6.0 PROJECT AND MITIGATION PLANNING

This chapter addresses project and mitigation planning at MCAS Miramar relative to natural resources. The guidance provided here is intended to be used by persons planning and/or preparing Station approvals, management actions, orders, instructions, guidelines, standard operating procedures, and other plans. This will assist such persons in the integration of natural resource issues with their planning and decision-making process. The project planning section presents regulatory compliance requirements as they relate to natural resource concerns. The section on mitigation planning defines mitigation, explains MCAS Miramar's approach to mitigation, briefly describes existing mitigation actions, and presents alternatives for future mitigation planning at MCAS Miramar.

6.1 PROJECT PLANNING

6.1.1 National Environmental Policy Act Considerations

NEPA requires federal agencies to assess, in detail, the potential environmental impacts of their actions that could significantly affect the quality of the environment. At MCAS Miramar, the Environmental Management Department and the Public Works Department administers NEPA to ensure compliance. The Environmental Management Department has the duty to ensure that NEPA compliance has been accomplished. The Public Works Department conducts NEPA planning and documentation preparation for construction, maintenance, land development, leases, and easements. NEPA is intended to help decision makers make informed decisions that are based on an understanding of environmental consequences and take action that protects, restores, and enhances the environment. Agencies are to use a "systematic, interdisciplinary approach" that integrates the natural and social sciences and environmental design. While NEPA requires consideration of more than the natural environment, NEPA provides planners with a process (Figure 19) to identify and initially assess natural resource issues requiring compliance.

NEPA requires a detailed statement of significant environmental impacts of major federal actions. For example, an action may be considered significant if it has a long-term impact or potential risk because of its effect on a species protected under the ESA. The process identifies reasonable alternatives to proposed actions that might have less or no environmental effect. Individual and cumulative impacts must be considered. The following three-tiered approach is used to evaluate impacts:

- A Categorical Exclusion is used for actions that do not individually or cumulatively have a significant effect on the human environment and therefore do not require preparation of an environmental assessment (EA) or environmental impact statement (EIS).

- An EA is the analysis to be completed when the government is uncertain as to whether an action will significantly affect the environment or whether the action is controversial; the result of an EA is either a Finding of No Significant Impact or a requirement to complete an EIS.

- An EIS is a full-disclosure document that presents a full and complete discussion of significant impacts, informing the public and decision makers of reasonable alternatives to the proposed action.

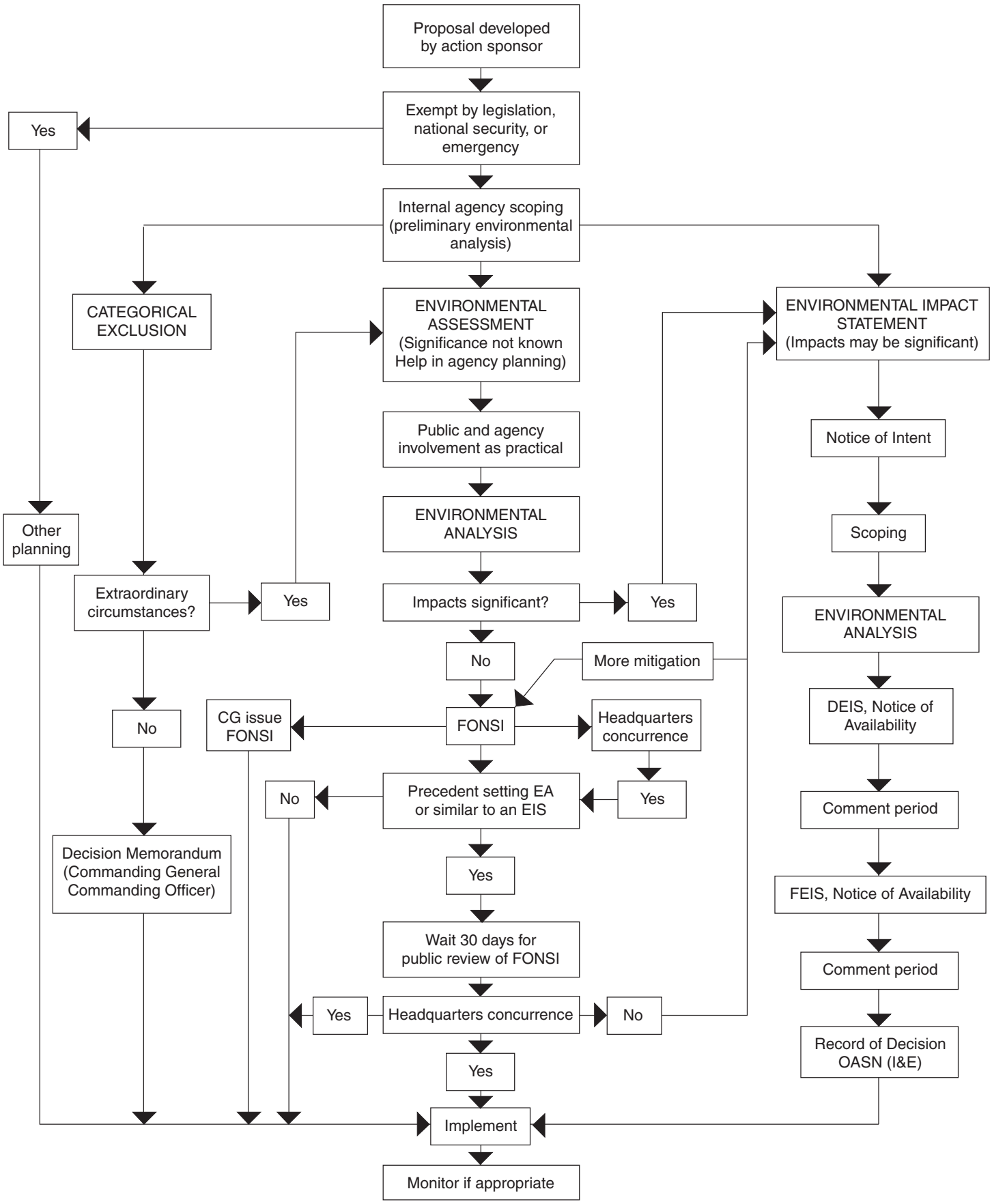
6.1.2 Natural Resource Specific Considerations

As part of project planning at MCAS Miramar, careful consideration will be given to project siting relative to MAs. This effort will support the Station's overall conservation strategy of avoiding development of areas supporting high densities of predominantly vernal pools, threatened or endangered species, and other wetlands (i.e., Level I, II, and III MAs). A benefit of this strategy will be to reduce delays in project approvals and increased costs by avoiding sensitive and regulated natural resources relative to planning projects in areas generally not supporting these resources (i.e., Level IV and V MAs).

Two major considerations relative to potential impacts on Special Status Species (as defined in this INRMP) and wetlands are compliance with the ESA and CWA. The requirements of these two Acts are summarized in this section to facilitate consideration early in the planning process at MCAS Miramar.

Endangered Species Act

When evaluating actions potentially affecting threatened or endangered species identified in Chapter 4, planners (e.g., Public Works Department, Environmental Management Department) must take into account the requirements of the ESA and the time lines needed for compliance. Formal consultations with the USFWS pursuant to Section 7 of the ESA (50 CFR 402) are required prior to federal agencies authorizing, funding, or implementing proposed actions which may affect a threatened or endangered species or its critical habitat. Preparation of a biological assessment is required before initiation of formal consultation. The time required to prepare a biological assessment is quite variable depending on the complexity of the proposed action and the magnitude of the potential effects on the species of concern. Potential requirements for additional information (e.g., surveys) can further extend the time line for completion of the biological assessment. Anywhere from a few weeks to over a year may be required to finalize a biological assessment before it can be submitted to the USFWS as part of the request to initiate formal consultations. Once formal consultations are initiated, the consultations can be lengthy. Formal consultations involve up to a 90-day consultation period, and an additional 45-day period for the USFWS to prepare a biological opinion (135-day total). Either the lead agency or USFWS can



NEPA Process Chart

Figure 19

request an extension of the formal consultation period but such extensions require mutual agreement. Conditions that may require an extension include complex issues or circumstances for which additional data (e.g., surveys) may be needed in order to avoid a jeopardy biological opinion.

A biological opinion is the USFWS= opinion resulting from the formal Section 7 ESA consultation process. It is a written statement from the USFWS regarding its opinion and a summary of the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat. It provides nondiscretionary Reasonable and Prudent measures that should be implemented in conjunction with a proposed action to avoid or minimize impacts. The USFWS also provides nonbinding conservation recommendations as part of the biological opinion. A biological opinion is required for actions that may affect a threatened or endangered species so as to avoid violations under Section 9 of the ESA. Section 9 of the ESA prohibits the Atake@ of a threatened or endangered species. A take includes the direct killing, harming, or harassing of a species, or destruction of habitat that may be important for the species' survival or recovery. The term "harass" in this definition has been further defined to mean "…an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3)." Part of a biological opinion is the issuance of an incidental take authorization which authorizes take as long as it does not violate the terms and conditions established in the biological opinion. Terms and Conditions can involve additional costs relative to mitigation requirements, which may include compensation for lost resources, minimization of, and avoidance of impacts on threatened or endangered species or critical habitat. Such potential costs need to be considered as part of project planning and construction.

The informal consultation process to fulfill Section 7 requirements generally will require less time than formal consultations. This is an option only when the incidental take of a threatened or endangered species can be avoided. This process can also be used to initiate a dialog with the USFWS regarding the necessity for formal consultation.

When a proposed action affects a species proposed for listing as threatened or endangered, a formal conference (as opposed to a consultation for a listed species) with the USFWS may be required. The standard for requiring a conference is that the proposed action may jeopardize the continued existence of the species, as opposed to affecting it, as is the standard for listed species. The USFWS encourages informal conferencing when proposed species are involved. Unlike biological opinions, recommendations made in conference opinions are advisory and therefore non-binding. The primary purpose of conferencing is to avoid delay of a proposed action should a species proposed for listing become listed, and to ensure that the proposed action does not jeopardize a species' recovery potential. Should a species become formally listed prior to implementation of the proposed action, Federal agencies are required to consult with the USFWS to confirm that the conference opinion still serves as the formal biological opinion. This is typically a simple procedure if there are no significant changes in the action as planned or in the information used during the conference.

ESA consultations are accomplished for the Station through the Assistant Chief of Staff, Environmental Management. For proposed non-military actions on the Station, the action proponent shall bear the responsibility for preparation of a biological assessment along with the documentation necessary for execution of consultation/conferencing requirements. Species and habitat information possessed by the Station can be made available to action proponents; however, any needed supplementation or field verification shall be accomplished by the proponent. For non-Federal proposed actions on the Station, MCAS Miramar, as a Federal agency, is required to complete a Section 7 consultation/conference with the USFWS prior to authorizing or funding a proposed action which may affect a proposed or listed threatened or endangered species. This is the Station's requirement regardless of any requirement the action proponent may or may not have regarding such species. All MCAS Miramar approvals will be conditioned upon the action proponent's commitment to fund and/or implement the Reasonable and Prudent Measures with associated Terms and Conditions which result from this consultation/conference procedure.

Clean Water Act

Clean Water Act (CWA) permitting for Marine Corps actions on MCAS Miramar will be processed by the Assistant Chief of Staff, Environmental Management Department. Preparation of permit application and associated information, wetland delineation, and other applicable information is the responsibility of the action proponent. Permitting necessary for non-Marine Corps proposed actions shall be accomplished and funded by the action proponent in coordination with MCAS Miramar staff. Completion of the regulatory permitting process is required for all federal and non-federal actions prior to receiving final Station approval to implement the requested action.

Executive Order 11990 directs all Federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands as well as to preserve and enhance the beneficial values of wetlands. Marine Corps Order P5090.2 (under NEPA requirements) requires that all activities adversely affecting wetlands to be considered an extraordinary circumstance where a minimum of an environmental assessment is required. In a similar manner to Executive Order 11990, Executive Order 11988 directs Federal agencies to provide leadership in avoiding direct or indirect development of floodplains, as well as to restore and preserve the natural and beneficial values of floodplains.

Section 404 of the CWA addresses the discharge of dredge or fill material into waters of the United States, including wetlands (definitions at 40CFR 230.3 (s) and (t)). The term Awaters of the United States@ is broadly defined to include navigable waters (including intermittent streams), impoundment's, tributary streams, and wetlands. In general, wetlands are areas inundated or saturated by surface or ground water to the extent that they support vegetation adapted for saturated soil conditions (e.g., vernal marshes, and vernal pools). A discharge is any material that results in a change in the bottom elevation of a water body or wetland, including grading, road fills, stream crossings, building pads, and flood and erosion control on streambanks. Regulatory

authority has been delegated by the EPA to the ACOE for Section 404. Nationwide and individual permits are options for meeting the requirements of Section 404.

The ACOE has developed a series of 40 nationwide permits that pre-authorize certain minor discharges provided they meet certain conditions (e.g., construction of outfall structures, backfill or bedding for utility lines, fill for bank stabilization, and minor road crossings). Use of most nationwide permits requires review by the ACOE and possibly other federal agencies. Notification of the ACOE is usually required, and applicants must meet conditions outlined in the regulations and ensure the proposed project does not conflict with other federal laws (e.g., ESA, NEPA). Nationwide Permits are currently under reauthorization and changes are expected to modify the uses of such permits.

Since vernal pools are considered non-tidal waters that are isolated wetlands, Section 404 regulations apply. The Los Angeles District Engineer of the ACOE has established two Regional General Conditions (ACOE 1997) to the nationwide permits. The first condition requires a 30-day Pre-construction Notification for any discharge of dredge or fill material, excavation, or mechanized land clearing in any vernal pool. Further, this condition stipulates that an individual permit (see below) is required if there would be impacts on 0.5 acre or greater of vernal pool basin; and where the vernal pool(s) impacted contain at least one vernal pool indicator species. If less than 0.5 acre of vernal pool basin is affected or the pool does not contain at least one indicator species, then only a Pre-Construction Notification is required, and a Nationwide Permit verification may be considered. The second condition modifies the use of Nationwide Permit 32, Completed Enforcement Actions, and limits impacts resulting from actions undertaken for mitigation, restoration, or environmental benefit in compliance with a completed enforcement action (ACOE 1997). The Los Angeles District of the ACOE is preparing new regional conditions to be applied to newly re-authorized Nationwide Permits under development that will further restrict their use for actions affecting vernal pool wetlands.

The individual permit process is much more complex and time consuming than the Nationwide Permit program. Typically the application process involves a pre-application meeting (if requested), permit application process, the posting of a public notice to allow for public comment, and a final decision by the ACOE in which the ACOE indicates its readiness to prepare an EA (or cause one to be prepared) , Public Interest Review, and 404(b)(1) Evaluation. If the conclusion is that the action will cause significant impacts, then the ACOE must prepare an EIS (or cause one to be prepared). Further, all ESA requirements must be fulfilled before a permit can be issued.

Also, before an applicant can receive an ACOE permit to discharge dredge or fill material into waters of the United States, including jurisdictional wetlands, the applicant may be required to demonstrate that the proposed discharge is unavoidable and the least damaging alternative. These considerations are required under the EPA's 404(b)(1) Guidelines (40 CFR 230). An alternative analysis should be considered early during project planning process in order to reduce costs, avoid delays, and increase certainty in permit approval (Yocum et al. 1989). These requirements for alternative analysis, in general, exceed those required by NEPA.

For proposed actions involving wetlands, the requirements of the CWA need to be considered. The CWA contains specific provisions for the regulation of the disposal of dredge soil within navigable waters, and placement of materials into wetlands. Permits are required under Sections 401, 402, and 404 of the CWA for proposed actions that involve wastewater discharges and/or dredging/placement of fill in wetlands or navigable waters. These permits are required prior to the initiation of proposed actions. However, such permitting may be accomplished for emergency situations.

Section 402 of the CWA addresses requirements for storm water discharges into natural drainages and is administered by the U.S. Environmental Protection Agency (EPA). Section 401 addresses water quality issues and requires issuance of a Water Quality Certification by the Regional Water Quality Control Board before a Section 404 Permit can be issued. The state may charge a fee for Section 401 permitting, although waivers can also be issued.

The CWA also requires Federal agency consistency with state nonpoint source pollution management plans. Nonpoint source pollution results from ground disturbing actions such as construction, military training, and firebreak construction. Marine Corps' policy is to support the development and implementation of nonpoint source pollution management programs that ensure water quality protection. This is typically accomplished through the use of Best Management Practices (BMPs). As defined by MCO P5090.2: A... BMPs are practical, economical, and effective management or control practices that reduce or prevent water pollution or adverse impacts to natural resources. BMPs are applied as a system of practices based on site-specific conditions rather than a single practice. BMPs are usually prepared by state agencies for land-disturbing activities related to agriculture, forestry, and construction.@

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is an international agreement between the United States, Canada, and Mexico that protects designated species of birds. Virtually all birds are protected under the MBTA, with 4 exceptions (California quail, English sparrows, common pigeons, and European starlings). A complete list of all species of all migratory birds protected by the MBTA can be found at 50 CFR 10.13. The MBTA controls the taking of these birds, their nests, eggs, parts or products. As part of planning and/or approving construction, re-construction, and maintenance actions, steps need to be taken to avoid impacts on migratory birds, their nests, and young. Wording needs to be placed in all contracts and work orders to prevent work delay costs to the government that may result from the presence of bird nests in work areas. The Station's Environmental Management Department, Natural Resources Division can provide contractual language prepared for and approved by the Navy for construction contracts on MCAS Miramar.

6.2 MITIGATION PLANNING

Mitigation, as discussed here, is lessening the adverse effects an undertaking may cause relative to natural resources. Mitigation can include avoiding the effect altogether; limiting the magnitude of the action; repairing, rehabilitating, or restoring the affected resource; reducing or eliminating the effect over time by conservation and maintenance operations during the life of the action; and/or compensating for the effect by providing substitute resources or environments (DoD Instruction 4715.3; Definitions). In general, regulatory agencies' preferred order of performing mitigation is avoidance, then minimization, then compensation in kind, and then compensation out of kind. Mitigation to be proposed for a specific impact will be addressed on a case-by-case basis. Mitigation requirements shall be planned for, funded, and implemented as part of the proposed action by the action proponent. Generally, mitigation requirements in compensation for impacts by non-military actions on MCAS Miramar will be accomplished off of the Station. Further, the Station cannot be used for mitigating the impacts of actions occurring off of MCAS Miramar that affect natural resources (DoD Instruction 4715.3, paragraph F.1.i(3)).

One typical form of mitigation is restoration of disturbed areas (as noted above). Revegetation of disturbed areas is one of the few means of creating additional habitat for Special Status Species, such as the coastal California gnatcatcher, on MCAS Miramar. Techniques to be considered include ripping and cultivating, seeding, transplanting, mulching, irrigating, and controlling weeds. Any restoration plan would contain a monitoring schedule, as well as performance standards (success criteria). As with other mitigation, early involvement of resource agencies is important. Regulatory agency approval of restoration/mitigation plans is usually required as a condition of ESA and CWA permit approvals. Techniques used to restore disturbed areas can also include use of herbicide, planting of container stock, soil mitigation hand seeding, irrigation, inoculating with mycorrhizal fungi, prescribed burning, and imprinting.

As part of mitigation planning at MCAS Miramar, careful consideration will be given to the siting of proposed actions and potential compensating mitigation relative to MA designations (Chapter 5) early in the planning process. As part of MCAS Miramar's ongoing efforts to avoid and/or minimize impacts on Special Status Species, vernal pools, other wetlands, and constrained regional habitat linkages, first consideration will be given to use of Level V, then Level IV MAs. This will assist MCAS Miramar planners in avoiding areas supporting the regulated resources located in Level I, II, or III (i.e., the primary objective of mitigation planning). This will, in turn, enable planners to reduce costs (in terms of funding, manpower, and time) to plan, obtain regulatory approvals, and implement proposed actions. MCAS Miramar will also take into account areas where compensating mitigation actions have already been performed for natural resources regardless of the MA designation (refer to Figure 19). Locating suitable mitigation sites on MCAS Miramar that will not conflict with military operation requirements is becoming increasingly difficult.

Persons planning and/or preparing mitigation actions need to be aware that military lands cannot be set aside as permanent environmental preserves. The DoD, and the Marine Corps in particular

(refer to Chapter 2, Section 2.1), must maintain the flexibility to adapt its defense mission to political and technological developments (DoD Instruction 4715.3, paragraph F.1.i(4)).

The following briefly describes ongoing mitigation and presents two options for mitigating future actions**C**mitigation banking and conservation agreements.

6.2.1 Existing Mitigation Actions

Mitigation obligations relative to impacts from the BRAC action are described in the Environmental Impact Statement (Ogden 1996a), Biological Assessment (Ogden 1995), Conceptual Biological Mitigation Plan (Ogden 1996b), and Biological Opinion (1-6-95-F-33) for the Realignment (USFWS 1996a). The Conference Opinion was confirmed as a Biological Opinion on 3 March 1997. The BRAC action was projected to impact wetlands, vernal pools, coastal sage scrub, and special status plant and animal species. The primary form of mitigation is through restoration of previously impacted habitats. The area of restoration, or enhancement, is based on the estimated area of disturbance (ratios). The Conceptual Biological Mitigation Plan describes the restoration methods and establishes restoration ratios for vernal pools, wetlands, and coastal sage scrub. Other mitigation measures for the BRAC action address minimizing impacts during construction, such as flagging or fencing sensitive resources to ensure unnecessary impacts are avoided. The BRAC mitigation sites have not been finalized. Figure 19 identifies sites already used or proposed for mitigation actions.

Besides the mitigation stipulated in the Biological Opinion (1-6-95-F-33) for the BRAC action, mitigation commitments were made in previous biological opinions as well. Mitigation requirements which require continued management on MCAS Miramar include the following:

- Biological Opinion on Restoration of Damaged Vernal Pools at Marine Corps Air Station Miramar, San Diego County, California (1-6-98-F-43)

- Informal Consultation on the Repair and Resurfacing of an Ammunition Haul Road (1-6-98-I-32)

- Biological Opinion on Nobel Drive/I-805 Interchange and Extension project San Diego County (1-6-97-F-30) dated 1 August 1997

- Reinitiation of Biological Opinion on Marine Corps Reserve Tank Training and Vernal Pool Habitat Restoration, Naval Air Station, Miramar, (1-6-92-F-31R) dated 16 July 1997 (The original Biological Opinion was dated 1 October 1992)

- Amendment to the Biological Opinion (1-6-94-F-37) for the Fiesta Island Replacement Project/North Sludge Processing Facility and West Miramar Landfill Overburden Disposal

(FIRP/WMLOD) dated 12 January 1995 (The original Biological Opinion was dated 29 September 1994)

- Bird Air Strike Hazard Prevention Program Mowing Operations, NAS Miramar (1-6-94-I-33) dated 14 January 1994

- Biological Opinion on Navy Family Housing at Eucalyptus Hills San Diego County, California (1-6-93-F-33) dated 12 November 1993

- Biological Opinion on the Introduction of *Pogogyne abramsii* and *Eryngium aristulatum* var. *parishii* into Vernal Pool Habitat in the Vicinity of the Eastgate Mall Area of NAS Miramar (1-6-93-F-41) dated 15 October 1993

- Proposed Conference for the San Diego County Water Authority Pipeline 4B Phase I Segment, Naval Air Station, Miramar date 30 July 1992

- Formal Section 7 Consultation, Consolidated Brig, Naval Air Station, Miramar, San Diego County, California (1-6-87-F-34) dated 15 June 1987

6.2.2 Mitigation Planning Guidance

This section provides guidance for persons who are responsible for planning construction, facility maintenance, and other actions on MCAS Miramar that may adversely affect the natural resources on the Station. This information needs to be reviewed and incorporated into early stages of the planning process to avoid and minimize adverse effects and, if necessary, plan for compensation of lost natural resources that are regulated by federal law or are otherwise important to the maintenance of the natural ecosystem of the Station. Where adverse impacts to threatened and endangered species, their habitat, or wetlands are involved, planners must demonstrate that such impacts have been avoided and minimized to the maximum extent practicable prior to proposing an action that will adversely affect these resources.

The guidance provided in this section has been developed in coordination with the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers. This guidance outlines the general requirements that would commonly be expected to result from regulatory consultation and permitting processes in support of a proposed action. Additional project specific requirements and details that are appropriate for a proposed action cannot be provided with this guidance since such specifics must be tailored to each individual project.

This guidance is not intended to replace planning, consultation, and conservation requirements discussed earlier in this chapter (6) with respect to the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Clean Water Act (CWA). Rather, the guidance is intended to help planners evaluate the environmental costs of siting facilities and actions; to assist with impact

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avoidance throughout the planning process; to minimize construction delays due to seasonal timing constraints; and to identify potentially suitable mitigation for preparation of NEPA documents, biological assessments, and section 404 CWA permit applications. Consideration of mitigation costs is important because they are a cost of any proposed action. In all cases, planners should expect that final mitigation details and requirements for a specific proposed action will be determined through applicable consultation and permitting processes in coordination with technical assistance provided by the Station's Natural Resource Division.

With proper interpretation of this guidance, planners should be better able to estimate the relative costs of various project siting alternatives early in the planning process. In some situations, the costs of compensating for regulated natural resources lost to development can dramatically increase the cost of a project. By reviewing the natural resource information contained within the various chapters of this INRMP and comparison with the mitigation planning guidance herein, project and facility planners should be better able to site new projects, facilities, and actions such that adverse impacts to important, and regulated natural resources can be avoided or substantially minimized. Such impact avoidance planning can often save substantial amounts of funding and time while meeting the Station's requirements.

Likewise, this guidance can assist in minimizing adverse impacts to natural resources where facility or action site specific design can be modified to minimize impacts to natural resources. Impact minimization may involve modification of building design or orientation, exact siting, and monitoring activities carefully to avoid unnecessary and incidental resource damage. Such measures are best identified during the planning process for incorporation during design finalization and contract

preparation. As adverse impacts are minimized, the time required for regulatory agency consultation and permitting decreases and the lower associated mitigation costs will be.

Limitations on the timing of activities is often a requirement for avoiding and minimizing adverse impacts to natural resources. This involves avoidance of work during the active growing or breeding period for the resources involved. Such avoidance is usually a requirement of regulatory approvals and permits necessary for compliance with the ESA and CWA. Failure to acknowledge and plan for timing limitations on activities often results in increased costs due to construction work stoppage, additional resource mitigation requirements, and delayed mission accomplishment. This planning guidance identifies the timing limitations that should be used during the development of scopes of work, construction contracts, and activity plans so that activities can be tailored to work around critical periods without incurring added cost to the government.

Finally, the guidance contained here provides a basis for the planning, consultation, and permitting process documentation for a proposed action. Each specific proposed action would have its unique and site specific issues. This guidance should form a foundation to work from in developing project and action specific mitigation measures necessary and appropriate during NEPA evaluations, biological assessments in support of ESA consultations, and applications for CWA section 404/401 permitting. This is anticipated to be of great value for contractor preparation of necessary documentation for MCAS Miramar. Deviations from this guidance during the planning process should be coordinated with, and approved by, action sponsors and other cognizant Station staff, including the Natural Resource Division. Preparation of planning documentation using the guidance provided should prevent surprise natural resource issues late in the planning process and associated costs.

Instructions for Using this Guidance

The guidance provided in this section and associated tables applies to planning for a proposed action. There are special allowances for emergency situations in the regulations of the NEPA, CWA and ESA. The definition of "emergency," however is very narrowly written to address actions which could not be planned for in advance or required immediate response. This information may not necessarily apply and should not be expected to apply to all cases of unplanned and unauthorized activities where regulatory consultation and permitting was not done in advance. This would include adverse impacts to threatened and endangered species, their habitat, or wetlands for an approved action where these resources were disregarded during planning or where failure to carefully conduct activities damages the resources beyond those that were approved. Unplanned and unauthorized damage to natural resources regulated by the CWA and ESA, can cause substantial project delays while supplemental authorization and permitting are obtained.

Because this only provides general guidance for mitigation, clarification and additional detail will be required for its application to a specific proposed action. Initially, project planners and contractors are expected to draw upon their internal resource specialists for detailing specific measures for a

proposed action which should then be verified with the Station Natural Resource Division staff specialists. When applying the compensation ratios for habitat impacts presented in Tables 5 and 6, the quality of the vegetation/habitat type should be taken into consideration. When degraded vegetation/habitat types are involved, the ratios should be adjusted so as to achieve an equitable (i.e., equivalent) compensation. Thus, a lower compensation ratio would be appropriate where high quality habitat is being offered for impacts to a degraded habitat. Final mitigation plans involving a threatened and endangered species or wetland will require regulatory approval prior to project approval and implementation.

Tables 5 and 6 provide mitigation guidance for temporary and permanent habitat loss, respectively. These tables rely on information provided in other chapters of this INRMP. Management area boundaries are identified and described in Chapter 5. Vegetation types, vernal pools, and threatened and endangered species are described in Chapter 4 along with maps showing the general distribution on the Station. While the discussion of these resources and associated maps should be valuable for initial planning, this data should not be used exclusively without additional field verification and up-to-date data evaluating the area of potential effect in more detail. The data presented in this document was the best available in 1998, however, new species locations may be identified and more accurate mapping may be available for some areas. Planners should always contact the Natural Resources Division if more detailed depiction of management areas is required or prior to contracting for supplemental surveys.

During the active growing and breeding season, many species and habitats are more sensitive to disturbance that may cause harm, harassment, or severe damage. Limitations on the timing of activities to avoid and minimize adverse effects can appear to leave little time for work. This will especially be the case where vernal pools occur in close proximity to other threatened and endangered species. Vernal pool resources, including the endangered species they support are most sensitive during and shortly after the rainy season when the ground is still wet (about 1 November -30 April; annual variation will occur and actual situation should be verified by a qualified biologist prior to actions). The other threatened and endangered species found on the Station are most sensitive during the spring/summer season (15 February to 31 August for planning). Where these resource issues may be directly affected, planners need to be very careful to consider such timing requirements so that habitat-disturbing activities are focused to occur during September.

Often, careful planning can show that impacts to the differing resources can be phased or avoided. For example, where impacts to vernal pools can be avoided by careful conduct of activities, the limitations on activities based on vernal pool conservation needs would not apply while avoidance of other species sensitive periods could still apply. Where the conduct of activities cannot be planned to avoid these most sensitive periods, project specific authorizations and appropriate additional impact minimization measures should be planned for and expected from regulatory agencies.

TABLE 5
MITIGATION GUIDANCE FOR TEMPORARY* HABITAT LOSS

Vegetation/Habitat Type	Management Area Level	T/E Species Occupied	Required Impact Avoidance, Minimization, and Compensation	Regulatory Agency Consultation Required
Chaparral (all types) Disturbed Grassland, Non-native/Mixed; Woodland, eucalyptus	All	No	Take action to minimize area of impact, soil loss, and sediment laden stormwater runoff; implement passive restoration* of temporary* disturbance areas.	No Potentially Required**
		Yes	Above action plus on site restoration of T/E plants and wildlife habitat enhancement* at 1:1 ratio, if levels III, IV, and V involved, and 2:1, if Levels I and II involved, targeting same habitat type. No habitat disturbing activities between 15 February and 31 August.	Yes
Mixed Chaparral/Coastal Sage; Coastal Sage Scrub (all types); Grassland, Native; Woodland, live oak	Level V	No	Take action to minimize area of impact, soil loss, and sediment laden stormwater runoff; implement passive restoration* of temporary* disturbance areas.	No Potentially Required
		Yes	Above action plus active on-site restoration* of T/E plants and wildlife habitat plus habitat enhancement* at 1:1 ratio targeting enhancement of same habitat type. No habitat disturbing activities between 15 February and 31 August.	Yes
	Levels I, II, III, & IV	No	Take action to minimize area of impact, soil loss, and sediment laden stormwater runoff; active restoration* of temporary* disturbance areas. Replace oak trees damaged at 5:1 ratio. Avoid habitat-disturbing activities between 15 February and 31 August.	No Potentially Required
		Yes	Above action plus on-site restoration* of T/E plants and wildlife habitat plus habitat enhancement* at 1:1 ratio if Levels III or IV and 2:1 ratio if Levels I or II targeting of same habitat type. No habitat disturbing activities between 15 February and 31 August.	Yes
Riparian (all types); Open Streambed/Channel; Marsh, all types; Scrub (riparian), mulefat; Scrub (riparian), willow/oak	All	No	Take action to minimize area of impact, soil loss, and sediment laden stormwater runoff; passive restoration* of temporary disturbance areas. Wetland permit required if delineation determines wetland involved. Implement all with Clean Water Act 404/401 permit wetland mitigation required including active restoration, if wetland involved. Replace oak trees damaged at 5:1 ratio. Avoid habitat disturbing activities between 15 February and 31 August.	Potentially Required Yes (if wetland or Waters of U.S. Involved)
		Yes	Above action plus active on-site restoration* of T/E plants and wildlife habitat plus habitat enhancement* at 1:1 ratio if Levels III or IV and 2:1 ratio if Levels I or II targeting same habitat type, plus any additional wetland mitigation required. No habitat disturbing between 15 February and 31 August.	Yes
Vernal Pool Watershed	All	No	Must clearly document that no T/E species are in vernal pool basins or watershed. If no T/E species present and associated depression is a USACOE regulated vernal pool,* take action to avoid an increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basin. Sedimentation into basin must be prevented otherwise Clean Water Act permit may be required. Avoid soil disturbing activities during rainy season or when ground is wet (about 1 November to 30 April).	No Potentially Required
		Yes	If presence/absence of T/E species not determined or T/E species are present in associated pool, take action to minimize area of impact and restore* watershed (soil replacement/stabilization and revegetate). Monitoring of species in pool basin to document extent of actual impacts to T/E species may be required. If impacts documented to T/E species, then watershed enhancement* required to compensate for indirect impacts to the T/E species. No work around vernal pools during rainy season or when ground is wet (about 1 November to 30 April).	Yes
Vernal Pool Basin	All	No	Must clearly document that no T/E species are in vernal pool watershed and any T/E species will not be indirectly impacted by work in the watershed. If no T/E species present take action to avoid increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basin. Wetland permit required because wetland is impacted. Restore* area of impact and implementation habitat enhancement* at 1:1 ratio targeting same habitat types and any other wetland mitigation required in accordance with Clean Water Act 404/401 permits. Salvage vernal pool soil (plants, seeds, habitat types and any other wetland mitigation required in accordance with Clean Water Act 404/401 permits. Salvage vernal pool soil (plants, seeds, cysts, and soil) in dry season prior to construction for restoration. No work in vernal polls during rainy season or when ground is wet (about 1 November to 30 April).	Yes
		Yes	If presence/absence of T/E species not determined or T/E species are present, above action required plus habitat enhancement* at 2:1 ratio (vice 1:1) targeting same habitat types and any additional wetland mitigation required. No work around vernal pools during rainy season or when ground is wet (about 1 November to 30 April.	Yes
Developed	All	No	Take action to minimize erosion and sediment laden stormwater runoff.	No
		Yes	Minimize temporary direct and indirect impacts to adjacent habitat in accordance with T/E species present. Compensating mitigation may be required if impacts cannot be avoided.	Yes

* Refer to text for definitions.
** Contact MCAS Miramar Natural Resources Division for a determination.

TABLE 6
MITIGATION GUIDANCE FOR PERMANENT* HABITAT LOSS

Vegetation/Habitat Type	Management Area Level	T/E Species Occupied	Required Impact Avoidance, Minimization, and Compensation	Regulatory Agency Consultation Required
Chaparral (all types) Disturbed Grassland, Non-native/Mixed; Woodland, eucalyptus	All	No	Maintain a minimum width of 500 feet for wildlife movement corridors in Level I, II, and III areas. Implemented temporary disturbance requirements. Some habitat compensation may be appropriate if impacts become significant to other sensitive or declining species based on the NEPA analysis.	No Potentially Required**
		Yes	Above action plus T/E plant population and wildlife habitat compensation* for occupied habitat lost at 2:1 ratio. No habitat disturbing activities between 15 February and 31 August.	Yes
Mixed Chaparral/Coastal Sage; Coastal Sage Scrub (all types); Grassland, Native; Woodland, live oak	Level V	No	Implement temporary disturbance requirements. Some habitat compensation may be appropriate if impacts become significant to other sensitive or declining species based on the NEPA analysis.	No Potentially Required
		Yes	Above action plus T/E plant population and wildlife compensation* for occupied habitat lost at 2:1 ratio elsewhere. No habitat disturbing activities between 15 February and 31 August.	Yes
	Levels I, II, III, & IV	No	Maintain minimum width of 500 feet for wildlife movement corridors. Implement temporary disturbance requirements and habitat compensation* at 1:1 ratio targeting same habitat type elsewhere. Replace oak trees at 5:1 ratio. Avoid habitat-disturbing activities between 15 February and 31 August.	No Potentially Required
		Yes	Above action plus T/E plant population and wildlife habitat compensation* for occupied habitat lost at 2:1 (vice 1:1) elsewhere. No habitat disturbing activities between 15 February and 31 August.	Yes
Riparian, all types; Open Streambed/Channel; Marsh, all types; Scrub (riparian), mulefat; Scrub (riparian), willow/oak	All	No	Maintain a minimum width of 500 feet for wildlife movement corridors in Level I, II, and III areas. Implement temporary disturbance requirements. Wetland permit required if delineation determines wetland involved; compensation* for wetland habitat loss required at 2-4:1 ratio (depending on type) plus any other wetland mitigation required by CWA 404/401 permits. Replace oak trees at 5:1 ratio. Avoid habitat disturbing activities between 15 February and 31 August.	Potentially Required Yes (if wetland or Waters of U.S. Involved)
		Yes	Above action plus T/E plant population and wildlife habitat compensation* for occupied habitat lost at 2:1 ratio (habitat compensation may also meet wetland mitigation requirement). No habitat-disturbing activities between 15 February and 31 August.	Yes
Vernal Pool Watershed	All	No	Must clearly document that no T/E species are in vernal pool watershed and any T/E species will not be indirectly impacted by work in the watershed. If no T/E species present and depression is a USACOE regulated vernal pool,* take action to avoid an increase or decrease of water quantity, sediment transport, and change in water quality runoff to pool basin. Sedimentation into basin must be prevented otherwise Clean Water Act permit may be required. Avoid soil disturbing work around vernal pools during rainy season or when ground is wet (about 1 November to 30 April). Some habitat compensation may be appropriate if impacts become significant to other sensitive or declining species based on the NEPA analysis.	No Potentially Required
		Yes	If presence/absence of T/E species not determined or T/E species are present, enhance remaining portions of watershed (protection by fencing or other means, enlarge another portion) and monitor species in pool basin may be necessary to document extent of actual impacts to T/E species. If impacts documented to T/E species, then additional action required for indirect impacts to the T/E species by habitat enhancement,* possibly elsewhere. No work around vernal pools during rainy season or when ground is wet (about 1 November to 30 April).	Yes
Vernal Pool Basin	All	No	Must clearly document that no T/E species are in vernal pool basins or watershed. Wetland permit required because wetland is impacted. Compensating* mitigation required for impacts in accordance with Clean Water Act 404/401 permits (plan on 2:1 ratio). Salvage vernal pool soil (plants, seeds, cysts, and soil) in dry season prior to construction for mitigation. No work in vernal pools during rainy season or when ground is wet (about 1 November to 30 April).	Yes
		Yes	If presence/absence of T/E species not determined or T/E species are present, above actions plus compensation* for loss of vernal pool basin area required at 3:1 ratio plus any additional wetland mitigation required. No work around vernal pools during rainy season or when ground is wet (about 1 November to 30 April.	Yes
Developed	All	No	Implement temporary disturbance requirements.	No
		Yes	Minimize temporary direct and indirect impacts to adjacent habitat in accordance with T/E species present. Compensating mitigation may be required if impacts cannot be avoided.	Yes

* Refer to text for definitions.
** Contact MCAS Miramar Natural Resources Division for a determination.

When planning for impacts to natural plant communities and habitats, identification of suitable sites for compensatory actions must be an early consideration. Resource agencies from which authorizations must be obtained have specific requirements for siting compensatory mitigation actions. Usually for actions where habitat compensation is for permanent impacts, habitat restoration may only occur at degraded sites that would not naturally provide such resources in the reasonably foreseeable future. Suitable sites for permanent habitat compensation that does not infringe upon accomplishment of operational requirements are becoming increasingly rare on MCAS Miramar. Compensation for habitat impacts may be considered in areas beyond the Station boundaries. Generally, mitigation requirements in compensation for impacts by nonmilitary actions on MCAS Miramar need to be planned to occur off of the Station. Utilization of off-Station opportunities for compensation or habitat created in advance that is "banked" may warrant differing mitigation ratios than those presented in this guidance. In all cases, however, much of this planning guidance will be applicable regardless of the mitigation site location. It is recommended that for initial planning of projects and actions, using this guidance will provide the best method of estimating mitigation requirements.

The cost of mitigating impacts to natural resources should be considered when evaluating proposed action alternative locations and planning for funding. Mitigation must be treated as part of the project that will be fully funded by the action proponent. Some environmental authorizations and permitting require mitigation funding to be secured and assured prior to causing adverse affects. Resource mitigation costs can be highly variable depending on the specific details of the project (i.e., extent of habitat impacts, type of habitat impacted, duration of impacts, habitat compensation site conditions, and technologies). Provision of actual cost estimates for mitigation on a "per acre impacted" basis are too variable to be presented here. Technical natural resource specialists should be contacted during project planning to assist with estimating the likely mitigation costs associated with a proposed action. Cost considerations for impact prevention during action implementation need to be accounted for, as well as habitat restoration and/or compensation (i.e., biological monitoring, placing protective signs/fencing, sedimentation controls, etc).

Beyond the financial costs of mitigation actions, the effects on future land use must also be considered. These "costs" can seriously affect the future flexibility of military mission accomplishment on the Station. As an example, if one acre is permanently lost and must be compensated for at a 2:1 ratio due to its high value, the compensation would require restoring two acres of habitat elsewhere. The two acres of habitat created in compensation for the one-acre lost, must then be treated as high habitat value where those acres previously had a very low habitat value.

General Mitigation Requirement for All Actions

Many components of mitigation actions are common to most situations. The following mitigation measures should be planned for all proposed actions unless a determination can be made, in consultation with Natural Resource Division staff, that they are not appropriate:

- Because the primary purpose of mitigation is to lessen the severity of an action, the first step in mitigation planning should be avoidance of impacts. Once avoidance has been implemented to its fullest extent, remaining impacts should be minimized prior to consideration of off-site compensation for damage resources as a last resort. This must be the first step in the mitigation planning process because numerous regulatory authorizations require demonstration of maximum impact avoidance and minimization before authorization may be given (refer to section 6.1.2)

- Indirect effects of a proposed action must be addressed when planning mitigation. Indirect effects have an impact at some point later in time. This may be the case where use and maintenance of a new facility is likely to have an adverse effect beyond the building "footprint" following construction. For example, fencing may be necessary to prevent landscape maintenance and concentrated human foot traffic from damaging naturally occurring resources that were avoided by the construction of a building. Often, maintenance and safety considerations associated with new or re-utilized facilities, such as wildfire fuel breaks, are overlooked by planners and are not realized until use is implemented. Such considerations must be treated as part of the initial project and mitigated accordingly.

- In addition to direct habitat loss, less tangible direct and indirect effects may result from a proposed action. These potential effects must be evaluated and mitigated. A common concern is noise associated with construction and subsequent use that extends beyond the immediate work or activity area. As a general rule, noisy construction activities need to be kept far enough away from noise sensitive threatened and endangered species such that the level in the occupied habitat varies little from background. With least Bell's vireos and California gnatcatchers, separation of at least 500 feet from active nests is often required if the breeding season cannot be avoided. Other examples include outdoor lighting that may require shielding, visual harassment by human activities and equipment operation, changes to wetland hydrology, and sedimentation from construction sites to wetlands. Often the temporary effects that may result from construction are avoided by performing work outside the sensitive breeding and growing seasons as presented in this planning guidance. Other effects that are likely to have a longer or permanent adverse effect must be mitigated.

- Threatened or endangered species presence or absence determinations ("T/E Species Occupied") must be made using survey guidelines developed by the U.S. Fish and Wildlife Service or other means acceptable to them. Where no such guidelines or protocols exist, surveys must be conducted by qualified persons (as defined below) using methods recognized and accepted in the professional consulting field. When making

presence/absence determinations relative to a project, areas where indirect effects may affect species must be considered as well. If a habitat is used by a species for some important part of their life cycle, it is considered occupied regardless of the presence of the species at any one time. Survey protocols have been developed for the California gnatcatcher, least Bell's vireo, and fairy shrimp.

- A biological monitor should be retained to educate workers, oversee and implement impact avoidance and minimization, document impacts, and guide revegetation efforts for all proposed actions that require active avoidance or actually will affect threatened or endangered species, wetlands (including vernal pools), require active revegetation, or habitat compensation. At a minimum, this individual must have: (1) a bachelor's degree with an emphasis in ecology, natural resource management or related science; (2) demonstrated local experience with the resource(s) involved; and (3) a good understanding of the regulations regarding wetlands and endangered species.

- Proposed actions must include requirements for impact avoidance and minimization measures as part of implementation of any proposed action. Measures which should be considered, as applicable are: worker environmental protection briefings, signs, markers, protective fencing, biological monitoring, erosion and sedimentation prevention, noise baffling, and temporary impact restoration. These should be included as part of the environmental protection plan of the Environmental Protection requirements for all standard operating procedures, work requests, and contracts during planning.

- Migratory birds are generally protected by the Migratory Bird Treaty Act and implementing regulations and orders. On the Station, all birds but four are covered. Planners must review proposed actions with regard to conduct of actions during the active breeding season (can be Jan-Sept) and project caused loss of traditionally used nesting/roosting sites. Habitat clearing activities should be timed to avoid the breeding season to maximum extent practicable to avoid damage to active bird nests. Compensation for the loss of traditionally used nesting/roosting sites may be an issue for raptors and colonial nesters, such as herons. All contracts and work orders prepared for MCAS Miramar must include provisions in the Environmental Protection section which prohibit harming, damage, or destruction of active bird nests while requiring "work arounds" without incurring additional cost. The Natural Resource Division can provide contractual language prepared and approved by the navy for construction contracts on MCAS Miramar.

- Mitigation actions which are accomplishing habitat compensation or enhancement on the Station must be planned to occur in level I, II, or III management areas if at all possible, in that order. Consideration of off-Station sites should also be done since using those locations would not limit on-Station flexibility. Site evaluations and approvals for habitat compensation and enhancement must be initiated concurrently with proposed action planning, whenever possible. The ideal situation would be for the actual habitat work to start concurrently or before the action causing an impact.

All actions that require active habitat restoration, enhancement, and/or compensation must have an appropriate plan developed prior to implementation. Such plans must discuss the site conditions, methods to be implemented, monitoring and maintenance (usually 3 to 5 years), success criteria, remedial actions if expected success is not being achieved, and reporting requirements. The plans must ensure that all applicable requirements of regulatory approvals are incorporated. Often, regulatory agencies require that they have an opportunity to review and approve plans where their authorization for resource impacts is provided. Regardless, review and approval of plans must be accomplished through the Natural Resources Division on MCAS Miramar.

Definition of Terms

For the purposes of interpreting this planning guidance, the following definitions are provided:

- Developed -Area that is devoid of naturally occurring vegetation or is maintained in a continuous state of disturbance displaying primarily disturbance adapted plant species on bare ground. It is usually paved, recently graded or landscaped, with little or no short term potential for colonization and succession of native plant communities. This type may have other vegetation/habitat types and regulated resources immediately adjacent that must be considered, such as the disturbed vegetation type and wetlands. Found in tables under Vegetation/Habitat Type (see also page 4-6).

- Disturbed - Areas where past or present physical disturbance (e.g., grading, tilling, and repeated vehicle use that has severely damaged plant root zones or removed above-ground plant cover) has caused the area to be covered by disturbance adapted species or bare ground but have a potential to support native vegetation if left undisturbed. Found in tables under Vegetation/Habitat Type (see also page 4-6).

- Habitat Compensation (and "compensating") - Action that compensates for lost habitat values and functions for the target resource by providing those at another site. Often accomplished by restoring habitat on disturbed or degraded site but may also be accomplished by securing and permanently protecting habitat benefiting the species.

- Habitat Enhancement - Improvement of the habitat values of a site through methods such as weeding, exotic plant control, trash removal, protective marking or fencing, soil stabilization, reseeding, and/or supplemental planting with native plants. Typically, habitat enhancement is intended to occur on sites which are unsuitable for restoration (see below) due to the presence of an established native plant community type.

- Habitat Restoration (and "restore") - Re-establishment of habitat values and functions (including soils, topography, hydrology, and key biota) for the target resource following some condition that caused severe degradation or loss of those on a site for the purpose

of restoring a disturbed site to its pre-disturbance state. Evidence of the former existence of the target habitat on proposed restoration sites and connectivity to existing habitats are important factors to consider when selecting a restoration site. Restoration may be done on a recently disturbed site, such as that from a temporary construction action, or a site disturbed long ago. "Active" restoration involves positive actions to restore soil and habitat values with maintenance for a number of years. "Passive" restoration involves post-construction actions to enable a site to revegetate through natural processes following initial actions such as re-contouring and re-seeding where follow up active management such as container plant care, irrigation, and weeding are not conducted.

- Permanent Habitat Loss - For the purposes of this planning guidance, any action that does not meet the description of a Temporary Habitat Loss as provided in this guidance.

- Temporary Habitat Loss - A disturbance causing damage to a naturally vegetated area which can once again support naturally occurring vegetation following cessation of the disturbance. Typically this would be applicable to areas disturbed in association with a permanent loss or conversion of habitat where above- ground vegetation is removed and root zones are severely damaged or soil is severely compacted. While using this guidance, habitat degradation that lasts for 2 annual growing/breeding seasons or less prior to revegetation/restoration actions will normally be considered "temporary" in nature. For wetlands, including vernal pools and associated species, the growing/breeding season would be during the rainy season or when the ground is wet (about 1 October - 31 March). For other threatened and endangered species, the growing/breeding season would generally be 15 February - 31 August. Cases where habitat damage lasts longer than 2 growing/breeding seasons, before restoration begins, should be planned for as permanent.

- USACOE Regulated Vernal Pool - A vernal pool subject to the Regional General Conditions to the Nationwide Permits published in a U.S. Army Corps of Engineers Special Public Notice dated November 25, 1997 that defines a vernal pool and lists indicator species for vernal pools (see vernal pool discussion on page 4-6 and regulatory discussion of CWA on page 6-5).

"Vernal pools are wetlands that seasonally pond in small depressions as a result of a shallow, relatively impermeable layer (e.g. clay or other impervious soil or rock layer) that restricts downward percolation of water. The dominant water source for vernal pools is precipitation with pools typically filling after fall and winter rains and evaporating during spring and summer. These seasonal ponds are fragile, easily disturbed ecosystems that provide habitat for indigenous, specialized assemblages of flora and fauna (see attached species list), including several species which are either proposed or already Federally listed as threatened or endangered."

- Wetlands/Waters of U.S. - Includes navigable waters (including intermittent streams), impoundments, tributary streams, and areas inundated or saturated by surface or ground water to the extent that they support vegetation adapted for growing in saturated soils (see page 6-5).

Conclusion

Through the consideration of this guidance and application, as appropriate, to actions and construction proposed to occur on MCAS Miramar, planners should be able to minimize unexpected planning and implementation costs and delays. This information should be utilized at the earliest stages of the planning process to assure adequate funding, time, and resources are available to ensure compliance with natural resources related laws and regulations. Identified requirements should be considered during initial project or action siting processes to minimize costs and planning time required for compliance. Although this guidance has been prepared in coordination with the U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers, following any or all of this guidance criteria does not replace required regulatory consultations and permitting. Planners should be able to minimize unexpected planning and implementation costs and time delays by applying these guidance criteria to actions and construction proposed on MCAS Miramar.

6.2.3 Planning Alternatives for Future Mitigation

Mitigation Banking

Mitigation banking is defined as "Actions taken to compensate for future adverse effects of undertakings by providing resources or environments in advance of any specific undertaking" (DoD Instruction 4715.3; refer to Appendix B). The primary objective of mitigation banking is to receive credit for habitat improvement or conservation.

In recent years, many large-scale mitigation land banks have been established in California. With 20 conservation banks in operation or being established, San Diego County has more conservation banks than in all other counties of the southern California region (i.e., San Luis Obispo, Kern and San Bernardino counties south to the international boundary). Examples include O'Neal Canyon, Rancho San Diego, Ramona, and Upham. These last two focus on vernal pools. The size of the banks ranges from 25 to 1,840 acres. Given the existing constraints to land use at MCAS Miramar, first consideration would be given to establishing mitigation banks off of the Station as an option for meeting natural resource mitigation requirements. The possibility of contributing funds to a third party towards purchase of preserve lands with in the MSCP study area will be explored in revisions to this INRMP. Primary agency involvement is with the USFWS and ACOE.

Currently, the Marine Corps is in negotiations with the USFWS for transfer of the area south of State Route 52 (i.e., Parcel AG@, refer to Figure 4) for inclusion in the San Diego National Wildlife

Refuge, Vernal Pools Stewardship Project. In this circumstance, if land is to be transferred to a land-management organization (either by transfer of fee title or by conservation easement or agreement), long-term mitigation planning is an important consideration. USFWS involvement is necessary to develop an agreement regarding mitigation credit for the transfer. That mitigation credit is then used to help offset unavoidable impacts to other areas on MCAS Miramar for exclusive use by the Marine Corps.

Conservation Agreements

A conservation agreement is a formal, written document agreed to by the USFWS and other cooperators that identifies specific actions and responsibilities for which each party agrees to be accountable. The objective of a conservation agreement is usually to reduce threats to a candidate or proposed species or its habitat, possibly lowering the listing priority or eliminating the need to list the species. Conservation agreements are usually less restrictive than mitigation banks and do not require transfer of ownership (Foreman 1997). When appropriate, MCAS Miramar will consider the option of a conservation agreement. MCAS Yuma has recently (6 June 1997) entered a conservation agreement to help conserve the flat-tailed horned lizards (*Phrynosoma mcallii*) on the Barry M. Goldwater Range in Arizona. This species was proposed for federal listing as threatened but the proposal was withdrawn as a result of the signing of the conservation agreement.

Planning Considerations

If mitigation banking and/or conservation agreements are considered, there must be early involvement of USFWS and other agencies. Such agreements include mechanisms by which future Section 7 consultations and accompanying biological opinions will direct mitigation requirements. For example, terms and conditions of future biological opinions that involve the set-aside or special management of habitat would draw on a mitigation bank or conservation agreement. This would allow comprehensive long-term mitigation planning, rather than project-specific or activity-specific mitigation.