



Best Practices for Integrated Natural Resources Management Plans

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Military lands in the United States are managed according to an ecosystem approach outlined in the individual installation Integrated Natural Resources Management Plans (INRMPs). There are 368 INRMPs currently being implemented in the United States. The INRMP continues to gain increasing importance as a key installation document, and there are initiatives under way to continue to improve them and their implementation. Best practices for INRMP implementation are emerging, and some examples are discussed in this article. © 2005 Wiley Periodicals, Inc.

INTRODUCTION

There may be no more useful single document developed for a military installation than the Integrated Natural Resources Management Plan (INRMP), and since its introduction, the INRMP has gained increasing importance. It is the only installation document that provides a regional setting for an installation, and its comprehensive approach makes it a valuable tool to many users, including the military trainers and operators, installation managers, state and federal natural resources agencies, and local and regional planners. In the federal government, there is no comparable document to the military INRMP, and the widespread application of INRMPs on military lands throughout the United States is providing significant conservation benefits to species, habitats, and ecosystems, many of which are in jeopardy on nonmilitary lands.

The Sikes Act Improvement Act (SAIA) of 1997¹ mandated a deadline of November 2001 for INRMP implementation for installations nationwide, and there are now 368 INRMPs being implemented across the United States on about 29 million acres of military training and testing lands. These lands are important not only for supporting mili-

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tary training and testing but also because they are a national resource and are valued by a wide range of groups, including researchers, educationalists, naturalists, outdoor enthusiasts, rod and gun enthusiasts, and many others.

The Department of Defense (DOD) has long since recognized the importance of these lands and for over 10 years has been following an ecosystem approach to land management. The INRMP is the means by which installations implement ecosystem management. It is a planning document that not only outlines an installation's specific management actions for sustaining the military training and testing lands but also describes an installation's actions for conserving natural resources, protecting threatened and endangered species and their habitats, protecting wetlands and water bodies, coordinating with state and federal natural resource agencies, establishing access to the public, and partnering with local and regional groups and organizations. The plans are maintained through regular updates and are formally reapproved every five years. They are developed and implemented in cooperation with the local state fish and wildlife agency and with the U.S. Fish and Wildlife Service, which both formally approve the final plans.

Many of the first INRMPs are going through their first formal updates and reapprovals. DOD and the Services recognize the value and successes of the INRMP process, and there is an intent to continue to do the best possible management, learn from past experiences, and apply new technologies and methods to implementation. There are initiatives under way to continue to improve INRMPs and the overall INRMP process, including a study by the Office of the Under Secretary of Defense, Installations and Environment (the DOD study) to examine the effectiveness of INRMP implementation and to identify best practices.² Also, the individual Services are updating their INRMP guidance and developing metrics to gauge the effectiveness of implementation. This article presents some of the best practices identified from many INRMPs that are being implemented across the country and illustrates how installations are meeting the challenges of implementing ecosystem management in the day-to-day management of these important lands.

CHALLENGES OF AN ECOSYSTEM MANAGEMENT APPROACH

In some respects, ecosystem management can be regarded as a philosophical approach to land management because of its all-encompassing nature, combining science and social science and accounting for environmental, economic, and cultural aspects. It is very different from the more traditional compliance-driven or reactive management modes that are driven by adherence to various laws and regulations. Traditional management approaches typically focus on problem solving and are usually related to single media (e.g., water, air, hazardous waste); however, ecosystem management does not fall into this category. In practice, ecosystem management is very pragmatic—it is a

process of continual reassessment (monitoring) to determine if management actions are leading to the intended goals and if they are meeting the intended objectives. It is also a process of continual learning and application of knowledge gained so that management actions can be refined (adaptive management) to keep progress on track. It does not lend itself to strict limits in space or time but considers the effects of programs and actions at spatial and temporal ecological scales that are relevant to natural processes. This multi-issue, multiscale approach sets ecosystem management apart from traditional management schemes. It is also what makes it so challenging to focus and to implement in day-to-day field situations.

In 1994, when DOD announced that military lands would be managed following an ecosystem management approach,³ there were few examples of its practical application to day-to-day land management. As a federal initiative, ecosystem management was only just beginning to emerge at this time as a management approach. Some federal agencies, such as the U.S. Forest Service,⁴ were beginning to consider the approach, and it was presented by the White House in the 1994 National Performance Review Report on Reinventing Environmental Management.⁵

DOD's approach using the INRMP has allowed the management to evolve and be refined as information from lessons learned is applied through the regular INRMP reviews and revisions. Rather than a fixed prescriptive approach, the guidance issued by DOD is just that—guidance. While some have criticized DOD for not providing more explicit direction—for example, in the areas of coordination and funding—the open approach used suits ecosystem management because there is certainly no one approach that fits all installations. Just as the plans themselves are being updated and refined, so too has the DOD and Services' guidance been updated to address the challenges identified from the first years of implementation.

Perhaps the single most serious challenge for ecosystem management as implemented through the INRMP is prioritizing actions and projects and successfully having them funded and implemented. The many actions and projects outlined in an INRMP are necessary and must be implemented if an installation is to attain the stated INRMP goals and objectives. Individually, the INRMP projects may seem insignificant and of little importance. With the exception of threatened and endangered species management for federally listed species, individual INRMP actions and projects are not compliance-driven, and most are not classified as "must-funds."⁶

Funding most INRMP activities within the DOD environmental budgeting schema is a challenge. INRMP projects must be able to stand up to strict comparison with other equally valid environmental projects to successfully compete for funds. However, because the individual INRMP actions and projects are not compliance-driven (i.e., are not "must-fund") they may fail to be funded if they are only presented as individual, noncompliance-related activities. To overcome



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this, the INRMP must clearly demonstrate the need for these individual actions and projects and must show how they are integral to successful INRMP implementation and, in turn, to sustaining military mission support.

In preparing for the INRMP review and updates, the managers are looking closely at this area and are refocusing the INRMP on linking actions and projects more directly to goals and objectives that are identified for the desired future condition of the training lands and of installations as a whole. With the increased emphasis on goals and objectives, there is an associated emphasis on monitoring and on adjusting management practices through adaptive management, to keep the installation on track to meet the goals and objectives. The Services are also recognizing the need to link all parts of the INRMP, and most are reviewing and updating their guidance.



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POLICY AND GUIDANCE

In 1996, DOD issued guidance (DODI 4715.3) to help the Services implement ecosystem management.⁷ That instruction identified the installation INRMP as the tool for implementing ecosystem management, listed the basic elements of an INRMP, and presented DOD's ten Principles of Ecosystem Management. The passage of the Sikes Act Improvement Act of 1997⁸ formalized the INRMP process and mandated that the military prepare and implement INRMPs in cooperation with stakeholders, including the U.S. Fish and Wildlife Service and the state fish and wildlife agencies.

Following passage of the SAIA, DOD and, subsequently, the Services issued guidance to assist installations with INRMPs. The emphasis of these first guidance documents was on developing the INRMP, and they included lists of topics that should be included in INRMPs. In the most recent DOD guidance issued in October 2002⁹ and its supplement issued in November 2004,¹⁰ the emphasis has moved from developing INRMPs to implementing them and improving the overall INRMP coordination process. Based on lessons learned from the first years of INRMP implementation, the 2002 and supplemental guidance focus on: coordination with stakeholders; reporting requirements and metrics; budgeting for INRMP projects; use of the INRMP as a substitute for critical habitat designation; supporting the military training and testing needs; and the INRMP review process.

As part of DOD's ongoing efforts to improve INRMP implementation, the Web-published INRMP ready reference, *Resources for INRMP Implementation—A Handbook for the DOD Natural Resources Manager*, has been updated to reflect recent DOD and Service guidance, and all hyperlinks have been updated. The handbook contains information and resources on many topics useful to the installation natural resources manager—guidance and regulations, budgeting, contracting, funding, outreach, education and training, monitoring, and the like—and is published on the Web (www.denix.osd.mil/inrmp).

BEST PRACTICES

The role of the INRMP has expanded beyond being just another installation planning document. Installation INRMPs must be robust, and their implementation must be effective. But what are the characteristics of successful INRMP implementation? To attempt to answer this, DOD initiated a study in late 2003 to examine INRMP implementation across the Services and to identify whether there are best practices that may be applicable to a range of installations.

The study involved assessing INRMP implementation at several installations through in-depth interviews with installation headquarters, state agencies, U.S. Fish and Wildlife Service staff, and other relevant groups. The study focused on specific areas of interest, and topics included military mission support, ensuring ecosystem health, funding, monitoring INRMP effectiveness, stakeholder input, meeting Endangered Species Act requirements, and protecting species at risk.

The traditional form of a best management practice is one where a particular management practice can be applied in a variety of situations and would be expected to result in the same or similar positive outcomes. According to the study findings, best practices for INRMP implementation are not so clear-cut and prescriptive. They may not entail a single specific prescription or activity, but are more likely to be multifaceted and dynamic and may need to be adapted to meet changing conditions. Best practices were identified for most of the areas of interest but these were not usually unique to a particular area of interest.



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Supporting the Military Mission

Examples of best practices for proactively supporting the mission and having mechanisms in place to prevent a net loss to the military mission centered on communications within the installation. Installations that demonstrated best practices related to mission support excelled in communication and had overcome the typical problems that stem from poor lines of communication.

In all cases, the INRMP was found to be invaluable to supporting the military training and testing mission. Indeed, in many instances, the military mission would suffer if it was not for the many procedures, activities, and projects outlined in installation INRMPs that are being implemented by natural resources staff. However, the study revealed that the full potential of the on-site expertise and knowledge of the natural resources staff is not always recognized and put into practice. As the group most knowledgeable about the condition of the land and the associated environmental constraints, the natural resources staff has a wealth of information and is responsible for providing suitable and sustainable training and testing lands. In many cases, this resident expertise has not been fully tapped. This was usually the result of a lack of free-flowing communication between the military range managers and trainers and the natural resources groups. Integration is what sets the INRMP apart from other installation plans and programs, but the military structure is generally not conducive to having



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free-flowing communications between different parts of the organizational structure, and so integration is not easily achieved. Frequent and open communications are key, and installations excelling in military mission support have developed successful best practices for communications between the environmental staff and the range managers, trainers, and flight safety groups.

Fort Stewart, Georgia, provides a good example of what can be achieved when different installation groups work together and have good communication. Fort Stewart is the largest Army installation in the eastern United States. It has a heavy training schedule and supports tanks, field artillery, helicopter gunnery, and small arms range operations throughout the year. It also has considerable environmental constraints, including threatened and endangered species and extensive wetlands. An interdisciplinary team meets every two weeks to systematically develop and review specific management prescriptions for its training areas. However, this regular team meeting provides much more than the management prescriptions. It provides a setting for free-flowing communications where all parties have a role to play in the process, with the result that the training areas operate at their optimum mission support capabilities. The team includes trainers, Integrated Training Area Management (ITAM), range control, forestry, fish and wildlife, cultural resources, and a National Environmental Policy Act (NEPA) staff.

Another example of how the combined skills of trainers and natural resources staff can be applied is at Marine Corps Base (MCB) Camp Lejeune in North Carolina. Here the result is a new continuous training area between the beach amphibious landing zone and Combat Town. The training area traverses the habitats for several of the installation's threatened and endangered species, and if unassisted, the trainers would find it almost impossible to map out a feasible continuous training route. However, close collaboration between the trainers and natural resources staff has produced a viable training exercise area. By working closely with the trainers and by asking many questions about training frequency, duration, volume, and the like, the natural resources staff was able to design a new sustainable training area that does not negatively impact the natural habitats and protected species.

MCB Camp Pendleton, California, conducts tens of thousands of training activities annually involving active duty and reserve Marine, Navy, Army, Air Force, and National Guard units, and also provides training opportunities for national, state, and local agencies. The installation also has 18 federally listed threatened and endangered species, which means there are considerable constraints to training over much of the installation. With such a heavy training schedule, it is critical that current information on the land conditions and environmental constraints reaches the users. A useful tool that Camp Pendleton has developed is an Environmental Operations Map. The map is prepared by the geographic information systems (GIS) section and is updated regularly with information provided by several differ-

ent sections. The map is available to all users, including trainers and managers, and is an invaluable communications tool.

The common feature of these three quite different examples of best practices is that in each case there was a concerted effort to communicate. Positive and fruitful communications do not usually happen without some effort, and installation staff should take steps to establish some type of program that involves regular communications.

Ensuring Installation Ecosystem Health

Natural resources management as implemented through the INRMP is allowing the military to maintain the training and testing lands to a level that would not be feasible without the integrated and holistic land management approach of the INRMP. However, applying ecosystem management to the field situation is no easy task. To be successful requires having an understanding of or developing a vision of ecosystem health as it pertains to the particular installation and its setting. It also requires developing goals and objectives for the desired landscape conditions, whether for natural, training, testing, or protected areas, and then adaptively managing the land as directed by knowledge and information gained through monitoring.

Installations have had difficulty in fully addressing how to merge managing the training lands with goals and objectives to support ecosystem health. Installations with limited or no natural resources expertise on site are at a disadvantage from not only the management planning and design aspects but also from an implementation perspective. Partnering with groups such as the U.S. Fish and Wildlife Service, state fish and wildlife agencies, or conservation groups such as The Nature Conservancy may provide support with overall ecosystem management. By partnering with these groups, installations should not only be able to benefit from the shared technical expertise but also from participation in regional initiatives in which these groups typically participate.

Management for threatened and endangered species can divert the focus away from managing for ecosystem health. Although the natural resource managers are trying to implement an ecosystem approach or manage areas at a community level, they are often under pressure to manage for a single threatened or endangered species due to compliance requirements of the Endangered Species Act. MCB Camp Pendleton in California is one such installation that is strongly driven by the fact that there are 18 federally listed threatened and endangered species listed for the base. Although they are having to meet compliance requirements for each species, the sheer number of species and the habitats occupied means that the management is so comprehensive and all-encompassing that MCB Camp Pendleton achieves ecosystem management. However, to more fully combine threatened and endangered species management and ecosystem management, Camp Pendleton has developed Riparian and Beach/Estuarine Conservation Plans. These are umbrella plans that, although developed



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primarily for threatened and endangered species, provide benefits to native species and to human users of the areas.

The Fort Custer Training Center in Michigan is an example of an installation that is fully practicing an ecosystem management approach. The Fort Custer INRMP is explicitly ecosystem management-driven and was developed by bringing together a wide group of stakeholders and professionals. Interest by the stakeholders is retained by including them in an annual review process—this is another example of the importance of communication in INRMP implementation. Fort Custer has clearly developed and is now implementing the key components of ecosystem management. A desired future condition for the installation is identified; there are goals and objectives for meeting the future condition and projects are being implemented; there is a comprehensive monitoring program; and adaptive management is occurring as indicated by the monitoring results. By following this plan, the ecosystem health of the training center is ensured.

Funding

Funding continues to be the weakest part of INRMP implementation. Although the Sikes Act Improvement Act of 1997 requires INRMPs to be implemented, the individual INRMP actions and projects are not compliance-driven. Many INRMP projects are continuous or opportunistic and are not easy to define under the strict legal compliance drivers that are applied to the Services' environmental budget process. As a result, valid INRMP projects may be screened out of the budget process.

In spite of the funding difficulties, many installation natural resources managers are succeeding in implementing the INRMPs, but in some cases, it is a patchwork of projects that are undertaken. The fact that there is such a document as the INRMP allows managers to reexamine and reprioritize projects and activities. However, this can only occur for a limited time before the integration component of Integrated Natural Resources Management begins to weaken and fail. When this occurs, there will be serious ramifications for the overall land and range management, much of which may not be remedied quickly or easily. In many cases, funding constraints eliminate the proactive approach that is key to ecosystem management and the INRMP process.

The DOD measures of merit issued as part of the November 2002 updated guidance¹¹ attempt to get at the funding issue by requiring annual reporting of INRMP implementation. The DOD measures of merit require installations to submit data on the budget requests and the funding received for the different classes of projects. Based on the DOD study findings, it is not clear that this measure of merit reflects an accurate picture of INRMP implementation because of the way projects are assigned classes for budgeting purposes. The guidance for assigning budget classes to projects is not explicit, and valid INRMP

projects may be assigned to lower classes (i.e., they may not be given class 0/1 “must-fund” status).

The recently updated and reissued Air Force Instruction 32-7064, *Integrated Natural Resources Management*,¹² provides considerable support for Air Force INRMP project funding. The instruction not only provides detailed definitions for the funding classes but also provides a clear definition of INRMP implementation. The Air Force definition of INRMP implementation includes the requirements that installations must actively request, receive, and use funds for Level 0 and Level 1 “must-fund” projects and activities, and that installations must execute all “must-fund” projects and activities.

Best practices in the areas of funding were not readily apparent in the DOD study. Installations with the most success in the area of funding were those where the INRMP projects were well documented and clearly described as integral and necessary to the success of a key component of INRMP implementation and mission support. The projects were not presented as individual activities, but rather were presented as necessary key components of larger natural resources management goals or objectives. Also, when feasible, relevant compliance requirements or other recommended guidance was quoted to support funding requests. However, the application of these and similar practices does not necessarily assure funding, especially in the current budget shortfalls and after competing with regulatory-driven funding requests. As a result, many valid INRMP projects fail to be funded.



Installations that are successful with monitoring have succeeded because the monitoring activities are included as integral parts of projects rather than as isolated activities.

Monitoring INRMP Effectiveness

Most monitoring that is conducted by installations is to support specific compliance reporting requirements associated with threatened and endangered species, forest inventory, or with hunting or fishing quotas. Very few installations included in the DOD study have a comprehensive monitoring program to gauge the effectiveness of INRMP implementation.

Installation natural resources managers acknowledged that, in the absence of a legal driver, monitoring activities are not considered priority activities. Installations that are successful with monitoring have succeeded because the monitoring activities are included as integral parts of projects rather than as isolated activities. Of the installations included in the study, only Patrick Air Force Base (AFB) in Florida stated that their monitoring requests are consistently funded. When developing the overall budgeting for a project, the monitoring component is included as an integral part of the project. The Air Force headquarters natural resources office expects projects to be submitted in this way, and headquarters routinely supports the funding requests.

Fort Custer Training Center in Michigan provides a good example of best practices for monitoring INRMP implementation. In addition to monitoring individual projects, Fort Custer has a program to monitor INRMP implementation. It recognizes three different types of monitoring: implementation monitoring, effectiveness monitoring,

and validation monitoring. The installation also uses stakeholders in the annual review of INRMP implementation to monitor the overall success and progress.

Receiving and Using Stakeholder Input

Positive communication is critical when soliciting stakeholder input on natural resources issues, and when coordinating with the U.S. Fish and Wildlife Service and with state fish and game agencies on threatened and endangered/protected species issues. Installations that show the most success in these areas have usually made a specific point of developing, nurturing, and maintaining communications.

Study findings showed that positive communication with external stakeholders usually leads to installations being involved in initiatives occurring beyond the installation boundaries. In these cases, installations are in a much better position, as a partner, to comment on and assist in the development of local and regional initiatives that may directly or indirectly impact the installations.

Some installations have taken a somewhat formal route in establishing partnerships. The South Texas Natural Resource Partnering Team was formed in 2002 and includes Naval Air Stations (NASs) Corpus Christi, Kingsville, and Ingleside, the U.S. Fish and Wildlife Service, and Texas Parks and Wildlife. The team worked together for almost a year to develop mission statements, goals and objectives, standards of commitment, and measures of success, and formalized the process by having the partners sign a charter. The partnership operates following a business practice model, and this helps maintain communication and coordination. Through this partnership, the Navy is able to conduct early coordination on Navy activities, and the team works on reviewing INRMP implementation on threatened and endangered species management, and it conducts a range of outreach activities.

In the best examples of good communications, all levels of an installation play a role in communications and coordination—from the natural resources manager to the installation commander. In the South Texas example, the installation commanders from all three partner installations, the installation environmental managers, and regional environmental managers participate in the quarterly team meetings.

The success of coordination efforts with the U.S. Fish and Wildlife Service or with state fish and game agencies on threatened and endangered/protected species management can rest on an installation's communication practices. In certain special cases, the INRMP can be used as a substitute for critical habitat designation under the Endangered Species Act. The National Defense Authorization Act for Fiscal Year 2004 amended the Endangered Species Act by adding a section that prohibits the U.S. Fish and Wildlife Service from designating critical habitat on any DOD-owned or -controlled lands that are subject to an INRMP that has been determined to provide a benefit to the listed species. However, for an INRMP to potentially qualify, it has to meet certain U.S. Fish and Wildlife Service criteria.¹³ Installations with an in-



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terest in using the INRMP as a substitute for critical habitat designation will have to have a well-written and current INRMP and also have positive communications with the local U.S. Fish and Wildlife Service office.

Meeting Endangered Species Act Requirements and Protecting Species at Risk

As stated above, there are three U.S. Fish and Wildlife Service criteria that must be met for an INRMP to be considered a substitute for future critical habitat designation according to the 2004 amendment to the Endangered Species Act.¹⁴ At the time of the DOD study, few natural resources managers expressed an interest in pursuing the use of the INRMP as a substitute for critical habitat designation. This was either because threatened and endangered species management was not a major issue or because an installation's threatened and endangered species management was tied to existing biological opinions and legal requirements. Also, there was some concern about reopening issues that had taken a considerable effort to coordinate and agree upon.

Most current INRMPs would require updating to some extent to explicitly address the three U.S. Fish and Wildlife Service criteria. These INRMPs predate the 2004 legal decision that allows INRMPs to be substituted for critical habitat designation and were not written with the intention of meeting the criteria. However, most natural resources managers believed that the current, on-the-ground management for threatened and endangered species would satisfy the intent of the criteria, even though it might not be reflected in the current INRMP documents. It is anticipated that as INRMPs are reviewed and updated, more may be revised to address the U.S. Fish and Wildlife Service criteria and be put forward as potential substitutes for critical habitat designation. As discussed earlier under the stakeholder input topic, positive communication and coordination between the installations and the local U.S. Fish and Wildlife Service offices will be critical to the success of having INRMPs accepted as substitutes for critical habitat designation.

One of the current INRMPs included in the DOD study did receive resoundingly positive support from the U.S. Fish and Wildlife Service staff. The Patrick AFB INRMP was described as "rock solid" concerning threatened and endangered species management, and the U.S. Fish and Wildlife Service representatives stated that designating critical habitat would afford no better protection to the species than already occurs with implementation of the current INRMP—that is to say the current INRMP for Patrick AFB would likely be accepted by the U.S. Fish and Wildlife Service as a substitute for critical habitat designation. The very open and positive communication that Patrick AFB has with the U.S. Fish and Wildlife Service points of contact is critical to the positive response to the INRMP. The installation has a long history of consultation with the U.S. Fish and Wildlife Service on sea turtles and scrub jays, which predates the INRMP; however, the installation maintains regular communication with the local U.S. Fish and Wildlife Service office and holds roundtable meetings with them



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several times a year. Although not explicitly stated as a criterion, positive and open communications and trust between the agency and an installation are an obvious prerequisite of having an INRMP substitute for critical habitat designation.

Concerning species at risk, not all headquarters of natural resources offices encourage pursuit of management for state-listed species. These species are not protected under the Endangered Species Act, and there is no equivalent legal requirement to manage for these species. Also, there was some question about the reliability of data included in state-protected species lists. In some cases, states place more emphasis on recreation and hunting and fishing rather than on protected species management. In spite of this, most installations do conduct some level of management for these species, mainly because the installation natural resources managers understand the need to protect these species and to work with their state agencies on conservation of species.

Because of current funding priorities and the lack of a clear legal driver, project support for managing for species at risk has become considerably more difficult. Installations that are the most successful in this area have succeeded by incorporating management for species at risk into the overall natural resources management activities as opposed to making a special case for species-at-risk management. Also, installations that demonstrated success in managing for species at risk tend to be installations that are practicing ecosystem management in the field. In almost every case, installations that manage for state-listed species are active partners with their respective states and participate in joint local and regional initiatives.

The Fort Custer Training Center in Michigan had one of the more explicit treatments of managing for state-protected species of the installations visited for the DOD study. As a National Guard facility, Fort Custer has close ties with the state of Michigan and is managed by the Michigan Department of Military and Veteran Affairs. In general, National Guard installations have traditionally adhered more closely to meeting state environmental requirements even though they may not have a legal requirement to comply. The National Guard Bureau headquarters natural resources staff has for some time emphasized the importance of including management for state-listed protected species as well as for federally listed threatened and endangered species.

Fort Custer has no recorded federally listed threatened and endangered species; however, it has 25 Michigan-listed threatened, endangered, and special concern plant and animal species. The installation partnered with the Michigan Department of Natural Resources and the Michigan Natural Features Inventory to develop management goals and objectives for these species. The goals and objectives were then included in the installation INRMP and formed part of Fort Custer's comprehensive ecosystem management practices.

Another example of how an installation incorporates protection for species at risk is MCB Camp Lejeune in North Carolina. Although

Camp Lejeune does not conduct specific management for its state-listed species, it is recognized by the State Natural Heritage group as being very supportive of state initiatives. Camp Lejeune has achieved this not by making species at risk a special case, but rather by including species at risk in the installation's baseline surveys and including them as part of basic management actions (e.g., establishing protection areas). Camp Lejeune also partners with the state on local initiatives and has developed and maintains an excellent working relationship with the State Natural Heritage Program. Just as with most of the components associated with INRMP implementation, the establishment and maintenance of open, regular, and free-flowing communications is key to successful implementation.

The Dynamic INRMP

As the installation natural resources managers know, there is no such thing as a final, completed INRMP. The INRMP and its implementation are dynamic. Overall, the DOD study found that the INRMP is a successful tool, and the INRMP process, with its emphasis on ecosystem management, partnering, and coordination, is providing benefits directly to the military trainers and operators. The INRMP is also playing a key role in management and conservation of the nation's natural resources. In addition to providing sound management for more than 29 million acres of land, the INRMP process is generating extensive information and data on a wide range of natural resources, habitats, and landscapes.

The development and application of best practices in the context of INRMP implementation requires much innovation and determination, and frequently involves collaboration with groups internal to the installation and with external stakeholders. Best practices for INRMPs are not easily identified and they do not fall under the typical format of a single best management practice that can be applied and produce similar results in all situations. Rather, best practices for INRMP implementation typically involve a range of activities that are brought together, and most require skills in communication and coordination.

Challenges to INRMP implementation remain, but best practices for INRMP implementation are emerging and are being applied at installations across the country. A common feature of the best practices identified by the DOD study was effective communications, both within the installations and with the local state and U.S. Fish and Wildlife Service agencies. In the best examples of good communications, all levels of an installation play a role in the communications and coordination—from the natural resources manager to the installation commander. ❖

NOTES

1. The Sikes Act Improvement Act of 1997 (SAIA) requires that INRMPs be implemented by November 1, 2001, are updated regularly, and should be approved and signed every five years by upper command, the state, and the U.S. Fish and Wildlife

Service. The SAIA, Public Law 105–85, Div. B. Title XXIX, Nov. 18, 1997; codified at 16 U.S.C. § 670a et seq. (1998) (amending The Sikes Act of 1960, 16 U.S.C. § 670a et seq. (1996)). Full text can be found at <http://thomas.loc.gov/home/thomas2.html> or <http://www4.law.cornell.edu/uscode/16/670a.html>.

2. Taken from a study for the Office of the Under Secretary of Defense, Installations and Environment, Conservation. Best Practices for INRMP Implementation, May 2005. Prepared by Horne Engineering Services, Inc., Falls Church, VA.

3. Department of Defense. (1994). Memorandum on implementation of ecosystem management in the DoD. Department of Defense Memorandum, Deputy Under Secretary of Defense. Available at <http://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Statements/note3.html>.

4. U.S. Forest Service. (1992). Taking an ecological approach to management. WOWSA-3. Washington, DC: Author.

5. Gore, A. (1993, September). Environmental management. Accompanying report of the National Performance Review Office of the Vice President, <http://www.clintonfoundation.org/legacy/050694-national-performance-review-on-environmental-management.htm>.

6. The term “must-fund” has been used to refer to an action or project that is classified under the DOD environmental requirements as either 0 or 1. The Department of Defense Instruction (DODI) 4715.3, “Environmental Conservation Program” (May 1996), provides a summary of the classes as they pertain to conservation and natural resources projects and is available at <http://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Policy/note1.html>. In general, Class 0 and 1 activities involve recurring and compliance-related costs (e.g., administrative and personnel; training and supplies; hazardous waste disposal; recycling activities; permits and fees; testing, monitoring, sampling, and analysis; reporting and record keeping; maintenance of environmental conservation equipment; and compliance self-assessments).

7. Department of Defense. (1996, May 3). Department of Defense Instruction (DoDI) 4715.3, Environmental Conservation Program. Available at <http://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Policy/note1.html>.

8. The Sikes Act Improvement Act of 1997, Public Law 105-85, Div. B Title XXIX, November 18, 1997; codified at 10 U.S.C. §§670a et seq. (1998) (amending the Sikes Act of 1960, 10 U.S.C. §§670a et seq. (1996)). Available at <http://thomas.loc.gov/home/thomas2.html> or <http://www4.law.cornell.edu/uscode/16/670a.html>

9. Memorandum of October 10, 2002, regarding “Implementation of Sikes Act Improvement Act: Updated Guidance.” Text available at <https://www.denix.osd.mil/denix/denix.html>. Type “Sikes Act” as a search, select first link available, and then click on link for the memorandum.

10. Memorandum of November 1, 2004, regarding supplemental guidance to the October 2002 implementing guidance on the Sikes Act Improvement Act, “Supplemental Guidance for Implementation of the Sikes Act Improvement Act: Additional Guidance Concerning INRMP Reviews.” Text available at <http://www.denix.osd.mil/denix/Public/Library/NCR/Documents/Supplemental-Sikes-signed-2004.pdf>.

11. See note 8.

12. The Air Force Instruction 32-7064, Integrated Natural Resources Management, was issued on September 17, 2004, and is available at <http://www.e-publishing.af.mil/pubs/publist.asp?puborg=32&page=2>.

13. Memorandum of the Deputy Under Secretary of Defense (Installations and Environment), October 10, 2002, Implementation of Sikes Act Improvement Act: Updated Guidance. <https://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Legacy/Sikes/max0002.pdf>

14. See note 8.