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ENDANGERED SPECIES ON MILITARY TRAINING LANDS:
COOPERATION BETWEEN THE MILITARY SERVICES
AND THE UNITED STATES FISH AND WILDLIFE SERVICE

Lyn L. Creswell
Lieutenant Colonel, U.S. Marine Corps

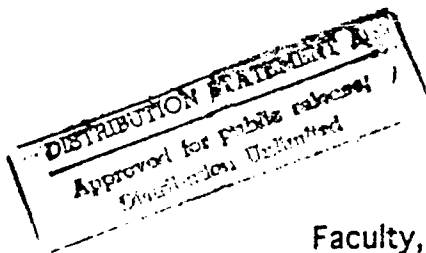
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The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: L. Creswell

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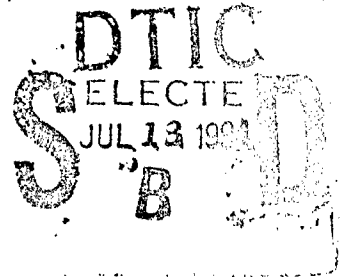
Paper directed by
Jo-Anne Hart, Ph.D.
Faculty, Strategy and Policy Department,
Naval War College

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ABSTRACT

The federal policies of national security and wildlife conservation can conflict with each other. This conflict occurs when threatened or endangered species thrive in habitat on military training lands. In these cases the Endangered Species Act may require the military to "consult" with biologists from the United States Fish and Wildlife Service (USFWS). Military professionals, believing that species protection degrades their mission, often become inflexible or delay such consultations.

USFWS biologists have similar difficulty working with the military. These biologists know little about the military, and they feel combat professionals are unjustifiably hostile to the natural environment.

Several other factors aggravate these relationship problems. The factors include: the consolidation of training on fewer bases, the increase of species requiring special federal protection, and the "biological island" nature of many military bases. Additionally, USFWS and military institutional factors impede constructive cooperation. Such impediments include poor intra-agency planning, and poor leadership and accountability.

Nevertheless, the Endangered Species Act and two other federal laws, the Clean Air Act and the National Environmental Policy Act, require that military installations and the USFWS work together. Beyond mere legal compliance, however, there are important reasons for a cooperative relationship between military bases and the USFWS. These benefits include: reduced USFWS and military program delays, reduced long-term agency costs, enhanced ability to deal with other public land management agencies, and better decision making from improved information sources.

Military base commanders and USFWS field office supervisors should meet and decide whether their organizations can benefit from enhanced cooperative efforts. If benefits are likely, these agency officials should identify the impediments to effective cooperation, and agree on planning and management principles, and actions, to remove these impediments. Once these leaders have agreed they should sign a memorandum of agreement to guide their organizations to achieve the benefits of cooperation.

GLOSSARY OF TERMS

The following definitions represent common usage by biologists who work for the Department of Defense and the United States Fish and Wildlife Service. Many of the definitions come from public policy rather than from the physical sciences.

Biodiversity/Biological Diversity. These terms refer to the variety of living organisms, and their processes. They include the variety of species, the genetic differences among species, and the many communities and ecosystems in which they occur. The protection of biological diversity has become a major international issue. Last year President Clinton signed the Convention on Biological Diversity, a major agreement to come out of the 1992 Rio de Janeiro World Conference on the Environment.

Conserve/Conservation. These terms mean the use of all methods necessary to bring a threatened or endangered species to the point at which the protections of the Endangered Species Act are no longer needed. Outside of the Endangered Species Act, conservation means human efforts to protect natural resources from wasteful practices, and to assure a resource base for the next generation.

Consultation. "Consultation" is a structured, analytical process required by the Endangered Species Act and its implementing regulations. Federal agencies make certain determinations about the impact of their actions on listed species. Thereafter, the federal agency submits its information and conclusions to the United States Fish and Wildlife Service for review and comment. Consultation under these circumstances is not always cooperative.

Critical habitat. The Endangered Species Act uses the term "critical habitat," but does not define it. Later, the Act's implementing regulations defined "critical habitat" as a specific area within the geographic range occupied by an endangered species where the physical or biological features essential to the conservation of that species are found.

Ecosystem. An ecosystem is a complex community of living organisms and its non-living physical environment. Ecosystems are geographical areas where populations of various species evolve and adapt to their surroundings and to each other. Most ecosystems cover large areas, and usually cross several governmental boundaries. Because of competition among governmental jurisdictions, ecosystem management is an ambitious objective.

Endangered Species. The term "endangered species" comes from the federal Endangered Species Act. It means a species of wildlife that is in danger of extinction throughout all or a significant portion of its range.

Fish and wildlife plan. The federal Sikes Act, which addresses fish and wildlife management on Defense lands, requires military bases to cooperate with state wildlife agencies, and with the United States Fish and Wildlife Service, to prepare management plans for fish and wildlife. The Secretary of Defense's policy has expanded this requirement. That policy requires bases to have a "natural resources plan." That plan addresses fish and wildlife, but it also covers cultural, archeological, agricultural, forestry, and other resources on Defense lands.

Interdisciplinary approach. This is team-planning which integrates the knowledge of the physical, biological, economic, and social sciences. The approach assumes that persons with these diverse backgrounds will consider problems collectively, rather than separately. This approach should produce a broader range of alternatives, and more thorough analysis, than otherwise achievable.

Listed species. A species becomes "listed" when the United States Fish and Wildlife Service determines that it is either threatened or endangered, and thereafter publishes that finding in the *Federal Register*, and includes the species in the lists maintained in the *Code of Federal Regulations*.

Partnering. The Clinton Administration uses this term to mean cooperation among public agencies, and between the public and private sectors.

Recovery plans. After the United States Fish and Wildlife Service lists a species as endangered, the Endangered Species Act requires the USFWS to develop and publish a recovery plan. Those plans include a listed species' life history and current status, habitat requirements and availability, factors which limit the species survival, conservation measures currently in place, and specific management objectives that will facilitate recovery of the species.

Science-management mismatch. This phrase refers to the difficulty public agencies have in integrating scientific information and scientists into planning and decision making.

Species. A species is any population or series of populations of organisms that are capable of interbreeding freely with each other but not with members of other species. The Endangered Species Act defines "species" to include any species or subspecies of fish, wildlife, or plant; any variety of plant; and any distinct population segment of any vertebrate species that interbreeds when mature. Excluded is any species of the Class Insecta determined to constitute a pest whose protection would present an overwhelming and overriding risk to humans.

Threatened species. The term "threatened species" comes from the federal Endangered Species Act. It means a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Wildlife. Wildlife are living, nondomesticated animals. Federal wildlife policy promotes both the production of certain wildlife for hunting, and the conservation of other wildlife facing extinction.

PREFACE

The researcher conducted this research while assigned to the Advanced Research Department of the Naval War College. The researcher interviewed over fifty federal employees and some non-federal persons who know of the USFWS/military relationship. Everyone interviewed agreed that there was room for, and value in, improving the cooperation between military bases and the USFWS. Some were skeptical there could be much improvement without "something hanging over the participants' heads." Others felt that an analytical paper, such as this research, could open the door to improved relations.

At first the researcher believed that a national-level memorandum of agreement was the appropriate vehicle to improve the USFWS/military relationship. Several of the persons interviewed suggested that such agreements seldom produce changes. One reason is the management of species occurs at the local level. Many interviewees recommended a model base/field office agreement. Such local agreements do become stepping stones to cooperation. So, the researcher focused on the local USFWS/military relationship. The research concludes with a model agreement between a military base and a USFWS field office.

The researcher traveled to Illinois, California, and Washington, DC. The Army Environmental Policy Institute and Headquarters, United States Marine Corps provided funding for this research. These organizations also gave the researcher moral support. The researcher especially thanks Marlo Acock, Natural Resources Section Head, Headquarters, U.S. Marine Corps, who retired on 30 April 1994 after 30 years federal services as a forester and wildlife manager. The researcher has known Mr. Acock since 1982, and has been inspired by his service to the Marine Corps. For years, Mr. Acock served as chairman of the Department of Defense Natural Resources Council.

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I. INTRODUCTION

A. VALUED NATIONAL POLICIES: NATIONAL SECURITY AND WILDLIFE CONSERVATION

The United States Fish and Wildlife Service and the Department of Defense have missions - wildlife conservation and national security - which are firmly rooted in American culture and values.¹ Congressional statutes² support each of these missions. Also, both missions attract

¹. For American national security traditions see Walter Lippman, *United States Foreign Policy: Shield of the Republic* (1943); Reginald C. Stuart, *War and American Thought* (1982); Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (1973); T. Harry Williams, *The History of American Wars from 1745 to 1918* (1981). For classics in American conservation and natural history see Henry Abbott, *The Birch Bark Books of Henry Abbott: Sporting Adventures and Nature Observations in the Adirondacks in the Early 1900s* (1914); John J. Audubon, *Birds of America* (1840); John J. Audubon, *Delineation of American Scenery and Character* (1926); John Burroughs, *Camping and Tramping with Roosevelt* (1906); Aldo Leopold, *A Sand County Almanac: Sketches Here and There* (1949); John Muir, *Wilderness Essays* (1989).

Of course, the public may not uniformly support national security and wildlife conservation policies. While Americans show interest in certain "charismatic" animal species, they are unfamiliar with wildlife generally, and the ecosystems that support them. Stephen R. Kellert, *Attitude, Knowledge and Behavior Toward Wildlife*, 49 *J. Soc. Issues* 53 (1993). Similarly, Americans may eagerly support a strong military force, but be less united in how that force should be used. Ronald D. Asmus, *The New U.S. Strategic Debate* (1993); B. W. Jentleson, *The Pretty Prudent Public: Post Post-Vietnam American Opinion on the Use of Military Force*, 36 *Int'l Studies Q.* 49 (1992); B. Lian & J. R. O'Neal, *Presidents, The Use of Military Force, and Public Opinion*, 37 *J. Conflict Resolution* 277 (1993).

². The national security mission. The United States Constitution places security of the Nation among the express purposes of the federal government. Section 8, Article I of the Constitution gives the Congress powers: "to declare war," "to raise and support armies," "to provide and maintain a Navy," and "to make rules for the government and regulation of the land and naval forces." That same

public servants who serve well their agency and the United States. Yet, roots, legislation, and faithful public service do not guarantee harmony and cooperation when the two missions create friction. Conflict can occur when the United States Fish and Wildlife Service, a regulatory authority under the Endangered Species Act, advises military installations concerning their statutory obligations to conserve endangered or threatened species.

section establishes "exclusive Legislation in all cases . . . over Places purchased by the Consent of the Legislature of the State in which the same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings." Section 2, Article II of the Constitution makes the President's first duty "Commander in Chief of the Army and Navy of the United States." These constitutional powers form the basis for the Department of Defense statutory authority under Title 10 of the United States Code.

The wildlife conservation mission. While the Constitution is silent as to wildlife values, it does provide power to the Congress for the common welfare of the Nation. Additionally, Article 4 of the Constitution gives power to the Congress to "make all needful Rules and Regulations respecting the . . . property belonging to the United States." Based on principles of national welfare and federal property stewardship, the Congress has passed dozens of laws regulating natural resource conservation, including: wild free-roaming horses and burros, 16 U.S.C. 1331-1340 (1985 & 1994 Supp.); wild and scenic rivers, 16 U.S.C. 1271-1287 (1985 & 1994 Supp.); national wilderness areas, 16 U.S.C. 1131-1136 (1985 & 1994 Supp.); migratory birds, 16 U.S.C. 703-718j (1985 & 1884 Supp.); bald and golden eagles, 16 U.S.C. 668a-668d (1985 & 1994 Supp.); threatened and endangered species, 16 U.S.C. 1531-1544 (1985 & 1994 Supp.); Salmon and Steelhead, 16 U.S.C. 3301-3344 (1985); Bison, 16 U.S.C. 671 (1985); marine mammals, 16 U.S.C. 1361-1385 (1985 & 1994 Supp.); Whales, 16 U.S.C. 916-916 l (1985); African Elephant, 16 U.S.C. 4201-4215 (1994 Supp.). Fish and wildlife conservation policy in America has evolved from a 19th Century laissez-faire philosophy, to a turn-of-the-century recognition of dwindling game and commercial fish species, and within the last few decades, to the rescue of imperiled plant and animal species.

B. A CLIMATE FOR INTERAGENCY CONFLICT:
THE ADMINISTRATION OF THE ENDANGERED SPECIES ACT
ON DEPARTMENT OF DEFENSE TRAINING LANDS³

A climate of conflict has gradually emerged between the two agencies due to external factors. Since its founding, the United States has reaped social and economic benefits from the nation's land. In this process, agricultural, industrial, recreational, energy, transportation, and other community and commercial uses have replaced or degraded prairies, forests, wetlands, and other important ecosystems.

This national conversion of ecosystems caused the loss of wildlife and plant species. By the 1960s public interest groups convinced the Congress to investigate the accelerating extinction of wildlife species. Following these investigations, the Congress passed two species protection statutes in 1966 and 1969. However, these early legislative efforts did not measurably arrest the decline in certain species. In response, the Congress enacted the Endangered Species Act of 1973 - the

³. The Department of Defense confronts similar conflicts in military training in coastal waters. In these cases the Navy is advised by the National Marine Fisheries Service, which has regulatory authority for Endangered Species Act implementation in the ocean. This research may be indirectly relevant to the Defense Department and National Marine Fisheries Service relationship. However, that relationship is not the focus of this research.

For an example of ESA constraints on Navy activities, see J. E. Mitcheli, *Navy Sued over Underwater Test Blast Plans*, L.A. Times, Apr. 13, 1994, at B 1.

"flagship" of environmental laws.⁴ That much stricter law⁵ made the preservation of imperiled species ("endangered species" and "threatened species") and their "critical habitat" a dominant policy in the United States. Under the statute, if a land use harms a threatened or endangered species, it must give way to the needs of the species, regardless of the social or economic cost.

The Endangered Species Act of 1973 (ESA or Act) charged all federal land management agencies, including the Department of Defense, to take affirmative steps to "conserve" these species and their habitat. The Act also gave regulatory authority to the United States Fish and Wildlife Service (USFWS or the Service) within the Department of the Interior. The Service was charged with the identification ("listing") of endangered species and threatened species, the designation of species' "critical habitat," the development of species "recovery plans," the "consultation" with federal agencies, and the coordination of enforcement actions for violations of the ESA. Thus, the Act created a system of shared⁶ responsibility between the Service and the federal land

⁴. 16 U.S.C. 1531-1543.

⁵. The Endangered Species Act has been called the "pit bull of environmental laws." Timothy Egan, *Strongest U.S. Environmental Law*, N.Y. Times, May 26, 1992, at A 1, A 13 (quoting Donald Barry of the World Wildlife Fund).

⁶. The Endangered Species Act is consistent with the American system of federalism based on sharing of power and responsibility, with several government agencies working toward shared goals. This system can be compared with the operation of a row boat. The government agencies are all in the same boat, tossed by the same waves, and dependent on each other's paddles. When anyone fails to row, they all move more slowly, and the waves become more dangerous for all. In this "row boat federalism" the participants might agree on some things, notably the desire to remain afloat (that is,

management agencies.

By the time the ESA became law, however, many military bases had become or would soon be underdeveloped "islands" of rich biological resources among neighboring heavily-developed lands.⁷ So, military installations - which may host a large percent of a species' population or habitat - must now take extraordinary steps to protect threatened or endangered fish, wildlife, or plants. This means a military base may have to set aside hundreds or thousands of acres as ecological preserves. In other cases, installations have to curtail the use of areas inhabited by threatened or endangered species.⁸

to survive). They may or may not agree on their destination, who should sit where, or how the burdens should be divided. Cooperation is possible, but so is conflict.

One problem in "row boat federalism" is that of government accountability. If all government agencies participate in a program that fails, how do we know who deserves the blame? Who should receive credit for a success? Sharing responsibility creates enormous opportunities for scapegoating.

On the positive side, shared responsibility can lead to cooperative action. This is especially true if officials in each agency actually share responsibility (are personally accountable) which gives them an incentive to keep an eye on officials in other agencies to avoid being blamed for failure.

See Thomas Anton, *American Federalism and Public Policy* (1989); Samuel Beer, *To Make A Nation: The Rediscovery of American Federalism* (1993); Thomas R. Dye, *American Federalism: Competition among Governments* (1990); David C. Nice, *Federalism: The Politics of Intergovernmental Relations* (1987); Vincent Ostrom, *The Meaning of American Federalism* (1991); Deil S. Wright, *Federalism, Intergovernmental Relations, and Intergovernmental Management*, 50 *Pub. Admin. Rev.* 168 (1990).

⁷. Anthony J. Krzysik, *Wetlands and Riparian Ecosystems*, *Military Engineer*, Mar.-Apr. 1993, at 46 ("ecological conditions and ecosystem viability with few exceptions are significantly better on military lands than on adjacent lands").

⁸. Military land use can also be restricted by other factors. Bases must assure that military activities do not harm archaeological and historic sites, buried natural gas lines and utility cables, commercial telecommunications facilities, power-lines, and other man-made obstructions.

These species protection actions are strongly opposed by many military professionals - especially those involved in unit combat training. They perceive that accommodating threatened or endangered species harms training, making units less ready to respond to national security threats. In the last two decades, combat unit readiness has become a central tenet of the United States armed forces. Any perceived erosion of readiness evokes a harsh reaction within the Department of Defense.

The following examples illustrate the potential for conflict between military land use activities and species protections measures.

At Camp Shelby, Mississippi, the Army National Guard for years was unable to use its largest maneuver area for much-needed brigade level training until it developed a detailed and costly land use management plan to protect the habitat of a threatened species - the Gopher Tortoise.

At Camp Gruber, Oklahoma, the Army had to delay and relocate the construction of a Military Operations in Urban Terrain (MOUT) facility, used to train soldiers in building-to-building combat in cities. USFWS biologists had determined the selected MOUT site was suitable habitat for the federally-listed American burying beetle.

Military personnel at Fort Bragg, North Carolina, believe the Army has lost its ability to "train battalions to standard," because of the constraints on maneuvers, bivouacs, demolitions, and live fire. United States Fish and Wildlife Service biologists have concluded these constraints are necessary to protect the habitat and the breeding of the endangered Red-cockaded woodpecker.

At Fort Hood, Texas, the Army faces competing land management requirements for the federally-listed Black-capped Vireo and the Golden-checked Warbler. The Black-capped Vireo benefits from Fort Hood's military-related fires because the species

favors successional habitat produced after fire. Yet, the Golden-checked Warbler prefers mature woodland habitat unharmed by training-caused fires.

Fallon Naval Air Station is located in the arid Nevada desert. The Air Station must take action to prevent the land near the airfield from producing dust, foreign objects, and smoke from wildland fires. These conditions create unsafe conditions for pilots and aircraft engines. The Navy response has been to lease several hundred acres near the airfield to farmers, who produce alfalfa, wheat grass, fescue, and other crops. However, the water used for these crops comes from the Truckee River basin, which also provides water to Pyramid Lake. The Lake is the exclusive habitat of the cui-ui, an endangered fish. The Pyramid Lake Paiute Tribe of Indians have sued the Navy claiming the diversion of water to support farming violates the Navy's obligations under the Endangered Species Act.

At Fort Huachuca, Arizona, military training may not occur on hundreds of acres of land containing the agave plant, an important food supply for the lesser long-nosed bat. During fiscal year 1993 the Army spent \$200,000 to fence and monitor the lands containing the agave plant. Much of this money came from an account otherwise used for combat training.

At Fort Irwin, California, protection measures for the Desert Tortoise include using helicopter mounted remote mine detection systems to spot the species. Also, the Army must fence or keep military training activities out of significant portions of the installations to protect the Lane Mountain Milk Vetch.

These constraints⁹ on the use of military lands have come at a poor time. The Department of Defense is closing bases in Europe and the United States. This has caused a consolidation of training and other land uses on the remaining military installations. Also, military weapon systems and tactics continue to expand their reach, requiring larger areas for testing and training. Thus, the land use demands of threatened and endangered species are competing with expanding military mission requirements.

Some military leaders also dislike the manner in which the Endangered Species Act works. The ESA requires intervention to rescue species only after human activities cause significant biological damage. Therefore, a species must be on the brink of extinction before federal protective measures are mobilized. Secretary of the Interior Bruce Babbitt suggests this too-late characteristic makes the ESA a "train wreck" remedy law. One consequence can be that vital species habitat on private and non-military public lands may be converted to other purposes before species protection action is taken. Military installation commanders argue it is unfair in the eleventh hour for Defense lands, with the bulk of the remaining viable habitat, to shoulder a disproportionate responsibility for species recovery.

The ESA compounds this crisis atmosphere by imposing a "formal" consultation process between the USFWS and a military installation. This

⁹. A 1993 study of 28 Army bases found endangered species restrictions cause the greatest constraint on military training. The next major impact on combat training was public opposition to training-related noise. U.S. Army Environmental Policy Institute, Training Land Study, Paper No. TR-1547-1-24, (Aug. 2, 1993). Military professionals express grave concerns for the future use of installation lands for necessary combat unit training. Lawrence E. Casper, *How Secure are Your Training Areas?* Army, May 1993, at 42.

formal consultation is analytically sound, and is a useful step in saving species. However, the process lacks the ingredients which foster long-term working relationships between government agencies. Many military bases aggravate this problem by waiting until project and program planning is complete before talking with the USFWS.

Finally, the ESA makes biology a dominate planning factor in deciding military land uses. The military services do not customarily manage their lands based solely on scientific information. Commonly, installation commanding officers decide land uses based on a broad range of mission and institutional factors. This ESA biology-based approach erects a communication hurdle for military professionals when they consult with USFWS biologists. The Service biologists often feel no need to understand the institutional, mission, and competing policies problems of the military. At the same time, military representatives characteristically do not understand why biological considerations should be primary factors.

Beyond the operation of the ESA, military leaders are generally unaware of the basis for the federal species conservation policy. Their ignorance causes skepticism in dealing with the USFWS. Likewise, Service biologists seldom understand the justification and purpose for military combat training. This can erode the Service's ability to support efforts to balance national security and species conservation requirements on Defense lands.

Often these differences cause military professionals or USFWS biologists to adopt one of two approaches. Either 1) they avoid seeking a solution because the conflict is a Solomonic choice - any decision will be both right and wrong, or 2) they resolve the matter on principles which

exclude one another: "being ready to defend the Nation"¹⁰ or "preserving our natural heritage for the next generation."¹¹

Notwithstanding the potential for irreconcilable differences, some military installations have worked cooperatively with the United States Fish and Wildlife Service.¹² Together with the Service these installations find alternatives which enhance biological values while assuring sufficient land and other resources for combat readiness training. However, such cooperative efforts are the exception rather than the rule. Too often the relationship between the agencies is inflexible, strained,

¹⁰. Many military personnel feel "the endangered species I'm most interested in protecting is Americans," quoted in Blair Case, *Maneuver Training Areas: An Endangered Case?* Air Defense Mag., Apr.-Jun. 1982, at 31, 34; or "environmental protection and the military mission are mutually exclusive," paraphrased from Darrell Cochran, *Living in Harmony*, Soldiers, Feb. 1993, at 18, 20. A significant percent of the military professionals believe that environmental problems are simply not the Defense Department's business. They believe military leaders should "demand that the Armed Forces focus exclusively on indisputably military duties." Charles J. Dunlap Jr., *The Origins of the Military Coup of 2012*, Parameters, Winter 1992-93, at 2, 14.

¹¹. See Michael Renner, *Assessing the Military's War on the Environment*, in *State of the World 1991*, 132, 134 (Lester R. Brown ed. 1991) ("in a world dramatically short of productive land, any unproductive and destructive use of territory seems a misplaced priority. The military appetite for land increasingly collides with other needs, such as agriculture, wilderness protection, recreation, and housing. It is ironic that in the name of defending a nation's territorial integrity against foreign threats, larger and larger areas are given over to the armed forces.").

¹². The stand-out military base for management of biological resources is Eglin Air Force Base Florida. Eglin received the Secretary of Defense's 1994 Award for Installation Natural Resource Management. The Base won this honor primarily for its cooperative management efforts with the United States Fish and Wildlife Service, and with the Florida State wildlife agency. Eglin is also the only military installation to be recognized by the Sierra Club and the Nature Conservancy for its conservation efforts.

and untimely.¹³

¹³. A 1992 Rand case study of Fort Bragg, North Carolina illustrates the risks to the mission when an installation fails to effectively consult with the United States Fish and Wildlife Service. D. Rubenson, J. Aroesty & C. Thompson, *Two Shades of Green: Environmental Protection and Combat Training* (1992). After the Red-cockaded Woodpecker was listed as an endangered species in 1968, Fort Bragg delayed until 1988 to cooperate with the USFWS. That cooperation occurred only after a public interest group threatened a law suit. In contrast, nearby Marine Corps Base Camp Lejeune - also with Red-cockaded Woodpecker habitat - completed a cooperative management agreement with the Service by the end of the 1970s. Even after 1988, Fort Bragg struggled to effectively consult with the Service, suggested by the following Rand study information.

Cooperative planning with the Service was conducted solely by the Fort Bragg natural resource office. That office and the Service did not appreciate the effects of many wildlife conservation measures on base operations and training.

The Fort's credibility was damaged when it made insupportable claims to the Service about the feasibility of its species conservation program.

The base natural resource office failed to integrate the Fort Bragg/USFWS planning with other staff section planning on the installation.

The Army's representatives were largely inexperienced in dealing with external governmental agencies.

The tightly-held local autonomy of the installation commander undermined the Fort's ability to learn from others - such as from other military installations which had already completed successful Red-cockaded Woodpecker management plans.

The frequent turnover of key personnel impaired the base's ability to maintain continuity in cooperative planning with the Service.

C. OPPORTUNITIES FOR CONSTRUCTIVE COOPERATION

Notwithstanding the "island" nature of many military bases, and the "train wreck," "formal," and science-centered characteristics of the ESA, there are opportunities for constructive cooperation. One such opportunity is the integration of the ESA with the statutory requirements of two other federal laws: the Sikes Act¹⁴ and the National Environmental Policy Act.¹⁵ These two acts provide a framework for early, less-formal cooperation between military bases and the Service. Both statutes address interagency land use planning. They also support the development of alternatives which may balance species protection and national security requirements. However, few military installations blend the requirements of all three of these laws. Often military bases administer the statutes separately, applying them narrowly.

Enhanced cooperation between the agencies is also possible because of policies adopted by the Clinton Administration. Both Secretary of the Interior Bruce Babbitt¹⁶ and Director of the United States Fish and Wildlife Service Mollie Beattie¹⁷ have emphasized ESA policies which promote: 1) "partnering" or cooperative problem-solving, 2) alternatives

¹⁴. 16 U.S.C. 670.

¹⁵. 42 U.S.C. 4321-4347.

¹⁶. Bruce Babbitt, *Protecting Biodiversity*, Nature Conservancy, Jan.-Feb. 1994, at 16; James Conaway, *Babbitt in the Woods*, Harper's Mag., Dec. 1993, at 52.

¹⁷. Remarks of Director Beattie before the Western Land Commissioners Conference, Bend Oregon, Jan. 10, 1994.

analysis which seeks to "balance" species and other public and private requirements, and 3) an earlier pre-train wreck, ecosystem management.¹⁸ These Clinton Administration goals go beyond the strict requirements of the ESA, and provide an atmosphere for improved cooperation at the interface between the Department of Defense and the Service.¹⁹

The Clinton Administration has also adopted policies which bring the purposes of military training and species protection closer together. The Administration has redefined national security to include national and international threats to natural resources. The Administration asserts that injury to ecological resources can undermine regional and global security. Ecological losses injure social and economic relationships,

¹⁸. USFWS Director Mollie Beattie stated:

The toughest problem is, somehow, in a time of dwindling resources and falling budgets, getting our eyes off the endangered species list in order to get ahead of it. It is the absolute jewel in the crown of environmental legislation, but it makes us into an emergency room. We have to struggle to get out and do ecosystem health care.

Quoted in Ted Gup, *Beattie's Battle: The New Director of the Fish and Wildlife Service has a Mission to Reinvent American Conservation*, Audubon, Mar. Apr. 1994, at 64. See also Harlin Savage, *Wildlife's New Champion: Vermonter Mollie Beattie*, *Defenders*, Winter 1993/94, at 9.

However, implementing broad-based ecosystem planning may face stiff political and institutional challenges. D. Scott Slocombe, *Implementing Ecosystem-base Management*, 43 *BioScience* 612 (1993) (integrated, multi-jurisdictional ecosystem planning and management face: inequities of political power; emphasis on short-term values and land uses; institutions with different goals, and planning and management philosophies; lack of fundamental scientific information about the physical environment and its relationship with social systems).

¹⁹. The United States Fish and Wildlife Service is a less aggressive regulatory agency than other environmental or health agencies. For the Defense Department this means military installations should not fear a close working relationship with the Service - assuming some of the institutional constraints identified in this research are addressed.

creating conflict between groups and states which may cause war. Consistent with Clinton's policy, the State Department has significantly increased funding for environmental foreign assistance programs. At the same time, the Secretary of Defense has adopted an "environmental security" initiative. That initiative tasks the military services to assume leadership in several environmental areas, including natural resource conservation. This initiative stresses the need for "partnering" between the military services and other government agencies that share environmental program responsibilities.

D. NEED TO IDENTIFY AND ADDRESS IMPEDIMENTS TO COOPERATION

While there are opportunities for constructive cooperation, the USFWS and Department of Defense must recognize and address many institutional impediments to cooperation. Constructive cooperation²⁰ is

²⁰. Solving complex problems like interagency cooperation requires learning and competence rather than such organizational virtues as morale and loyalty - the latter traits acting as barriers or "defenses" to problem solving. Chris Argyris, *Overcoming Organizational Defenses: Facilitating Organizational Learning* (1990). An organization may also be impeded from solving complex problems if it promotes strength as a hallmark.

A culture that encourages individualism, survival of the fittest, macho heroics, and can-do reactions will often neglect needful practices of representation and subordination. Without representation and subordination, comprehension reverts to one brain at a time. No matter how visionary or smart or forward-looking or aggressive that one brain may be, it is no match for conditions of interactive complexity. Cooperation is imperative.

Karl E. Weick & Karlene H. Roberts, *Collective Mind in Organizations: Needful Interrelating on Flight Decks*, 38 Admin. Sci. Q. 357, 378 (1993).

not "natural" for these agencies. Each agency has established procedures, traditions and cultures which are inconsistent with an open, constructive interagency effort.

There are three main areas in which impediments lie: planning, leadership and accountability, and interagency relations. The following summarize the most important impediments²¹ which the Service and the Department of Defense must overcome.

Planning:

- lack of common, clear definition of the problem

Intergroup conflict saps resources and may "wreak" individuals and communities of individuals. Ronald J. Fisher, *Generic Principles for Resolving Intergroup Conflict*, 50 J. Soc. Issues 47 (1994).

²¹. The U.S. Advisory Commission on Intergovernmental Relations studied interagency cooperation in the implementation of federal environmental policies. U.S. Advisory Commission on Intergovernmental Relations, *Intergovernmental Decision making for Environmental Protection and Public Works*, Report A-122 (Nov. 1992). The Commission found the following common barriers to cooperation: unclear or arbitrary standards and criteria; insufficient agency data, time, and personnel committed to interagency coordination; and underdeveloped procedures to balance diverse needs and values, and to avoid impasses. The Commission suggested these corrective measures: application of the National Environmental Policy Act, including the Act's requirement for early identification of environmental consequences and mutual alternatives development; designation of points of contact or facilitators for interagency cooperation; adoption of clear procedures to resolve conflicts when they occur; and enhanced communication, education, and resources. Accord Ernest R. Alexander, *Interorganizational Coordination: Theory and Practice*, 7 J. Plan. Literature 328 (1993) (citing several common strategies to enhance interorganizational cooperation: frequent informal contacts and association; competent facilitators; and established interagency teams supported by sufficient authority and resources).

- failure to address species issues early in Defense program planning
- no "lessons learned" procedures to make improvements based on prior successes or failures
- key agency staff left out of planning and cooperation processes
- incomplete information about the problem and its relationship to collateral issues

Leadership and accountability:

- fragmentation of key agency decisions
- senior agency decision makers uninformed about planning and priorities associated with interagency cooperation
- no identified person(s) trained and responsible for interagency problem solving

Interagency relations:

- absence of mutually recognized cooperation procedures
- failure of each agency to learn or appreciate the other agency's issues and concerns
- proprietary attitude towards agency information
- existence of unresolved credibility issues from prior dealings

E. THE MUTUAL VALUE OF INTERAGENCY COOPERATION

Of course, interagency cooperation is not an end in itself.²² Rather, it can be a better way for the Service and the Department of Defense to enhance their respective missions. An important reason to cooperate is the long term cost savings derived from the early identification of problems, and the development of alternatives which will balance military missions and species requirements. Cost savings will occur because: 1) the two agencies will stop duplicating scientific research and other efforts; 2) costly vegetation replacement or other "mitigation" measure may not be necessary if program planning considers species requirements early; and 3) early identification of issues and alternative solutions will avoid project delays or cancellations.

Interagency cooperation is also valuable because it makes the important relationship between the two agencies more predictable. This is important for both agencies which have many additional responsibilities. The agencies can save time by avoiding the pain of forming a partnership with each new conflict.

Additionally, cooperation can add to each agency's ability to deal with non-relationship issues which both share. One such issue is the need to deal with other private and public land holders with species habitat near military bases. By working together, both agencies can address the

²². Agency leaders should not promote cooperative interagency planning for the wrong reasons: fear that refusal to cooperate will rain down disaster on an agency; an illusion that cooperative planning can be used to "control" another agency; or a desire to use cooperation to enhance the agency's image. Henry Mintzberg, *The Pitfalls of Strategic Planning*, 36 Cal. Mgmt. Rev. 32 (1993).

larger ecosystem problems from a common front.

The failure to cooperate constructively with the USFWS may cost the military services more than lost future fiscal resources. It may cause a loss of control over military land use. One public policy expert²³ suggests that Congress must halt the multi-agency quibbling over ecological resource protection by imposing stricter land use controls, especially on public lands.

II. BIOLOGICAL CONSERVATION AS A NATIONAL INTEREST

Recent Administration changes in national security policy suggest that military officers may have to learn much more about environmental degradation.

A. OUR DEPENDENCE ON THE EARTH'S RESOURCES

1. Healthy ecosystems support human and community life, and are important factors in national and international security.

Mankind, our social order, and national and international security depend on healthy ecosystems.²⁴ For the human family these ecosystems perform irreplaceable life-support services. For example, effective

²³. Evan van Hook, *The Ecocommons: A Plan for Common Property Management of Ecosystems*, 11 Yale L. & Pol'y Rev. 561 (1993).

²⁴. Ecosystems are geographical areas where populations of various species evolve and adapt to their surroundings and to each other.

functioning forest ecosystems control the climate, regulate freshwater supplies, and generate and maintain fertile soil. Forests also maintain the proper ratio of atmospheric oxygen and nitrogen, as well as control the global patterns of air circulation. Loss of forests causes soil erosion, and destructive river sedimentation.

Wetlands, another type of ecosystem, replenish underground drinking water supplies, and support a food web important for humans. Soil ecosystems contain bacteria and other organisms necessary to generate fertile soil. Soil ecosystems also decompose organic material, including many human-created wastes.

These ecosystems, if healthy, support the social and economic well-being of individuals, families, and communities. Individuals, families, and communities require fresh water, agricultural products, disease control, clean air, and other products and services which these natural systems provide. The Department of Defense is as dependent on these ecosystem products and services as any other group in society. If a military installation fails to manage the ecosystem associated with its land it may injure essential water supply resources, cause severe land erosion which will impede training and support activities, and create health hazards for those working and living on the facility. Losses in natural resources can impair the national economy which supports military force readiness.

Internationally, severe ecosystem failures can influence relationships between states. Overtaxed natural systems, which produce insufficient fresh water or agricultural products, or which threatened the

health of humans, can lead to social and political upheaval.²⁵ Also, the security of most states depends on a continuing supply of certain raw materials,²⁶ which only healthy ecosystems or wise resource conservation measures provide.

²⁵. Before the Industrial Revolution, fertile soil, water, and other resources were often the object of violent, interstate conflict. With the explosive progress of science and technology, there was a loosening of natural scarcity's grip on human life and intergroup rivalries. However, recent trends suggest the world is returning to earlier patterns of violent conflict and social instability based on resource competition and depletion. Andre Berger, *The Biggest Threat: Global Environmental Change*, NATO's Sixteen Nations, Nov. 1990, at 30; Peter Gleick, *Water, War, and Peace in the Middle East*, *Environment*, Apr. 1994, at 6; Peter Gleick, *Environment, Resources, and International Security and Politics*, in *Science and International Security* (Eric H. Arnett ed. 1990); Sandy Gordon, *Resources and Instability in South Asia*, *Survival*, Summer 1993, at 66; Hampson, *Peace, Security and New Forms of International Governance*, in *Planet Under Stress: The Challenge of Global Change* (Constance Mungall & Digby McLaren eds. 1990); Homer-Dixon, *Environmental Change and Violent Conflict*, in *Emerging Issues Occasional Papers Series* (1990); R. Paul Shaw, *Warfare, National Sovereignty, and the Environment*, 20 *Env't'l Conservation* 113 (1993); Joyce R. Starr, *Water Wars*, *Foreign Pol'y*, Spring 1991, at 17. Poor environmental management among the major communist countries undermined their economic and social security, leading to a loss of governing status. D. J. Peterson, *Troubled Lands: The Legacy of Soviet Environmental Destruction* (1993); Vaclav Smil, *China's Environmental Crisis* (1993); Chris Catton, *Great Leap Backward*, *New Statesman & Soc.*, Jan. 8, 1993, at 28.

Another consequence of environmental degradation could be international action limiting the presence of military forces aboard. Since the environmental damage caused during the Gulf War, several international organizations have suggested limiting military activity in the Gulf to protect marine life. John H. Robinson & Sylvia A. Earle, *Should the Arabian Gulf become a Marine Sanctuary?* *Oceanus*, Fall 1993, at 53.

²⁶. Walter Youngquist, *Mineral Resources and the Destinies of Nations* (1990); Hanns W. Maull, *Energy and Resources: The Strategic Dimensions*, 31 *Survival* 500 (1989).

2. A key to healthy ecosystems is diversity, genetic and species.

The health of these essential ecosystems depends fundamentally on "biological diversity."²⁷ Simply stated, biological diversity is the variety of life and its processes. One form of diversity is genetic variation within and between species. Genetic variation enhances species' viability, productivity, resilience to stress, and adaptability to change. Similar benefits arise when the earth contains both a rich diversity of species and a variety of habitat types: forests²⁸, types of wetlands, and arid regions.

The earth also supports a rich diversity of animal, insect, and plant species which benefit mankind.²⁹ The planet's diverse species control pests and disease. Species and genetic diversity are also vital to increase food productivity³⁰ and to develop disease-resistant strains of food

²⁷. Lawrence M. Cook, *Genetic and Ecological Diversity* (1991); *Biological and Ecosystem Functions* (E. Schultze & H. Mooney eds. 1993); Peter H. Raven, *Defining Biodiversity*, *Nature Conservancy*, Jan.-Feb. 1994, at 10.

²⁸. J. A. McNeely, *Lessons from the Past: Forests and Biodiversity*, 3 *Biodiversity & Conservation* 3 (1994).

²⁹. John C. Ryan, *Life Support: Conserving Biological Diversity* (1992); *The Preservation of Species: The Value of Biological Diversity* (Bryan G. Norton ed. 1986); D. L. Hawksworth & R. R. Colwell, *Microbial Diversity 21: Biodiversity Amongst Microorganisms and its Relevance*, 1 *Biodiversity & Conservation* 221 (1992); K. C. Kim, *Biodiversity, Conservation and Inventory: Why Insects Matter*, 2 *Biodiversity & Conservation* 191 (1993).

³⁰. Cary Fowler & Pat Mooney, *Shattering: Food, Politics, and the Loss of Genetic Diversity* (1990); World Conservation Monitoring Center, *Global Biodiversity: Status of the Earth's Living Resources*, Chapter 2 (1992); *The Biodiversity of Microorganisms and Invertebrates: Its Role in Sustainable Agriculture* (D. L. Hawksworth ed. 1991); Renee Vellve, *The Decline of Diversity in*

commodities. Many plant species are important sources of medicinal drugs. At least a quarter of all prescription drugs in the United States come from wild plants.³¹

3. Human activities degrade biological diversity, injuring the global resource base

Humans, societies, and political institutions depend more and more on these services produced by the earth's natural diversity. Yet, while this dependency is increasing the resource base is changing. Among the alarming changes has been the loss of fish, wildlife, and plant species, as well as many of the ecosystems supporting them.³² Of course, species extinction has been a part of earth history. There is a natural biological selection based on adaptability and efficiency.³³ However, recent human

European Agriculture, *The Ecologist*, Mar.-Apr. 1993, at 64.

³¹. See Subcomm. on Environmental and Natural Resources of the House Comm. on Merchant Marine and Fisheries, *Medicinal Uses of Plants: Protection under the Endangered Species Act*, 103d Congress, 1st Session, Nov. 9, 1992; James B. Hudson, *Antiviral Compounds from plants* (1990); Bruce Barret, *Medicinal Plants of Nicaragua Atlantic Coast*, 48 *Econ. Botany* 8 (1994); Norman R. Farnsworth & Djaja D. Soejarto, *Potential Consequence of Plant Extinction in the United States on the Current and Future Availability of Prescription Drugs*, 39 *Econ. Botany* 231 (1985).

³². The United State has lost much of its original ecological richness. Half of the fertile wetlands - swamps, bogs, coastal salt marshes, river bottoms - have been lost. In the Southeast, 98 percent of the longleaf pine forests are gone. The Midwest has lost 98 percent of the original tallgrass prairie - originally 400,000 square miles. Tom Arrandale, *Endangered Species*, 1 *CQ Researcher* 395, 396 (1991).

³³. The natural "background" rate of extinction has been on the order of one to ten species per year. John C. Ryan, *Life Support: Conserving Biological Diversity* 6 (1992).

actions have accelerated the pace of species and ecosystem losses. The rate of extinction during the last century is unprecedented. Some believe the extinction rate is accelerating at geometrical proportions.³⁴

A prime cause of this acceleration is mankind's role as a "super-predator" on the environment. Growth in global human populations, and policies wedded to economic growth, have caused unprecedented conversion and degradation of natural resources. In particular, human over-exploitation³⁵ of species, pollution, toxic chemicals, habitat destruction, habitat fragmentation,³⁶ and human-induced climate changes³⁷ threaten

³⁴. Human activity caused the extinction of about 75 species of birds and animals between 1600 and 1900: about one species every four years. A like number of birds and animals became extinct because of human intervention during the first half of this century. By 1970, however, the number of human-caused extinctions had soared to around 100 species per year. Presently, biologists estimate the 1990s will experience human-induced losses around 25 per day. See Paul R. Ehrlich & Anne H. Ehrlich, *Extinction: The Causes and Consequences of the Disappearance of Species* (1981); Norman Myers, *The Sinking Ark: A New Look at the Problem of Disappearing Species* (1979); John C. Ryan, *Life Support: Conserving Biological Diversity* (1992) (biological "diversity is collapsing at rates that can only be described as mind-boggling"); *The Last Extinction*, 2nd Edition (Les Kaufman & Kenneth Mallory eds. 1993); *Systematics, Ecology and Biodiversity Crisis* (Niles Eldredge ed. 1992); Norman Myers, *Questions of Mass Extinction*, 2 *Biodiversity & Conservation* 2 (1993); Norman Myers, *Extinction Rates Past and Present*, *BioScience*, Jan. 1989, at 39.

³⁵. David Concar & Mary Cole, *Conservation and the Ivory Tower*, *New Scientist*, 29 Feb. 1992, at 29 (discussing world trade and commercial exploitation of endangered species animal parts); Carl Safina, *Where have all the fishes gone?*, *Issues Sci. & Tech.*, Spring 1994, at 37 (discussing overfishing and depletion of commercial fish); Colin Tudge, *Asia's Elephants: No Place to Hide*, *New Scientist*, Jan. 15, 1994, at 34.

³⁶. E. Grumbine, *Protecting Diversity through the Greater Ecosystem Concept*, 10 *Natural Areas J.* 114 (1990); Richard J. Hobbs, *Effects of Landscape Fragmentation on Ecosystem Process*, 64 *Biological Conservation* 193 (1993); D.A. Sanders, R.J. Hobbs & C.R. Margules, *Biological Consequences of Ecosystem Fragmentation*, 5 *Conservation Biology* 18 (1991); P. Zwick, *Stream*

biological diversity. These impacts undermine the diversity of the gene pool, and injure the variety among species, all of which are vital for a healthy and productive environment.³⁸

Habitat Fragmentation: A Threat to Biodiversity, 1 *Biodiversity & Conservation* 80 (1992).

37. Peter A. Parsons, *Biodiversity and Climatic Change*, in *Conservation of Biodiversity for Sustainable Development* 155 (O.T. Sandlund, K. Hindar & Anthony H. D. Brown eds. 1992).

38. While biologists have general evidence of human impacts on species, case-specific research is required to determine what actions, if any, will help the recovery of an imperiled species. The research questions and answers are important not only to biologists, but also to land holders, such as the Department of Defense, which must implement conservation programs. Representative of the kinds of questions which biologists consider when evaluating a species considered for protection are the following.

Which species are naturally rare, due to factors other than human intervention? Is human action really the cause of this species' decline?

Which species are on the brink of natural extinction and are unlikely to derive long-term benefits from efforts to preserve them?

What endangers each affected species, and what must be done to protect them?

What is the relation between a species' existence and its habitat?

What is the minimum effective size of this habitat?

Can a species threatened with extinction be bred in captivity or be transplanted to another site successfully?

What level, if any, of human intrusion on a species' habitat is acceptable?

Which endangered species will benefit from recovery efforts?

Which recovery actions can be initiated before a species population has dropped below its long-term survival threshold?

See Richard Tobin, *The Expendable Future: U.S. Politics and the Protection of Biological Diversity* 63

4. Clinton Administration policies concerning global environmental degradation and international security

The Clinton Administration's national security policy places prominent concern on global environmental resources. Vice President Gore, especially, has advanced the link between environmental degradation and the nation's security policies. In a June 14, 1993 Gore declared at the United Nations:

We are united by a common premise - that human activities are needlessly causing grave, and perhaps, irreparable damage to the global environment. The dangers are clear to us . . . Living species die at such an unprecedented rate that more than half may disappear within our lifetimes. Degradation of land, forests, and fresh water play critical roles in international stability . . . We made a commitment at Rio to change our course. We made a commitment to reject the counsel of those who would continue the road of extermination. This Administration not only supports that commitment, we intend to join with all those determined to demonstrate real leadership.³⁹

Following his United Nations speech, the Vice President listed the two major "dangers" to international security as "the proliferation of

64 (1990). Unfortunately, biologists do not agree on the key scientific factors relevant to species conservation. See Robert J. Taylor, *Biological Uncertainty in the Endangered Species Act*, *Natural Resources & Env't.*, Summer 1995, at 6.

³⁹. Albert Gore, *U.S. Support for Global Commitment to Sustainable Development*, U.S. Dep't St. Dispatch, June 14, 1993, at 430.

weapons of mass destruction and the degradation of the global environment."⁴⁰

⁴⁰. Albert Gore, *Forging a Partnership for Peace and Stability*, U.S. Dep't St. Dispatch, Jan. 10, 1994, at 13. Before the election then Senator Gore joined Senators Nunn and Wirth to advocate a modification of the traditional definition of national security.

National security consists of those matters that can directly and imminently menace the interests of the United States and the safety of the American people at the fundamental level of survival. We are recognizing that our society can be threatened by new forces. Among these forces we must certainly give the highest standing to the consequences of a damaged and destabilized natural environment. In this century human civilization has rather suddenly acquired the ability to degrade the environment everywhere on earth simultaneously . . . Sometimes quite serious environmental problems have been caused within the Department of Defense itself and need to be remedied quickly.

Congressional Record, June 28, 1990, at S8932. Then Senator Tim Wirth, now a senior State Department officer, added the following.

The end of the Cold War demands a redefinition of national security. I believe that redefinition will result in less emphasis on the military dimension of security - and much greater focus on the demographic and resource conflicts which will increasingly define the dynamics of international relations in the 1990s and beyond . . . Some may suggest that involving the Defense Department in environmental matters would be inappropriate and ill-advised. To the contrary, it is imperative that we develop a better understanding of the national security implications of global environmental threats.

Congressional Record, June 28, 1990, at S-8936. These views are consistent with changing policies at the United Nations. On 31 January 1992, the United Nations Security Council modified its definition of security to include ecological degradation.

The absence of war and military conflicts amongst the States does not in itself ensure international peace and security. The non-military sources of instability in the economic, social, humanitarian, and ecological fields have become threats to peace and security. The United Nations membership as a whole needs to give the highest priority to the solution of these matters.

The Clinton Administration has significantly increased the State Department's budget for international biodiversity and natural resource protection programs.⁴¹ This aid goes to foreign countries to find alternatives to deforestation, to prevent poaching of imperiled wildlife, and to protect vital water and soil resources.

On 4 June 1993, President Clinton signed the international Convention of Biological Diversity.⁴² That Convention's objectives are to stem the loss of the earth's species and their habitat, to conserve biological diversity, and to support sustainable development. Article 8 of the Convention provides that the signatory states will take actions to protect biological resources within their borders. Each nation agrees to modify activities which harm biological resources.

This Administration emphasis on ecological degradation has also elevated environmental programs within the Department of Defense.

U.N. SCOR, 3046th mtg., at 3, U.N.Doc, S/23500 (1992). See also, Norman Myers, *Ultimate Security: The Environmental Basis of Political Stability* (1993); Joseph J. Romm, *The Once and Future Superpower: How to Restore America's Economic, Energy, and Environmental Security* (1992); Peter H. Gleick, *Environment, Resources, and International Security and Politics, in Science and International Security* (Eric H. Arnett ed. 1990); Symposium, Association for the Advancement of Science, *Environmental Dimensions of Security*, 9 Feb. 1992.

⁴¹. Warren Christopher, *Statement on the Budget*, U.S. Dep't St. Dispatch Supplement, Feb. 1994 (including \$293 million for international biological diversity & natural resource conservation programs - a doubling of funding over two years).

⁴². Message from the President of the United States Transmitting the Convention of Biological Diversity, with Annexes, Done at Rio de Janeiro, June 5, 1992, and signed by the United States in New York on June 4, 1993, 103d Congress, 1st Session, Senate Treaty Doc. 103-20.

Secretary Les Aspin established an "environmental security" initiative.⁴³ That initiative focuses resources and attention on effective pollution control and clean up, and on biological resource conservation at military installations. The Defense Department environmental security initiative also promotes "partnering" between the military services and other government agencies responsible for environmental program management.

B. THE SCIENCE-LAND USE MANAGEMENT MISMATCH IN REDUCING BIOLOGICAL DIVERSITY LOSSES

Notwithstanding President Clinton's policies, it remains difficult to integrate biological science into military land use management. Even if an installation commander is sympathetic to the intent and purposes of natural resource conservation, she or he makes land use decisions based on institutional feasibility or orientation, rather than on ecological necessity. This science versus management mismatch⁴⁴ is common in the

⁴³. Sherri W. Goodman, *Department of Defense Environmental Security Program*, Army Res. Dev. & Acquisition Bull., Mar.-Apr, 1994, at 1.

⁴⁴. For overviews of this mismatch see Lynton K. Caldwell, *Between Two Worlds: Science, the Environmental Movement, and Public Choice* (1992); Robert Formaini, *The Myth of Scientific Public Policy* (1990); J. Josephson, *Regulation and Science*, 27 *Envtl. Sci. & Tech.* 778 (1993). See also Daniel J. Rohlf, *Six Biological Reasons Why the Endangered Species Act Doesn't Work*, 5 *Conservation Biology* 273 (1991) (accusing biologists of refusing to develop the necessary political, legal, and social sophistication to translate their science into action).

implementation of many environmental laws in the United States.⁴⁵

Ecosystems which cross political boundaries. Species and their habitat are oblivious to political/jurisdictional borders. USFWS biologists who research species and their habitat often forget or are less focused on the related political and institutional interests. Yet, solutions which will benefit the species must address competing cross-boundary interests.⁴⁶ Failure to blend science with multi-jurisdictional realities either dooms species recovery efforts, or creates conflict, delay, and additional costs.

Short-term interests of the military services may be inconsistent with some science-based objectives. It can take years to collect data and develop recovery plans for an imperiled species or ecosystem. Once developed these plans often require consistent efforts over many years. But, military installation commanders and their staff serve for relatively brief periods. To succeed USFWS biologists must understand the institutional context in which the species protection measures will

⁴⁵. While the Clinton Administration initially promoted science-based management of the national forests, political and administrative conditions have impeded the Administration's intent. H. Michael Anderson, *Reforming National-Forest Policy*, Issues Sci. & Tech., Winter 1993-94, at 40. See also Leslie Kaufman, *Reinvention Reality Check: The Bureau of Reclamation Finds it's not easy going green*, Gov't Executive, Apr. 1994, at 19.

⁴⁶. For a discussion of the institutional setting of federal facilities' cross-border conflicts with local governments see Lyn L. Creswell, *Federal Agency-Local Government Land Use Negotiations: Vulnerabilities of the Federal Bargaining Position*, 33 J. Urban & Contemporary L. 3 (1988). See also George Francis, *Ecosystem Management*, 33 Nat. Resources J. 315 (1993) (discussing problems of multi-jurisdictional issues in managing cross-boundary ecosystems).

operate.⁴⁷ They must fashion near-term objectives which bridge the gap between long-term species recovery needs and the short-term nature of many Defense programs and policies.⁴⁸

Science-based solutions which ask a few to sacrifice for the many, without compensatory benefit. Nature seldom distributes problems evenly among individuals or groups. Thus, to rescue an imperiled species, the remedy may involve only one or a few landowners in a discrete area. When military bases must sacrifice for the benefit of society, with disproportionately small benefits in return, military professional complain. In the case of species conservation, USFWS biologists often do not try to diffuse costs or to link the action with a benefit for the Department of Defense

⁴⁷. Some scientists believe that environmental laws passed by the Congress "speaks for themselves" and ought to be implemented without institutional wrangling. "There is a widespread perception among 'experts' that the major theoretical justifications for environmental regulation are in place and the question is merely one of implementation." A. Dan Tarlock, *Earth and Other Ethics: The Institutional Issues*, 56 Tenn. L. Rev. 43, 45 (1988). The reality is that a policy - even as straight forward as the Endangered Species Act - requires special skills to apply it within an institution that is decades or centuries old.

⁴⁸.

Because maintenance of biological diversity is a long-term problem, policy changes and management programs must be long lasting to be effective. But, such policies and programs must be understood and accepted by the public, or they will be replaced or overshadowed by shorter term concerns. Conveying the importance of biological diversity requires formulating the issue in terms that are technically correct yet understandable and convincing to the public.

Science may be too ready to propose a technical solution, when a management remedy is more timely, effective, and efficient. Technical solutions⁴⁹ may benefit imperiled species or correct other natural resource problems. However, the root cause of much natural resource damage is often mismanagement of assets or programs. USFWS biologists often fail to look for Department of Defense management actions which might achieve the desired outcome more efficiently and effectively. Again, this requires Service biologists to appreciate the institutional context of the problem.

There can be a gulf between Service biologists and military installation commanders. However, biologists have special skills and attitudes which make them valuable members of a problem-solving team.⁵⁰ Most scientists receive training in a non-confrontational, analytical approach. Scientists often rely on persuasion rather than on force, respect the opinions of colleagues, and show curiosity and

49.

The typical endangered species program emphasizes biological assessments and solutions. Perhaps this bias reflects the training of most wildlife professionals in the biological rather than social sciences and the hope for technological solutions to the problem. Perhaps it also reflects the enormous complexity of the issue when viewed in socioeconomic terms and in inherent political risks associated with any perspective that suggests the altering of social institutions and perceptions as an appropriate response to the problem.

Stephen R. Kellert, *Social and Perceptual Factors in Endangered Species Management*, 49 *J. Wildlife Mgmt.* 528 (1985).

50. Herbert A. Simon, *Scientific Discovery as Problem-solving*, 6 *Int'l Stud. Phil. Sci.* 4 (1992).

eagerness for new data and ideas.⁵¹ Scientists value honesty, attention to detail, imaginativeness, clarity of mind, and openness to criticism. In a cooperative process, military and USFWS decision makers can use such traits to improve performance of their missions.

Also, biologists have inherited a tradition known as the "land ethic," advocated by well-known forester and wildlife biologist Aldo Leopold.⁵² Leopold taught that mankind should conserve resources, including but not limited to wildlife, for the benefit of present and future generations. He believed that we should not consume the earth's resources merely for short-term commercial or personal gain. Leopold's "land ethic" includes two important principles:

Individuals and groups must consider themselves interconnected with the land and natural resources around them, so their conduct conforms to the greatest extent possible with the laws of nature.⁵³

An important group or individual objective must be the integrity and stability of the natural environment, upon which they wholly depend.⁵⁴

⁵¹. Robert V. Bartlett, *Ecological Rationality: Reason and Environmental Policy*, 8 *Envtl. Ethics* 221 (1986); Richard Rorty, *Science as Solidarity*, in *The Rhetoric of Human Sciences* 38-40 (John S. Nelsen, Allan Megill & Donald N. McCloskey eds. 1987).

⁵². Aldo Leopold, *A Sand County Almanac* (1949). For a discussion of the evolution of Leopold's theories see James P. Karp, *Aldo Leopold's Land Ethics: Is an Ecological Conscience Evolving?* *Envtl. L.* 737 (1989).

⁵³. Aldo Leopold, *A Sand County Almanac* 239 (1949).

⁵⁴. *Id.* at 262.

The Department of Defense has many conservation-like policies. Some policies are similar to Leopold's "land ethic." For example, each of the military services pay close attention to the maintenance of their warfighting equipment. They also provide for the education of their personnel, and promote quality of life programs, to enhance the useful longevity of their manpower. Such practices are cost effective because they reduce the high costs of equipment acquisition and personnel recruitment. Unfortunately, the military services have not uniformly managed their real estate with the same conservation commitment applied to other assets. However, the scarcity of land resources will cause this attitude to change. As attitudes change, military installation commanders may better appreciate the philosophical foundations of many biologists.

III. NATIONAL POLICIES CONCERNING MILITARY/USFWS COOPERATION

The Congress, when it passed the Endangered Species Act, probably did not fully appreciate the difficulty government agencies would have in integrating biological information into their decision making. The Act establishes procedures which, in application, discount institutional factors in the conservation of endangered species and threatened species. The resulting conflicts make the implementation of the Act more difficult.

However, before the passage of the Endangered Species Act, the Congress passed two other laws - the Sikes Act and the National Environmental Policy Act - which provided opportunities to integrate ESA species requirements into military land management decision making.⁵⁵

A. SIKES ACT

For decades state governments have actively managed fish and wildlife species for recreational and revenue purposes. Before 1960, many states believed federal agencies, especially the Department of Defense, did not manage fish and wildlife on their lands consistent with state interests. In that year, the states persuaded the Congress to pass

⁵⁵. This research addresses these laws only as they relate to USFWS/armed forces cooperation. This summary should not be used as a guide for agency compliance with the Sikes Act, the National Environmental Policy Act, or the Endangered Species Act. For ESA compliance guidance see Craig Teller, *Effective Installation Compliance with the Endangered Species Act*, Army Law., Jun. 1993, at 5.

the Sikes Act.⁵⁶ That Act required Defense installations to adopt wildlife management practices to enhance fish and game species on their lands.

The Congress has reauthorized the Sikes Act regularly since 1960, and later added the requirement for endangered and threatened species planning. The provisions of the Sikes relevant to the USFWS/military relationship include the following:

Defense lands for multipurpose uses. The Sikes Act declares the Department of Defense shall manage its lands to provide for "sustained multipurpose uses" of fish and wildlife resources.⁵⁷ This multipurpose mandate requires a balanced management of natural resources to provide for both game species and species facing extinction.

Defense Department requirement to employ wildlife professionals. Military installations must rely on "Department of Defense personnel who have professional training" for "the development, implementation, and enforcement of fish and wildlife management" on their lands. This requirement forms the basis for the employment of wildlife biologists who work on many military installations.

⁵⁶. 16 U.S.C. 670a-670o (1985 & 1994 Supp.).

⁵⁷. The Congress has declared that while the military mission is of paramount importance on military reservations, "the lands are nonetheless held as a public trust and should be managed on a multiple use basis." U.S. House of Representatives, Sikes Act Authorization (House Report 99-129 of May 15, 1985), 99th Congress, 1st Session. Federal agencies have a "public trust" to conserve and enhance the natural resources on their lands. The trust duty is to the American people. The Public Trust Doctrine is a heritage from our English common law roots. That Doctrine holds that government must manage common resources (water, air, oceans, soil, minerals, land) as trustees for all the people. Harrison Dunning, *The Public Trust: A Fundamental Doctrine of American Property Law*, 19 *Envl. L.* 517 (1989); Gary D. Meyers, *Variations on a Theme: Expanding the Public Trust Doctrine to include Protection of Wildlife*, 19 *Envl. L.* 723 (1989).

Defense Installation fish and wildlife management plans. The Act authorizes the development and implementation of fish and wildlife management plans, which are developed cooperatively with the appropriate state wildlife agency and with the United States Fish and Wildlife Service. These plans should include "specific habitat improvement projects and related activities and adequate protection for species of fish, wildlife, and plants considered threatened or endangered." The three agencies should regularly review these plans, but at least every 5 years.

The Office of the Secretary of Defense has published a Departmental Natural Resource Management Program policy,⁵⁸ implementing the Sikes Act and other statutory requirements. This policy reaffirms the Sikes Act requirements and adds the following:

Scientific, interdisciplinary management of resources required. The Defense Department policy requires the military services manage their lands "using scientific methods and an interdisciplinary approach."⁵⁹

Military and conservation uses are not mutually exclusive. The Defense Secretary views military land management as accommodating both military and conservation purposes - "the conservation of natural resources and the military mission need not and shall not be mutually exclusive."⁶⁰

⁵⁸. 32 C.F.R. part 190.

⁵⁹. 32 C.F.R. 190.4 (b).

⁶⁰. *Id.*

Installation commander's responsibility to keep informed. The policy requires installation commanders to become informed about their natural resources management responsibilities. Commanders "shall keep informed of the conditions of natural resources" and the "potential or actual conflicts between Department of Defense actions and natural resource management plans."⁶¹

Consistency between other installation planning and natural resource plans. When military installations develop natural resource management plans with the state agencies and the USFWS, the Secretary requires that those plans "shall guide planners and implementors of mission activities." Specifically, installation natural resource management plans must be compatible with base master plans.⁶²

Planning must include specific protection measures for endangered species. When installations draft their natural resource management plans they shall work with the USFWS to develop provisions for the protection of endangered species. Such protections should include mitigation measures, affirmative procedures necessary to enhance the population of endangered species, and procedures and responsibilities for consulting with the USFWS before funding or conducting any action likely to affect a listed species or its critical habitat.⁶³

⁶¹. 32 C.F.R. 190.4 (f).

⁶². 32 C.F.R. 190, Appendix A. 1.

⁶³. 32 C.F.R. 190, Appendix A. 1.b.

B. NATIONAL ENVIRONMENTAL POLICY ACT

Many of the planning and coordination requirements of the Sikes Act and the Secretary of Defense policy are reinforced by the National Environmental Policy Act (NEPA).⁶⁴ In 1969, the Congress passed that statute in response to a national sentiment that federal agencies should lead efforts to protect the environment. The Congress also wanted federal agencies to use science "in an integrated interdisciplinary way to redress excessive weighing of agency decisions on the side of narrowly conceived economic and engineering considerations."⁶⁵

NEPA has become the Nation's basic national charter for protection of the environment. It establishes broad environmental policies for the Nation, provides an interagency/interdisciplinary framework for federal agency planning, and contains "action-forcing" measures to ensure federal decision makers take environmental factors into account. NEPA also created a President's Council of Environmental Quality (CEQ), which later published regulations for the implementation of NEPA.

The CEQ regulations address primarily the preparation, public review, and approval of environmental impact statements (EIS). Federal

⁶⁴. 42 U.S.C. 4321-4346b (1977 & 1994 Supp.).

⁶⁵. Lynton K. Caldwell, *Science and the National Environmental Policy Act: Redirecting Policy Through Procedural Reform* 47 (1982). NEPA's purposes include the following: to encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment, and to enrich the understanding of ecological systems and natural resources. 42 U.S.C. 4321. The policies of the Act include: to leave a safe and healthful environment to the succeeding generations, to attain the widest range of beneficial uses of the environment without degradation or risk to health or safety. *Id.* at 4331.

agencies must prepare these documents for major federal projects which have a significant impact on the environment. However, the issue of species versus military training conflict does not routinely require an environmental impact statement.

Nevertheless, NEPA is more than an EIS statute. It also promotes early consideration of environmental values in the federal planning process. NEPA and the CEQ regulations also advocate early interagency cooperation concerning environmental impacts. The statute and the regulations provide the following requirements relevant to military/USFWS cooperation.

It is the continuing responsibility of federal agencies to use all practicable means, consist with other essential considerations of national policy, to improve and coordinate federal plans, functions, programs, and resources to conserve ecological resources.⁶⁶

Federal agencies shall use a systematic, interdisciplinary approach in planning and in decision making which may have an impact on the environment.⁶⁷

Federal officials should make decisions based on understanding of environmental consequences, and act to protect, restore, and enhance the environment.⁶⁸

Federal agencies shall identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse

⁶⁶. 42 U.S.C. 4331 (b).

⁶⁷. 42 U.S.C. 4332 (1) (A).

⁶⁸. 40 C.F.R. 1500.1 (c).

effects of actions upon the environment.⁶⁹

Federal agencies should reduce the potential delay in decision making by: integrating environmental considerations into early agency planning; cooperating early⁷⁰ with other public agencies; using early "scoping" to identify what are and what are not the real issues; and integrating NEPA requirements with other regulatory requirements.⁷¹

Federal agencies should seek the cooperation of other federal agencies which have special expertise with respect to any environmental issue. Such cooperating agency shall participate at the earliest possible time, participate in scoping, and assume responsibilities for information development and analysis in accordance with agreements with the action agency.⁷²

The Secretary of Defense has published a policy for the implementation of NEPA by the military services. This policy includes many of these planning and coordination principles. It also stresses the early application of NEPA in Defense planning. Defense Department components "shall integrate the NEPA process during the initial planning stages of proposed Department of Defense activities to ensure that planning and decisions reflect environmental values, to avoid delays later

⁶⁹. 40 C.F.R. 1500.2 (e).

⁷⁰. The goal should be to cooperate at the earliest practical point in the planning of a project or action. However, selecting that point may be an art, not a science. If interagency discussions are initiated too soon, the cooperative effort may be counterproductive. See generally Michael L. Smith, *Decision Making for Project Managers: When to Involve Others*, Project Mgmt. J., June 1993, at 17.

⁷¹. 40 C.F.R. 1500.5.

⁷². 40 C.F.R. 1501.6.

in the process, and to preclude potential conflicts."⁷³

C. THE ENDANGERED SPECIES ACT

A test of the military's ability to use NEPA to "preclude potential conflicts" may be the implementation of the Endangered Species Act of 1973.⁷⁴ The Endangered Species Act (ESA) is an extraordinary piece of legislation, which elevates the conservation of certain species above virtually all other considerations. When the Congress passed the Act they found that "economic growth and development untempered by adequate concern and conservation"⁷⁵ had rendered extinct various species⁷⁶ of fish, wildlife, and plants. The Congress declared that the remaining depleted species are of "aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."⁷⁷

⁷³. 32 C.F.R. part 188, enclosure B. 1 (emphasis added).

⁷⁴. 16 U.S.C. 1531-1544 (1985 & 1994 Supp). The Congress passed weaker versions of the Endangered Species Act in 1966 and 1969, but repealed these laws prior to passing the 1973 Act. Endangered Species Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973); Endangered Species Conservation Act of 1969, Pub. L. No. 91-135, 83 Stat. 275 (repealed 1973).

⁷⁵. 16 U.S.C. 1531 (a) (1).

⁷⁶. The ESA defines "species" to include any species or subspecies of fish, wildlife, or plant; any variety of plant; and any distinct population segment of any vertebrate species that interbreeds when mature. Excluded is any species of the Class Insecta determined to constitute a pest whose protection would present an overwhelming and overriding risk to humans.

⁷⁷. 16 U.S.C. 1531 (a) (3).

The primary purpose of the ESA was "to provide the means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."⁷⁸ The Congress established a national policy "that all Federal departments and agencies shall seek to conserve endangered species and threatened species."⁷⁹

The ESA advances this purpose and policy through a program of science-based investigation and evaluation, public involvement, species recovery planning and implementation, interagency consultation, federal-state cooperation, criminal and civil penalties, and land acquisition. The ESA places the lion's share of the responsibility for species conservation efforts on the federal land management agencies. The Act requires these agencies to protect and to help recover imperiled species. The private sector also has obligations under the Act, and states are encouraged to cooperate in the Act's implementation. A brief summary of the legislative requirements of the ESA follows.

Listing. The ESA requires the federal "listing" of imperiled species. This listing includes a two-tiered classification system (endangered species⁸⁰ and threatened species⁸¹) based on the

⁷⁸. 16 U.S.C. 1531 (b).

⁷⁹. 16 U.S.C. 1531 (c) (1).

⁸⁰ The term "endangered" is attributed to a species of wildlife that is in "danger of extinction throughout all or a significant portion of its range." 16 U.S.C. 1532 (6).

⁸¹. The term "threatened" is ascribed to a species that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range," 16 U.S.C. 1532 (20), because of habitat disruption, over exploitation, natural causes, regulatory failures, or

biological health of and threat to a species. Two federal agencies share the responsibility for listing species. The National Marine Fisheries Service (NMFS), within the Department of Commerce, lists marine species, while the United States Fish and Wildlife Service (within the Department of the Interior) lists all other organisms. (The USFWS is responsible for over 90% of all listings.) These agencies must list species based solely on biological criteria and status. They cannot consider other factors, such as economic impacts or conflicts with other federal programs.⁸² Once a listing decision is final, the listing agency publishes the species' status in the *Code of Federal Regulations*.⁸³ In 1973, when the ESA became law, 392 species made up the first list of threatened and endangered species. On March 1, 1994, the list included 854 species. The ESA allows anyone, including private citizens, to nominate a species as a potential ("candidate")⁸⁴ endangered or threatened species.⁸⁵ Once nominated, the listing agency must evaluate whether and when

other factors, id., at 1533 (a) (1).

⁸². Nearly every environmental statute has some type of balancing provision, which weighs the regulatory protection against social and economic costs. The ESA does not take a balance approach.

⁸³. 50 C.F.R. 17.11 (listing endangered and threatened wildlife); 50 C.F.R. 17.12 (listing endangered and threatened plants). A detailed discussion of the listing process is contained in J. B. Ruhl, *Section 4 of the Endangered Species Act: The Cornerstone of Species Protection Law*, *Natural Resources & Env't.*, Summer 1993, at 26.

⁸⁴. To identify candidates the Service relies upon petitions, Service and other agencies' surveys, and other substantiated field studies.

⁸⁵. There are 350 "category one" candidate species, which the Service will list in the near future. 3250 candidate species are "category two," which the USFWS considers likely to need listing. Within the last three years the Service has increased its average species listed per year from 50 to over 100.

scientific research supporting the species listing will occur.⁸⁶ Because of the extensive biological investigation required before listing, and the dramatic increase in species nominations, the listing agencies have fallen behind in the listing process. However, the Congress has given the NMFS and USFWS "emergency" listing authority to prevent significant risk to the well-being of a candidate species.

Critical habitat. As a species is listed, the listing agency must also designate the species' "critical habitat"⁸⁷ to the "maximum extent prudent and determinable." Unlike species listing determinations, the listing agency must consider economic and other relevant impacts - including military activities - in designating critical habitat.

Recovery plans. An important goal of the ESA is to bring a species to healthy population levels, so no special protection is required. To reach this goal, the ESA requires federal agencies to "conserve" threatened and endangered species. Also, the Act directs the listing agencies to prepare "recovery plans"⁸⁸ for each listed

⁸⁶. The Service selects species for listing based on a priority system. The Service gives species facing the greatest threat to survival the highest priority. Also, the Services gives higher priority to those species with genetic distinctness.

⁸⁷. "Critical habitat" is a specific area within the geographic range occupied by an endangered species where the physical or biological features essential to the conservation of that species are found. 16 U.S.C. 1532 (5) (A) (i). When the ESA was passed the Congress assumed the loss of habitat was the prime cause for the extinction of species. The link between habitat loss and species extinction has been a cornerstone of the science of wildlife biology for decades. See S. H. Anderson, *Managing Wildlife Resources* 27 (1985); Katherine S. Yagerman, *Protecting Critical Habitat under the Federal Endangered Species Act*, 20 *Envtl. L.* 811 (1990).

⁸⁸. Recovery plans include a listed species' life history and current status, habitat requirements and availability, limiting factors, conservation measures currently in place, and specific management objectives that will facilitate recovery. Plans are prepared by a panel of recognized experts under the direction of a Service employee, or they are contracted to an appropriate consultant

species. Such plans outline actions needed to bring species to healthy levels. The Department of Defense and other federal agencies should follow these recovery plans once published.

Federal agency protective actions. An important section of the ESA, section 7, applies exclusively to federal agencies. Under this section federal agencies, like the Department of Defense, must assure they do not "jeopardize" the continued existence of a listed species, or destroy or adversely modify species' critical habitat.⁸⁹ This provision was tested before the United States Supreme Court in 1978. In the case *Tennessee Valley Authority v. Hill*⁹⁰, the Court upheld an injunction against the multimillion dollar Tellico Dam project on the Little Tennessee River because the resulting reservoir would destroy the habitat of the listed snail darter, a unique species of minnow. The Supreme Court found the construction of the Dam would "jeopardize" the listed snail darter, and that the congressional intent was clear that species protection

on the species. The preparation of a recovery plan depends on the state of the knowledge of the species, and the availability of funds. Recovery plans for "charismatic" species are developed quicker because of public interest which translates into congressional appropriations. Of the 854 listed species, 379 have approved recovery plans.

⁸⁹. The prohibitions against adverse modification of critical habitat have become the most controversial of the Act's provisions. The protection of critical habitat creates a dominant land use over public property - favoring species protection. In some cases the habitat is so extensive that it can tie up millions of acres and inhibit all development across portions of counties or states. When the Stephens' kangaroo rat was listed, portions of California's large Riverside and San Diego counties became critical habitat - restricting nearly all development on federal lands. The same result has occurred with the listing of the Mojave population of the Desert Tortoise which occupies vast regions of Southern California, Nevada, and Arizona. Listing of species in such cases effectively implements region-wide land use controls.

⁹⁰. 437 U.S. 153 (1978).

must prevail over all competing federal activities.⁹¹

Federal agency "formal" consultation. In addition to the "no jeopardy" prohibition, section 7,⁹² also obligates federal agencies to formally "consult" with the USFWS or the National Marine Fisheries Service, under certain circumstances. The consultation procedure works as follows.

If either the federal agency or the USFWS/NMFS determine that a listed species may be present in the area of a proposed agency action, the federal agency must conduct a science-based biological assessment⁹³ to determine whether

91. When Supreme Court Chief Justice Berger summarized the requirements of the ESA he mentioned the implications for military activities.

It may seem curious to some that the survival of a relatively small number of three-inch fish among all the countless millions of species extant would require the permanent halting of a virtually completed dam for which Congress has expended more than \$100 million . . . We conclude, however, that the explicit provisions of the Endangered Species Act require precisely that result . . . Furthermore, it is clear Congress foresaw that section 7 would, on occasion, require agencies to alter ongoing projects in order to fulfill the goals of the Act. Congressman Dingell's discussion of Air Force practice bombing, for instance, obviously pinpoints a particular activity - intimately related to the national defense - which a major federal department would be obliged to alter in deference to the structures of section 7.

Id. at 186.

Federal agency ESA responsibilities are discussed in Robert L. Fischman, *Endangered Species Conservation: What Should We Expect of Federal Agencies?*, 13 Pub. Land L. Rev. 1 (1992).

92. For a critical review of Section 7 see William H. Satterfield, Glenn G. Waddell & Matthew W. Bowden, *Who's Afraid of the Big Bad Beach Mouse?*, *Natural Resources & Env't.*, Summer 1993, at 13.

93. A biological assessment is an important document prepared by the federal agency which is planning a project or action, which may significantly impact a listed species. The biological assessment evaluates the potential effects of the proposed action on a species to determine whether the species is likely to be affected adversely. Factors which may be considered in a biological assessment include:

the agency proposal may affect any listed species.

If the biological assessment finds that a listed species may be affected, the agency initiates formal consultation with the USFWS or NMFS.

When circumstances require formal consultation, the listing agency must issue a biological opinion setting forth its findings. The listing agency must base its findings on the best scientific and commercial data available.

During the consultation, the listing agency must determine whether the proposed action jeopardizes the continued existence of a listed species or destroys or adversely modifies its critical habitat.⁹⁴

While this formal consultation is underway, the federal agency proposing the action may not make any "irreversible or irretrievable" commitment of resources that would eliminate the feasibility of alternatives to the proposed action.⁹⁵

If the listing agency finds no adverse impacts on the species or its habitat, the agency proposal may proceed.

results of on-site inspections to determine the presence of a species; scientific literature and other information; analysis of effects of the action on the species and habitat; analysis of cumulative effects - where the proposed action is considered along with state and private actions affecting the species; and consideration of alternative actions. 50 C.F.R. 402.02 & 402.12 (f).

⁹⁴. The Service relies to a large extent on the information provided by the action agency. The ESA requires the action agency to use the best available scientific and commercial information concerning the impacts of its planned action on a species. When information and analysis are not provided or available, the Service is expected to give the benefit of the doubt to the listed species.

⁹⁵. 16 U.S.C. 1536 (d).

If the listing agency determines that the project or activity may jeopardize a species or destroy or adversely affected critical habitat, the USFWS or NMFS must suggest "reasonable and prudent alternatives" to the agency's proposal which would avoid this result.⁹⁶

If no alternatives to the action exist, the agency risks violating the ESA by carrying out its proposal, unless the agency receives an exemption (rarely given) from the national Endangered Species Committee.⁹⁷

"Informal" consultation. Before "formal" consultation, federal agencies may seek "informal" consultation with the Service. The Service's regulations⁹⁸ establish this process to determine whether a proposed agency action will avoid adversely affects on a listed species or its critical habitat. The process usually focuses narrowly on the proposal at hand and the one or few species potentially impacted. It is not the equivalent of early, constructive cooperation suggested by this research.⁹⁹

Prohibitions against "taking" of species. Separate from the prohibitions of section 7, the ESA also prohibits any "taking" of a listed species of fish or wildlife. The Act defines the term "take"

⁹⁶. 16 U.S.C. 1536 (b) (3) (A).

⁹⁷. For a discussion of how this exemption process works see Note, Jared des Rosiers, *The Exemption Process under the Endangered Species Act: How the "God Squad" Works and Why*, 66 Notre Dame L. Rev. 825 (1991).

⁹⁸. 50 C.F.R. 402.13.

⁹⁹. The Service also has a "conference" procedure which allows an agency to confer with the Service when a federal action is likely to jeopardize the continued existence of a proposed, but not yet listed species, or result in the destruction or adverse modification of proposed critical habitat. Again, the scope and intent of such conferences fall short of cooperative interagency team work.

broadly to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."¹⁰⁰ It also includes significant habitat modification or degradation that kills or injures wildlife by significantly impairing essential behavioral patterns, such as breeding, feeding, or sheltering.¹⁰¹

Enforcement.¹⁰² The ESA includes criminal penalties of up to \$50,000 in fines and up to one year in prison for violations of the Act. The statute also provides for civil damages of up to \$25,000 for each violation, and provides for citizen suits to force federal agency compliance with the Act. Military employees could be liable under the enforcement provisions for ignoring the "taking," no "jeopardy," consultation, or other requirements of the ESA. Military employees are not immune from liability or prosecution under the ESA.

D. MILITARY APPLICATION OF THE SIKES ACT, NEPA, AND ESA

Military installations must comply with these three statutes. Nevertheless, many bases administer the laws separately. Thereby, they lose the potential for comprehensive, long-range planning. The segregated management of these statutes is represented by the following practices common at many military bases.

¹⁰⁰. 16 U.S.C. 1532 (19).

¹⁰¹. 50 C.F.R. 17.3.

¹⁰². See Eileen Soback, *Enforcement of the Endangered Species Act*, *Natural Resources & Env't.*, Summer 1993, at 30.

Failure to integrate wildlife biologists. Every sizable military installation employs at least one wildlife biologist. He or she is well-qualified to direct the conservation of the base's biological resources. Unfortunately, these biologists are often excluded from many of the key planning, budgeting, and management processes which are relevant for an effective species management effort. For example, these biologists may not be actively involved in the development of the base master plan. They may also not be significant participants in NEPA planning. NEPA planning is sometimes coordinated by an office not closely associated with the natural resource program staff.

Limited use of fish and wildlife plans. Over half of the major military installations have fish and wildlife plans as required by the Sikes Act. These plans are prepared by the base's professional biologists, with the assistance of private consultants, the state fish and game agency, and the USFWS. However, these plans are not always integrated with other installation planning processes. The fish and wildlife plan may be overlooked when NEPA planning occurs. Even USFWS biologists may not consider military fish and wildlife plans when they develop conservation measures for threatened or endangered species.

Segregated NEPA planning. The purpose of NEPA is to assure that environmental consequences of federal activities are considered with planning. At many military installations the consideration of environmental consequences occurs apart from routine planning.¹⁰³ Also, installation NEPA planners may overlook some important environmental consequences. The likelihood that an environmental issue will be considered in a NEPA review can depend on the institutional relationship between the NEPA planning staff and the affected environmental office. On occasion wildlife issues can be missed because the wildlife biologist is segregated from the

¹⁰³. United States General Accounting Office, Report NSAID-94-22, Environmental Compliance: Guidance Needed in Programming Defense Construction Projects, 26 Nov. 1993 (GAO found military bases do not integrate environmental issues into project planning until late in the planning cycle).

NEPA planners.

Minimum ESA compliance. Many military installations view the ESA narrowly. They understand their statutory duties to conserve listed species and formally consult with the Service. Many military decision makers believe that minimum compliance with the Act is harsh enough. They feel if species or habitat issues are addressed any earlier or are addressed more broadly, the legal constraints would be magnified. Consequently, some installations do not use either the Sikes Act or NEPA cooperative planning requirements to address ESA issues "before their time."

IV. DEPARTMENT OF DEFENSE INSTALLATIONS

Many military installations focus narrowly on the requirements of the ESA. Because of the "train wreck" character of the statute, this means a combat-training base buys into a crisis by waiting until their ESA obligations mature. If Military installations follow this course, they find themselves with fewer options available to balance both species protection and their military training missions.¹⁰⁴

Assuming the Service and a military installation see an earlier need to work together, such cooperation must still consider the institutional context of Department of Defense installation management. Understanding

¹⁰⁴. Military installations are not alone in delaying cooperation with the USFWS. For example in California state water authorities waited until they faced strict enforcement actions to protect the federally-listed Sacramento Delta smelt before they began to work with the Service. "The water authorities in California should have heard the wake-up call a long time ago. Unfortunately agencies tend to wait until the hammer is about to fall." Abate, *A Threatened Statute*, *Envtl. F.*, Mar.-Apr. 1992, at 16.

the institutional setting is important because the United States military culture¹⁰⁵ has been evolving for over 200 years and is not easily changed.¹⁰⁶

A. DEPARTMENT OF DEFENSE TRAINING

1. *The military services' training missions*

The Nation expects its military forces to be ready to react to security threats. In his January 1994 Report to the President and the Congress,¹⁰⁷ Secretary of Defense Les Aspin concluded the security of the United States could be threatened by: nuclear weapons and weapons of mass destruction; large scale aggression by regional powers; smaller, internal conflicts based on ethnic, tribal, or religious animosities; and state-sponsored terrorism. After outlining these threats Secretary Aspin concluded that "keeping U.S. military forces ready to fight is the first

¹⁰⁵. Organizational culture can be an influential factor in an agency's response to problems. Helmy H. Baligh, *Components of Culture: Nature, Interconnections, and Relevance to the Decisions in the Organizational Structure*, 40 *Mgmt. Sci.* 14 (1994). Successful strategies for bridging cultural gaps between organizations are discussed in a two-part article, Stephen E. Weiss, *Negotiating with "Romans,"* *Sloan Mgmt. Rev.*, Winter 1994, at 51 & Spring 1994, at 85.

¹⁰⁶. Because of the number and variety among the approximately 900 military installations, this institutional summary is necessarily representative. Also, this summary focuses more on ground force training bases.

¹⁰⁷. Secretary of Defense Les Aspin, Annual Report to the President and the Congress, Jan. 1994.

priority of the Department of Defense."¹⁰⁸

The Secretary found that to be ready, U.S. forces must be manned, equipped, and trained to deal with dangers to national security. Within each of the military services and at most military installations the emphasis is on training¹⁰⁹ and training support functions. Army Chief of Staff Gordon R. Sullivan stated:

¹⁰⁸. *Id.* at 28. Senator John McCain and other congressmen have expressed concerns that the post-Cold War military drawdown not leave a "hollow force" which is not combat ready. Senator McCain concluded that certain budget reductions could impair combat readiness. Specifically, the Senator cited the dramatic decline in funding for military installation operations and maintenance. These funds are essential to provide the training facilities for military units. Dennis Steele, *The "Razor's Edge of Readiness,"* Army, Sept. 1993, at 6.

¹⁰⁹. The Marine Corps sets forth the following requirements of training.

The battlefield fixes the directions and goals of training. The battlefield makes rigorous physical, psychological, and moral demands that require both tangible and intangible qualities. It demands the ability to fight and the willingness to fight. It requires stamina, strength, agility, and dexterity, combined with skills, knowledge, creativity, and imagination. Discipline, motivation, initiative, and courage are essential. Teamwork, camaraderie, cohesion, and leadership are vital. Today's national economic, social, and cultural norms no longer accustom people to hardship and frugality; yet battle is harsher than ever. Thus, training must make Marines and leaders physically and mentally tough enough to survive and to win under conditions of severe hardship, searing emotion, and extreme danger. Training prepares Marines to exploit initiatives and to act quickly, correctly, boldly, innovatively, in consonance with one another and with the mission of the unit.

United States Marine Corps, Fleet Marine Force Manual 0-1, Unit Training Management Guide, Apr. 1991, at 1-1.

Former Chairman of the Joint Chiefs Colin L. Powell emphasized training as the key to "effective application of military power." Colin L. Powell, Chairman of the Joint Chiefs of Staff, Report on the Roles, Missions, and Functions of the Armed Forces of the United States, Feb. 1993, at II-19.

An army does not succeed merely because its soldiers are motivated, patriotic and willing to serve. Success comes from training those soldiers to do whatever is required to accomplish the mission. Training is perhaps the one constant that exists in all armies, and good training is the key ingredient that separates great armies from lesser ones.¹¹⁰

Such combat training assures the nation has the warfighting capabilities to counter threats to our national security. Once these threats are determined, the Secretary of Defense and Chairman of the Joint Chiefs of Staff develop unit missions to provide for the necessary combat capabilities. From these missions, military units develop lists of essential tasks to be performed as their contribution to national security.

Once these tasks are set, unit proficiency training becomes the basic function of all combat units. Combat units achieve proficiency by routine training at their home military installation, and in periodic large-scale exercises away from their home base. During training higher

¹¹⁰ Gordon R. Sullivan, *Flexibility Sets the Pace at Combat Training Centers*, Army, July 1993, at 28. Examples of the rigor, rationale, and need associated with combat unit training are discussed in U.S. General Accounting Office, *Military Training: Lessons Learned and Their Implications for the Future*, Report No. T-NSIAD-94-128 (1994); U.S. General Accounting Office, *Operation Desert Storm: War Offers Important Insights into Army and Marine Corps Training Needs*, Report No. NSIAD-92-240 (1992); Seymour J. Deitchman, *Institute for Defense Analysis, Quantifying the Military Value of Training* (1993); Stephen J. Kirin & Martin Goldsmith, *Rand Note N-3358-A, Mortar Utilization at the Army's Combat Training Center* (detailed look at Army mortar platoon training); John L. Romjue, Susan Canedy & Anne W. Chapman, *Office of the Command Historian, U.S. Army Training and Doctrine Command, Prepare the Army for War: A Historical Overview of the Army Training and Doctrine Command: 1973-1993* (1993); John L. Pothin, *Training Principles and Practices*, Infantry, July, 1993, at 39.

echelon units test each combat organization against certain standards.¹¹¹ Each unit then receives a rating which reflects the unit's "readiness."

2. Law of armed conflict constraints on uses of U.S. forces when damage to natural environment may occur.

Military trainers stress the importance of "realistic" training conditions to assure their units are ready for combat. This realism requirement includes training under the types of physical conditions expected in combat. However, training realism does not mean that military forces can ignore their impact on the natural environment. In war military units may not callously harm the land and related natural resources.

The deployment of combat forces is constrained by the international

¹¹¹. For example, the Army or Marine Corps test their land force units to determine the level of warfighting skills in the following areas: command & control, attack and counterattack, establishment and maintenance of tactical communications, synchronization of aviation and live fire, deployment of combat engineer capabilities, coordination of reconnaissance and surveillance, rearming and resupply, and effective response to chemical attack. Also, the U.S. Army measures unit proficiency against five basic tenants of successful battlefield operations.

Agility: the ability to act faster than the enemy.

Initiative: the ability to set or change the terms of battle by action.

Depth: the extension of operations in space, time, purpose, and resources.

Synchronization: the ability to arrange battlefield resources and activities in time and space to produce mass and combat power at the decisive point.

Versatility: the ability of units to meet diverse mission requirements.

See Department of the Army, Field Manual 100-5, Operations, June 1993; Department of the Army, Field Manual 25-100, Training the Force, Nov. 1988.

law of armed conflict. This "law" is a set of principles or rules which military forces follow in the application of combat power. These rules typically constrain how war should be waged to limit harm to civilian populations, prisoners of war, and property. Many of these rules come from international treaties, conventions, or similar agreements.

Fundamentally, the law of armed conflict provides that the application of force must be regulated, the force must be necessary, and a military commander should use the minimum force necessary to accomplish his assigned objectives.¹¹²

These general guides are further defined based on the nature of the force deployed and the potential harm that force may cause. For example, U.S. forces must deploy their combat power consistent with the following provision of Article 35(3) of Protocol I Additional of the 1949 Geneva Convention.

It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause wide-spread, long-term and severe damage to the natural environment.

¹¹². These three principles are illustrated by the regulations annexed to Hague Convention IV of 1907. Article 22 provides that "the right of belligerents to adopt means of injuring the enemy is not unlimited." Article 23 (g) states that it is forbidden "to destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war." Article 55 specifies that "the occupying State shall be regarded only as administrator . . . of . . . real estate, forests, and agricultural estates belonging to the hostile state, and situated in the occupied country. It must safeguard the capital or these properties, and administer them in accordance with the rules of usufruct."

The World Charter on Nature,¹¹³ adopted by the United Nations General Assembly on 28 October 1982, may provide additional limits on the use of military force. That Charter includes the following principles.

1. Nature shall be respected and its essential processes shall not be impaired.

5. Nature shall be secured against degradation caused by warfare and other hostile activities.

11. Activities which are likely to cause irreversible damage to nature shall be avoided. Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed.

20. Military activities damaging to nature shall be avoided.

These and other international agreements¹¹⁴ constrain the use of military force in cases where environmental damage may occur. Consequently, military training exercises and routine home-base training include special consideration of the natural conditions of training area. These considerations become a part of training because they are realistically part of combat.

¹¹³. UNDOC A/RES/37/7.22 Int. Leg. Mat. 455 (1983).

¹¹⁴. See Mark J. T. Caggiano, *The Legitimacy of Environmental Destruction in Modern Warfare*, 20 B.C. Env't'l Affairs L. Rev. 479 (1993); Stephanie N. Simonds, *Conventional Warfare and Environmental Protection*, 29 Stan. J. Int'l L. 165 (1992); James P. Terry, *The Environment and the Law of War*, Naval War College Rev., Summer 1992, at 61.

B. DOD LANDS AND THEIR USES

1. *The Department of Defense installations as valuable federal lands*

Military training of ground forces usually occurs on lands managed by one of the military departments. These lands are part of the property of the United States, commonly called "federal lands." Federal lands make up one-third of the nation's land area.¹¹⁵ Biologically, these lands are significant. They contain over half the wildlands, deserts, alpine areas, and shrublands in the country. The diversity of habitat on federal lands makes federal land management agencies, including the military services, key in preserving genetic and species diversity.

Department of Defense lands make up about 3.8% of the federal lands, or 25 million acres. The 900 or so military installations which manage these lands range in size from two million acres to ten acres. Additionally, the military services use another 15 million acres belonging to other federal and state agencies.

These Defense lands represent nearly every type of ecosystem, including mountains, coasts, plains, and desert regions. They vary in elevation from sea-level to lands over 10,000 feet above sea level. One

¹¹⁵. The federal government owns some 705 million acres of surface onshore lands and an estimated 560 million acres of sea floor on the Outer Continental Shelf to a depth of 200 meters. In addition, the government owns about 66 million acres of reserved mineral interests in private and state owned lands. Hagerstein, *The Federal Lands Today: Uses and Limits*, in *Rethinking the Federal Lands* 74, 76 (S. Brubaker ed. 1984).

study¹¹⁶ suggested that these lands contain some 360 federally-listed endangered and threatened species - with the USFWS likely to list an additional 500 species that may be located on Defense lands by the end of the decade.

2. *The uses of Defense agency lands*

The paramount use of Defense installations is for combat readiness training. Because of the advanced fighting tools of today's armed forces, military training can significantly degrade some biological resources. Among the training activities¹¹⁷ which cause the greatest impact on the land-environment are:

tracked vehicle maneuver training, which disturbs the surface soil, and destroys or injures vegetation (including crushing tree seedlings and scarring adult trees)¹¹⁸;

¹¹⁶. Andrus Research Corporation, U.S. Army Environmental Requirements and Needs: Conservation Pillar 2-29 (Sep. 1993). 360 is a rough estimate of listed species on Defense lands. The only organization willing to commit to a number of species is the Army Corps of Engineers. They state there are 120 known listed species on Army lands.

¹¹⁷. For the types of training-related ecological damage caused by Army unit training see U.S. Army Environmental Policy Institute, Paper No. TR-1547-1-24, Training Land Study, Aug. 2, 1993, at 8. See also Barry W. Walsh, *War Games and Multiple Use*, *Am. Forests*, Nov.-Dec. 1990, at 21.

Another type of ecological damage on military bases is the contamination of soil and water by hazardous waste. Michael Tennesen, *Can the Military Clean Up Its Act?*, *Nat'l Wildlife*, Oct.-Nov. 1993, at 14 (presence of large accumulation of hazardous waste on Defense Department lands can complicate species recovery efforts).

¹¹⁸. Robert E. Shaw & Victor E. Diersing, *Allowable Use Estimates for Tracked Vehicle Training on Pinon Canyon Maneuver Site, Colorado, USA*, 13 *Env'tl Mgmt.* 773 (1989) ("passage of tracked vehicles disaggregates and/or compacts the soil, crushes herbaceous and woody vegetation,

engineer unit training, when earth-moving and demolition activities damage soil and vegetation;

live fire training from aircraft, artillery, and small-arms, which destroys vegetation by direct impact or indirectly by wildland fires¹¹⁹ started by military pyrotechnics¹²⁰; and

unit bivouacs, which cause vegetation destruction and soil compaction.

Notwithstanding the recent Defense Department force reductions, most military training bases are experiencing increased demands on their ranges and maneuver areas. One cause of this increase is the consolidation of bases under the Base Realignment and Closure (BRAC) process and the withdrawal of units from Europe. Many U.S. bases are making room for new units. Also, most training installations report a

and exposes the soil to erosion by raindrop impact, surface water runoff, and wind").

¹¹⁹. Wildland fire caused by pyrotechnics and other military activities is a serious problem on many military reservations - especially in the arid West. Most installation fire departments are only equipped to fight structural fires, and are overtaxed by the additional demands for wildland fire suppression. Wildland fires can severely damage some biological communities. Others, however, thrive on regular fire activity. Excellent land use management is required to develop fire breaks to reduce the harmful spread of wildland fires, and to develop fire resistant vegetation in the areas most susceptible to burning. Also important is the designation of fire danger periods, when use of pyrotechnics is forbidden; and, the willingness of commanders to take stringent enforcement against unauthorized activities. Failure to manage training and other land uses to prevent wildland fires can lead to significant soil erosion, high land maintenance and repair costs, damage to sensitive and vital wetlands, and injury to private property along the borders of a military installation.

¹²⁰. Pyrotechnics also add chemicals to the natural environment. These chemicals can harm certain species.

significant increase in range and maneuver area use by non-tenant military units (active and reserve¹²¹ units not permanently stationed at the base), and federal, state, and local law enforcement organizations. Many of these new-comers are looking for training areas because they can no longer use state and non-Defense federal lands. Some military installations find this increased activity exceeds the land's carrying capacity. Training bases have had to restrict non-tenant unit training or to plan for the opening of new training areas.¹²²

Changes in military weapons and tactics¹²³ compounds the stress on training lands. Since World War II, when the government last acquired many bases, units have expanded the space needed for unit maneuver¹²⁴ training and for live fire safety buffers. Many military installations have sought additional training land to meet these demands. Bases have either converted underused internal lands for training, or acquired ownership or

¹²¹. Many reserve units are finding it harder and harder to find accessible training areas. David W. Couvillon, *The Realities of Training*, Marine Corps Gazette, Mar. 1994, at 26.

¹²². U.S. Army Environmental Policy Institute, Paper No. TR-1547-1-24, Training Land Study, Aug. 2, 1993, at 16.

¹²³. Paul E. Funk, *Future Thrusts*, *Armor*, Jan.-Feb. 1994, at 47 (discussing advanced weapons, new tactics, and expanded geographic reach of cavalry units).

¹²⁴. Whereas approximately 4,000 acres were needed to train an Army battalion during World War II, a modern battalion of the same size requires over 61,000 acres. See generally Thomas R. Rozman, *Expanding Training Horizons*, *Army*, Feb. 1994, at 39. Weapons systems such as the Multiple Launch Rocket System and the Hellfire missile require range areas so large that few military bases have sufficient range spaces to employ them at their maximum effective range. The M-1 Tank can move at speeds almost double those of its predecessor and can fire more accurately at 2500 meters than could World War II tanks at 1700 meters.

access to nearby private or public lands. This struggle to accommodate changes continues as the military services field more advanced weapon systems, and modify tactics.

Important secondary uses of Defense lands are the combat service support functions which occupy large portions of many installations. The Department of Defense uses many acres for military support activities: air fields, ammunition storage, radar and communication facilities, aircraft and system testing, research and development, supply depots, and facilities supporting service personnel and their dependents. At military installations, these functions are often located in separate cantonment areas, interconnected by networks of roads and utility service infrastructure. These cantonment areas and the supporting networks can occupy significant portions of military installations. They may also produce affects which can harm species and their habitat.¹²⁵

Military land dedicated to training and combat service support competes with other uses. The variety of these non-direct-mission uses on Defense lands is broad, and may leave little undeveloped land. Among the more common non-training/combat service support uses of Defense lands are:

dedicated land or facilities for other federal or local government agency uses (law enforcement, prisons, land fills, community schools);

¹²⁵. The presence of military housing areas (which produce feral cats when families lose or leave behind their domestic felines), solid waste land fills, animal roadkills, and abandoned buildings cause a proliferation of scavenger and predator species. These scavengers and predators compete with or attack vulnerable populations of endangered or threatened species.

shelters for the homeless;¹²⁶

dedicated recreational facilities open for public uses;

agriculture and grazing outleases;

real estate easements for highways, border patrol checkpoints, railroads, civil use aviation facilities, commercial communication and utility services;

commercial mineral exploration and extraction;

Native American religious sites;

national or veteran cemeteries;

military museums; and

public schools serving military housing residents.

Most of these non-direct-mission uses are supported by federal policies. This makes them difficult to displace once the government establishes them on Defense lands.

Cumulatively, the training, training support, and non-direct-mission uses of military lands limit a base commander's options in dedicating land for endangered or threatened species. Installation commanders find that successful accommodation of the many land use requirements requires excellent land use management.

¹²⁶ 32 C.F.R. part 226.

B. DEFENSE INSTALLATION MANAGEMENT¹²⁷

1. *Military service-wide support for installation programs*

Each military service headquarters has a small staff which oversees installation policy and budgeting.¹²⁸ These headquarters: respond to congressional inquiries about specific installation management issues; maintain contacts with key federal agencies, such as the USFWS; analyze and submit federal budget requests for military base programs; and carry out long-range planning to improve installation support services. The military service headquarters also support their service's installations by providing updated policy guidance and by training base management personnel.

Species issues are usually included in the natural and cultural

¹²⁷. The analysis in this section assumes the installation's land belongs to a Department of Defense agency. In many cases installations occupy or use land belonging to other federal agencies, such as the Bureau of Land Management or U.S. Forest Service. In those cases cooperative planning with the USFWS must include these other agencies. The scope of this paper does not allow the discussion of these extra-agency issues. However, installation managers and USFWS field offices should include these other agencies as appropriate in all wildlife planning and decision making on lands used for Defense purposes.

¹²⁸. These headquarters offices deal with a broad range of issues affecting military installations: private investment initiatives on Defense lands; fire protection; utility system management; fuels management; energy conservation; recycling and solid waste reduction; repair and maintenance of structures and other support facilities; housing; commercial activities; base realignment and closure; real estate transactions; encroachment control; land use planning and management; pollution abatement and clean up; historical and archaeological resources; military construction planning and programming; master planning; legislative liaison; moral, welfare and recreation management; food services; health services; personnel property moving and storage; commissaries; warehousing; communications and automated data systems; personnel management; and motor vehicle support.

resources program section of the military service headquarters. These sections manage the following installation policies: protection of endangered species; hunting and fishing on Defense lands; agricultural uses; pest management control; Native American, archaeological, and cultural resources; and forestry management.

In addition to these headquarters offices, the Naval Facilities Engineering Command (NAVFAC) and the Army Corps of Engineers (COE) provide technical support to military installations. These organizations employ wildlife biologists and other scientists who conduct species-related research and advise military installations on best management practices.

Unfortunately, the service headquarters, NAVFAC, and COE biologists work independent of each other. They do not routinely share information or agree on common issues facing installation natural resource managers. Consequently, there is some duplication of effort among the many Defense installations, because installation personnel do not learn about the successes and failures at other facilities. The pattern is especially true across military service organizational boundaries.

2. Local installation leadership and management staff functions

Notwithstanding the contributions and responsibilities of the military service headquarters and military engineering organizations, the focus for installation natural resource management is at the local level. Military installations are commanded by military officers, who have broad discretion in operating their facility. Within the last decade these commanders, as a whole, have become both knowledgeable and interested

in environmental programs.¹²⁹ Two causes of this attention have been: the commanding officer's personal liability¹³⁰ for failure to supervise hazardous waste and other pollution-related environmental programs; and the demands environmental regulations place on otherwise strained installation budgets.

A diverse group of staff sections support these commanders. These sections provide services¹³¹ to combat units stationed at the installation. They also support the many other military and non-military uses of the base's land and facilities. Many of these staff functions are affected by the management of the installation's wildlife. Conversely, an effective

¹²⁹. Installation commanders face tough ethical dilemmas. At any time commanders may have to choose among uses of the land which are supported by fundamentally sound moral and legal principles, including: faithful service and loyalty to the commander's military service; responsibility to support local government concerns consistent with our national federalism model; compliance with statutory and procedural laws which represent the will of the people through their elected national leaders; and support for the individual and community needs of those who serve within the installation organization. See generally Peter G. Brown, *Restoring the Public Trust* (1994) (arguing for governmental leadership based on principles of trusteeship); Richard C. Box, *The Administrator as Trustee of the Public Interest*, 24 *Admin. & Soc.* 323 (1992); Larry D. Terry, *Leadership in the Administrative State: The Concept of Administrative Conservatorship*, 21 *Admin. & Soc.* 395 (1990).

¹³⁰. William Palmer, *Environmental Compliance: Implications for Senior Commanders*, *Parameters*, Spring 1993, at 81. For a view that federal facilities ought to be more anxious about environmental liability see Margaret K. Minister, *Federal Facilities and the Deterrence Failure of Environmental Laws: The Case for Criminal Prosecution of Federal Employees*, 18 *Harv. Env'tl L. Rev.* 137 (1994).

¹³¹. *Pillars of Support*, *Airman*, July 1993, at 18 (highlighting the many functions at military installations: dental and medical services, occupational safety, motor transportation, public affairs, family support services, military police, disaster preparedness, postal service, mess hall management, computer services, maintenance and repair, equipment and material supply, utilities).

species management effort must consider the relationship between base management functions and species program requirements. The staff sections most closely associated with species management efforts are:

Operations and training. On a military training base the Operations and Training section is the base's nerve center. This section manages the training areas and provides training support for the resident and visiting combat units. The responsibilities of this section include: scheduling the various maneuver areas and live-fire ranges; advising units of any environmental or other restrictions in the use of the installation's training facilities; planning the maintenance and repair work for restoration of lands or other natural resources damaged by training activities; and publishing and enforcing fire danger notices. The education and involvement of this section are essential for a successful fish and wildlife management program. If the Operations and Training section is watchful, much of the biological harm caused by military training activities can be minimized.

Manpower. This section evaluates the manpower requirements of the installation. Since many species protection programs are manpower intensive, the wildlife biologist must work closely with this section. With the recent Defense drawdown, which has cut manning 20 to 40 percent at many installations, the manpower section will resist all but the most dire staffing needs.

Contracting. This section has statutory responsibility for the integrity of government contracting activities. Many installations contract out much of their biological work. This means base biologists must keep the contracting section informed. Without the contracting section's support, installation biologists often find they plan initiatives which are inconsistent with government contracting procedures.

Real estate. One or two individuals at each military installation carry out certain real estate functions, including

approving licenses and permits for the use of federal land. These real estate specialists approve some non-mission uses of the base. These uses can significantly degrade species habitat. Most off-installation users of base property, including government construction contractors with on-base projects, must obtain a license for use of base property. Conditions for use of the property should include any USFWS-recommended land use limitations.

Staff judge advocate. The office of the staff judge advocate at most installations protects the legal integrity of the installation, and guards the commander's discretionary authority. Judge advocates tend to have a special concern about interagency coordination which might impose long term obligations on the installation. Most judge advocate offices have environmental law specialist. These environmental counsel are usually more familiar with pollution abatement regulations than land use/conservation law.

Morale, Welfare, and Recreation. MWR sponsors many of the recreational activities on the installation. Similar to the real estate section, this section may allow individuals and groups to use installation property. The failure of the wildlife biologist to account for the MWR land uses can undermine otherwise well-coordinated fish and wildlife plans. The MWR staff section hires many persons who are not as familiar with military organization and procedures. This means natural resource managers may have to exert extra effort to coordinate with this staff section.

Facilities/Engineering. The Facilities or Engineering staff section includes a wide range of activities which affect and are affected by wildlife programs. The following functions are managed by this section: military construction planning and project management; assignment and management of all installation buildings; billeting of personnel and family housing; and facilities maintenance. On many bases, the environmental staff works within the Facilities/Engineering section.

Environmental. The environmental section is either within or closely associated with Facilities and Engineering. Many personnel in the environmental section have engineering backgrounds. At all bases the environmental staff is expanding in relation to all other staff functions. The cause for this growth is the expansion of obligations under the pollution abatement statutes.

Natural resources. Within the environmental office may be the natural resource branch. Wildlife biologists are usually members of this staff. The functions of the natural resource office include many important land use management functions: administration of agricultural and grazing outleases; conduct of biological surveys and monitoring of ecological trends; management of endangered and threatened species populations and their habitat; NEPA review of projects or programs which have natural resource impacts; management of surface and underground water resources; providing geologic consultations; regulating the harvest of fish and game wildlife; supervising and training installation game wardens; maintaining liaison with the USFWS and the state wildlife agencies; preparing base orders and special notices to assure compliance with wildlife statutes and agreements; designing and conducting wildlife education programs for base personnel; responding to wildlife nuisance complaints in base housing areas or other personnel areas; monitoring compliance with federal wetlands regulations; reviewing installation disease vector surveys and toxicity surveys for relationship with species management programs; and maintaining domestic animal control program.

Coordination among these staff functions can be a monumental effort. Military wildlife biologists are normally "buried" within the base's organizational structure. Consequently, they do not have the authority or organizational visibility to facilitate close intra-organizational coordination. When coordination does occur it is often led by another staff section. These other sections, however, may seek

objectives which are not consistent with balancing military training and wildlife conservation requirements.

3. Land use planning on military lands

A military installation's most valuable asset in cooperating with the USFWS is a comprehensive, well-coordinated land use management plan. Yet, many installations piecemeal their land use decision making, and have no overall plan. A starting point for such an integrated approach should be the base master plan. However, "master" planning seldom results in integrated land use management. The reasons why the master planning process fails to promote integrated land use management are several.

One staff section - Operations & Training or Facilities/Engineering - often dominates the preparation of the master plan.

The base commander does not get personally involved in the planning process.

Many affected staff sections do not join or pay minimal attention to the preparation of the master plan.

There may be no requirement that follow-on projects be consistent with the plan.

The base republishes the plan so infrequently - every 6 or 7 years - that the plan loses its value long before it is renewed.

There is little effort to coordinate the base master plan with other installation planning.

Besides a base master plan, the Sikes Act and Secretary of Defense policy require major installations to have a natural resource plan. This plan should describe the installation's natural resources, and list the objectives/programs to protect and enhance these resources. The Sikes Act requires these plans to be cooperatively developed with the USFWS. These plans must also be consistent with a military-state-USFWS interagency agreement - which is reviewed at least every five years. However, the same kinds of institutional factors which limit the scope of the base master plan also prevent the natural resource plan from emerging as a comprehensive base land use plan.

Even without a functional base master plan or natural resource plan, every installation should be doing NEPA planning. The original purpose of NEPA was the integration of ecological factors into all agency planning - especially planning of those activities which would impact land and natural resources. Unfortunately, this type of NEPA planning does not occur at many bases. One expert suggests that NEPA planning too often becomes disconnected from the traditional planning activities at federal facilities.

With mission-oriented objectives solidly fixed in their decision-making apparatus, agencies generally will seek only to "touch the environmental bases." Some agencies even have gone so far as to separate NEPA completely from the decision-making process, which serves to reduce the Act to nothing more than a mitigation measure -

not its principal purpose.¹³²

The failure of integrated land use management¹³³ on military bases is caused by institutional factors, rather than structural deficiencies in the master planning, natural resource planning, or NEPA planning. Of course, these same institutional factors can hinder a military installation from succeeding in its cooperative efforts with the USFWS.¹³⁴ Integrated

¹³². Carl Bausch, *Achieving NEPA's Purpose in the 1990s*, 13 *Envtl. Prof.* 95, 97 (1991) (suggesting that NEPA is most effective when applied to broad policy and program planning rather than to individual projects and actions - the area where most agencies presently consider environmental factors). See also Trevor L. Neve, *Including NEPA in Department of Defense Decision-Making*, 13 *Envtl. Prof.* 145 (1991).

¹³³. An underlying assumption in modern environmental management is the need for integrated comprehensive planning and decision making. The assumption is that problems should be considered with regard to their interrelated, interconnected totality. Unfortunately, most environmental decision making is segmented and loosely coordinated, if not conflicting. Robert V. Bartlett, *Comprehensive Environmental Decision Making: Can It Work?*, in *Environmental Policy in the 1990s: Toward a New Agenda* 235 (Norman J. Vig & Michael E. Kraft eds. 1990).

¹³⁴. While the military in combat is tightly organized, in garrison large military organizations, including installation commands, are more loosely organized. One study suggests that loosely organized institutions have several characteristics making it difficult to interface well with other organizations.

There may be little procedural regularity in obtaining and prioritizing information required to produce cooperative results.

Late arrivals, inappropriate participants, and early departures often disrupt the continuity required to consolidate interagency relationships.

Resources needed for coordination, and subsequent agreement implementation, may be difficult to find and keep.

The roles of some participants from the same agency are undefined or in conflict.

land use planning¹³⁵ fails, and impairs the military/USFWS relationship, for a number of reasons:

Lack of experienced facilitators. Most military installation employees are specialists. Many have little or no experience integrating what they do with others. The military does not consistently stress or provide extra training for intra- or inter-organizational coordination.

No accountability system. The military is organizationally strong in setting and enforcing standards relating to combat

Theories and values are not shared uniformly within the organization.

The organization is not focused enough to dedicate adequate personnel, information, energy, and time to achieve successful interagency coordination.

See L. David Brown, *Managing Conflict at the Organizational Interfaces* (1983).

¹³⁵ The U.S. Forest Service has the most experience in integrated land use planning - which is required by federal statute. 16 U.S.C. 1600-1614. The Forest Service develops Forest Plans for each of the national forests. These plans identify the competing policies and land uses for each forest, and develop guidelines to harmonize subsequent programs and activities in the forest.

The Bureau of Land Management also is required to develop integrated plans for the lands it administers. 43 U.S.C. 1712.

There is no specific statutory integrated land use planning requirement for Defense lands. Yet, the requirements of the Sikes Act, NEPA, and the ESA suggest that effective integrated planning precede uses of federal lands.

Without planning, federal land management could remain an unpredictable, uncoordinated series of events and transactions. Some land users, no doubt, prefer it this way. Congress, however, has flatly rejected the laissez-faire approach to federal resource management, and the agencies must struggle to arrive at a new equilibrium. Still, no planning process can overcome historic anachronisms, structural discrepancies, and political problems overnight.

George C. Coggins, *The Developing Law of Land Use Planning on the Federal Lands*, 61 U. Colo. L. Rev. 307, 348 (1990). See also John B. Loomis, *Integrated Public Lands Management* (1993).

effectiveness. Yet, most military bases do not have specific standards, or effective enforcement programs, to conserve installation natural resources.¹³⁶ Without an accountability system, key installation personnel do not feel obligated to actively participate in land use planning and management.

High turnover of key people. Integrated planning and land use management requires a degree of continuity. That is lacking at most military installations. The military transfers uniform personnel every two or three years. The military often offers less-than-market pay to civilian wildlife biologists who are placed in positions entailing considerable stress, expertise, and responsibility. The combination of low-pay and working conditions causes many talented biologists to move on to other work environments.

Land use planning fails to compete well with short-term institutional objectives. Planning and integration take time. With military budgets and manpower declining, planning and integration resources are scarce. Needs perceived by the base leadership as more immediate absorb the available resources.

Closed planning. A common tendency of many military installation planners is to plan only within their own staff sections

¹³⁶. Many military wildlife biologists do not want to become "wildlife cops" - even in the face of willful neglect to biological communities. Darrell Cochran, *Living in Harmony*, Soldiers, Feb. 1993, at 18 (military biologist states her strong preference for classroom lectures to the troops rather than taking enforcement actions). A reason for this reluctance springs from the biologists' professional training. One Defense Department wildlife biologist commented:

Natural resource professionals in general are not social scientists and we don't do the best job in the world of dealing with the socio-economic aspects of our profession. A lot of us are very narrow-minded and we're just dealing with the animals and the trees and everything else out there and forget about the human aspect of it.

Quoted in Jon K. Hooper, *Animal Welfarists and Rightists: Insights into Expanding Constituencies for Wildlife Managers* 20 (U.S. Army Construction Engineering Research Laboratory paper, 29 Sep. 1993)

until the project has "matured." Unfortunately, truly mature projects or programs move quickly from planning to programming. This leaves little time to coordinate with other staff sections or other government agencies.

Contracting for planning without the necessary organizational integration. When planning does occur, private consulting firms often do much of the work. In some ways these plans are of higher quality than a military base could produce in-house. Yet, in one important way these plans have little affect on land use management practices. Often, the base staff fails to supervise the plan's integration into overlapping installation operations. Unless a facilitator causes such integration to occur, the contracted-out plan will not result in significant improvement of land use management.

C. INSTALLATION COMMANDER SPECIAL CONCERNS

Military installation management is multifaced and complex. An important role of the installation commander is to sort through this complexity and use available resources on the more essential or threatening problems. Integrated land use planning may not be the base commanders highest priority. Any effort to improve the military/USFWS relationship must face the reality of the local commander's view of the installation's needs. The following are special problem areas (in 1994) which demand considerable attention of installation commanders and their staff. These and similar matters compete for the resources necessary for effective early, cooperation with the USFWS.

Accomplishing the military mission. Installation commanders have a strong commitment to their service's national security mission. With the end of the Cold War these missions are in flux. Military installation commanders place the highest priority on identifying the base's evolving missions and improving support for them.

Complying with federal and state pollution laws. Most installation commanders claim the "environmental compliance problem" is a major barrier to accomplishing their national security mission. They feel the pressure of their own personal liability, and the erosion of their operating budgets to correct hazardous waste, air quality, and water quality deficiencies. Some military bases average a visit a week from an outside government agency looking into the facility's pollution management programs. In response to this pressure, installations have added manpower and funding to improve pollution control, and to audit their pollution activities.

Limiting the pressure from outside for non-military uses of Defense lands. Twenty years ago many military installations gladly set aside land for public uses such as recreational facilities, transportation structures, and educational buildings. But, the growing citizen opposition to nearly every development project (Not In My Backyard - NIMBY¹³⁷) and the general decline in off-installation undeveloped lands, has made many military installations targets for every "worthwhile" public project - including much needed wildlife conservation areas¹³⁸ - which needs land. Because

¹³⁷. Herbert Inhaber, *Of LULUs, NIMBYs and NIMTOOs*, Pub. Interest, Spring 1992, at 52; Daniel Mazmanian & David Morrell, *The "NIMBY" Syndrome: Facility Siting and the Failure of Democratic Discourse, in Environmental Policy in the 1990s: Toward A New Agenda* 125 (Norman J. Vig & Michael E. Kraft eds. 1990); Martin P. Sellers, *NIMBY: A Case Study in Conflict Politics*, 16 Pub. Admin. Q., Winter 1993, at 460.

¹³⁸.

DoD's environmental management role has increased with the development of private land surrounding many installations and the loss of wildlife habitat. DoD lands are becoming defacto

political leaders support many such projects, the installation commander faces a delicate challenge in handling such encroachment pressures.

Dealing with the uncertainty of BRAC. Since 1988 the Base Realignment and Closure (BRAC) process has dominated installation long-range planning. Military commanders whose bases have been designated as closing or realigned bases face tough choices in dealing with the existing species/habitat on their facilities: as the bases are turned over to other agency or private uses, or will accommodate additional missions. The remaining bases have difficulty making long-term plans in view of the potential for either closure or new mission within the next few years. In 1994 BRAC is on everyone's mind and affects all programs and planning.

Trying to keep ahead of the backlog of maintenance and repair of installation infrastructures. Military installation facilities (warehouses, training facilities, runways, aircraft hangers and maintenance facilities, roads, barracks, water supply systems, and many more) require a rigorous program of maintenance and repair to preserve the Defense Department capital investment. To accommodate military budget cuts and to meet facility- and service-support fixed costs, installation commanders often find they must underfund maintenance and repair programs. These deficiencies cause installation commanders to shun new projects or programs which may increase their maintenance and repair costs in the future.

game preserves where often they are a region's only sizeable habitats for endangered species.

Kenneth Butts, Environmental Security: What is DoD's Role x (1993).

V. UNITED STATES FISH AND WILDLIFE SERVICE

The United States Fish and Wildlife Service has a unique culture. That culture and its institutional structure influence the Service's relationship with the Department of Defense. Competing statutory obligations and political pressure also affect the Service-military relationship. These factors can reduce the energy and commitment which Service employees have to cooperate with Defense installations.

A. THE USFWS WITHIN THE DEPARTMENT OF THE INTERIOR

The Service is one of ten Department of the Interior agencies. These agencies include: the Bureaus of Mines, Reclamation, Indian Affairs, and Land Management; the Fish and Wildlife Service, the National Park Service, and the Mineral Management Service; and the National Biological Survey, the U.S. Geological Survey, the Office of Surface Mining, and an office for territorial and international affairs. The USFWS ranks sixth among the Interior agencies in its number of employees (7,700). Within the Department, the Secretary of the Interior has paired the USFWS with the National Park Service, Interior's largest unit. The USFWS and the National Park Service report to one of six assistant secretaries, the Assistant Secretary for Fish and Wildlife and Parks.¹³⁹

Among all cabinet departments, the Department of the Interior has

¹³⁹ The five other assistant secretaries have responsibilities for Indian Affairs; Land & Minerals Management; Policy, Management & Budget; Territorial & International Affairs; and Water & Science.

the most diverse, and frequently competing, missions. The competition lies chiefly in the contrast between the Department's preservation and its development responsibilities. Some agencies, like the National Park Service and the USFWS lean toward resource conservation. Other Interior agencies, represented by the Bureau of Mines and the Bureau of Land Management, exploit the same assets. During the 1980s, the Reagan Administration¹⁴⁰ emphasized resource exploitation before such conservation programs as the ESA. Under the Clinton Administration, the Department of the Interior has swung towards a conservation emphasis.¹⁴¹ Secretary of the Interior Bruce Babbitt has consistently stated that species protection will remain "center stage."¹⁴² Yet, there are

¹⁴⁰. George Cameron Coggins, *Nothing Besides Remains: The Legacy of James Watt*, 17 B.C. Env'tl. L. Rev. 473 (1990).

¹⁴¹. Current Secretary of the Interior Bruce Babbitt is an advocate for species conservation. Bruce Babbitt, *The Future Environmental Agenda for the United States*, 64 U. Colo. L. Rev. 513 (1993) ("We are exterminating some fifty to one hundred species per year - every day, day in, day out. We are creating the largest mass biological extinction since the Cretaceous Era . . . something is badly wrong in our philosophy and perception of the world when we recklessly shred the biological fabric of the planet without any regard for the consequences . . . Are we simply going to continue to metastasize with our industrial civilization, to the point where we have shredded the tapestry and made ourselves poorer and more lonely in the process?").

¹⁴². *Conservation of Biological Resources, Hearings of the House Comm, on Merchant Marine And Fisheries*, 103d Cong., 1st Sess. (1993) (testimony of Secretary of the Interior Bruce E. Babbitt); Bruce Babbitt, *Protecting Biodiversity*, Nature Conservancy, Jan.-Feb. 1994, at 16; James Conaway, *Babbitt in the Woods*, Harper's Mag., Dec. 1993, at 52.

continuing budget and political reasons¹⁴³ causing the Department to allow some exploitation of federal land assets.¹⁴⁴

¹⁴³. Margaret Kriz, *Turf Wars*, 25 Nat'l J. 1232 (1993) (discussing the Clinton Administration's political challenges in managing the federal lands); Margaret Kriz, *Quick Draw*, 25 Nat'l J. 2711 (1993); M. B. Regan, *Rough Ride for an Ex-Cowboy*, *Business Week*, Feb. 29, 1994, at 70.

¹⁴⁴. The Department of the Interior is one of the few agencies of government where its revenues can exceed administrative costs. In an era of budget reductions, no Administration is going to degrade Interior's revenue generating potential.

B. USFWS' MISSIONS AND INTERNAL ORGANIZATION

1. *United States Fish and Wildlife Service* ¹⁴⁵ mission.

The overall mission of the United States Fish and Wildlife Service is "to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people."¹⁴⁶ Consistent with this mission, the Service duties fall within the following three functional areas.¹⁴⁷

¹⁴⁵. The Service's institutional parentage is important in fashioning a cooperative interagency strategy. Its genealogy began in 1871 when the Congress required the President to appoint a Commissioner for Fishes and Fisheries. The Commissioner was located in the Department of the Treasury. In 1903, the Congress expanded the role of the Commissioner, creating a Bureau of Fisheries. That Bureau was moved into what was then the Department of Commerce and Labor. The Bureau was later transferred to the Department of the Interior in 1939. The following year the Bureau combined with the Bureau of Biological Survey (at that time in the Department of Agriculture) to form the Fish and Wildlife Service. Sixteen years later the Congress responded to complaints that the Service favored research and the management of wildlife refuges at the expense of commercial fisheries. In 1956 the Congress created two separate units within the Service; the Bureau of Commercial Fisheries, and the Bureau of Sport Fisheries and Wildlife. These two bureaus worked at cross purposes until 1970 when the Bureau of Commercial Fisheries was transferred to the Department of Commerce, where it became the present National Marine Fisheries Service. The Bureau of Sport Fisheries and Wildlife became the Fish and Wildlife Service in 1974. In October 1993, Secretary of the Interior Babbitt transferred most of the Service's research mission and assets to a new National Biological Survey bureau within the Interior Department. See generally Nathaniel P. Reed & Dennis Drabell, *United States Fish and Wildlife Service* (1985); Richard J. Tobin, *The Expendable Future: U.S. Politics and the Protection of Biological Diversity* (1990).

¹⁴⁶. Nathaniel P. Reed & Dennis Drabell, *United States Fish and Wildlife Service* 12 (1985).

¹⁴⁷. Until October 1993 the Service had a fourth function: biological research. The Secretary of the Interior consolidated the biological research assets from all Interior agencies into a new bureau: the National Biological Survey. Jeffrey P. Cohn, *The National Biological Survey*, 43 *BioScience* 521

Refuges and Wildlife. The Service's dominant program responsibility is the management of 499 National Wildlife Refuges¹⁴⁸ and 166 Waterfowl Production Areas. These lands include almost 91 million acres, making the USFWS the third largest landholder in the United States. Within the Service, the refuge management personnel also oversee the national duck stamp program, migratory bird protection, and wildlife law enforcement. The latter area includes curbing the illegal importation of endangered species animal parts, and preventing poaching within National Wildlife Refuges.

Fisheries. The Service manages 78 National Fish Hatcheries. The USFWS also supervises federal programs which promote fish production and stocking of Indian lands, and joint fishery management with Canada in the Great Lakes region.

Ecological Services. The third program area, Ecological Services, has the widest range of tasks within the Service's organizational

(1993); Trudy Harlow, *The National Biological Survey: Bruce Babbitt's Tool for Ecosystem Management*, Endangered Species Update, Issue Nos. 1 & 2, at 1 (1993). The new agency has no ESA regulatory authority. Secretary Babbitt has charged the agency with coordinating the collection of biological information from all public agencies, and then establishing a dissemination system.

In addition to the National Biological Survey, there are other federal agencies which may support species planning and management on Defense lands. They include: Army Corps of Engineers, the United States Soil Conservation Service, the United States Geological Survey, and the Environmental Protection Agency.

Director Beattie is working on a plan to reorganize the functions within the Service. That reorganization should be completed during the 1994. The functions discussed in the paper may change with that reorganization.

¹⁴⁸. Richard J. Fink, *The National Wildlife Refuges: Theory, Practice, and Prospect*, 18 Harv. Env't'l L. Rev. 1 (1994).

structure. Ecological Services includes the Service's endangered and threatened species regulatory program. The regulation of the ESA competes for resources and management attention with the following programs within Ecological Services.

- The Service reviews international trade of endangered species of wild fauna and flora.¹⁴⁹ The USFWS regulates the commercial import/export of these species, through a system of permits and certificates.

- The Service monitors the effectiveness of foreign programs for elephants and other imperiled species.

- The USFWS issues permits for the taking and possession of eagles for religious use by Native Americans.

- The Service provides technical assistance to the Department of Agriculture to assess which farm and other lands the government should set aside for species habitat and wetlands protection. This program was expanded in 1991 when the Congress directed the acquisition of federal "trust" easements to conserve national wetlands and their resources.

- The USFWS develops conservation programs for coastal ecosystems. The Service's duty includes planning for the protection of coastal bays and estuaries.

- The Service produces wetlands maps to support federal and state land use planning. The Congress directed priority areas for mapping, along with dates for completion of a National Wetlands Inventory.

¹⁴⁹ For a discussion of the United States' international species protection obligations see Carlo A. Balistrieri, *Convention on International Trade in Endangered Species of Wild Fauna and Flora: The Endangered Species Act and International Trade*, Nat'l Resources & Env't., Summer 1993, at 33.

- A major Ecological Services program is the identification, assessment, and prevention of environmental contaminants. Specially-trained biologists provide assistance on contaminant issues affecting fish and wildlife. Service contaminant biologists participate in many federal, state, and local planning, including area-wide water pollution control efforts, and discharges of dredge and fill material.

The Service's Ecological Services programs emphasize resource conservation. However, the Service also has resource exploitation functions. In managing its wildlife refuges the Service must consider the needs of hunters and fisherman.¹⁵⁰ Since 1934 hunters have purchased "duck stamps," which support federal wildlife programs. These revenues fund the government's purchase of wetlands, waterfowl habitats, and refuges, managed by the Service. This revenue source means sportsmen influence how the Service manages these lands. However, the requirements for game species production can conflict with the Service's ESA responsibilities. For example, sportsmen may pressure a wildlife refuge manager to dig ditches, build dikes, or plant grain crops to attract game fowl. These same actions may compete with the requirement to conserve endangered or threatened species.

Historically, the Service has also made its refuges available for economic uses, such as farming, logging, mining, commercial fishing, and trapping; for recreational uses, such as camping, boating, and off-road vehicle use; and for military training activities.

These challenges in managing National Wildlife Refuges means the

¹⁵⁰ For a discussion of the influence of sportsmen on the Service see Richard J. Tobin, *The Expendable Future: U.S. Politics and the Protection of Biological Diversity* 52-54 (1990); Jim Doherty, *Refuges on the Rocks*, *Audubon*, July 1983, at 96.

Service has institutional experience in balancing species requirements with consumptive land uses. Unfortunately, the division between the three functional areas (Refuges & Wildlife, Fisheries, and Ecological Services) means the Service's land management expertise may not always be present when the Service works with military installations. When Service biologists have no experience in resolving land use conflicts they are less capable to offer alternative land management solutions.

2. ESA regulatory management in the USFWS headquarters and regional offices.

A modest-sized headquarters in Washington, DC, and seven regional offices direct the Service's policy and oversight functions. Refuge management dominates much of the time of the Service Director and the regional directors. However, the growing public concern over endangered and threatened species is competing more and more for the directors' attention. The Congress, resource-dependent interest groups, and federal land management agencies all want changes in the management of the ESA.¹⁵¹

A 1992 federal court order also caused the Service's senior managers to pay closer attention to their ESA duties.¹⁵² That order settled a law suit challenging the Service's backlog in the listing of endangered and threatened species. The federal court required the Service

¹⁵¹. Secretary Babbitt's personal interest in protecting biological diversity has also influenced a shift towards ESA issues in the Service.

¹⁵². Eric R. Glitzenstein, *On the USFWS Settlement Regarding Federal Listing of Endangered Species*, *Endangered Species Update*, Issue No. 5, at 1 (1992).

to eliminate its 1992 list of 401 candidate species by 1996. This forced the Service directors to focus much of their management effort on complying with that order. Both the Service headquarters and regional office staff must report their progress quarterly in compliance with the court order. This requirement, in turn, puts pressure on the Service field offices which have the front line responsibility for species data gathering and analysis.

3. USFWS ecological services field offices and their supervisors.

Hundreds of USFWS field offices manage most of the Service's programs. These field offices work for the Service's seven regional directors. Each field office specializes in one of the three primary functions - Refuges and Wildlife, Fisheries, or Ecological Services. There are also separate wildlife law enforcement field offices across the nation, especially in cities with ports of entry.

Across the United States, there is about one ecological services field office per state. The exceptions are in the larger states, such as California and Texas, which have multiple ecological services field offices. These ecological services field offices advise military installations concerning listed species on Defense lands.

Supervisors lead each ecological service field office. The field office supervisor is a mid- or senior-career Service employee. A few of these supervisors have ESA program experience. Most do not. More likely they have successfully managed a wildlife refuge or some other program within the Service.

Regional directors place confidence in their field office supervisors to motivate and direct the work of the field office staff. Regional

directors also expect supervisors to handle controversies, such as conflicts over the management of species on military training lands. Field office supervisors are key leaders in the Service's organization.

4. *ESA management in an ecological services field office.*

Within each ecological services field office there is an endangered and threatened species section. That section is staffed with biologists whose duties are divided into three subgroups: listing, recovery, and consultation. Listing biologists direct the gathering and analysis of scientific information necessary to list a candidate species, and to designate each species' critical habitat. After the Service lists a species, recovery biologists direct the development of conservation plans necessary to eventually "delist" that species. Finally, consultation biologists respond to federal agency requests for informal and formal consultation under the ESA.

Most Service biologists consider consultation the most difficult ESA job. Consultation biologists average two to five consultation requests daily. The time available to respond to these requests is inadequate for biologists to develop a complete, fully-defensible scientific opinion. This rush-to-judgment is contrary to a biologist's professional training.¹⁵³

The consultation biologist's duty to work with military installations can be further complicated by other factors common to the Service's ecological services field offices.

¹⁵³. Consultation biologists, trained in the physical sciences, dislike their role as social scientists. They prefer the analytical work of scientific research. Consequently, there is a higher-than-average turn over of Service biologists who work ESA consultation.

Service proprietary attitude towards their scientific information. Service biologists are reluctant to share the data upon which they base their decisions. They are also reluctant to use data from other than Service-controlled sources. This breeds animosity when Service biologists work with military biologists. Additionally, this proprietary attitude increases the federal government's cost of ESA management. It can cause federal program delays.

Lack of ability or interest in learning about other agency's missions. Many Service biologists find the military complex. Some biologists believe the ESA does not require an in-depth understanding of the military. They believe the Act directs decision making based solely on biological grounds. Others Service biologists, who recognize the importance of the institutional context, still find the military difficult to understand.

Little land use or planning experience among Service ESA biologists. Many Service-military ESA issues require an appreciation of land use planning and management. The Service's professional refuge managers have this expertise. However, the USFWS does not cross-train its Ecological Services biologists to understand land use planning and management. As a result, many recommendations from ecological services field offices focus on technical solutions and ignore management alternatives.

Little sharing of successes or analysis of failures. A field office may succeed in cooperative planning with a military base. However, the Service has no process to pass along such successes to other field offices. Even within the same field office, biologists can be too busy to learn from ESA regulatory failures and successes.

These and other factors can hinder cooperative relations between a Service ecological services field office and a military installation. However, in those cases where a constructive interagency relationship has

developed, the leadership of the Service field office supervisor has been pivotal. Like the military commanding officer, the field office supervisor can overcome many of these institutional barriers if he or she determines there the Service can benefit from such a relationship.

5. New directions in Service ESA regulatory management.

The Clinton Administration recognizes that the administration of the ESA must be changed to achieve the Act's conservation aims. So, the Administration has adopted three policy goals.¹⁵⁴ The USFWS has provided its ecological services field offices additional resources to achieve these goals. This shift in policy represents an opportunity to improve the relationship between the Service and military installations.

"Partnering". USFWS Director Mollie Beattie advocates cooperative partnerships to further the aims of the ESA. Beattie states that "partnering" means early planning with private sector organizations, states, and federal agencies. The objectives of this early cooperative planning include improved land management, better analysis of project impacts on species and their habitat, and joint scientific research with other federal and state agencies. Consistent with this partnering approach, the Service has begun to emphasize early participation in federal agency NEPA planning. Field offices are also encouraged to

¹⁵⁴. Remarks of Director Mollie Beattie before the Western Land Commissions Conference, Bend, Oregon, Jan. 10, 1994. These goals show up as FY 95 USFWS budget requests for Prelisting Programs, Project Planning, Environmental Coordination, and Coastal Ecosystems programs within the Service's Ecological Services functional area. United States Fish and Wildlife Service, Fiscal Year 1995 Budget Summary.

participate in special land use and conservation planning, such as the Sikes Act.

Pre-train wreck, ecosystem management. Beattie's goals also include more emphasis on ecosystem planning in contrast to the single species approach under the ESA. This means that federal agencies should evaluate groups of species as part of whole ecosystems. Such planning is much costlier than ESA single-species planning. It has the potential, however, to prevent the kind of habitat loss which causes species extinction. The Service has requested budget increases to begin ecosystem planning in three regions: the Pacific Northwest, the Southwest-Mexico border region, and the Florida Everglades. The Service wants to convert the lessons learned from these three planning experiences into Service-wide policy changes.

Alternatives analysis, and balancing of species and other land use interests. The Northern Spotted Owl problem in the Pacific Northwest has taught the Administration the importance of finding multiple, feasible alternatives to species management. Political pressure has forced the USFWS to balance species conservation and other land uses: even though the ESA does not require such balancing.

These policies have caused the Administration to increase funding for field office efforts that go beyond the strict mandates of the ESA. The Service is also preparing new ESA guidance for its field offices. The draft of that guidance stresses the importance of partnering, ecosystem management, and alternatives analysis and balancing.

VI. INSTITUTIONAL IMPEDIMENTS TO USFWS/MILITARY COOPERATION

The prior two sections summarize the relative positions of the two agencies that have potential conflicts over endangered or threatened species on military training lands. The institutional characteristics of the Department of Defense and the USFWS are important in trying to fashion an interagency, cooperative strategy. Interviews with Defense and Service personnel, and with others close to the interagency relationship, confirm several key institutional characteristics which often constrain efforts for early, constructive cooperation.

These institutional constraints fall into three groups: planning processes, leadership and accountability, and relations at the interagency interface. The following are the most common impediments to early, constructive cooperation.

A. PLANNING PROCESS IMPEDIMENTS

1. *Defense Department installations purposefully wait until late in activity planning to involve the USFWS.*

The staff sections of defense installations plan many activities and projects which may impact endangered or threatened species. However, much of this planning occurs among a narrow group of individuals within a staff section. This narrow group usually is not adept at integrating its programs with others. So, military planners avoid sharing their plans with others until they can justify the project or activity.

Military planners also believe that certain contentious issues - protecting endangered species - are best handled separately (and later) by specialists - such as wildlife biologists. As a result, military bases do not integrate important wildlife issues into project/activity planning. By the time a biologist is able to evaluate impacts on species, the details of a military project have often solidified. This makes it difficult to select a new site for the project, or to amend plans to include species conservation measures. These military installation planning characteristics limit flexibility. They also signal the USFWS that military installations are not serious about their conservation responsibilities.

2. The agencies' planning addresses different or unclear objectives concerning species on military training lands.

The USFWS wants to recover endangered or threatened species. Defense installations want to avoid harming species or to avoid violations of the ESA while maximizing land use. These are two different objectives. The agencies' different missions and institutional concerns also shape how they deal with species issues.

Few military installations or USFWS field offices are willing to change their species management activities to include the concerns of the other agency. Without a clear, common definition of the problem cooperation remains illusive.¹⁵⁵

¹⁵⁵. See generally R. Varkki George, *Formation of Right Planning Problem*, 8 J. Plan. Literature 240 (1994).

3. *Neither agency learns from prior failures or successes.*

Successful planning should be based on lessons learned from prior similar activities. Planning that effectively harmonizes species and military training requirements is a difficult process. Such complexity suggests the need for some kind of procedure for "lessons learned."¹⁵⁶ Currently, neither the USFWS nor the military services routinely pass along information on species management efforts on Defense lands, whether successful or unsuccessful.

USFWS field offices do not share successful management programs at one military base with other military bases within the field office's jurisdiction. Similarly, military bases in a region seldom compare notes on their experience with species management. Also, the military services have not combined resources across military service boundaries to address common types of training activity that impact species.

The absence of such procedures reduces the pool of practical solutions. This loss, in turn, limits the creative vision of both military installations and USFWS field offices. Without a common vision of successful problem solving, both sides discount the value of interagency cooperation.

4. *Neither agency uniformly involves key personnel in their species-related planning and management.*

When military bases eventually consider species issues, they often leave the analysis of the impacts to a military wildlife biologist. The

¹⁵⁶ The military uses a lessons learned procedure to evaluate its military operations. See Mark A. Eastman, *The After Action Review*, *Armor*, May-June 1993, at 45.

biologist, alone, must fashion an acceptable "position" or "corrective action." This type of detached planning reduces the usefulness and credibility of military installation species proposals. These proposals are less useful because they do not address all land uses which conflict with species conservation.

Similarly, many USFWS field offices compartmentalize their regulatory work. They often plan individual species recovery programs narrowly without considering the impacts of conservation recommendations on other species.

The failure of the agencies to integrate planning within each agency reduces the value of cooperative interagency efforts. Military bases and USFWS field offices perceive that recommendations offered by the other agency are impractical or not credible. This destroys interagency relationship and impairs cooperation.

5. Neither agency does the kind of data gathering and analysis useful to a military/USFWS cooperative effort.

Both agencies collect data. Yet, they do not collect and analyze the data relevant to balancing species and military requirements. One reason for this failure is the different objectives of the Service and the military.

Without information essential to balance requirements, interagency meetings are unproductive.¹⁵⁷ To date, neither agency has been willing to amend their data collection efforts.

¹⁵⁷. Many government agencies are plagued by uncoordinated, incomplete information among public agencies. See generally David Gold, *Improving the Impact of Federal Scientific and Technical Information*, 10 Gov't Information Q. 221 (1993).

B. LEADERSHIP AND ACCOUNTABILITY IMPEDIMENTS

1. *Defense installations often fragment key decisions important for effective land use and species management.*

Effective cooperation between the Service and the Department of Defense should produce a comprehensive land use management plan. However, such plans are difficult to achieve, in part, because of fragmented decision making on many military bases. Several base staff sections manage different, segregated portions of a military base. Often these sections' activities impact wildlife and their habitat. They may also impact other natural resources, such as fresh water, important to the entire installation. However, no staff section has the responsibility and authority to unify all land uses.

2. *USFWS field supervisors and military installation commanders are not personally involved in directing or supervising interagency cooperative efforts.*

USFWS field supervisors and military installation commanders are central figures in managing endangered species on military training lands. However, often these persons never meet. Or, they meet only when there is interagency discord. In those cases field supervisors and military base commanders focus only on the statutory obligations under the ESA. They do not consider the benefits of a less formal relationship.

When these leaders remain detached from the interagency relationship, subordinate agency personnel do not assertively pursue

interagency cooperation.¹⁵⁸ The inattention of field office supervisors and installation commanders impedes cooperation.

3. *Neither agency has trained or experienced interagency facilitators.*

Bringing the two agencies together requires integration and mediation skills.¹⁵⁹ Combat professionals and wildlife biologists do not commonly learn these skills.

Most bases and some field offices have public affairs specialists. These persons have training in dealing with outside agencies. However, military commanders and field office supervisors use public affairs

¹⁵⁸. In some cases subordinates may not educate their leaders about the downsides of species versus military training conflicts. See generally F. Lee, *Being Polite and Keeping Mum: How Bad News Is Communicated in Organizational Hierarchies*, 23 *J. Applied Soc. Psychology* 1124 (1993).

¹⁵⁹. Interorganizational facilitators need the following skills:

- the ability to gather and organize background information (historical relations, participants, legal and technical materials, procedural and institutional contexts);
- the ability to communicate with others;
- analytical skill (define and clarify issues, distinguish significant and insignificant matters, detect and address hidden issues, analyze the interpersonal dynamics and conflict);
- facilitate agreement (assist in the development of alternatives, help evaluate alternatives, promote resolution of issues, clarify and frame points of agreement, educate parties about the consequences of non-agreement);
- document agreement; and
- personal skills (reading comprehension, writing, oral communication, reasoning, interviewing, integrity, recognizing values, organizing).

Christopher Honeyman, *A Consensus of Mediator's Qualifications*, 9 *Negotiation J.* 295 (1993).

personnel more to promote the organization's programs with the media, and to deal with complaints from the private sector or from elected officials. Public affairs officers do not participate in interagency planning or regulatory matters.

The absence of experienced facilitators slows efforts to achieve cooperative objectives between the agencies.¹⁶⁰

C. INTERAGENCY RELATIONSHIP IMPEDIMENTS

1. *Few military bases and USFWS field offices have set up procedures for cooperative interagency planning other than the ESA processes.*

The ESA procedures are inadequate to create a working relationship between a military installation and a USFWS field office. The Defense

¹⁶⁰. Interagency cooperation can also be hindered by the participation of certain types of individuals. One author suggests four such types.

Thinkers. These individuals delight in facts and information, but seldom master the interpersonal or institutional savvy needed to get the job done.

Regulators. These employees love to follow the rules. They are likely to draw on conventional wisdom or previously established practices. They ignore human relationships and cannot easily develop new solutions to problems.

Manipulators. These persons has a high regard for their own judgment. They see their role as persuading or manipulating others to follow their view of the world.

Zealots. A zealot has a great passion for a cause. But, this individual cannot put the cause in context with other events.

Larry Hubbell, *Four Archetypal Shadows*, 24 Admin. & Soc. 705 (1992).

policy on natural resource management¹⁶¹ suggests that the installation-state-USFWS agreement contain procedures for early, constructive cooperation over species management. However, most bases and field offices do not fashion specific local procedures beyond those required by the ESA.

Locally-crafted procedures are important for effective interagency cooperation. Local guidelines address mission, land use, planning, and organizational structure of special concern to the organizations. Procedures can divide task responsibilities and authority between the agencies. Such procedures may also contain objectives which both agencies want to achieve through cooperation.

2. Both agencies are largely uninformed about the other agency's missions and special institutional concerns.

Cooperative efforts require understanding on both sides. USFWS field offices and military installations lack this kind of information about the other agency's interests.

USFWS wildlife biologists are unaware of individual military installation missions. They are also not informed about land use practices on a military installation. Lastly, they are unfamiliar with base planning and decision making procedures.

Similarly, few military personnel appreciate how the USFWS organizes and runs its field offices. Military base leaders do not have an appreciation for the different functions of the Service. Military professionals seldom know the justification for species protection

¹⁶¹. 32 C.F.R. 190, Appendix A. 1. b.

policies, or the relationship between national security and biological resource conservation.

Knowledge of another agency's interests helps the development of common objectives. However, the lack of basic information about the other agency limits agreement on procedures and solutions to balance the needs of species and military training.

3. In some cases distrust from prior relations or agency stereotyping impedes cooperation.

It is difficult to begin or sustain a cooperative effort if one side harbors distrust from prior dealings. For example, a military base may recall that a USFWS field office failed to base a recommendation on sound scientific information. Installation leaders may believe cooperation under such circumstances would be unproductive.

Similarly, a USFWS field office may distrust a military base because it did not faithfully implement management practices which both agencies agreed were necessary. The field office believes the military will not follow through with effective management after cooperative planning.

Also, either side can develop negative stereotypes of the other agency's personnel.¹⁶² This practice inhibits communication and problem

¹⁶². In a 29 April 1994 meeting of biologists from the Carlsbad USFWS field office and the Navy, the participants responded to a question about their perceptions of the other agency's personnel. The Navy participants characterized the USFWS biologists as: lacking land use experience, unorganized, holier than thou, pessimistic, overworked, disrespectful of other agency's biologists, zealots. The USFWS participants characterized the Navy biologists as: old guard biologists, supporting mission above the law, intractable, users of artificial urgency, inconsistent in following through on actions. Letter of May 5, 1994 to the researcher from Jim Eisenhart, Ventura Consulting Group, Ventura, California.

solving.

The USFWS and a military installation can resolve these types of relationship problems. Cooperative procedures and agreements between the organizations can address these issues. Often, however, military bases and USFWS field offices allow these relationship issues to go unresolved. Consequently, there remains a "justification" for avoiding cooperative planning.

4. Both agencies retain a proprietary attitude about the species-related information they develop.

Cooperative efforts require the willing disclosure of information to solve common problems. Both USFWS field offices and military bases are reluctant to share their scientific and institutional information with each other. These practices foster attitudes of distrust.

VII. STRATEGY

The military service headquarters and USFWS headquarters can enhance interagency relations by jointly addressing common species versus military land use problems. These headquarters furthered that goal when they participated in an interagency workshop in Washington, DC, on April 21 and 23, 1994. The United States Army requested the meeting. The USFWS Headquarters agreed with the Army to co-host the meeting. Other Department of Defense attendees represented Headquarters, United States Marine Corps; Naval Facilities Engineering Command; Office of the Chief of

Naval Operations; Army Corps of Engineers; and the Army Environmental Policy Institute. The Office of the Secretary of the Interior, and other Interior agencies were also represented.

The participants developed a list of actions which could improve interagency cooperation and improve federal land use and species management. The list of joint recommendations included the following.

- develop a standard data base and clearing house for species-related biological data
- publish a directory of agency biologists with their special species expertise
- develop training programs for senior agency managers
- develop guidelines to prioritize species conservation actions
- develop a lessons-learned procedure to identify what species management actions work and don't work
- establish a national-level interagency executive group and subordinate task working group or groups to address specific issues

The military and Service headquarters participants agreed to seek institutional acceptance of the Workshop's recommendations. They also agreed to consider a more formal interagency framework to improve communication.

Notwithstanding the benefits of high-level interagency efforts, the greater conflicts remain at the local level. The military services and the USFWS have delegated to base commanders and field office supervisors the more challenging ESA implementation responsibilities. If agency

leaders at this level cannot overcome barriers to cooperation, there is little the headquarters staffs can do under present decentralized program management. On the other hand, local-level leaders can deal more effectively with many of the more knotty problems where the first-hand knowledge exists.

The recommended strategy for improved military/Service cooperation relies on the joint, co-operative leadership of the installation commander and the field office supervisor. These leaders need to work together to set priorities and to assure that agency missions are advanced. Any successful interagency effort must begin and continue under their personal direction.

At the local level, base commanders and Service field office supervisors should meet each other. During one of their first meetings these leaders should determine whether their organizations' missions would be enhanced by improved cooperation. These leaders should identify specific agency benefits which could reasonably be achieved from a continuous, interagency relationship. Such benefits may include:

- reduced long-term mission costs,
- elimination of project or program delays,
- reduced political or legal liability,
- enhanced ability to deal with state or regional species planning activities,
- more predictability when the organizations must consult under the ESA or under other federal laws, and

- improved information to make important agency decisions.

If military installation commanders and field office supervisors conclude that cooperation will produce benefits, they should then identify any impediments to such cooperation. Commanders and supervisors should direct a thorough analysis of their organizational structures and attitudes. This analysis should review agency planning processes,¹⁶³ organizational leadership and accountability, and the interpersonal relations between agency personnel. This local review may begin with the impediments addressed in this research.

With the agency desired benefits and recognized impediments as a backdrop, the base commander and the field office supervisor should agree on a set of principles to promote effective cooperation. Such principles promote an enduring, constructive interagency relationship. These principles may include the following:

- successful planning which includes possible impacts on biological resources begins early, when a project or program is first being formulated;

- to best balance species and military training requirements, military and USFWS representatives must early-on identify and evaluate multiple alternatives;

- the use of an interdisciplinary planning approach expands the range of alternatives which may balance species and military

¹⁶³. In the present era of severe budget constraints, military leaders stress better resource planning. Seth Bonder, *Defense Planning in the New Global Security Environment*, Army, Aug. 1993, at 17 (long-range Defense Department planning should include: development and consideration of alternative courses of action; synthesis and integration of information; solutions which include capabilities from several organizations).

training requirements;

- successful species management requires the integration of species planning with related military and USFWS planning;

- to integrate species management with other military and USFWS planning, agency personnel must understand the organization, missions, and special concerns of the other agency;

- successful integration of planning benefits from agency representatives who are trained and experienced in interagency communications and problem solving;

- integrated planning benefits from continuous, long-term personal association between military and USFWS personnel; and

- the implementation of actions arrived at through interagency cooperation is best achieved if each action has a specific monitoring, review, and accountability plan.

Consistent with these principles, the base commander and the field office supervisor should direct their staffs to develop jointly a set of objectives to further agency interests, and to remove impediments to cooperation. Once these objectives are reviewed and agreed to by the base commander and field office supervisor, a local interagency cooperation agreement should be drafted. A model of such an agreement is contained in Annex B.

ANNEX A

LIST OF PERSONS INTERVIEWED

Department of Agriculture

Jeri Berc
Ecological Services Division
Soil Conservation Service
Washington, DC

Ron Escano
Wildlife, Fish and Rare Plants
United States Forest Service
Washington, DC

Department of Commerce

Robert Ziobro
Office of Protected Resources
National Marine Fisheries Service
Silver Spring, Maryland

Department of Defense

Marlo Acock
Head, Natural Resources Section
Land Use and Military Construction Branch
Headquarters, United States Marine Corps
Washington, DC

Colonel John Altenberg
Staff Judge Advocate
18th Corps
United States Army
Fort Bragg, North Carolina

Jerry Boggs
Wildlife Specialist
Southwest Division
Naval Facilities Engineering Command
San Diego, California

Peter Boice
Natural Resource Manager
Deputy Under Secretary of Defense (Environmental Security),
Conservation and Installations
Office of the Secretary of Defense
Arlington, Virginia

Dave Boyer
Wildlife Biologist
Marine Corps Base Camp Pendleton, California

Slader Buck
Chief, Biological Resources Section
Assistant Chief of Staff, Environment
Marine Corps Base Camp Pendleton, California

Diane Drigot
Head, Natural Resources/Environmental Affairs
Marine Corps Base Hawaii

Thomas Eglund
Chief, Natural Resources
Naval Facilities Engineering Command
Department of the Navy
Alexandria, Virginia

John Fittipaldi
Senior Fellow
Army Environmental Policy Institute
Champaign, Illinois

Bill Goodman
Army Training Support Center
Fort Eustas, Virginia

Dennis Herbert
Supervisory Wildlife Biologist
United States Army
Fort Hood, Texas

Winiford Hodge
Army Construction Engineering Research Laboratory
Champaign, Illinois

Paul Hubbell
Deputy Director
Facilities and Services Division
Headquarters, United States Marine Corps
Washington, DC

Major Chad Kirkley
Training Resources Branch
Training and Education
United States Marine Corps
Quantico, Virginia

Matt Klope
Environmental Affairs Office
Naval Air Station Whidbey Island
Oak Harbor, Washington

Dawn Lawson
Conservation Biologist
Marine Corps Base Camp Pendleton, California

Richard LeClerc
Branch Chief
Natural and Cultural Resources
Fort Drum, New York

Lieutenant Colonel Thomas Lillie
Head, Natural and Cultural Resources Branch
Headquarters, United States Air Force
Arlington, Virginia

Chester O. Martin
Environmental Laboratory
United States Army Waterways Experiment Station
Vicksburg, Massachusetts

Major Craig Meyers
Land Use Counsel
Headquarters, United States Marine Corps
Washington, DC

Phillip C. Pierce
Conservation Division
Directorate of Environmental Programs
Department of the Army
Washington, DC

Donald R. "Bob" Proulske
Wildlife Biologist
Avon Park
United States Air Force
Air Force Range, Florida

Robert Riggins
Deputy Director
Army Environmental Policy Institute
Champaign, Illinois

Lieutenant Colonel David Schnabel
Public Works Officer
United States Army
Fort Irwin, California

Merrily Severance
Deputy Chief, Natural Resources Branch
Naval Facilities Engineering Command
Department of the Navy
Alexandria, Virginia

Mike Stroud
Head, Natural Resources Branch
Southwest Division
Naval Facilities Engineering Command
San Diego, California

David J. Tazik
Threatened and Endangered Species Team
Construction Engineering Research Laboratories
Corps of Engineers
Department of the Army
Champaign, Illinois

Major Craig Teller
Counsel
United States Army Environmental Law Division
Arlington, Virginia

Eunice Vachta
Military Training Section
Assistant Chief of Staff, Operations and Plans
Department of the Army
Washington, DC

Jim Walk
United States Army Training Support Center
Fort Eustas, Virginia

Kim Weirick
Deputy
Land Use and Military Construction Branch
Headquarters, United States Marine Corps
Washington, DC

Tommy Wright
Wildlife Specialist
Southwest Division
Naval Facilities Engineering Command
San Diego, California

Department of State

Peter Thomas
Environmental Policy
Department of State
Washington, DC

Department of the Interior

Ken Berg
Wildlife-Fisheries Division
Bureau of Land Management
Washington, DC

Karen Cathey
Endangere Species Consultation Biologist
Ecological Services Field Office
United States Fish and Wildlife Services
Albuquerque, New Mexico

Jamie Clark
Chief, Division of Endangered Species
United States Fish and Wildlife Service
Washington, DC

Mark Clouth
Endangered Species Specialist
Field Office
United States Fish and Wildlife Service
Cortland, New York

Susan Enright
Head, Consultation Branch
Headquarters, United States Fish and Wildlife Service
Washington, DC

Nancy Gilbert
Multi-species Planning Coordinator
Field Office
United States Fish and Wildlife Service
Carlsbad, California

John Hanlow
Federal Projects Coordinator
Field Office
United States Fish and Wildlife Service
Carlsbad, California

Stephen Helfert
Endangered Species Specialist
Regional Office
United States Fish and Wildlife Service
Albuquerque, New Mexico

Eugene Hester
Deputy Director
National Biological Survey
Washington, DC

Robert James
Federal Projects Biologist
Field Office
United States Fish and Wildlife Service
Carlsbad, California

Ann Kreager
Consultation Biologist
Field Office
United States Fish and Wildlife Service
Carlsbad, California

Debbie Mignogno
Deputy Director, Endangered Species Office
Regional Office
United States Fish and Wildlife Service
Hadley, Massachusetts

Bill Noonan
Consultation Biologist
Field Office
United States Fish and Wildlife Service
Golden, Colorado

Peggy Clwell
Endangered Species Program
Division of Wildlife/Vegetation
National Park Service
Washington, DC

Mark Pavelka
Federal Projects Biologist
Field Office
United States Fish and Wildlife Service
Carlsbad, California

Department of Transportation

Commander Richard Roth
United States Coast Guard
Washington, DC

Environmental Protection Agency

Molly Whitworth
Office of Policy Planning and Environment
Washington, DC

Non-Federal agencies/institutions

Jim Eisenhart
President
Ventura Consulting Group
Ventura, California

Leslie Johnson
Interagency Coordination Specialist
Nature Conservancy
San Francisco, California

Stephen B. Lacy
Head, Conservation Planning
Ogden Environmental
San Diego, California

Mike McGloughlin
Director, Land Use Planning
San Diego Association of Governments
San Diego, California

Pat Mock
Biologist
Ogden Environmental
San Diego, California

ANNEX B

MODEL USFWS/MILITARY AGREEMENT

MEMORANDUM OF UNDERSTANDING
BETWEEN

MARINE CORPS BASE CAMP CHESTY PULLER
AND
THE COASTAL CITY FIELD OFFICE OF THE
UNITED STATES FISH AND WILDLIFE SERVICE

TO PROMOTE COOPERATIVE PLANNING FOR
BIOLOGICAL RESOURCES ON MILITARY LAND

* * *

Background

Marine Corps Base Camp Chesty Puller (Base) and the Coastal City Field Office of the United States Fish and Wildlife Service (Service) share responsibilities for the conservation of endangered and threatened species under the Endangered Species Act (ESA). Additionally, the National Environmental Policy Act and the Sikes Act require the Service to support the Base in evaluating the environmental consequences of proposed Base projects and programs, and in developing a Base natural resource plan.

These statutory duties are best fulfilled if the Base Commanding Officer (CO) and the Field Office Supervisor (Supervisor) personally direct interagency activities. Additionally, effective statutory compliance requires constructive inter-agency staff relationships, integrated intra-agency planning and program management, and agency accountability.

Before entering this agreement, the CO and Supervisor reviewed the Base/Service relationship and their separate agency missions. They found that a constructive, cooperative relationship between the Base and the Service will enhance each agency's mission performance.

The CO and Supervisor identified certain organizational impediments to interagency cooperation. To overcome these impediments, and to achieve the greatest mutual benefit from cooperation, the CO and Supervisor agreed on specific planning and management principles.

The CO and Supervisor agreed on the formation of an interagency executive council, and a subordinate task working group, to achieve the benefits of cooperation. This council and group will act to improve planning and management of biological resources on the Base.

The agencies' interests, the planning and management principles, and council/group responsibilities are set forth in this memorandum of understanding. These provisions should change as the agencies learn from cooperation. The CO and Supervisor agree to meet annually to review the status of interagency cooperation, and to make those changes needed to further the Base and Service interests.

This agreement includes the following sections.

- I. BASE AND SERVICE INTERESTS
- II. PLANNING AND MANAGEMENT PRINCIPLES
- III. EXECUTIVE COUNCIL & TASK WORKING GROUP
- IV. GENERAL PROVISIONS
- V. APPROVAL

* * *

I. BASE AND SERVICE INTERESTS

Interagency cooperation between the Base and the Service should improve the performance of each agency's missions, and enhance agency interests. The CO and Supervisor find that the following interests are important. Base/Service cooperation will further these interests.

a. Compliance with ESA, NEPA, and the Sikes Act. Both agencies must comply with the Endangered Species Act, the National Environmental Policy Act, the Sikes Act, and other federal natural resource laws. Such compliance should be in a timely, cost effective manner. Faithful compliance with federal natural resource statutes is fully consistent with the missions of both agencies.

b. National security readiness. The Base must provide superior support for combat unit training. Such training is essential to the Nation's security. The needs of biological resources and this training are not mutually exclusive. However, the balance between these land uses requires extra effort in planning and managing Base and Service responsibilities.

c. Recovery of endangered and threatened species. Both agencies must assure the conservation and recovery of species which the Service lists as endangered or threatened. Such actions have important economic, social, educational, and scientific consequences for the Nation. Also, protection of biological resources is important for national and international security.

d. Base and Service program costs. The Base and the Service must assure the cost effective management of their agency responsibilities. The interests of military training and species conservation are furthered if the agencies identify and implement cost effective management and technical solutions, they will likewise further the interests of military training and species conservation. These same interests are harmed if the agencies do not identify or implement cost effective solutions.

d. Reduced program delays. Species and land use management on the Base affect other programs of both agencies. Poor planning and management can delay these programs. Unreasonable program delay is not in the interest of the Base or the Service.

e. Dealings with other public agencies. Both agencies must deal with other federal, state, and local government agencies on land use issues. The Base and the Service benefit when they support each other in their relations with other agencies.

f. Enhanced agency decision-making. The best available information is required to make many species and land use decisions. Much of this information is costly or difficult to obtain. Both agencies benefit when they cooperate in gathering and managing information needed for agency decisions.

g. Government contracted work. Both agencies must ensure they manage government contracts consistent with federal law, and that they achieve the expectations of the agency. Careful supervision of species-related contract work is an important part of Base and Service program responsibilities. Both agencies should pay close attention to the manner of supervision and accountability of government contracted work.

* * *

II. PLANNING AND MANAGEMENT PRINCIPLES

The Base and the Service will further these interests if they follow certain planning and management principles. Base and Service interagency representatives should know and follow these principles.

a. Successful planning which includes possible impacts on biological resources begins early, when a project or program is first being formulated.

b. To best balance species and military training requirements Base and Service representatives should early-on identify and evaluate multiple alternatives.

c. The use of an interdisciplinary planning approach expands the range of alternatives which may balance species and military training requirements.

d. Successful species management requires the integration of species planning with related Base and Service planning.

e. To integrate species management with other agency planning, Base and Service representatives must understand the organization, missions, and special concerns of the other agency.

f. Successful integration of planning also benefits from Base and Service representatives trained and experienced in interagency communications and problem solving.

g. Planning integration benefits from a continuous, long-term personal association between Base and Service representatives.

h. The implementation of actions arrived at through interagency cooperation is best achieved if the agencies jointly develop specific monitoring, review, and accountability plans.

* * *

III. INTERAGENCY EXECUTIVE COUNCIL & INTERAGENCY TASK WORKING GROUP

This agreement establishes an executive council and task working group are established. These bodies shall promote cooperation consistent with the principles set forth above.

a. Interagency Executive Council.

The Interagency Executive Council includes two Base personnel, the Base Chief of Staff and Base Assistant Chief of Staff for Facilities (or Environment), and two Service personnel, the Deputy Field Office Supervisor and Endangered Species Section Chief. This Council shall meet quarterly to review the mutual planning and management efforts of the agencies. At these quarterly meetings they will receive reports and recommendations from the Task Working Group. The Council shall direct the Task Working Group to formulate solutions to planning and management issues important to both agencies.

The Council is also responsible for the following:

- to keep the CO and Supervisor informed concerning species-related matters affecting the agencies' missions;
- the establishment of a cross-training program to educate Service employees about Base missions, organization, and interests, and to educate Base personnel about Service missions, organizations, and interests;
- to select the qualifications and to direct the training of Base and Service individuals who can facilitate better interagency communication and problem-solving;
- to limit to the greatest extent possible the reassignment of personnel assigned interagency cooperation duties; and
- to assure the level of resources necessary to carry out the requirements of this agreement.

b. Interagency Task Working Group.

The Interagency Task Working Group includes four Base personnel, including representatives from Training and Operations, Facilities/Engineering, Environmental, and Real Estate, and four Service personnel. The Executive Council will appoint the chair of this Group. The Council may augment the membership of this Group depending on the specific tasks assigned to the Group.

The Task Working Group will meet at least monthly, but more often if necessary. The Group shall receive direction from the Executive Council to formulate actions to improve the planning and management. The Task Working Group has no authority to conduct or supervise the routine activities of the agencies. The primary purpose of the Task Working Group is to advise the Executive Council on policies and practices which will achieve the purposes of this agreement. For example, the Council may direct the Task Working Group to propose actions to accomplish objectives such as:

- better integration of species planning with other agency planning;
- ways to improve data collection and data management to enhance agency planning and decision making;
- strategies to best participate in species planning efforts sponsored by other public agencies;
- guidelines to prioritize species planning and management efforts; and
- improved oversight and management of previous species conservation agreements.

* * *

IV. GENERAL PROVISIONS

This agreement does not obligate either agency to transfer funds, services, or property to the other agency. Such transfers require separate agreements or contracts, contingent upon the availability of funds as appropriated by the Congress.

This agreement does not restrict the Base or the Service from participating in other cooperative agreements to improve the planning and management of biological resources.

It is expected that the CO and Supervisor will annually review and may amend this agreement. Such amendments should be signed by the CO and Supervisor and be added to this agreement.

Only the CO or Supervisor may terminate this agreement. The preferred method of termination is by mutual agreement between the CO and Supervisor. However, the CO or Supervisor may terminate the agreement unilaterally. In either case, termination occurs when one or both of these agency leaders provides written notice of intent to terminate.

* * *

V. APPROVAL

This agreement was personally reviewed and agreed to on

(date)

Base Commanding Officer

USFWS Field Office Supervisor