

FY 2003

**Secretary of Defense and Secretary of the Navy
Environmental Awards Submission**



**Marine Air Ground Task Force Training Command, Marine
Corps Air Ground Combat Center, Twentynine Palms,
California**

NATURAL RESOURCES CONSERVATION, TEAM

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**Installation: Marine Air Ground Task Force Training Command, Marine Corps
Air Ground Combat Center, Twentynine Palms, California**

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Summary: The Natural Resources (NR) staff of MAGTFTC integrates sound natural resources management while supporting the unique military training opportunities of the desert environment. NR staff manages 935 sq miles (598,000 acres) of training lands in accordance with their Integrated Natural Resources Management Plan (INRMP) and provides protection and stewardship for the Desert Tortoise in accordance with the Endangered Species Act and a Biological Opinion for their Training Operations and Routine Maintenance Program. These documents allow management of resources for training requirements and have clear goals of sustaining the training mission decades into the future. NR Staff:

- Provided educational briefings to more than 100,000 Marines in the previous three years; other outreach programs are a frequent component of their mission;
- Are committed to the removal of exotic saltcedar (tamarisk), which disrupts entire ecosystems by out-competing and replacing native vegetation, transpiring more water than native species, increasing the effects of flash floods and failing to provide food or nesting substrates for sensitive species. In the last three years, more than 20,000 plants have been eradicated.

These are two examples of the Natural Resources staff commitment to ensuring the Combat Center is a leader in all areas of natural resource management.

PHOTO CREDITS:

COVER (CLOCKWISE FROM UPPER LEFT): J. HEATON, K. MEYER, R. EVANS, R. EVANS;
PAGE 1: R. EVANS; PAGE 2 (TOP TO BOTTOM): GySgt R. BEACH, M. TEAGUE;
PAGE 3: J. HEATON; PAGE 6 (BOTH): R. EVANS; PAGE 7 (TOP TO BOTTOM): M. CABLK, J. ASHDOWN;

BACKGROUND:

The Natural Resources (NR) staff of the Marine Air Ground Task Force Training Command (MAGTFTC) coordinates a comprehensive management program, integrating sound natural resources management while fully supporting the unique military training opportunities of the desert environment. NR staff manages 935 sq miles (598,000 acres) of training lands in accordance with the installation's Integrated Natural Resources Management Plan (INRMP) and provides protection and stewardship for the Desert Tortoise in accordance with the Endangered Species Act of 1973 and a USFWS Biological Opinion for the Base-Wide Training Operations and Routine Maintenance Program. These and other plans allow management of resources for current training requirements, and also have the clear goal of sustaining the training mission decades into the future.

All team members are employed in the Natural Resources Section, Natural Resources and Environmental Affairs Division, Installations and Logistics Directorate of the Marine Air Ground Task Force Training Command at the Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, California.



Pincushion Cactus

TEAM MEMBERS:

Rhys M. Evans, Ecologist

Martin Brent Husung, Natural Resources Specialist – Wildlife

Laura M.C. Busch, Natural Resources Specialist – Vegetation

Jane Ashdown – Biological Sciences Technician

POSITION DESCRIPTIONS:

- **Ecologist:** Directly responsible for the daily management of natural resources, and ensures the following:
 - Informs the Command of local and regional natural resources issues that have potential to impact the mission, regulatory compliance issues and identifying potential or actual conflicts between the mission and regulatory mandates.
 - Develops, coordinates and implements the INRMP and other required plans / agreements. Reporting on INRMP implementation to HQMC, U.S. Fish and Wildlife Service and the California Department of Fish & Game.
 - Develops annual and long-term budgets to support regulatory and stewardship requirements to manage the long-term sustainability of MAGTFTC's natural resources in a live-fire training environment.
 - Serves as the primary point of contact for listed species issues.
 - Acts as supervisor to all other individuals identified in this award nomination.

- **Natural Resources Specialist – Wildlife:** Provides support and documentation to the Ecologist for matters relating to natural resource management, environmental protection and compliance including:

- Assists in planning, organizing, and conducting wildlife studies and surveys
Manages non-game wildlife, rare/threatened/endangered animals, soils and NEPA requirements, all in conjunction with the training mission. Assists in vegetation and range management activities. Assists in monitoring activity to ensure the goals of the INRMP are being met.



American Avocet

- Supports field operations to ensure that activities are conducted in a manner compatible with the sustainability of the installation's natural resources.
- Serves as Project Manager, ensuring that contractors meet safety and security standards, submit range requests and project deliverables on time.
- Conducts frequent range inspections to ensure that environmental regulations are

being obeyed and restricted areas / sensitive species are not being adversely impacted.

- **Natural Resources Specialist – Vegetation:** Provides support and documentation to the Ecologist for matters relating to natural resource management, environmental protection and compliance, including:

- Assists in planning, organizing, and conducting flora studies and surveys. Assists in monitoring activity to ensure the goals of the INRMP are being met.
- Manages rare plants, range condition, soils, and NEPA requirements, all in conjunction with the training mission. Assists in wildlife management activities.
- Plans and coordinates the MAGTFTC invasive plant species management / eradication program. Refer to detailed description under "Accomplishments."
- Coordinates right-of-way and related access issues with the Bureau of Land Management and other adjacent landowners. Prepares EA for formal right of way application.
- Maintains the herbarium collection.
- Writes and implements the installation's Wildfire Management Plan.
- Supports field operations to ensure safety and sustainability of the installation's natural resources.



Sacred Datura

- **Biological Sciences Technician:** Provides support and documentation to the Ecologist for matters relating to natural resource management, environmental protection and compliance including:
 - Assists with conducting wildlife and vegetation surveys/studies and records wildlife activity in the field, which may include on-site field surveys of proposed construction sites, training or other ground disturbing actions that require environmental documentation.
 - Assists in the management of natural resource projects.
 - Maintains a comprehensive database of wildlife sightings and activity.
 - Coordinates all pre-construction “Desert Tortoise Awareness” briefings.
 - Escorts contractors and other outside agencies, performing natural resources surveys aboard the Training Center and monitors their activities.



Hidalgo Mountain on MCAGCC

- **All NR Section personnel** regularly:
 - Manage contractors, university personnel and employees of other agencies, enabling access to training areas safely and in full compliance with SOPs of the NREA Division and the Operations and Training Directorate.
 - Present natural / cultural resources briefings to large audiences, which can exceed 500 military personnel (refer to “Accomplishments”).
 - Provide input of data to the Geographic Information System (GIS), including the analysis and manipulation of complex data sets as well as the production of maps and other forms of graphic output.
 - Assist in the development of interpretive brochures, articles, signs and displays regarding natural resources for educational purposes.
 - Assist in the preparation of written reports, charts, graphs, and maps for environmental assessments, environmental impact statements and survey reports to support MAGTFTC’s mission.
 - Provide quick and efficient “customer service,” by maintaining proficiency in each others’ duties, cross-training each other and personnel from other sections, completing NEPA requirements in a timely manner and always keeping sustainability of the training mission as the primary consideration.

AWARDS AND SERVICES:

- **EVANS** is an active member of The Wildlife Society (TWS). Most activities are within the Western Section:
 - Serves as a non-voting member of the Executive Board, currently as co-Chair of the Professional Development Committee and recently as Chair of the Public Information Committee.
 - Chaired a symposium “Wildlife Management Practices and Trends on Military Installations” at the Western Section Annual Meeting in Irvine, California. Ten speakers were recruited and chosen to present professional papers, all regarding current research on military lands in the west. About 300 people were present for all or part of this symposium. A proposal to chair a similar session at the 2005 annual meeting is in draft.
 - Is a TWS Certified Wildlife Biologist, “*a person with demonstrated expertise in the art and science of applying the principles of ecology to the sound stewardship and management of the wildlife resource and its environment.*”
- **EVANS** is an active member of the National Military Fish and Wildlife Association:
 - Serves on the Board of Directors of this group, currently as At-Large Director and Chair of the Outreach Committee, formerly as Regional Director-West, and currently a candidate for Vice President.
 - Has presented six professional papers at annual meetings of NMFWA, he received the “Best Paper” award at the 2000 annual meeting.
 - Has chaired four technical sessions, and is serving as co-chair and mentor for the chair of a technical session at the 2004 annual meeting.
- **EVANS** is an active participant in local and regional organizations not involved in wildlife/natural resources management, including:
 - AFS, a volunteer-driven high school exchange student program,
 - Returned Peace Corps Volunteers of the Coachella Valley,
 - Twentynine Palms Historical Society.
- **HUSUNG**, a former U.S. Marine, is a member of The Wildlife Society (TWS), the Desert Tortoise Management Oversight Group-Technical Advisory Committee and an Interagency Raven Management Team for which he is co-writing an Environmental Assessment on interagency raven management. He is an active member of the organizing committee for the 2004 Mojave Desert Science Symposium.
- **HUSUNG** is largely responsible for ensuring the command’s compliance with the 2002 Biological Opinion for the Desert Tortoise, allowing “routine operations.”
- **HUSUNG** is a candidate for certification as an Associate Wildlife Biologist through TWS, indicating that he has met “*the educational, experience, and ethical standards adopted by TWS for professional wildlife biologists.*” In approximately one year, he will have sufficient experience to achieve full certification.
- **HUSUNG** will present a professional paper at the 2004 annual meeting of the National Military Fish and Wildlife Association, titled “Management from a Distance: Nelson’s Bighorn Sheep at the Marine Corps Air Ground Combat Center.”
- **HUSUNG** is the proud, single father of two girls, he actively participates in several fundraising initiatives for the school they attend, and is in a local bowling league.
- **HUSUNG** is a member of the Fraternal Order of Elks, a community service group.

- **BUSCH**, a former U.S. Marine, is an active member of the following groups:
 - Society for Range Management, she will be presenting a paper at the Annual Meeting in January 2004, regarding land management on military lands.
 - The Mojave Desert Restoration Team; she was instrumental in organizing a weeklong symposium in 2003, highlighting restoration efforts in the Mojave.
 - The Mojave Weed Management Area Team, which is dedicated to the control of invasive plant species.
 - The Texas A&M Former Students Association, and is chair of the 2004 “Muster” ceremonies for this region.
- **BUSCH** was an invited speaker at Texas A&M’s Graduate Lecture Series in 2003, and was also invited to speak to undergraduate students during Professional Week on natural resources career opportunities in the DOD. The series highlights successful professionals in ecological jobs, and selects only about ten individuals per semester; hence this selection is clearly considered an honor among her peers.
- **BUSCH** was selected as the primary representative of the U.S. Marine Corps at an upcoming workshop regarding saltcedar (tamarisk) management sponsored by the National Invasive Species Council. The primary objectives of the workshop include integration of many state and Federal programs, and to encourage states to accept a more prominent role in the management of this invasive species. Saltcedar is a threat to virtually all western ecosystems (Please refer to “Accomplishments” section).

- **ASHDOWN**, the newest member of the Natural Resources Team, is a member of the Western Section of The Wildlife Society.
- **ASHDOWN** recently presented a lecture to the Joshua Tree National Park Association on the subject of Nelson's bighorn sheep. The talk included the evolution, natural history and current status of bighorn sheep in North America, and more specifically in Joshua Tree National Park. Also discussed were bighorn forage and water requirements as they relate to the policy of guzzler (artificial water catchment) installations on National Park Service-managed lands.
- **ASHDOWN** utilized her knowledge of desert wildlife and expertise with desktop publishing to design five educational signs providing information to Marines about venomous animals and hazardous plants of the Mojave Desert. These signs will be installed outside dining halls on base and will be a valuable addition to the Natural Resources Section's educational efforts for many years to come.



- **ASHDOWN** recently designed a wildlife sightings database

Educational Sign
and converted over 7000 wildlife observations into a single, streamlined format that can be utilized by all Natural Resources personnel. Data entry is easily accomplished with drop-down menus that will unify all species and location names.

ACCOMPLISHMENTS:

- **OUTREACH AND EDUCATIONAL PROGRAMS:** In the last three years, Natural Resources Section personnel have provided educational briefings to more than 100,000 Marines. These include discussions of desert tortoise biology, behavior, ecology and its federal “threatened” status. Conservation measures as directed by the



installation’s Biological Opinion are fully detailed in each briefing. The briefings also discuss venomous animals and other desert safety issues. Other outreach programs are comprehensive and continuous, including informal presentations to community groups, newspaper articles and formal presentations to professional organizations.

Laura Busch conducting Desert Tortoise Awareness Briefing

- **RESEARCH COORDINATION:** Natural Resources staff closely coordinate the research and management activities of numerous DoD and non-DoD entities, including SERDP, U.S. Geological Survey, U.S. Navy Southwest Division, the University of California-Riverside, and the University of Nevada-Reno, to name a few. A multi-agency, cooperative program determining tortoise population trends has been initiated, with much of the pilot and methodology testing conducted on MCAGCC. Research coordination continues to be an important focus of NR Team activities, assuring the completion of work by contractors and other agency scientists in a logical, scientifically valid and (most important) safe manner.

- **EXOTIC SPECIES MANAGEMENT:** Approximately 6 years of comprehensive exotic species management has largely succeeded in the eradication of saltcedar (tamarisk), an invasive exotic species aboard MCAGCC. Saltcedar disrupts entire ecosystems by out-competing and replacing native vegetation, disrupting the sodium balance of soil and groundwater, transpiring more water than native desert species, increasing the negative effects of flash floods and failing to provide adequate food or nesting substrates for sensitive species. In the last three years, more than 20,000 plants have been eradicated. Although maintenance treatments in severely infested areas will be required, MCAGCC has become one of the most successful agencies in the removal of this species from the Mojave Desert.



Tamarisk eradication

- **SURVEYS:** NR staff guided the completion of Sikes Act mandated surveys. A rare plant survey, reptile survey and a detailed survey of all vertebrate species were all completed in the last three years; current surveys of terrestrial and aquatic invertebrates will be completed by 2005. A recently completed survey of the Mojave fringe-toed lizard (*Uma scoparia*) (MFTL) integrated the latest technologies in data



Mojave fringe-toed Lizard

and imagery analysis, successfully providing the command with critical knowledge about this “species of concern.” Satellite imagery and computer land analysis programs were used to model habitat suitability. Directly supporting mission requirements, this study updated a previous “index” of habitat suitability (California “Gap Analysis”) which stated that 99% of the installation was suitable

habitat for the MFTL – upon completion of this project, habitat suitability was reduced to about 5% --an 87% reduction. Hence this study both serves the training mission and assists in the conservation of a sensitive species.

- **DESERT TORTOISE MANAGEMENT:** The Desert tortoise (*Gopherus agassizii*) is the installation’s only species currently protected by the Endangered Species Act. Since 1995, research into base-wide tortoise distribution, ecology of tortoises in mountainous terrain, and early life history factors of the tortoise has been completed. While this specific research was completed prior to three years ago, many research



Desert tortoise

recommendations derived from these projects are currently being implemented. In the previous three years, MAGTFTC Natural Resources staff have managed projects to determine the “availability” of “focal animals” (called “G Sub-Zero”), and have funded tortoise population studies in cooperation with regional partners including the National Park Service, U.S. Fish and Wildlife Service and the Bureau of Land Management. MAGTFTC personnel regularly attend meetings of the Desert Tortoise Management Oversight Group and Technical Advisory Committee. Staff also participate in the annual Desert Tortoise Council Symposium, and participated in a workshop (November 2002) on the specific subject of desert tortoise diseases. NR Staff are also expecting to participate at some level in the rewriting of the Desert Tortoise Recovery Plan.

OVERALL CONSERVATION MANAGEMENT: The Integrated Natural Resources Management Plan fully considers and implements a wide variety of projects and studies. All Natural Resources Section employees actively participate in the decision making process and all are capable of using current technologies (Global Positioning Satellites, Geographic Information Systems, etc.). An annual INRMP implementation report is coordinated with the US Fish and Wildlife Service and the California Department of Fish and Game.



This photograph, taken on MCAGCC by a contractor and showing a “threatened” wild desert tortoise resting in the shade of a “Restricted Area” sign, won the “Best of Show” award at the 2003 annual Desert Tortoise Council Symposium. This was not a “staged” photo. Tortoises regularly seek shade for thermoregulation.

LAND USE AND ECOSYSTEM

MANAGEMENT: Providing sustainable ranges for all types of military training, including tracked and wheeled vehicles, experimental vehicles, aerial-delivered ordnance and virtually every type of ammunition available to Marines, while ensuring land sustainability and compliance with numerous federal laws is a complex challenge that the Natural Resources Staff takes very seriously. Notable projects completed in 2001-2003 include assessing the impacts of the Assault Breaching Vehicle, placement of an Airport Surveillance Radar and the first phase of

improvements to Range 500, a multi-purpose range complex for tanks, Assault Amphibious Vehicles and Light Armored Vehicles.

FISH AND WILDLIFE: MCAGCC manages its non-game species in a sustainable manner; there are currently no game species or harvest programs at the Combat Center. Migratory Bird Treaty Act compliance and species issues are ensured with a Special Use permit from the USFWS and a close relationship with an experienced, certified and licensed local wildlife rehabilitator. Long-term cooperation with the California Department of Fish and Game and the Society for the Conservation of Bighorn Sheep has resulted in a successful reintroduction of the extirpated Nelson’s Bighorn Sheep (*Ovis canadensis nelsonii*), and the installation of two water collection and storage devices (guzzlers), which provide water year-round for wildlife use. New technology, installed in 2001 and 2002, allows us to monitor water levels via satellite; remote cameras allow us to capture animal use of the water catchments. NREA Division is also working with a military partner (VMU-1) to develop and conduct aerial photography surveys for bighorn sheep. This approach provides the military personnel with a unique and interesting challenge (detecting large mammals from an unmanned aircraft), which can immediately be related to worthwhile experience in the current global environment (such as finding opposition forces in the rugged mountains of Afghanistan), while providing valuable information on the current status of the installation’s sheep population to NREA.

CONSERVATION EDUCATION / COMMUNITY RELATIONS: Also refer to Accomplishments, above. Additionally, the following outreach activities have occurred recently:

NR Staff Member	Presentations to Community Group
Evans	Cub Scouts
Husung	5 th and 6 th Grade classes, Blessed Sacrament School
Busch/Ashdown	Desert Hot Springs High School, Field Ecology students
Ashdown	Joshua Tree National Park Association / Desert Institute
Busch	Boy Scouts
Husung	Joshua Tree National Park, Seasonal Interpretive Staff (Training)

NR Staff Member	Presentations to Professional Organization
Evans	National Military Fish and Wildlife Association (6 papers, 5 years)
Busch	Texas A&M Graduate Lecture Series
Husung	National Military Fish and Wildlife Association (sched. Mar '04)
Busch	Society for Range Management (sched. Jan '04)
Evans	The Wildlife Society – Western Section (Session Chair)
Evans	The Desert Tortoise Council

ENVIRONMENTAL ENHANCEMENT: The Natural Resources Team conducts many activities that encourage the use of landscaping appropriate for desert conditions, and assisted landscaping crews at the golf course in the installation of a “water wise demonstration garden.” Several small tamarisk eradication projects have been completed “in house,” instead of via contract. A large-scale revegetation project, which had the secondary impact of dust reduction, was completed prior to the previous three years, however its beneficial impacts to quality of life and health will be noticed for years.

MISSION ENHANCEMENT: Surveys of proposed construction sites, monitoring ongoing construction, providing pre-construction briefings and making available flyers describing necessary actions regarding construction, migratory bird management and desert tortoise encounters are just some of the recent mission enhancing activities



Construction Site Monitoring

undertaken by the Natural Resources Section. Design and production of an environmental “Field Guide,” which is distributed to Marines training on MCAGCC by the thousands, was completed in the last three years. Evans worked as one of two certified biologists for the 1st Marine Division “Desert Scimitar” exercises in 2001 and 2002. Desert Scimitar is a large-scale logistics and movement exercise between 29 Palms and Yuma, AZ, primarily utilizing public lands. Biological participation included numerous briefings, handouts, surveys, interviews with media and hundreds of miles of driving.

NATURAL RESOURCES COMPLIANCE PROGRAM:



Each year, two reports are required to ensure compliance with the Endangered Species Act, and one for the Migratory Bird Treaty Act. Our briefings are one of many requirements of the installation's Biological Opinion, as was the installation of more than a dozen "Desert Tortoise Advisory" signs, designed by the Natural Resources Staff. Additionally, a comprehensive database of all tortoise sightings is maintained. MBTA compliance included the development of two handouts, one in regards to tree-trimming, and the other focused on legal and illegal actions to discourage birds from constructing nests in areas where the training mission could be

Desert Tortoise Awareness Sign

compromised (the command has a "Special Use Permit" allowing movement of nests -of certain species only- under very specific circumstances). The Natural Resources Section proudly maintains a strong relationship with the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

TRANSFERABILITY: The success of the natural resources program at MCAGCC can be easily duplicated at other Marine Corps installations. At the heart of the program is the INRMP, which provides strong guidance, yet also allows adaptive management. While all installations are required to adopt an INRMP, MCAGCC's is an exceptional example that can act as a guide for other installations in the development of their plans.

- The education program at MCAGCC could readily be adapted for other installations, as many of our briefings are for tenant units at their required safety standdowns, a task easily accomplished by other natural resources management teams. In addition, members of the team have given presentations, both at professional meetings and for local educational groups, such as the Desert Institute. The education program at MCAGCC is the result of the team members being involved in the community, both on base and off.
- Military installations such as MCAGCC offer exceptional ecological research opportunities because of their large expanses of land. Federal research entities, such as SERDP, and the US Geological Survey, as well as universities and state agencies conduct research in all aspects of the environment, and all military bases have resources worthy of research.
- MCAGCC's invasive species management is also applicable at other installations and can be easily applied to any invasive species. This program requires long-term commitment to management of invasive species, and is most successful when early detection and response measures are put in place.