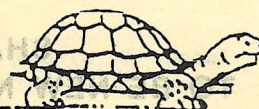


TORTOISE TRACKS



THE DESERT TORTOISE PRESERVE COMMITTEE NEWSLETTER
P.O. Box 453, Ridgecrest, CA 93556

SPRING, 1990
Volume 11, No. 1

YOU ARE INVITED TO MEET THE NATURALIST and VISIT THE DISCOVERY CENTER

The new Tortoise Discovery Center will be at the Desert Tortoise Natural Area (DTNA) this spring. As this newsletter goes to press, the Desert Tortoise Preserve Committee is working with the Bureau of Land Management in an effort to open the Natural Area Interpretive Center to visitors. Final terms are still to be resolved; however, at best, restricted areas of the Natural Area will only be open to visitors when the Naturalist, a Bureau of Land Management employee, or a Committee tour guide is present. For up-to-the-minute information, you may call Carol Panlaqui (619) 377-4258.

Whether the Discovery Center is parked inside or outside the DTNA perimeter, a visit will be worth your time and effort. You'll have the opportunity to meet the Naturalist (see following article), visit the new mobile Discovery Center, and become familiar with the setting of the Natural Area. Seeing the Discovery Center's newly painted graphics alone will make the trip worth your while!

WE HOPE YOU ENJOY... The Desert Tortoise Natural Area.
THERE ARE SPECIAL RULES TO PROTECT TORTOISES AND HABITAT
PLEASE DO NOT

- COLLECT TORTOISES
- RELEASE TORTOISES HERE
- HANDLE TORTOISES OR OTHER WILDLIFE

CALL 1.800.446.6743

Warren and Betty Forgey, with artist Narca Craig-Moore, at the Natural Area.

SHANNON GINN TO BE NEW NATURALIST FOR 1990

On March 3rd the Board of Trustees of the Desert Tortoise Preserve Committee announced that Shannon E. Ginn will be the new naturalist for the Desert Tortoise Natural Area during spring of 1990. Miss Ginn received a Bachelor of Arts degree in biology (with honors) from Princeton University and a Master of Sciences degree in forestry from Virginia Polytechnic Institute and State University. She has been working at the Deep Canyon Desert Research Station in Palm Desert under the direction of Dr. Lucy Jacobs for the last few months.

Shannon will provide interpretive services about five days a week, including weekends, between March 15th and June 2nd. Using the new Tortoise Discovery Center as a base of operations, she will greet visitors, offer educational materials, and lead tours to individuals, families, and groups.

HELP NEEDED THIS SPRING

We could use some volunteer help at the Desert Tortoise Natural Area during busy weekends this spring. During these times the Naturalist will be busy with visitors and away from the Discovery Center at times. It would be helpful if we had another person to greet visitors and sell products if necessary. Prime hours would be between 10:00 a.m. and 3:00 p.m., with peak visitation at mid-day. For further information, please call Carol Panlaqui (619) 377-4258.

ANNUAL MEETING HELD

The annual corporate meeting of the Desert Tortoise Preserve Committee, held January 20th in Bakersfield, was once again both a pleasant and informative event. Bev Steveson and Laura Stockton deserve kudos for coordinating the dinner arrangements and awards presentation (see Page No. 6). The afternoon business session offered those attending the opportunity to hear the annual reports of members of the Board of Trustees. A question and answer period which followed produced many varied and timely discussion topics, demonstrating a high level of interest and concern among Committee members.

It's always a pleasure and a welcomed opportunity to meet newcomers, but seeing members electing to attend in successive years is especially gratifying to the board. If you didn't join us this year, perhaps reading about the program you missed will prompt you to put the annual meeting on your calendar for 1991.

CHARLES PETERSON GIVES ANNUAL DINNER ADDRESS

"How Do Desert Tortoises Get Enough Water and Energy to Survive?" was the title of Charles (Chuck) Peterson's presentation, which offered a rare opportunity to learn about an extremely important study being conducted at the Desert Tortoise Natural Area. Chuck incorporated a perfect blend of technical data, personal experiences, and beautiful slides with a dash of humor to produce an exceptional program.

Chuck has been interested in reptiles in general, and turtles and tortoises in particular, since he was very young, when he spent summers at his grandparents' lakeside home in Michigan. At Michigan State University, where he received his B.S. in Zoology, he became interested in Physiological Ecology: how animals survive in and adapt to harsh and stressful environments. He was able to combine his interests by doing a research project for an undergraduate honors thesis on hibernating painted turtles, which he later published in the *Journal of Herpetology*. Chuck then came to UCLA to work with Professor Ken Nagy, who introduced him to the desert tortoise.

Chuck began his presentation by expressing his respect and admiration for the Desert Tortoise Preserve Committee's goal of habitat protection, emphasizing that this is the single most important way to conserve species. He noted that the primary function of the Desert Tortoise Natural Area (DTNA) is just that—to preserve a chunk of Western Mojave habitat, but the Bureau of Land Management Plan (BLM) also allows scientific research on the DTNA if the research meets several explicit and strict criteria. The following excerpt provides insight into Chuck's study:

"The desert tortoise is very interesting to physiological ecologists because it is a large ectotherm (therefore subject to temperature constraints on activity), it is completely herbivorous (therefore experiences seasonal problems of both food quantity and food quality), but lacks a concentrating kidney and a salt gland (which help desert herbivorous mammals and lizards, respectively, deal with water and salt balance problems). Despite these challenges, desert tortoises are long-lived and able to reproduce even in drought years. How do they do it? What adaptations allow them to live where they do? How do they get enough energy and water to survive and reproduce?

Early laboratory studies revealed some adaptations: desert tortoises have very low evaporative water loss rates, low metabolic rates, high tolerance to dehydration (for example, they can survive a doubling of the salt concentration of their blood), they excrete excess nitrogen as uric acid, which tends to precipitate out of the solution and therefore can be excreted without much loss of water, and they store uric acid and other wastes for long periods in their large

urinary bladder, which acts as a "toxic waste dump" so that they need not urinate often and can conserve water.

Field studies done by John Minnich near Barstow and by Ken Nagy and Phil Medica in Nevada have revealed other fascinating adaptations. Tortoises apparently forego homeostasis--that is, unlike almost all other animals known, tortoises do not tightly regulate blood concentrations of salts, but instead use their capacity to tolerate high concentrations and let these values change through the year. Tortoises are never in water or energy balance at any given time (they are always losing more than they are gaining or gaining more than they are losing), but manage to balance their accounts over the year as a whole. One way they do this is by using their bladders as both a "toxic waste dump", and as a "canteen"--tortoises can reclaim the water in their bladders and use it for other bodily processes like digestion or organ hydration.

Behavior is an important part of the tortoises' unusual strategy: extended inactivity and diet selection play large parts, but apparently most important is their ability to sense and exploit unpredictable summer rainshowers. Tortoises emerge just before a rain and station themselves at drinking basins that they have previously dug in the desert floor (tortoises are the only reptile, and one of the very few other animals, that are known to modify their environment for the purpose of collecting water). When the basins fill, tortoises drink, using a stereotyped posture. These field studies suggest that drinking water from summer rains is of utmost importance in balancing the yearly water and salt budgets, and in making it possible to obtain enough energy (from eating dry plants) to grow and reproduce.

But these observations raise the question: What about West Mojave tortoises, which thrive in a region that receives very little summer rainfall? These are the questions that prompted my research project, which will (hopefully!) lead to my doctoral dissertation.

I am doing a comparative study of tortoise physiological ecology in the East Mojave (Ivanpah Valley) and the West Mojave (DTNA), using a variety of techniques (including doubly-labeled water to measure water flux and metabolic rates of free-ranging tortoises, chemical analysis of blood and urine for salt and osmotic concentrations, behavioral observation and feces analysis to determine diet, and chemical analysis of plants for energy, water, nitrogen, salt, and fiber contents) to address questions of energetics, water and salt balance, and nutrition in relation to rainfall amount and seasonal pattern.

So far, my study (which has been funded by grants from UCLA, Sigma Xi, American Society of Ichthyologists and Herpetologists, and BLM) has been somewhat frustrating, due to the combined effects of the Upper Respiratory Disease Syndrome (which I and Craig Knowles discovered at the DTNA), and the extreme drought conditions of 1989,

when there was essentially no growth of annual wildflowers, and many shrubs did not produce leaves. There has been some mortality of my study animals at the DTNA, and all tortoises lost body weight over 1989; they probably entered hibernation in worse shape than they started the season in March."

Chuck told the story of how his study evolved, from finding study sites that were as far east and west as possible, as similar as possible in altitude, soil type, vegetation, etc. as possible, and relatively undisturbed by vehicles and livestock (i.e. fenced), to obtaining permits from all the state and federal government agencies involved (which required some modifications of his research proposal), and actually starting field work.

He closed his talk by emphasizing the importance of scientific research to conservation and management efforts. His study is helping to resolve such important questions as:

- What are the water and energy requirements of desert tortoises?
- How do tortoises choose which plant species to eat?
- What are the baseline parameters of blood chemistry for healthy wild tortoises?
- How does the weather affect the survival strategy of tortoises?
- What are the characteristics of good tortoise habitat?

Charles Peterson, scientist, noted that he does not name the tortoises he so diligently and tenaciously tracks and studies; however, good-natured "Chuck" admitted that a simple description of one fellow does resemble a name..."Pugnacious Peg Leg Pete."

Thank you, Chuck!

We wish you success in your pursuits.

SYMPOSIUM PLANNED IN AUGUST

The Symposium on Turtles & Tortoises: Conservation and Captive Husbandry is scheduled for August 9-12, 1990, at Chapman College in Orange, California. Participants, whose talks concern the desert tortoise in particular, include Dr. Walter Rosskopf, D.V.M. and Kristin H. Berry, PH.D., a recognized authority on the desert tortoise and the Committee's Scientific Advisor. For further information, write to Symposium on Turtles & Tortoises, P.O. Box 8952, Fountain Valley, CA 92728.



WARREN and BETTY FORGEY RETIRE

Two of our founding members, Betty and Warren Forgey, retired in January after serving the Committee for fifteen years. They will continue to assist the Committee and Natural Area activities but on a lesser scale, however.

Betty was chosen as the first president of the Committee and served from 1974-1977. In 1980 she was reelected for another two years. She served as recording secretary for most of the other years on the Committee, and held that position upon retirement.

Betty became involved with tortoise protection in 1972 when she was Director of the Desert Empire District of California Garden Clubs, Inc. After hearing a talk by Dr. Kristin Berry about forming a Tortoise Preserve, she solicited the support of desert garden clubs to start the "H.A.V.E. F.A.I.T.H." program and modeled the tiny plastic tortoise pins to raise money to fence the Preserve.

Warren is a California native and a lifelong resident of the Boron area. The town of Boron is about 30 miles southeast of the Desert Tortoise Natural Area. Warren has served the Committee in years past as vice president and has been a tour guide from the very beginning of the tour program on the Natural Area. He also assisted with the photo-monitoring program and participated in fence repair parties and repair and maintenance. Always, he was at Betty's side offering support and assistance.

Together they accomplished a successful fund (subscription) raising drive, traveled to chapter shows of the California Turtle and Tortoise Club, and coordinated spring tours on the Natural Area.

The Board of Trustees honored Warren and Betty with an Award of Appreciation at the annual meeting in January. Although the couple have retired from the Board of Trustees, they insist they will remain involved with Committee projects and continue-- in fact, have more time--to work

for the protection and preservation of all desert flora and fauna. As time allows, they look forward to excursions in their motorhome, as they enjoy their hobbies of photography, sightseeing, fishing, and the study of all living desert "things".

Thank you, Warren and Betty, for the many years of selfless dedication to the goals of the Desert Tortoise Preserve Committee.

We wish you all of the very best in your retirement! Perhaps you will consider sharing some of your observations of desert life with Tortoise Tracks.

LET'S TALK TORTOISE

Perhaps you recognize "Let's Talk Tortoise" as the title of a Desert Tortoise Preserve Committee brochure, which for many years served as a source of introductory desert tortoise information. The Committee is currently preparing an up-to-date brochure and hopes to have it available in the near future.

For so many years the very basic information about the tortoise has been difficult for the layman to obtain; however, as past issues of Tortoise Tracks have demonstrated, that situation is changing dramatically. The plight of the tortoise, besieged by both man and nature, has catapulted it into the spotlight, and curiosity about this "living fossil" is increasing at a rapid pace. Long sought intense research is gaining momentum, and--slowly but surely, one by one--questions are being answered. In an effort to offer our members an opportunity to gain answers to questions they may have regarding the desert tortoise, the Desert Tortoise Natural Area, or the Committee, "Let's Talk Tortoise" will become a regular feature of Tortoise Tracks. Questions and answers will be answered as time and space permit. Please send your questions and/or comments to: Newsletter Editor, Desert Tortoise Preserve Committee, Inc., P.O. Box 453, Ridgecrest, CA 93556.

To complement the introduction of "Let's Talk Tortoise", we are pleased to include in this issue "Commonly Asked Questions About the Desert Tortoise and Answers", prepared by Kristin H. Berry. These removable center pages, part of a package prepared for and used by Natural Area tour guides since 1974, has been updated yearly. The 8-1/2" x 11" format may be readily reproduced--perhaps you know of a teacher, librarian, youth leader, etc., who would appreciate a copy!

Ed. Note: Printing of this addition to Tortoise Tracks has been funded by a member who does not desire recognition.

COMMONLY ASKED QUESTIONS ABOUT THE DESERT TORTOISE AND ANSWERS

by Kristin H. Berry

1. *What is the difference between a turtle and a tortoise?*

In the United States the following distinction is made between the terms turtle and tortoise:

A **tortoise** is a land dwelling turtle with high domed shell and columnar, elephant-shaped hind legs. Tortoises go to water only to drink or bathe.

In contrast, the word **turtle** is used for other turtles: pond turtles, river turtles, box turtles, musk turtles, sea turtles, etc.

2. *How many different kinds of tortoises occur in North America?*

Three species of tortoises occur in the United States and a fourth is found in Mexico. The desert tortoise (Xerobates [Gopherus] agassizii) is found in the Mojave and Colorado/Sonoran deserts of California, southern Nevada, Arizona, southwestern Utah, and in Mexico. The Texas tortoise (Xerobates [Gopherus] berlandieri) occurs in southern Texas and northeastern Mexico. Some can be found in California, where they were sold in the past for pets. The third U.S. species is the Gopher or Florida tortoise (Gopherus polyphemus), which lives in southwestern South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, and extreme southeastern Texas. The fourth species is the bolson tortoise (Gopherus flavomarginatus), which is found in a very small area in Chihuahua and Durango, Mexico.

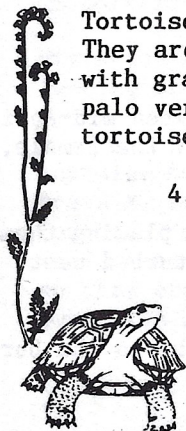
3. *What is the habitat of the desert tortoise in the southwestern U.S.?*

Tortoises occupy a wide variety of habitats in the United States. We can make two generalizations about the habitats, however. Tortoises living north and west of the Colorado River-Grand Canyon complex (California, southern Nevada, southwestern Utah, and extreme northern Arizona) occur in valleys, flat areas, fans, bajadas and washes. These tortoises live in the Mojave and Colorado deserts and are generally found below the 4,000 foot elevation in tree yucca (Joshua tree and Mohave yucca) communities, creosote bush and saltbush scrub habitats, and in some ocotillo-creosote habitats. They occupy a wide variety of soil types, ranging from sand dunes to rocky hillsides, and from caliche caves in washes to sandy soils and desert pavements. The tortoise must have suitable soils and terrain for constructing a burrow and must have adequate annual and perennial plants in the spring and/or summer for forage.

Tortoises living in the Sonoran Desert of Arizona occupy entirely different habitats. They are found on the steep, rocky slopes of hillsides. The slopes may be covered with granitic or volcanic boulders and are often covered with dense vegetation. The palo verde-saguaro cactus is the most frequently occupied habitat, although some tortoises are found in oak woodlands and stands of heavy bunch grass.

4. *When can one see tortoises in the California deserts? When are they active?*

In general, tortoises hibernate from October through February and are underground in burrows during that time. On a warm sunny day, an occasional animal may be found near the mouth of a burrow in late fall or winter.



The prime activity period in the western Mojave Desert is the late winter and spring, from March through May. After this time, when daytime air and soil temperatures are elevated and over 90°F and the food supplies of annual plants have dried, a large percentage of tortoises become inactive and remain underground in burrows. Some will emerge a few times a week or once every two or three weeks, especially in early morning or late afternoon. Others will not come out of burrows until August or September, or when summer thundershowers trigger a brief flurry of above-ground activity. With summer rains, the tortoises will emerge from burrows to drink and travel.

Thus, if one wants to find tortoises in the western Mojave, one should look in prime habitats in spring. In early spring, tortoises are out from mid-morning to mid-afternoon, during the warm part of the day. As air temperatures rise, tortoises emerge from burrows earlier and retreat earlier. By May, tortoises may be out by 6:00 a.m. and back in burrows by 9:00 a.m. In late spring, tortoises may also be active in late afternoon. In summer, the best time to see them is during or after a thunderstorm.

In the eastern Mojave and Colorado deserts, tortoises may also have a summer activity period, which is associated with summer rains and a summer food supply.

5. *What is hibernation and what do tortoises do when they hibernate?*

Hibernation for a tortoise is a period of inactivity, generally below ground in a burrow or den. The body temperature is lowered and is close to that of the air temperature in the burrow, about 40 to 60°F. The heart rate, respiration rate and all bodily processes are slowed.

6. *What do tortoises eat in the wild?*

Tortoises are selective in choice of foods. Food preferences depend on locality and availability of food items. In general, tortoises in California feed on annual wildflowers, such as blazing stars, lupines, loco weeds, lotus, Indian wheat, forget-me-nots, desert dandelions, gillias, phacelias, coreopsis, alkali goldfields and many other species. They also eat annual and perennial grasses and fresh pads and buds of some species of cactus.

After the annual wildflowers have dried in spring, tortoises will eat the dried plants throughout late spring and into summer and fall. Consumption of dried plant material is somewhat dependent on the tortoise's state of hydration, and whether the tortoise has recently drunk water.

7. *Do tortoises drink water in the wild?*

Yes. Tortoises drink free water where it collects in pools near rocks or in depressions. Tortoises will dig depressions to collect the water and such depressions can often be seen on areas of desert pavement.

Tortoises can store water in the bladder, where it can be reabsorbed. During spring, summer, and fall rains, tortoises will drink and "freshen" the water stored in the bladder. Bladder water varies in color from clear and colorless to dark brown. Fresh water is clear and colorless; water that has been stored for some time is dark and concentrated.

8. *When do females lay eggs and where?*

In the wild, females usually lay one or more clutches of 1 to 14 eggs between mid-April and the first week of July. The size of the clutch depends on the size of the female, with small females producing smaller clutches than the larger females.

Females dig the nests with the hind legs and drop the eggs into the nest, placing them with the hind legs and covering them carefully. The location of an undisturbed nest cannot be detected by humans.

Nests are most often associated with the female's burrows. The nest may be in the burrow mound, the mouth of the burrow, or deep inside the tunnel.

9. *How much time is required for eggs to hatch?*

The eggs, which are the shape and size of ping pong balls, may hatch in 70 to 120 days. The timing is dependent on the location of the nest and how much warmth it receives, among other factors. Some clutches may overwinter and hatch in spring.

10. *How large is the largest known desert tortoise? How are tortoises measured?*

The largest known desert tortoise is a captive tortoise about 15 inches in length and is the property of the California Department of Fish and Game. It has been a pet for many years and was turned in to the Fish and Game office in Long Beach in the 1970's.

The largest known wild desert tortoise on the Desert Tortoise Natural Area was about 14.5 inches. The tortoise was a male and was frequently observed on the western portion of the Natural Area in the 1970's.

Tortoises are measured with calipers. One end of the caliper is placed at the edge of the carapace (upper shell) immediately above the head and the other end is placed on the carapace edge above the tail. The straight line distance is considered the length of the shell or carapace.

11. *What are tortoise burrows like?*

Tortoise burrows vary considerably in length and type. The style of burrow appears to be dependent upon the region, soil type, and vegetation in which they are found. For example burrows in Utah are of two basic types: deep winter dens in caliche caves in washes, some of which are 30 feet in length; and shallower summer burrows three to six feet in length in the flat areas. In the western Mojave Desert, tortoises have a variety of burrows. They use burrows about 2.5 to 10 feet in length for summer estivation and winter hibernation. They may use shallower burrows or pallets that just barely cover the shell in spring, summer, and fall also. These temporary burrows or pallets can be fragile and may be used for shelter for a few days while a tortoise is foraging in a particular area. A temporary burrow usually lasts from a few weeks to a season and then disintegrates.

Each tortoise usually has more than one burrow. The number of burrows the tortoise uses may depend on age and sex, as well as on the season. The burrow is usually the size and shape of the tortoise--half moon in shape and flat on the bottom. Small tortoises have small burrows and large tortoises have large burrows.

12. *Why are tortoise burrows important?*

The tortoise burrow provides protection from the extremes of heat, cold, lack of moisture, and too much moisture. The burrow is especially important because it provides (a) a cool place for the tortoise during the dry hot days in late spring and summer when water and food are unavailable and (b) a relatively "warm" site for winter hibernation. The tortoise spends most of its life in the burrow.

Burrows serve as protection from predators, such as common ravens, coyotes, kit foxes, golden eagles, and greater roadrunners.

13. *Do tortoises migrate?*

Migration refers to movement to a particular place for a particular purpose, such as feeding or breeding, and then return to the former site.

I do not think that migration is an appropriate term to use for tortoise movements. Each tortoise has a home range or activity area. A home range is the area in which a tortoise travels, feeds, sleeps, courts, and has its burrows. This is the area with which the tortoise is familiar. Large tortoises have large home ranges and small tortoises have small home ranges. Females are more sedentary than males and do not move about as much, so they probably have smaller home ranges. Large males are known to occupy home ranges over 0.75 square mile.

Tortoises appear to have a good sense of compass direction. They also are very familiar with local landmarks. They can travel to find burrows in a straight line. They also know locations of other tortoises (e.g., males know the location of females), drinking sites, mineral licks, and particular food sources.

Some people, upon seeing tortoises cross roads in spring, think that tortoises are "migrating." Actually the tortoises are merely living in close proximity to the highways and roads and will travel across them during the course of moving about the home range.

14. *When do tortoises court and mate?*

Male tortoises generally court female tortoises whenever the opportunity presents itself, e.g., in spring, summer, or fall. There does not appear to be a well defined "mating season."

Male tortoises may court and mount the females, but not actually copulate. Don't assume that mating is occurring because you see a male mounted on a female. The subject is complex and deserves much more study.

15. *How does one distinguish a male from a female tortoise?*

Sex is difficult to determine until the tortoise is about 7 inches in carapace length. Male tortoises develop chin glands or knobs on the chin, a longer gular horn, have a longer tail, and have a concave plastron (a dish-shaped depression on the posterior, underside of the shell).

Females may have longer toenails for digging nests, a small gular horn, and no obvious chin glands.

16. *What predators eat tortoises?*

The type of predator varies depending on the age and size of the tortoise. There are egg predators, such as the gila monster, kit fox, coyote, and badger. Predators of juveniles include ravens, roadrunners, some snakes, kit foxes, bobcats, badgers, coyotes, and probably the spotted skunk.

The larger the tortoise, the more likely it will be able to resist predation. Large tortoises may be eaten by kit foxes, badgers, bobcats, coyotes and golden eagles. The large mammalian predators are not likely to eat tortoises unless other food sources, such as rabbits and rodents, are in short supply. Coyotes and kit foxes may dig tortoises out of their burrows to eat. These predators can eat the tortoise without breaking open the shell.

DO NOT RELEASE CAPTIVE TORTOISES

It is illegal and inhumane to release captive tortoises in the desert. They may transmit diseases to the wild populations. They may not be genetically compatible with the resident tortoises where they are released—experts emphasize the importance of not mixing genetic groups because of lowered fitness and higher mortality rates. They probably will not survive. Mortality rates are high and they are likely to suffer a lingering death.

HELP IS READILY AVAILABLE when a captive desert tortoise is in need of a new home. Each state within the tortoise's geographic range has an adoption program—just call the number listed below for your area.

CALIFORNIA: The California Turtle and Tortoise Club assists the Department of Fish and Game with adoptions in the southland (714) 962-0612.

ARIZONA: Department of Game and Fish (602) 942-3000.

NEVADA: Department of Wildlife (702) 486-5127.

UTAH: Department of Wildlife Resources (801) 533-9333.

The Desert Tortoise Preserve Committee, a non-profit organization, is composed of private citizens who are deeply concerned for the welfare of the wild tortoise populations throughout their geographic range. For further information, please write to the Committee at P.O. Box 453, Ridgecrest, California 93556.

TORTOISE TEARS

The desert is so fragile
And its wildlife so rare
Its ours to keep safe forever
Doesn't anybody care?

Doesn't anyone realize
They invaded this land
They came from the east
Across the desert sand.

They come with dirt bikes and their trains
They lay the wire straight
The desert has unwillingly
Opened up her gate.

They mine the silver and the gold
They ravage and they rape
They plunder and they litter
The virgin land they take.

The Joshua, the Creosote
The tortoise and his burrow
The coyote calling to the wind
What will be tomorrow?

God has made a special place
He created just for me
The desert is a wonder
For one and all to see.

But if they rape and plunder
And turn the desert bare
What will be left tomorrow
For our children all to share?

Why do they shoot the animals
Just to take a life away
Can't they save them for the children
For tomorrow and today?

Its hard for me to tell you
What this desert means to me
But most of all this love I have
Is for its life to be.

Is someone out there listening
To a heart that's filled with tears
From me a lonely tortoise
With no one to share my fears.

As I look across the desert
To the sun so far from me
I see the scars across my land
And now I am not free.

They race across my burrow
To a point I know not where
They shoot me with their weapons
Just because I'm there.

Motorcycles, dunebuggies
And four wheel drives
Grazing sheep and roaming burros
Destroy the plants on which I thrive.

From the landfills to the quarries
To as far as you can see
Man has come to this great land
And not saved a place for me.

They come with tanks and bomb the land
But when this is not enough
They buy more land to blow away
Because they think they're tough.

People think my home is waste land
But the hare and I agree
If it wasn't for this waste land
There'd be no home for me.

There is no time to waste today
For when all is said and done
There'd be no way to find a mate
Then we'll all be gone.

The desert is so fragile
And its wildlife so rare
Its ours to keep safe forever
Please, someone care.

Joan Kaaihue



FROM THE BLM CORNER

A lot is happening in the Bureau of Land Management's (BLM) Ridgecrest Resource Area regarding management of the desert tortoise. I would like to highlight a few items.

Realty Specialist Tom Gey reports that the first two Desert Tortoise Natural Area (DTNA) land exchanges have been completed! Several other of these exchanges in which BLM acquires private land in the DTNA are almost finished. The long hard work is starting to pay off.

Area Manager Lee Delaney states that BLM and the Desert Tortoise Preserve Committee (DTPC) are close to reaching an agreement to reopen the DTNA kiosk. Since October 1989 the kiosk has been included in a 37,700 acre quarantine to help the endangered desert tortoise. The kiosk will serve as a focus for educating the public.

American Honda Motor Company is making progress in its proposal to evaluate the effects of habitat enhancement and other specified measures on relocation of desert tortoises. In cooperation with BLM, Honda is approaching the U.S. Fish and Wildlife Service (USFWS) with this proposal as partial mitigation, under its Agreement with the California Department of Fish and Game (CDFG), for Honda's development of a vehicle test track on private land adjacent to the DTNA. Honda currently is establishing four fenced test plots on 640 acres of public land in the northwest corner of the DTNA.

The westernmost two plots are receiving artificial or enhanced precipitation through the use of sprinklers to simulate wet-year conditions and improve tortoise forage. Starting in late March or April, pending approval by USFWS and CDFG, and under the supervision of BLM, Honda will screen all tortoises to be relocated from its project lands, and all tortoises at the DTNA relocation site, for symptoms of upper respiratory disease syndrome (URDS). Honda then will integrate healthy relocation tortoises into the host tortoise populations on two of the plots, one of which will receive artificial precipitation.

This will begin a research project intended to provide critical information on numerous questions related to effective tortoise relocation, integration of relocated and host tortoise populations, and management of existing tortoise habitat, among others. If you would like to volunteer to help move tortoises, please call Michael Weinstein, Honda's managing biological consultant at (805) 966-0811, or Jan Hamber, Honda's supervising field biologist. Leave a message for Jan with Ron Bridges of Honda's security staff at (619) 373-8674.

BLM has also begun informal consultation with USFWS on a proposal to graze sheep in 1990 in the West Mojave and near Ford Dry Lake (just west of Blythe). BLM proposes to establish 250 permanent

study plots prior to sheep turnout in tortoise habitat. After the grazing season BLM would monitor the plots to record changes to tortoises and tortoise burrows. We need help in this labor-intensive effort. If you are interested, contact Ridgecrest BLM wildlife biologist Bob Parker at (619) 375-7125.

Greg Thomsen, Resources Staff Chief
Bureau of Land Management
Ridgecrest Resource Area

SPECIAL MAGAZINE ISSUE AVAILABLE

Single copies of the Magazine of Defenders of Wildlife's January/February 1990, "Special Issue: California's Vulnerable Desert", are available by mail. Send request plus \$3.00 to Defenders Magazine, 1244 Nineteenth Street, N.W., Washington, D.C. 20036. Accompanied by many color photographs, this publication addresses the question: "Can southern California's magnificent wild expanses be saved from careless human abuse?"

DESERT TORTOISE COUNCIL TO HOST 15th ANNUAL SYMPOSIUM

The Desert Tortoise Council meets March 30, 31, April 1, and April 2 at the Holiday Inn in Victorville for the 15th Annual Meeting and Symposium. The meeting begins promptly at 1:00 p.m. on Friday afternoon, March 30, and continues through Sunday Afternoon, April 1.

On April 2, at least two field trips will be offered. Dr. Craig Knowles, who conducted a year-long survey of the distribution and abundance of ravens in the California deserts for the Bureau of Land Management, will lead a trip to observe raven populations at different types of landfills in nearby areas. The second field trip will feature tortoise habitat north of Barstow, on public lands proposed for the expansion of Fort Irwin.

The banquet speaker will be Dr. Jim Gillingham, who will give us an overview of behavioral research on the endangered Tuatara of New Zealand and exquisite slides of New Zealand's outlying islands. Dr. Gillingham's slide programs are a favored item at international meetings.

The meeting promises to be especially exciting. Robert Smith, Associate Regional Director for Region 1 of the U. S. Fish and Wildlife Service, will give the Keynote Address: "The Desert Tortoise: The Final Decision and its Ramifications." We expect Mr. Smith to announce whether or not the tortoise will be federally listed beyond the 240-day emergency period, which ends April 2.

A special session will be held on diseases of wild tortoises, with an emphasis on upper

respiratory disease syndrome (URDS). Dr. Elliott Jacobson and Dr. Jack Gaskin, research veterinarians at the University of Florida, will present results of a research project focused on ill tortoises at the Desert Tortoise Natural Area and healthy tortoises from the Ivanpah Valley. Dr. Ken Nagy of the University of California at Los Angeles and his graduate students Brian Henen and Chuck Peterson will describe the research program initiated in 1989 on health profiles of wild tortoises. Another aspect of disease is epidemiology. Dr. Craig Knowles will present the results of a 1989 survey at the Desert Tortoise Natural Area and Fremont Valley.

Many other scientific papers will be offered on such subjects as:

- juvenile bolson tortoises
(Dr. David Morafka et al.),
- year-round distribution and abundance of ravens
(Dr. Knowles et al.),
- observability of Sonoran desert tortoises: comparisons of telemetry-aided vs. visual sightings
(Dr. Audrey Goldsmith and Dr. Bill Shaw),
- a population model for the desert tortoise
(Dr. Claudia Luke),
- the Honda research project on relocation of tortoises
(Dr. Mike Weinstein), and
- the results of the 1989 surveys at the Desert Tortoise Natural Area
(Dr. Kristin H. Berry et al.).

NEW ACTIVE MEMBERS

The Committee's Board of Trustees is pleased to announce that Roger Dale and Peggy Scanlan have become Active Members. Roger, elected to the Board at January's Annual Meeting, will serve as Recording Secretary. Peggy has taken over the duties of Products Chairman. Watch for more about Peggy and Roger in a future issue of Tortoise Tracks.

LIFELINE FUND REPORT



The Desert Tortoise Preserve Committee has been in the process of selecting a Naturalist for the Desert Tortoise Natural Area (DTNA) for the 1990 spring season. This spring the naturalist will use the new Tortoise Discovery Center as a base of operations, mobile visitor center, and office. This wonderful facility is made possible by the gift of Mrs. Helen B. Drake, honoring her late husband, Keith Drake.

The Discovery Center is receiving the final touches and hopefully will be ready for the 1990

field season. Graphic designs, which incorporate desert natural history subjects, are being painted on the exterior. One side features a tortoise coming over a rise, framed by a desert landscape with wild flowers, all on an impressive scale. The other side, as background to displays and exhibits, presents a varied scene of desert wildlife and plants. Such "educational advertising" will serve to capture the attention and interests of passersby, so that our conservation message can be delivered far and wide. This and other essential work on the project is being funded by major contributions from Mr. Walter Allen, Mrs. Paquita Machris, Dr. Frederick Turner, Newman's Own, Inc., the Southwestern Herpetologists Society, and the Charlepeg Foundation. We are deeply grateful for their support, and for yours, which helps defray operating costs.

The Naturalist and Tortoise Discovery Center will probably be stationed just outside the Natural Area. The Bureau of Land Management's "quarantine" of the Natural Area includes the kiosk and visitor facilities. The Bureau proposes to permit visitors to the kiosk and nature trails under very restricted conditions. The Committee is still entertaining discussions with Bureau representatives and hopes to reach a satisfactory resolution in the next few weeks. Rest assured, however, that the Naturalist will be available to greet visitors, whether outside the Natural Area or at the kiosk. We believe that the presence of a Naturalist is especially critical this year. The Naturalist can inform visitors about the precarious condition of tortoise populations, upper respiratory disease syndrome, and how to help.

Turning to land acquisition, a small but important step was taken when escrow closed in January on a 2.5 acre parcel along the southern boundary of the DTNA. We will be working to encourage other landowners to follow this example, and hope to turn a trickle into a flood of purchases in this critical boundary area.

The Frontline Education Campaign, designed to prevent the spread of disease in wild tortoise populations, is moving forward. One of the principle tasks is to compile a list of "authorities," who can transfer appropriate information to the public. Lists are being developed for Animal Control Officers, Humane Societies, County Sheriff's Offices, the Highway Patrol, and many other providers of information. If you are still thinking about a contribution to the Frontline Education Campaign, please don't hesitate. Every added donation allows us to reach more people, so that they can help solve disease problems, not add to them.

The annual Desert Tortoise Council Symposium, coming up March 31-April 2, in Victorville, should be particularly lively, informative, and well attended this year. I hope to see many of you there.

Curtis Horton
Lifeline Fund Director

AWARDS PRESENTED AT ANNUAL MEETING**GOLDEN TORTOISE AWARD**

Awarded to organizations or individuals outside the Desert Tortoise Preserve Committee who have made outstanding contributions to desert tortoise conservation.

MICHAEL BEAN - ENVIRONMENTAL DEFENSE FUND

FAITH CAMPBELL - NATURAL RESOURCES DEFENSE COUNCIL

RICHARD SPOTTS - DEFENDERS OF WILDLIFE

In addition, Richard Spotts has been instrumental in securing congressional appropriations for land acquisition on the Desert Tortoise Natural Area (DTNA) and Chuckwalla Bench in 1988, '89 and '90 for a total of \$2.5 million.

SPECIAL RECOGNITION PHOTO AWARDS

Presented to Board of Trustees and Active Committee Members in recognition of their efforts on behalf of the Committee, (usually given upon retirement from the Board).

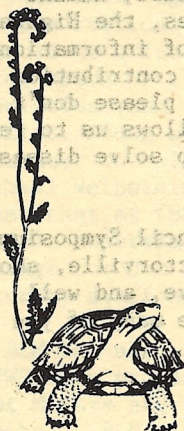
BETTY and WARREN FORGEY - Betty, acting as an ambassador for the desert tortoise and the Committee wherever she goes; and Warren, always supportive and sharing his technical expertise, wisdom, and desert experience.

MARY TROTTER - Always sharing her time, organizing abilities, and writing expertise.

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Jean Jones, Editor

DESERT TORTOISE PRESERVE COMMITTEE, INC.
P.O. Box 453, Ridgecrest, CA 93556

ADDRESS CORRECTION REQUESTED



CERTIFICATES
Given to individuals or organizations in recognition of substantial contributions to the goals and efforts of the Committee during the year.

ALAN BALDWIN - Continuing efforts to educate young people about the desert and fundraising for the DTNA.

ROGER DALE - Participating in fence repair work.

DON DOLLAR - Protecting the DTNA as a Bureau of Land Management Ranger and cooperating with the Committee to maintain the DTNA.

TOM GEY - Bureau of Land Management land acquisition efforts for the DTNA.

RON and MARYANN HENRY - Participating in fence repair work.

RICK HEWETT - Commitment to The Nature Conservancy land acquisition program for the DTNA.

PEGGY SCANLAN - Presenting the Committee's educational programs at schools.

MICHAEL and MARY SHEPHERD - Participating in fence repair work.

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