

# Tortoise Tracks

The Desert Tortoise Preserve Committee, Inc.

Summer 1992

13:2



Mr. Eddie Trevino, Wildlife Educator, with sons Cody, 9, on left and Colt, 7, on right and pet desert tortoises.

## Educational Outreach Program A Success

By Jun Lee

When Eddie Trevino, the Desert Tortoise Preserve Committee's wildlife educator, set out this April to educate elementary school students in San Bernardino County about the threatened desert tortoise he communicated to the children that: (1) we can save the lives of a lot of tortoises if we do not take them from the desert, (2) if the children had desert tortoises as pets they shouldn't release them back to the desert, and (3) they shouldn't let adults tell them that they are not important or ignorant about their responsibilities in protecting environmental resources.

The thousands of children Mr. Trevino reached in this trial educational program seemed to get the message. Understanding that human intervention may be either positive or negative, the program participants explored the sensitive relationship between the desert tortoise and human beings. "I was surprised," Mr. Trevino said in a recent interview, "even the younger kindergarden kids caught on to the basic concept that it's illegal to harm desert tortoises."

Please see "Outreach" on page 2

## OUTREACH

continued from page 1

This September the Pilot Educational Program, a jointly funded project by the Preserve Committee and the Bureau of Land Management, will conclude a successful year-long effort which reached about 5,000 elementary school students at 15 campuses in the San Bernardino County School District. Due to budget limitations, the interactive educational program about the challenges the desert tortoise faces in the wild could only be presented at 45% of the total number of elementary schools in the San Bernardino County.

The curriculum was designed to involve the children's participation and elicit their interest. Due to the small presentation size, which was limited to about two classrooms or approximately seventy children, the students were enthusiastic about asking questions and exploring different perspectives about desert tortoise conservation. "When they ask questions," observed Mr. Trevino, "they actually tell little stories about their experiences with tortoises. In fact, I remember one boy at Marshall Elementary School who came up to me after the end of my presentation and asked,

'Do they really shoot tortoises in the desert?'

"And I said, 'yes they do,' and then he said,

'They really shouldn't do that should they?'

"So I said, 'no,' and asked about whether he had known of anyone doing this type of thing, and he said quietly,

'I don't want to say who, but I've seen people who shoot them and I knew then that it was bad and I still think it's bad now.'

"I really felt bad for him," Mr. Trevino reflected, "because I had a feeling someone close to him like family members exposed him to this."

Mr. Trevino is a candidate for a Master's Degree in Biology at the California State University, Dominguez Hills. Father of three boys, Mr. Trevino has had broad educational

'Do they really shoot tortoises in the desert?'

experience with youngsters as a Park Supervisor for the City of Greeley Parks and Recreation Department in Colorado last year. Mr. Trevino conducted his presentation with the assistance of Mrs. Janet Trevino, his wife who is also a graduate student at Dominguez Hills.

**EDUCATIONAL PROGRAM WILL BE DISCONTINUED WITHOUT MEMBERSHIP SUPPORT.**

**PLEASE RESPOND TO OUR YEAR-END FUNDRAISING APPEAL!**

### The Desert Tortoise Preserve Committee

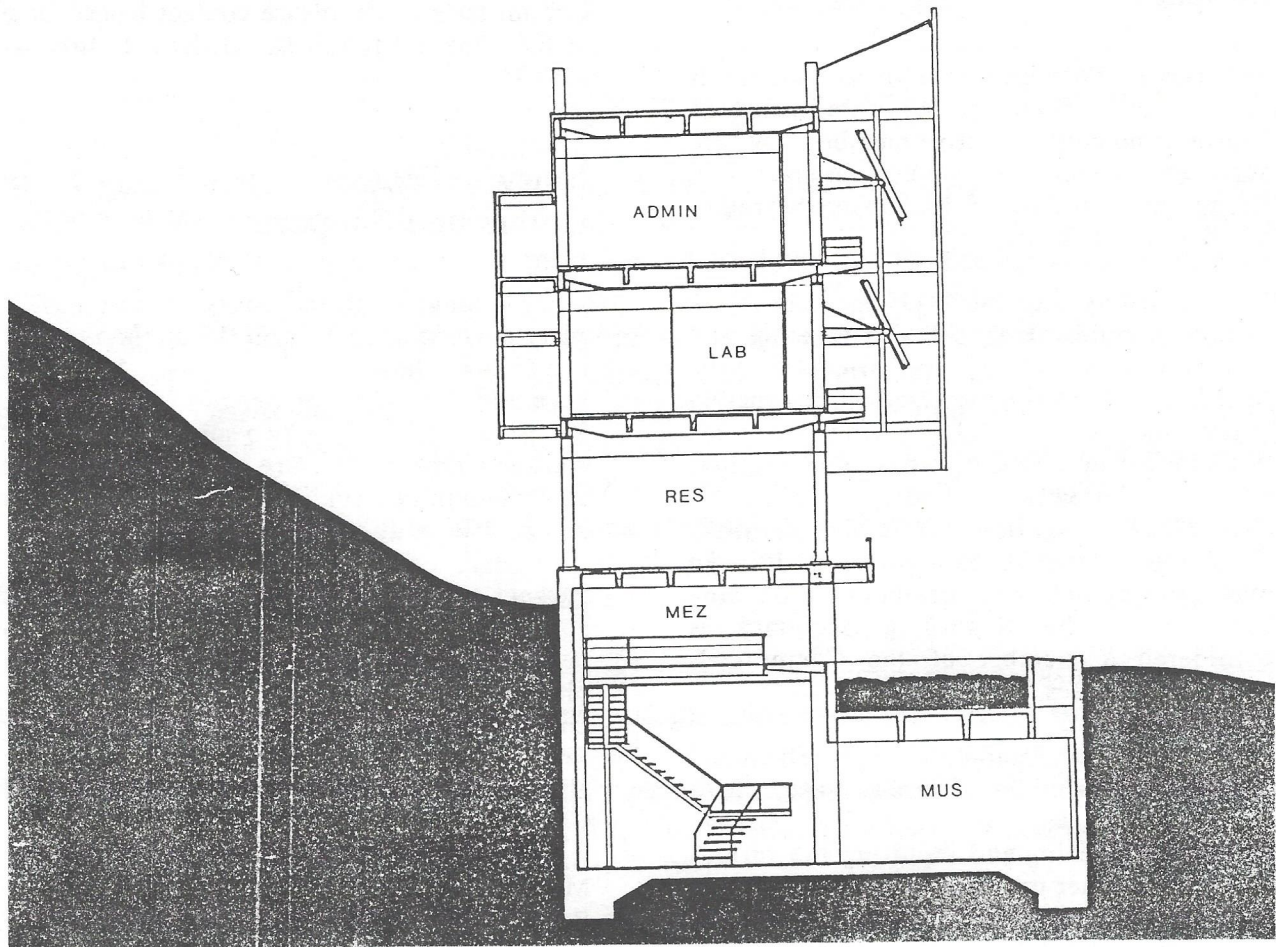
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## Permanent Facility Planned for Desert Tortoise Natural Area

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Architectural sectional rendering of initial design concept.

Illustrated by M. Gutierrez, M. Fisher, T. Marks.

In order to meet the challenges of sharply declining desert tortoise populations at the Desert Tortoise Natural Area, the Preserve Committee is planning a permanent facility which will integrate management, education, visitor services, and research laboratory programming.

The illustration above is just one of several architectural design concepts under consideration. The Desert Tortoise Educational Outreach and Research Center, as envisioned, will serve as an administrative headquarters for the

Preserve Committee as well as a management and residential facility for Bureau of Land Management/Preserve Committee jointly-funded Naturalist program. Other functions of the Center may include a limited captive breeding program and a controlled drop-off location servicing owners of captive desert tortoises who attempt to release their pets back into the wild.

**Interested members should call (800)972-6678 for more information and updates on the planning process.**

## Committee is Seeking New Active Members

The Desert Tortoise Preserve Committee is continually working to build its Board of Trustees and corps of active members. We are currently looking for members interested in filling the positions of Recording Secretary and Newsletter Editor.

The Recording Secretary's primary duties are to take minutes at each Board meeting and then to type the minutes for distribution to the Board. Board meetings are held approximately every six weeks and varying locations throughout southern California. The meetings are always on weekends and typically last all day. This position does not require any prior experience with the Committee and is an excellent way to learn more about our ongoing activities. The Recording Secretary is considered a member of the Committee's Board of Trustees.

The job of Newsletter Editor is best handled by someone who owns or has access to a computer and laser printer. The position involves organizing and inputting the various articles and other materials which other Board members contribute to our quarterly newsletter. The Editor is responsible for preparing a photo-ready copy of the newsletter to be sent for printing. The Newsletter Editor does not necessarily need to attend Board meetings, but may find it helpful and interesting. Depending on the level of involvement desired, the Newsletter Editor may also be appointed as a Board of Trustees member.

Active participation in our organization offers a satisfying opportunity to serve the conservation community and to get acquainted with others who share the goal of protecting desert tortoises and their habitat.

If you are interested in either of the above

positions or would like to learn about other ways you can take a more active role in the Committee's work, please contact Roger Dale at P.O. Box 3591, San Bernardino, California 92413.

## Mary Trotter, a Long-term Committee Supporter, Dies

After a lengthy illness, Mary Trotter passed away on June 21, 1992, on the anniversary of her 68th birthday. A Californian, Mary was born and lived most of her life in San Diego. She is survived by her two sons, Tom Trotter and John Trotter. Her life is marked by public and community service, as well as conservation and education about desert tortoises.

Perhaps one of the early indications of Mary's abilities to work exceptionally hard and to persevere can be seen with her cross-country bike trips. Her favorite was the trip from San Diego to New York in 1949 with her brother Frank, where she used a 3-speed bicycle. She also took a trip from San Diego to the Grand Canyon.

Mary's many friends with the Desert Tortoise Preserve Committee recall her dedication and contributions to the nonprofit corporation. She joined the Committee's Board of Trustees in 1975, a year after the Committee formed, and was active on the Board for 15 years. For 13 years, she served as Treasurer and Membership Chair, no small effort during a period when the Committee's budget and membership grew rapidly. From 1975 until 1987, she and her son Tom Trotter took the message about threats to wild tortoise populations to shows sponsored by chapters of the California Turtle and Tortoise Club throughout the Southland. She passed out thousands of brochures, helped to raise funds by taking donations and selling products, and found new supporters. She also served as the Committee's representative for the San Diego

# The Desert Tortoise and Upper Respiratory Tract Disease

By Elliott Jacobson, D.V.M., Ph.D.  
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## BACKGROUND -- UPPER RESPIRATORY TRACT DISEASE IN CAPTIVE TORTOISES

A disease characterized by a mild to severe nasal discharge has been seen for many years in captive tortoises in Europe, England, and the United States. Although a complete list of the number of species of tortoises known to develop this disease is unavailable, it would be fair to say that until proven otherwise, all species of tortoises should be considered susceptible. In England, this disease is commonly seen in Greek (*Testudo graeca*) and Hermann's (*T. hermanni*) tortoises.<sup>1</sup> The disease has also been seen in free-ranging gopher tortoises (*Gopherus polyphemus*) in Florida (Jacobson, pers. comm.). At the Veterinary Medical Teaching Hospital, University of Florida, species of tortoises presented with nasal discharge include Greek tortoises, leopard tortoises (*Geochelone pardalis*), radiated tortoises (*Geochelone radiata*), Indian star tortoises (*Geochelone elegans*) and gopher tortoises (*Gopherus polyphemus*). The disease has also been commonly seen in captive desert tortoises (*Gopherus [=Xerobates] agassizii*).<sup>2</sup>

Until 1990-1991, attempts at demonstrating or incriminating a casual agent were unsuccessful. Because of negative findings and the failure to incriminate a specific bacteria, a virus was considered as a possible cause.<sup>3</sup> In studies conducted on captive desert tortoises, a bacterial organism, *Pasteurella testudinis*, was isolated and incriminated as a possible cause.<sup>4</sup> However, *P. testudinis*, has also been isolated from healthy tortoises and the significance of this organism remains unknown.

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<sup>1</sup>Lawrence, K. and J.R. Needham. 1985. Rhinitis in long term Mediterranean tortoises (*Testudo graeca* and *T. hermanni*). *Veterinary Record*. 117:622-664.

<sup>2</sup>Jackson, O.F., and J.R. Needham. 1983. Rhinitis and virus antibody titers in chelonians. *Journal of Small Animal Practice*. 24:31-36.

<sup>3</sup>Snipes K.P., E.L. Biberstein, and M.E. Fowler. 1980. A *Pasteurella* sp. associated with respiratory disease in captive desert tortoises. *Journal of the American Veterinary Medical Association*. 177:804-807.

<sup>4</sup>Snipes, K.P., and E.L. Biberstein. 1982. *Pasteurella testudinis* sp. nov.: a parasite of desert tortoises. *International Journal of Systematic Bacteriology*. 32:201-210.

## *THE APPEARANCE OF UPPER RESPIRATORY TRACT DISEASE IN WILD TORTOISE POPULATIONS*

In the 1970's desert tortoises with signs of the disease were observed on the Beaver Dam Slope of Utah, a site where many captive tortoises were being released. In 1988, desert tortoises at the Desert Tortoise Natural Area (DTNA), Kern County, California were seen with clinical signs of illness similar to that of captive desert tortoises. Signs included a mucopurulent discharge from the nares, puffy eyelids, eyes recessed into the orbits, and dullness to the skin and scutes. Based upon these clinical signs, Upper Respiratory Disease Syndrome (URDS) was used to characterize this syndrome.

Surveys of the DTNA in 1989 and 1990 revealed that many tortoises were ill with the disease, and shells of many tortoises indicated a major die-off was underway. Research on long-term study plots with marked tortoises showed that more than 70% of adult tortoises died between 1988 and 1992 (Kristin Berry, pers. comm.). Other surveys indicated that free-ranging desert tortoises with URDS also widespread in the western Mojave Desert of California, around Las Vegas Valley in Nevada, on the Beaver Dam Slope of Utah/Arizona, and sporadically in low numbers in the Sonoran Desert of Arizona.

## *RESEARCH ON THE CAUSES OF UPPER RESPIRATORY TRACT DISEASE*

In May 1989, with a contract from the U.S. Bureau of Land Management, we initiated studies on desert tortoises ill with URDS in an attempt to elucidate the responsible pathogens. During the course of these studies, the pathology of the disease was better understood and findings indicated that the upper respiratory tract was the major site of involvement.<sup>5</sup> Based on these findings the disease was determined to be a chronic upper respiratory tract disease and the acronym URTD was used. Today, URTD more appropriately designates this illness and should replace URDS.

Microbiologic investigations with URTD failed to incriminate a virus as a potential causal agent. *Pasteurella testudinis* was isolated from most of the ill tortoises examined and a previously unidentified *Mycoplasma* was also isolated from ill tortoises.<sup>5</sup> Electron microscopic studies confirmed the presence of *Mycoplasma* on the surface membranes of the upper respiratory tract of desert tortoises ill with URTD.

In 1992, research was conducted on transmission of the disease. The findings support the contention that *Mycoplasma* is the most likely cause of URTD. Koch's postulates have

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<sup>5</sup>Jacobson, E.R., J.M. Gaskin, M.B. Brown, R.K. Harris, C.H. Gardiner, J.L. LaPointe, H.P. Adams, and C. Reggiardo. 1991. Chronic upper respiratory tract disease of free-ranging desert tortoises (*Xerobates agassizii*). *Journal of Wildlife Diseases* 27(2):296-316.

been fulfilled and a causal relationship between *Mycoplasma* and URTD has been established. Still, *Pasteurella* and other bacteria may affect the severity of the disease.

A serologic (blood) test has been developed at the University of Florida to determine exposure status of tortoises to *Mycoplasma*. Preliminary studies are very promising in that this test may ultimately be useful in assessing condition of tortoises.

Predisposing factors such as poor nutrition (resulting from habitat degradation), drought, and release of captive desert tortoises ill with URTD into the wild are also more than likely involved. The whole issue of release of ill pet desert tortoises needs to be publicized, because this practice should not continue. Transmission studies have clearly demonstrated the infectious nature of URTD. Thus, it is safe to assume that captive ill tortoises can transmit this disease to both captive and free-ranging clinically healthy tortoises.

#### *TREATMENT OF UPPER RESPIRATORY TRACT DISEASE*

Until recently, no antibiotics or combination of antibiotics have been efficacious for treating tortoises ill with URTD. With evidence that *Mycoplasma* is the etiologic agent of URTD and that *Pasteurella testudinis* and other gram negative bacteria may contribute to the severity of the disease, antibiotic therapy with enrofloxacin (Baytril, Mobay Corp., Shawnee, Kansas) at 5 mg/kg of body weight every other day for 10 treatments, is considered the therapy of choice. Additionally, injectable enrofloxacin should be diluted 1:10 in sterile saline and a small quantity (up to 0.5 cc) should be flushed up both nares of the affected tortoise utilizing a syringe and attached catheter of appropriate diameter. Flushing should be continued daily for 1 month (at least until the rhinitis has abated). Since enrofloxacin is very irritating to the mucous membranes surrounding the eyes, it is important to avoid contact of enrofloxacin with those tissues. It is important to maintain tortoises at an optimum environmental temperature during the course of treatment. While antibiotic therapy may result in clinical improvement and complete regression of clinical signs, this does not mean that this tortoise will be free of disease thereafter. Turtles may remain carriers of *Mycoplasma* for life with recurrence of the disease at some point in time in the future.

Results of clinical trials with these new drugs and drug combinations for treating tortoises ill with URTD are extremely promising for captive tortoises. Unfortunately the situation for ill free-ranging tortoises is not as promising. Since this disease more than likely is multifactorial, schemes for managing URTD in free-ranging populations are going to be difficult to develop and implement. Minimally tortoise hobbyists and veterinarians can make

a major contribution by getting the word out that captive tortoises should not be released to the wild. More than likely this practice has contributed to the spread of URTD in wild populations of desert tortoises.

### **SUMMARY**

The following points should be remembered with regard to the desert tortoise and URTD:

1. URTD is a chronic infectious disease affecting not only the desert tortoise, but other tortoises as well.
2. Scientific evidence supports the belief that *Mycoplasma* is the infectious agent responsible for URTD.
3. Once infected with *Mycoplasma*, a tortoise may remain a carrier for life.
4. URTD is a transmissible disease. Because of this, tortoises showing clinical signs of illness should be isolated from healthy tortoises.
5. Different species of tortoises should not be kept together in captivity since foreign pathogens may be introduced into new hosts.
6. Although antibiotic treatment may result in complete remission of clinical signs, tortoises may still develop the disease at a future date.
7. Ill or formerly ill desert tortoises should never be released to the wild. Releases of captive tortoises may be responsible for disease outbreaks in the Mojave Desert.

Prepared for the Desert Tortoise Preserve Committee, Inc.,  
and U.S. Bureau of Land Management



area. During the last few years, Mary retired from an active role on the Desert Tortoise Preserve Committee to paint and write. According to Mary's children Tom and John Trotter, Mary particularly valued her contributions to the Desert Tortoise Preserve Committee.

Mary was also one of the founding officers of the Desert Tortoise Council and served for four years as the first Secretary-Treasurer from 1976 through 1979, and thence as Treasurer in 1980. Her precise and careful accounting system laid the ground work for the Council's future status as a nonprofit corporation. Many of us remember her significant accomplishments as a member of the Publishing Committee from the time the Council first began. She played a major role in preparing six years of Proceedings for the 1977, 1978, 1982, 1983, 1984, and 1985 Symposia. In 1977 and 1978, she was co-editor of the Symposia Proceedings with Dr. Crawford Jackson, Jr. For her efforts, she was recognized with the Council's 1979 Annual Award. For that occasion, Dr. Jackson wrote, "As technical editor, I merely read and edited each paper with regard to its technical and scientific aspects. This was the easy role. By contrast, Mary had to orchestrate the entire operation, coordinating the various portions of each volume, correspond with most of the contributors via mail and telephone calls, and last but certainly not least -- retype every page of the volume, proof read it, and PRINT AND COLLATE the book! This was a staggering task, but she did it, and did it well. I am proud to have been associated with Mary in the production of the Symposia, and I hope that the membership of the Desert Tortoise Council recognizes and appreciates her outstanding accomplishment as editor." The standards set by Mary have been difficult for subsequent editors to match. She carefully sought out missing references and often assisted authors in reviewing text, carefully following rules for scientific manuscripts. In addition to the Symposium volumes, Mary also

typed and edited the "1980 Annotated Bibliography of the Desert Tortoise, *Gopherus agassizi*," which was prepared by Judy Hohman, Robert Ohmart, and James Schwartzmann.

Mary Trotter was recognized by captive fanciers as a knowledgeable source of information for decades. To meet the numerous requests for information, she and Crystal Pfeiffer published the *Turtle Hobbyist*, a monthly newsletter, from June of 1976 to June of 1978. She also contributed to the growing body of scientific data about the desert tortoise by conducting experiments and publishing papers on captive tortoises. With her sons and Dr. Jackson, she co-authored two frequently cited papers in *Herpetologica* about rapid growth rates in captive tortoises. A third paper, summarizing 20 years of data, is underway now under the direction of Dr. Jackson.

Many of us think of Mary's contributions only in terms of chelonians and knew little about the private life of this remarkable woman. First and foremost she supported her family and local community through volunteerism. In the early 1950's, after her daughter and son Tom were born with cystic fibrosis (CF), Mary joined with a half dozen other San Diego mothers to establish a local organization to support families with the disease. She spent substantial efforts raising funds and developing educational materials about the disease for the public, while at the same time holding two jobs to pay the medical bills. She also took long bike rides, e.g., from Oakland to San Diego, to publicize fund-raising efforts. In later years, when the National Cystic Fibrosis Foundation was established and the San Diego group continued as a chapter, she continued to focus her efforts on the local children with the disease. For years, she and her son Tom participated in fund raising for the CF Camp of San Diego, a one week camp for ill children. Tom still spends several weeks

annually to help raise the approximately \$30,000 required for a team of volunteers to run the camp for about 90 children. Mary Trotter also spent several years as a Red Cross Instructor of Water Safety and First Aid. She attained the highest rating in water safety, that is an Instructor of Instructors. Over a period of about two decades in the 1960's and 1970's she taught at least 3,000 to 4,000 children to swim as part of a backyard swimming program. The goal was to "water proof" the children. Typically she held seven swimming classes per day all summer long; training 56 children in each of the two week sessions.

Donations can be made to the memory of Mary Trotter through the Desert Tortoise Preserve Committee.

## Kudos to DTPC Volunteers

The Committee is pleased to introduce this new Tortoise Tracks column which will periodically recognize DTPC members who have made extraordinary contributions of time to our organization. In this issue, we are pleased to feature Paula Morris who has volunteered many, many hours of time to the Committee, preparing and updating graphics material, including our products flyers, signs for use at turtle and tortoise shows, and the three tour guide pamphlets for the guided trails at the Desert Tortoise Natural Area. Paula has committed to continue her services for us in the future. Her efforts have saved the Committee hundreds of dollars in costs. Her own statement of how she became interested in tortoises and the Committee is printed below.

*In 1989 I acquired a desert tortoise hatchling. I bought her from two little boys who were carrying her around in a light bulb box. I had no idea that it was illegal to sell desert tortoises; in my "pet trade" mentality I saw nothing wrong with the purchase and wanted to*

*get her away from the kids. My husband and I had been rescuing and caring for snakes since 1979, but tortoises were completely new to me. My heart went out to this exquisitely sculpted little creature whom I named Netsuke after the delicate carving she resembles.*

*With a crash course in tortoise care from a Simi Valley veterinarian, I began to learn about our desert tortoise. I joined a local reptile club and learned that captive desert tortoises are common. The stories were depressingly similar: the animals had been taken from the desert years ago to live out their lives in people's gardens. But the animals were comfortable enough to have survived well and some have even reproduced. This led me to parallel interests in maintaining tortoises in captivity and learning about how they live in the wild. Efforts by groups like the Desert Tortoise Preserve Committee and the Nature Conservancy further opened my mind to the enormous problems of human encroachment and development that are destroying wildlife habitat. This in turn led to an interest in legislation for conservation of tracts of land large enough to sustain a natural balance of species.*

*A field trip to the Desert Tortoise Natural Area (DTNA) in 1989 had a profound effect upon me. One of the DTNA's volunteer field biologists spend hours showing us how plant and animal species interact for survival. It was the first time in my life that I had been given such a thorough explanation of ecosystems; it changed my outlook on the world.*

*I filled a notebook with the text and illustrations depicted on the interpretive displays in the DTNA reception area and stole two of the trail guides that had been provided for the self-guided tours. I felt guilty about removing them, but at that state of my involvement, I was desperate for literature. I still have those trail guides and drawings; they're what I used to design my first drafts of the present trail guides. The trail guides were*

*well written and researched, but had been created using a typewriter. As a graphic designer with my own desktop publishing business, I wanted to offer the DTPC a new look for its printed matter.*

*I sent my version of the two trail guides to the Committee and, after two years of leisurely correspondence and one more guide to design, we were all satisfied with the results.*

*During this time I branched off from the local reptile club and started my own newsletter, The Bridge. Not particularly scientific, but geared to herp keepers who are willing to share what works for them in caring for their animals, it's been an excellent way to network. There's an emphasis on desert tortoises, since so many exist in captivity here in California, but also articles on reptiles and amphibians that are sold commercially. The appalling lack of practical care information at point-of-purchase has got reptile organizations nationwide putting out care sheets to offset the ignorance. There's no way the pet trade is going to stop depleting wild populations worldwide, so the care sheets are important.*

*People also need to be informed about legislation affecting wild reptiles, especially the ramifications of redefining wetlands, and, here in California, Cranston's Desert Protection Act. We certainly seem to have enough laws and conventions worldwide, but precious little enforcement or penalizing. It always comes down to money. While we're debating economic impacts and testing the elasticity of definitions, wild lands are shrinking and plants and animals are on their way out. It's critical that we examine existing and proposed legislation and actively involve ourselves in species preservation.*

We sincerely thank Paula for her ongoing contributions to the Committee and to the conservation community. Those interested in subscribing to her newsletter, The Bridge, may contact her by writing to 160 North Fairview

Avenue, Suite D-231, Goleta, California, 93117.

## In The Next Issue of Tortoise Tracks . . .

The Fall issue of Tortoise Tracks will feature a report on the Committee's new proposal to establish a Land Bank of desert tortoise habitat. The Land Bank will enable the Committee to assist developers and other business interests who are required by law to purchase desert tortoise habitat to compensate for habitat which is lost due to development activities. When fully implemented, the Land Bank will enable the Committee to act as an intermediary between private firms and regulatory agencies, and thereby expedite the process of protecting desert tortoise habitat. The program will also provide a significant source of funding for the Committee's ongoing land acquisition efforts.

The Fall newsletter will also contain an announcement and reservation form for the Committee's Annual Meeting and Banquet. This event is tentatively scheduled for Saturday, January 30, 1993.

## Call For Papers

The International Herpetological Symposium, Inc. will hold its 17th Annual Symposium from June 17th through June 20th, 1993, in Miami Beach, Florida.

The IHS presents papers on herpetoculture, natural history, veterinary medicine and other topics related to herpetology. Individuals interested in presenting a paper at this meeting should write to Richard Ross, MD, Institute for Herpetological Research, P.O. Box 2227, Stanford, 94309.

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## The Terminated Sheep/Tortoise Trampling Study

### A Commentary by Elden Hughes, Chair, Sierra Club Desert Committee

In May of this year, I testified before the House Subcommittee on National Parks and Public Lands, "The Bureau of Land Management assiduously avoids gathering information which will require it to restrict grazing."

The recent termination of the trampling study would seem to be further proof. BLM spent \$200,000 on staff and contract to study the effects of sheep trampling on tortoise burrows and tortoises. On study plots 900, various size burrows were hand dug and 1,400 painted styrofoam tortoises (3 sizes) were numbered, placed and mapped.

Just as the sheep turnout started, the BLM State Office terminated the study. It was clear the Woolgrowers had used their considerable political muscle.

Fortunately, with usual BLM efficiency, it took three weeks for the termination notice to reach the field and the contractor. A lot of study actually happened. The BLM now has a box with 2,500 data sheets awaiting analysis. Will it? I think I am back to my original quote.

As a footnote, a similar study in Nevada on cattle and tortoises and costing the BLM another \$200,000 was cancelled on August 30, 1992, before the study ever really started.

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