Tortoise Tracks

The Desert Tortoise Preserve Committee, Inc. Fall 2006 26:3

"A FEMALE DESERT TORTOISE CROSSES A DIRT ROAD IN THE CHUCHWALLA BENCH IN EASTERN RIVERSIDE COUNTY. THE CHUCKWALLA BENCH IS WITHIN CRITICAL DESERT TORTOISE HABITAT. THE DTPC HAS BEEN ACQUIRING LAND HERE FOR THE CONSERVATION OF THE TORTOISE.

Proposed Huge Dairy Farm/ Energy Park Threatens Harper Lake Area

by Mark Massar

An enormous new dairy farm and energy park is being proposed for the Harper Lake area north of Highway 58 that could threaten desert tortoises in the area. This prime saltbush scrub habitat is adjacent to USFWS designated critical habitat for the desert tortoise. This area has also been a focus for the Desert Tortoise Preserve Committee. We have fenced off large sections of the Harper lake Road to prevent tortoises from being hit by cars and have recently constructed a culvert to allow tortoise's safe passage beneath the road. If built, the dairy farm would house 90,000 dairy cattle on a 1,920 acre site, northwest of Barstow. It is estimated that nearly 600 people would be employed at the farm, which would include a veritable mini-city. In addition to the dairy farm, two energy plants are being proposed—one fueled by cow manure, and the other by solar and steam power. The first plant will turn manure into methane that will power a jet-turbine generator. The second plant will be built on an additional 550-acre solar/thermal generation field. Currently, the dairy/energy park has considerable political support. The energy park is being touted as crucial due to the insufficient in-state electrical power-generation plants to meet increasing demand, and the whole development is seen as a huge economic development boost for the High Desert region's job and tax bases. The development plans to seek dairy farm permits this year. Because of its relatively small size, the methane plant needs approval only from San Bernardino County, not the California Energy Commission. The other plant, though, would need California Energy Commission approval.

Impacts to the desert tortoise could be substantial including increased habitat destruction, road kills, and raven predation.

For Additional Information go to <www.HarperLakeEnergyPark.com>

Memories of Mary Ann Henry, a Long-Time Friend of the Desert

by Dr. Kristin Berry, Ph.D

Mary Ann Henry, a long-time member and supporter of the Desert Tortoise Preserve Committee, passed away August 11, 2006, in Ridgecrest, California, where she had lived since ~1947 with her husband Dr. Ronald Henry and children Douglas, Katy, and Robert. She was 88 years old. Services are planned for September.

Mary Ann Henry was initially educated as a nurse, but became active in the western and northern Mojave Desert region between the 1960s and 1990s in botanical topics, conservation of desert lands, and education. She was locally well-known for her many contributions to the community. For example, soon after she became interested in plants, she assisted with spring wildflower shows sponsored by the American Association of University Women at China Lake, a community activity subsequently taken over by the Maturango Museum. She later directed the part of the annual wildflower show associated with plant identification at the Maturango Museum. In the 1970s,

Memories of Mary Ann Henry, continues on page 3

Two New Trustees Elected to the DTPC Board

Jane McEwan and Mark Bratton are the two newest board members on the DTPC. They were elected to the Desert Tortoise Preserve Committee's Board of Trustees at the January 28, 2006 Annual Meeting.

Jane McEwan was born and raised in the Mojave Desert. She has a degree from the University of California, Riverside in Environmental Sciences and a law degree from George Washington University in Washington, D.C. While in law school, Jane worked at the Environmental Protection Agency reviewing environmental impact statements. After graduating, she practiced law in Anchorage, Alaska for seven years. Jane left the practice of law while raising her three sons. After living in Hawaii, Nevada, Oregon & Washington, she returned to the desert in 2001. She worked as coordinator for the Sand Canyon Environmental Education Program and then worked as a contractor for the Bureau of Land Management in Ridgecrest, monitoring the West Rands Closure Area, Red Mountain, Pilot Knob and several other grazing allotments for violations. After being admitted to the California Bar in 2005, Jane opened a law practice in Ridgecrest.

Mark Bratton, originally from Michigan, has lived and worked in the Mojave Desert for ten years now. He has a degree in Environmental Biology from the University of Montana, and works as the lead wildlife biologist for CH2M Hill (an environmental consulting company) at Edwards Air Force Base. Much of Mark's work at Edwards AFB focuses on the desert tortoise. Mark and his wife, Joanna, live in Lancaster with their three cats and two desert tortoises. He enjoys camping, nature photography, and swimming (Mark used to be a lifeguard).

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Memories of Mary Ann Henry, continued from page 1

she wrote an important article on the Eureka Dunes and the rare Eureka Dune Grass for Fremontia, a publication of the California Native Plant Society, and was made a Fellow of the California Native Plant Society in 1996. She was instrumental in identifying the native plant values of the eastern Sierra Nevada to the Bureau of Land Management and to the community at large, particularly focusing her efforts on Short and Sand canyons. Both canyons are now areas of Critical Environmental Concern. She was also a volunteer in the Sand Canyon Environmental Education Program, and was a central part of the plant identification portion of the annual Wildflower Show sponsored in the 1960s by the American Association of University Women and later by the Maturango Museum.

On November 3, 2002, she was honored through the efforts of her colleagues in the Bristlecone Chapter of the California Native Plant Society, the Kerncrest Chapter of the National Audubon Society, the Owens Peak Group of the Sierra Club, and the Ridgecrest Office of the Bureau of Land Management in a ceremony in Short Canyon. A plaque was inscribed with the words, "In recognition of her pioneering efforts to conduct the first systematic inventory of Short Canyon flora; her decades of service to environmental education; and her years of commitment to sustaining the desert's beauty and biodiversity."

Mary Ann Henry also made numerous contributions of time and resources to the desert tortoise, the Desert Tortoise Research Natural Area, and the Desert Tortoise Preserve Committee. She was an enthusiastic supporter of the tortoise, the Natural Area, the Desert Tortoise Preserve Committee, and acquisition of the Pilot Knob allotment. She and her husband, Ron, almost never missed a work party or an Annual Meeting and Banquet during the DTPC's first 25 years. They spent many days assisting with plant collecting and identification, searching for rare species on the Desert Tortoise Preserve Committee's preserves, and in collecting tortoise shell-skeletal remains at Pilot Knob. Mary Ann personally trained tour guides and docents on plant identification and gave special tours. She was a strong voice for desert habitat and wildlife issues on the Bureau of Land Management's Ridgecrest Steering Committee.

For those of us fortunate to have known and spent time with her, we enjoyed and valued her direct discussion of environmental and community topics. She was outspoken, with pointed comments in letters to the editor of local newspapers as well as managers of land use agencies. She did not hesitate to present her views at local public hearings. She likewise expressed her love and concern for wildflowers, tortoises, and the Mojave Desert. Many of us will miss her.

In Memory of Mary Ann Henry

Three Prominent Conservationists Honored

by Dr. Kristin Berry, Ph.D

The LA Times recently honored the 100 most influential people in Southern California in their weekly newsmagazine, "West". Three are noted conservationists who have contributed to the Desert Tortoise Preserve Committee and to the preservation of the Mojave Desert.

David Gelbaum of Newport Beach, "under the guidance of politically savvy environmentalist David Myers,...has protected enough mountain and desert land to create another Yosemite National Park...crucial tracts of the Mojave National Preserve have been protected, thanks to the Wildlands Conservancy, which Gelbaum cofounded." David Gelbaum has indirectly, through the Wildlands Conservancy and its chief executive David Myers, made a significant contribution to the Desert Tortoise Preserve Committee, Inc. and its objectives. With the Wildlands Conservancy, the Desert Tortoise Preserve Committee, Inc., purchased the base property of the Pilot Knob cattle grazing allotment in 1996. The allotment is in the central Mojave Desert. The Bureau of Land Management and DTPC are in the process of retiring the allotment through the West Mojave Plan and amendments to the California Desert Conservation Area Plan of 1980. Recovery of this grazed area is underway, thanks to removal of cattle grazing from the allotment in the late 1990s. David Gelbaum's support of acquisitions of private lands throughout the Mojave have also been instrumental in protecting desert tortoise habitat.

Joe Edmiston, now Executive Director of the Santa Monica Mountains Conservancy, provided valuable advice when the Desert Tortoise Preserve Committee was in its early years in the 1970s.

Bart O'Brien, the senior horticulturist at the Rancho Santa Ana Botanic Garden in Claremont, has emphasized the planting of native California species in our own backyards instead of horticultural varieties from other parts of the world and U.S. Indirectly he is influencing the many fanciers and supporters of tortoises to draw on the native plants in caring for captive tortoises. Members of the DTPC have emphasized the importance of growing native wildflowers that are favored forage plants, including lotus, species of Astragalus, apricot mallow, and evening primrose. The Desert Tortoise Preserve Committee, Inc., has prepared a grant proposal to develop educational materials for Southern Californians to encourage use of native plants in their gardens and as forage for their captive tortoises.

SAVE THE DESERT TORTOISE

Desert Tortoise Preserve Committee

www.tortoise-tracks.org

Burrowing Owl: Fated Flyer and Faithful Father

By Tom Egan

One of the more diurnal and social species of the avian Family Strigidae, the burrowing owl takes its name from a habit of residing in subsurface excavations, or burrows. In the western United States, this robin-sized bird of prey has historically used abandoned burrows created by colonial rodents such as squirrels or prairie dogs. In the High Desert, this habit generally involves the owl's use of old desert tortoise, coyote or California ground squirrel burrows.

Such traits have unfortunately proved fateful for this owl in areas where original burrow excavators have declined in natural habitats and others have concurrently been promoted close to urbanizing areas. Consequently, it is a species of special concern as well as a protected raptor in California and elsewhere. Forming year-round pair bonds in non-migratory populations, faithful fathers help feed both mothers and young while nesting takes place. Like most owls, this species is known for an intense tenacity to selected nest sites, where watchful males often conspicuously perch near burrow entrances. All who approach this comical little raptor's open desert haunts in the nesting season are scrutinized ever so closely by the piercing yellow eyes of these territory-wise protectors. A steady head bobbing begins in earnest should the stranger come to close to their family charge, followed by a father's frenzied flight at the intruder or a defensive retreat into the nest burrow entrance. Here, the sound of a rattlesnake's rattle is occasionally mimicked to further discourage would-be trespassers to the concerned owl's subterranean domain.

Families are often moved to a new burrow abode in close proximity to the nest site roughly a month after egg hatching. Mother and young begin foraging on their own shortly thereafter. In the early fall, young birds disperse to begin their own pursuits in the owl world.

Tom Egan is a senior ecologist at AMEC Earth & Environmental, an international consulting firm. He serves as the California Native Plant Society's Mojave Chapter Conservation Chair and the Products Manager of the Desert Tortoise Council.

Our Desert Home Mojave Desert Icon

By Tom Egan

The Joshua Tree is truly an icon. No other plant marks the aerial extent of the Mojave Desert better. Mormon pioneers named this characteristic flora based on its landscape shape so closely resembling a person praying with uplifted arms. Such an image has a similarity to Joshua's gestures in leading the Israelites to a Promised Land.

This stout member of the Lily Family occurs at biological community edges with higher precipitation rates and usually higher elevations than those found in the desert interior, typifying a transition zone. In times past when more humid conditions prevailed, it was more widespread and used to occur at lower altitudes. Supporting evidence has been found in fossilized dung of the now extinct, Giant Yucca-feeding Ground Sloth.

Tree height is commonly 15-30 feet, but heights of 50-plus feet have been recorded. A gargantuan specimen of 40 feet-height has been recorded at Covington Flats. Several exceptionally large trees also occur on Edwards Air Force Base and in the Pipes Canyon vicinity. Fibrous roots penetrate the soil both vertically and horizontally to stabilize these incredibly slow-growing trees against our powerful desert winds. The smallest of its roots are a blood-red color, which local Native Americans commonly used in their basketry.

Irregular blooming can pose a challenge for animals which eat the tree's fleshy fruit, like the threatened Mohave Ground Squirrel. Other critters rely on this tree for both shelter and food, like the rarely seen Desert Night Lizard. This little saurian with velvet-like skin resides beneath branch litter and in bark crevices. It patrols the arms of Joshua Trees nightly for termites and various insect larvae snacks. Busily rustling around in this same woodland type is the ever-scurrying Desert Woodrat, with its stick-nest domicile often located at the tree's base. The colorful Scott's Oriole also makes

Our Desert Home, continues on page 7

New Threat to the Red Hills Tortoise Preserve in Southwestern Utah

By BRIAN PASSEY

ST. GEORGE - Residents have a chance Thursday to give their opinion on changes to the Red Hills Parkway and the possibility of a northern corridor through the Red Cliffs Desert Reserve.

The City of St. George and the Utah Department of Transportation will host a public workshop Thursday at the St. George Opera House to discuss the impacts of possible solutions to what city officials see as a future traffic problem in the fast-growing region.

Larry Bulloch, public works director for the city of St. George, said a 30-year forecast of traffic volumes along the Red Hills Parkway and St. George Boulevard shows many problems.

Both streets act as major east-west corridors on the northern edge of the metro area.

"Our traffic modeling is predicting some very high volumes of traffic across the northern corridor, in the range of 60,000 cars a day," Bulloch said. "We need to accommodate it some way."

He said those levels of traffic would bring the current Red Hills Parkway to failure levels.

That much traffic also would create delays of more than 80 seconds at intersections along St. George Boulevard, according to city statistics.

To handle the projected growth, city and UDOT officials are analyzing possible road improvements to relieve congestion along these corridors.

They announced three alternatives that are under consideration.

The first alternative would widen the parkway to two lanes in each direction with a center median, bike lane and a separate bike trail.

The second alternative would be similar but with three lanes in each direction.

"There are implications to both," said Marc Mortensen, assistant to the city manager. "Obviously, a seven-lane road would have a greater impact to the area than a five-lane road would."

A third alternative has already proven to be controversial during discussions about the Washington County Growth and Conservation Act of 2006, which was recently introduced in Congress.

This alternative, referred to as the Northern Corridor, would break off Red Hills Parkway near Bluff Street, travel northeast through the Red Cliffs Desert Reserve and connect to Interstate 15 at Exit 13 in Washington City.

A city news release said the city and UDOT are considering an optional alignment that would follow an existing trail in the reserve. This option would minimize impacts to rock formations near the Dixie Rock, according to the release.

"We're still after public input on the Red Hills Parkway," Mortensen said. "We want to get all the issues out on the table the first time around so there are no surprises."

Bulloch said the city is interested in hearing the public's opinion on the alternatives.

Chaitna Sinha, southwest field attorney for the Southern Utah Wilderness Alliance, said she planned to attend Thursday's workshop so she could be more informed about possible changes.

Sinha did not want to comment in detail about SUWA's position on the alternatives because they had not yet analyzed the possible changes. But she said alternatives through the desert reserve did cause concern.

"That reserve was set aside for a specific purpose," she said. "Any alternative that endangers the tortoise is a serious concern to us." Source — August 2, 2006 in the St. George Spectrum, **bpassey@thespectrum.com**

Natural History Notes

Sex Determination
By Mark Massar

Photo courtesy of Tortoise Group, Las Vegas, NV

"THE SEX OF BABY DESERT TORTOISES IS DETERMINED BY THE TEMPERATURES THE DEVELOPING EMBRYOS EXPERIENCE IN THE NEST: COOLER TEMPERATURES PRODUCE MALES, WARMER ONES PRODUCE FEMALES"

In most turtles, including the desert tortoise, the gender of the offspring is determined not by genetics, but by the temperature under which the embryos develop in the nest. Different temperature ranges will produce either females or males. Most temperatures will produce either all males or all females, while a very narrow range (often less than a degree Celsius) produces a combination of both males and females. The temperature that produces exactly half of each sex is called the pivotal temperature. Studies have revealed that populations of the same species show latitudinal variation in pivotal temperatures. Populations further north in cooler climates have higher pivotal temperatures.

Also important is the temperature sensitive period. This is the period during development in which sex is actually determined. The gender of the developing embryo is typically determined during the middle third of incubation, and requires a constant temperature for about a week to cause the embryo to become male or female.

Most turtles and all crocodilians have temperature dependent sex determination (TSD). Animals with TSD lack sex chromosomes, so the chromosomes of both males and females are identical. Temperature appears to be switching something on or inhibiting something that determines gender, possibly the production of estrogen. There are three patterns of TSD. In the first pattern, exhibited by the desert tortoise (and most other turtles), developing embryos become male under cooler temperatures, and female under warmer ones. In the second pattern, the relationship is reversed with females being produced at cooler temperatures, and males at warmer temperatures. The third pattern is more complex: females are produced at cooler temperatures, males at intermediate ones, and females again at the warmest temperatures.

The idea of temperature dependent sex determination may seem odd to us humans because our gender is determined by genetics, through a combination of sex chromosomes. All mammals and birds (and many other animals) have genetic sex determination (GSD). In mammals, males are the sex with different sex chromosomes (an X and a Y), while in birds it is the female that is heterogametic (by convention females birds are labeled ZW and males, ZZ).

Because the pivotal temperature range is so narrow, global warming could drastically skew the sex ratios of turtle populations. A temperature increase of 4 degrees Celsius could eliminate the production of males, and such temperature increases are predicted because of global warming.

DESERT TORTOISE PRESERVE COMMITTEE

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All contributors receive the quarterly newsletter *Tortoise Tracks*.

Membership and donor information are kept confidential and will not be disclosed to third parties.

I WANT TO VOLUNTEER

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Fall Work Party October 28-29, 2006

The Desert Tortoise Preserve Committee's Annual Fall Work Party will be held the weekend of October 28-29, 2006. Autumn is an especially beautiful time in the Mojave Desert, with pleasant temperatures and endless vistas. These work parties provide a wonderful opportunity for volunteers to become intimately acquainted with desert tortoise habitat. They also provide an opportunity to do important work at the Desert Tortoise Natural Area and the Pilot Knob allotment, two key areas of desert tortoise conservation. Anticipated work includes fence repair, signage, trail maintenance, trash clean-up, invasive weed removal, habitat improvement, etc. The DTPC has been holding these work parties for many years now in cooperation with the Bureau of Land Management (representatives from both the DTPC and the BLM will be on site coordinating the work party). Participants are invited to enjoy the traditional Saturday evening campfire and overnight campout at the remote Blackwater Well site (on the Pilot Knob allotment), a special treat for anyone who loves the desert. Work party volunteers will need to bring work gloves; stout shoes or walking boots; hats and sunscreen; drinking water; food; flashlights; appropriate clothing and camping equipment if staying overnight (daytime temperatures are expected to be pleasant, but the nights can be chilly).

If you are interested in joining the work party on one or both days, please register by calling Mark Bratton at (661) 860-8148 or e-mail him at <montanagrizzlies@adelphia.net>.

Our Desert Home, continued from page 5

its home in this spiky fortress of a tree, building its pendant nest out of woody fibers stripped from the trunk. Not to be outdone, the tool-using Loggerhead Shrike impales its insect prey on the tree's dagger-like leaves. In all, over fifty avian species rely on this remarkable desert tree.

An aspiring entrepreneur once reported he could turn the presumed unlimited numbers of our High Desert's Joshua Trees, which he called "wasteland cactus", into useable paper. In the 1880s, thousands of Antelope Valley acres supporting very old trees were purchased to support the endeavor. A towering 66 feet tall tree was felled to celebrate the beginning of operations. Chinese labor was used to hack trees into two foot length sections and haul them to a pulp works in Soledad Canyon. Baled pulp was transported via the Southern Pacific Railway to Los Angeles Harbor, and then by ship onto London. Mildew took its toll on the passage, limiting profits considerably. This questionable enterprise lasted two years before bankrolling interests came to their senses.

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Possible contender for tallest Joshua Tree.
Photo courtesy of Edwards AFB.

"Our Desert Home, Mojave Desert Icon"
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DTPC CALENDAR OF EVENTS

October 28-29, 2006
Desert Tortoise Preserve Committee's
Fall Work Party

January 27, 2007
Desert tortoise Preserve Committee
Annual Meeting & Banquet