(Subscription required)

JOE BIDEN VERSUS THE DESERT TORTOISE

San Francisco Business Times - by Steve Brown

U.S. Vice President **Joe Biden** sent me an email today about cutting government waste.

“There’s a new sheriff in town,” read the subject line of the email.

Great, I thought, finally someone’s going to saddle up and lasso a few of those sacred cows -- Social Security, Medicare, runaway military spending -- that are killing our country’s budget. Like Gary Cooper in “High Noon,” Biden, six-shooter at the ready, was going to stand up to the implacable enemies of a balanced budget, no matter how tough it got. I could hear heavy, authoritative steps and spurs jingling already.

Then I read the email.

Sadly, Biden underwhelmed me by characterizing his cuts thusly: “Most of the cuts we are going to make are small. They won’t close the deficit or solve our fiscal problems.”

One of the budget outrages he listed? A website for the endangered Desert Tortoise.

“I bet you didn’t know that your tax dollars pay for a website dedicated to the Desert Tortoise. I’m sure it’s a wonderful species,” Biden said.

I didn’t know my tax dollars were spent sending me underwhelming emails from the Vice President, either.

The humble Desert Tortoise, *Gopherus agassizii*, is the state reptile (did you know your tax dollars were paying for a state reptile?!) of California and Nevada. It’s had a tough time lately, what with encroaching development on its desert habitat, not to mention good ol’ boys (and good ol’ girls) shooting it when they run out of road signs to pockmark.

Does it deserve its own dedicated website? After all, it is already prominently featured on the National Park Service site.

I’m not sure. I never heard of the Desert Tortoise until today. We just met. But I’m sure it plays an important role of some sort in its Mojave Desert ecosystem.

After all, if we’re going to start cutting wasteful government websites, why not start with this one (<http://www.whitehouse.gov/administration/vice-president-biden>)? It would be a small cut. It wouldn’t close the deficit or solve our fiscal problems. But it would be a start and a symbol.

In fact, we could even consider eliminating the office, which one Vice President equated in value to a bucket of spit (or another bodily fluid), completely.

Don’t get me wrong, I’m sure he’s a wonderful politician.

Click here to see the original article: (<http://www.bizjournals.com/sanfrancisco/blog/2011/06/joe-biden-versus-the-desert-tortoise.html?page=2>)

MEETINGS

THIRTY-THIRD ANNUAL GOPHER TORTOISE COUNCIL MEETING

Where: Wyndham Orlando Resort in Orlando, Florida

When: 14-16 October 2011

This year's theme is "Gopher Tortoise Conservation: Yesterday, Today and Tomorrow." Conference sessions will focus specifically on Gopher Tortoises, commensal species, conservation and upland habitat conservation efforts from the past, as well as present endeavors and future needs.

Abstracts are due 20 August 2011.

Information can be accessed at
<http://www.gophertortoisecouncil.org/events.php>

SCHOLARSHIPS/AWARDS

DAVID J. MORAFKA MEMORIAL RESEARCH AWARD 2012 APPLICATIONS SOUGHT

In honor and memory of Dr. David J. Morafka, distinguished herpetologist and authority on North American gopher tortoises, the Desert Tortoise Council, with the aid of several donors, has established a monetary award to help support research that contributes to the understanding, management and conservation of tortoises of the genus *Gopherus* in the southwestern United States and/or Mexico: *G. agassizii*, *G. berlandieri*, *G. flavomarginatus* and/or *G. morafkai*.

Award Amount: \$2,000 to be awarded at the Desert Tortoise Council's Annual Symposium, depending on the availability of funding and an appropriate recipient.

Eligibility: Applicants must be associated with a recognized institution (e.g., university, museum, government agency, non-governmental organization) and may be graduate students, post-doctoral students or other researchers. They must agree to present a report on the results of the research in which award funds were used at a future symposium of the Desert Tortoise Council.

Evaluation Criteria: Applications will be evaluated on the basis of the potential of the research to contribute to the biological knowledge of one or more of the above gopher tortoise species, and to their management and conservation. Important considerations are the significance and originality of the research problem, design of sampling and analysis, preliminary data supporting the feasibility of the research, and the likelihood of successful completion and publication.

Application Procedure:

1. Obtain an application form from the Desert Tortoise Council's website (www.deserttortoise.org) or print out the form from an e-mail notification.

2. Provide all information requested on the application, including a description of the research project in no more than 1,200 words.

3. Applications must be accompanied by three letters of recommendation, one of which must be from the applicant's research advisor, supervisor or a knowledgeable colleague. The letters must be in sealed envelopes addressed to the "Morafka Research Award Selection Committee" with the recommenders' signatures across the flaps.

4. COMPLETED APPLICATION MATERIALS MUST BE SUBMITTED BY 2 DECEMBER 2011 to the Desert Tortoise Council, P. O. Box 1568, Ridgecrest, California 93556.

5. A research award recipient will be selected by a committee of gopher tortoise biologists appointed by the Desert Tortoise Council Board of Directors.

6. The research award recipient will be notified of his/her selection by 20 January 2012 and the award will be presented at the 2012 Desert Tortoise Council Symposium, 17-19 February 2012.

JOB OPPORTUNITIES

Looking for a job?

Check out these websites for resources:

<http://parcplace.org/setup/job-listings.html>
(herpetology)

<http://wfsc.tamu.edu/jobboard/>
(wildlife and fisheries science)

<http://www.cnah.org/jobs.asp>
(herpetology)

THE PASSING OF A NEVADA ICON: BETTY L. BURGE

Betty was born in February 9, 1932 as Betty Lou Child and passed away in Las Vegas on August 8, 2011. She spent her childhood in New Jersey and Massachusetts, and her teen years in Georgia and New York. In 1951, she completed a degree in nursing at the Albany Medical Center of Nursing in New York. In 1956, she obtained a degree in voice from the Eastman School Music at the University of Rochester, New York.

Between 1962 and 1972, Betty worked at the Youth Science Institute (YSI) in Alum Rock Park in San Jose, California, primarily as curator of live animals and collections. It was during this time that she became aware of the challenge of maintaining captive desert tortoises and was impressed with the paucity of literature on wild tortoises. Franklin Sunzeri, a former co-worker of Betty's at the Youth Science Institute, wrote:

The Youth Science Institute where Betty worked still exists. Its mission was and is to inspire enthusiasm for science and a love of learning. Much of the success for the YSI can be attributed to Betty's efforts...Betty was a gifted teacher and an inspiration for many a young budding scientist...She took live animals to various elementary schools throughout Santa Clara Valley. There she would introduce children to ecological principles long before they became mainstream. On Saturdays, a group of youths ages 10 to 16 would meet at YSI where Betty and other gifted teachers would expand formative minds into asking fundamental questions in science. Many of these kids went on to productive careers in science. In the late sixties, she mentored YSI work-study students who were zoology majors at San Jose State.

During the 1960s, Betty returned to school at San Jose State College, where she was awarded a BA degree in Biological Conservation in 1967. Betty started the second half of her life in 1972, when she attended graduate school at the University of Nevada at Las Vegas (UNLV) for an MS degree. At this point, she began a new career as a scientist and conservationist. While Betty was in graduate school, she became an integral part of the newly formed Desert Tortoise Council. Her first publication on desert tortoises is in the very first Proceedings of the Desert Tortoise Council's Symposium in 1976: "Population density, structure and feeding habits of the desert tortoise, *Gopherus agassizi*, in a low desert study area in southern Nevada" (Betty L. Burge and W.G. Bradley). This paper was part of her thesis for the MS degree, which she received in 1977. She followed in the 1977 Proceedings with a second paper: "Daily and seasonal behavior, and areas utilized by the desert tortoise *Gopherus agassizi* in southern Nevada" (B.L. Burge), and in 1978, with a third paper: "Physical characteristics and patterns of utilization of cover sites used by *Gopherus agassizi* in southern Nevada" (B.L. Burge). These papers are important works; they describe a population that no longer exists, at a study site that is now urbanized. They are the first significant works on desert tortoises for Nevada. Betty documented in great detail important facets of wild tortoise behavior so essential for our understanding today.

Her next major body of scientific work began in 1978 and was completed in 1979. She sampled 387 sites (1100 miles) of transects in the Sonoran Desert of Arizona. She reported that 96% of tortoise sign was found on slopes with extensive outcrops and boulders with gradients up to 95% in Arizona Upland communities with palo verde and saguaro cacti. This was a seminal work and stands today as the first identification of preferred habitat for tortoises in the Sonoran Desert. The papers are reported in the 1979 and 1980 Proceedings of the Desert Tortoise Council. She was co-author on numerous papers in the Proceedings of the Desert Tortoise Council Symposium on a wide variety of subjects. For example, between 1983 and 1986, Betty Burge was part of a major research project with Dr. Fred Turner on developing a life table for the tortoise. Betty has publications with Dr. Turner on egg production. She also worked for 11 years on long-term study plots in California, where Dr. Kristin Berry was Principal Investigator. Dr. Berry noted that she was valued by many scientists for her high standards, attention to detail, exceptional organization and productivity.

In 1984, Betty received the Desert Tortoise Council's highest award, the Annual Award. Many of her accomplishments that earned her this award are noted above. In addition, the Desert Tortoise Council valued

Betty's exemplary work on several difficult and time-consuming tasks. For example, she represented the Desert Tortoise Council on the Bureau of Land Management's (BLM) Coordinated Resource Management Planning Group for off-road vehicle use in Clark County. In 1982, she quantified and photographed impacts of a major new ORV race, the Frontier 500. She presented her findings to the BLM, personnel of the Frontier Hotel who sponsored the race, the State Multiple Use Advisory Committee on Federal Lands, and the Council. Betty made recommendations to protect tortoise habitat during future races. In the following year, she met with BLM officials in the field and reported that recreationists were violating stipulations even before the race was underway. She recorded numerous infractions and photographed impacts along the course during the race. She presented convincing evidence to the BLM that stipulations and mitigations were insufficient to ensure habitat protection. She also assisted with analysis of impacts to tortoise habitat in Nevada for the Council report, "The Status of the Desert Tortoise (*Gopherus agassizii*) in the United States." During the ensuing years, Betty worked with federal and state agencies, and Clark County on numerous land use plans and species plans on behalf of desert tortoises. Betty Burge was again recognized for a life-time of service to the desert tortoise and its conservation by the Desert Tortoise Council in 2005.

Dr. Glenn Stewart, one of the founding members of the Desert Tortoise Council, noted that Betty was always willing to help and teach. He described her trip to Edwards Air Force Base in December of 1985, when she demonstrated to his graduate student Ron Baxter on how to prepare an artificial hibernaculum. She had pioneered this technique.

In 1981, Betty Burge, Norma Engberg and others formed TORT-Group, later re-named Tortoise Group. Tortoise Group, which has 3500 members, has multiple objectives, including appropriate care and husbandry of captive tortoises, protection of wild tortoises, and education. Betty was a long-term and highly regarded leader and member of this group.

Betty passed away August 8, 2011. She is survived by her husband of 29 years, Russell Beck, a sister and brother, her son Chris Shupp, and two grandchildren. A Celebration of Life was held for her on September 10, 2011 at the Springs Preserve in Las Vegas. Betty leaves a legacy of accomplishments in science and conservation and will be greatly missed.



Photo from <http://www.tortoisegroup.org/BettyBurge.php>

www.deserttortoise.org

DESERT TORTOISE COUNCIL MEMBERSHIP
P.O. Box 1568
Ridgecrest, CA 93556

Check one: _____ MEMBERSHIP APPLICATION/RENEWAL _____ CHANGE OF ADDRESS
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CITY: _____ STATE: _____ ZIP CODE: _____
_____ Regular (**\$30.00** per year) _____ Organization (**\$125.00** per year)
_____ Contributing (**\$100.00** per year) _____ Lifetime (**\$300.00** or more)
_____ Student (**\$20.00** per year- Requires endorsement of student's advisor or Major Professor)

Starting in 2012, the newsletter will only be distributed via electronic link to website.

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and **send** with this application
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The Desert Tortoise Council does not release its membership list

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