

6.0 PROJECT AND MITIGATION PLANNING

This chapter addresses project and mitigation planning at MCAS Miramar relative to natural resources. This guidance is intended to be used by persons planning and/or preparing Station approvals, projects, management actions, orders, instructions, standard operating procedures, other plans, and NEPA documentation. 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 the MCAS Miramar approach to mitigation, briefly describes existing mitigation commitments, and presents information for mitigation planning at MCAS Miramar.

This planning and mitigation guidance is provided for application to new projects, activities, and Station authorizations being processed by the Station. This guidance is not intended to be applied retroactively to activities and actions for which environmental planning and resource agency authorizations have already been completed, such as NEPA documentation and Endangered Species Act Section 7 Biological Opinions or Section 404 Clean Water Act Permits.

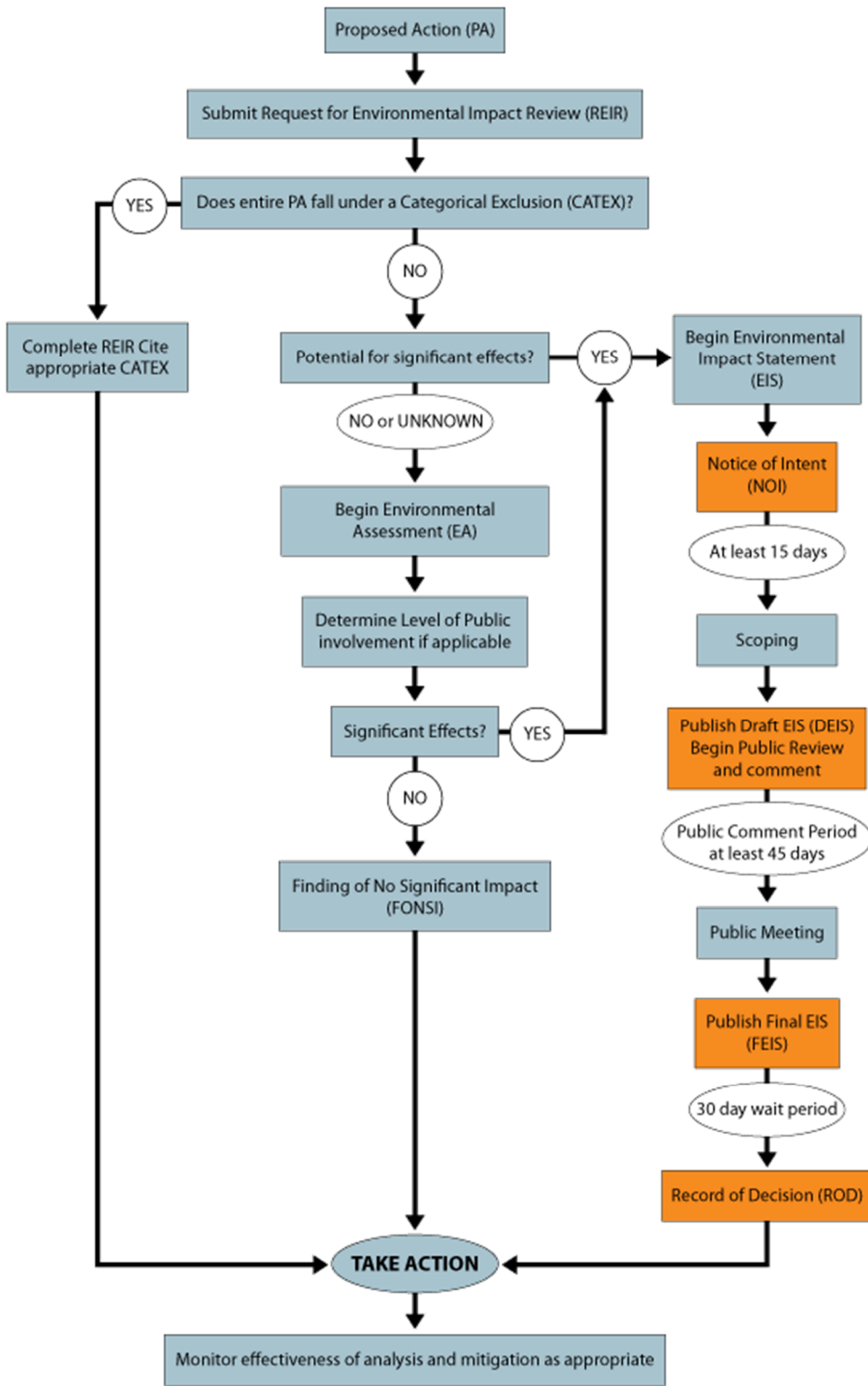
6.1 Project Planning

6.1.1 National Environmental Policy Act Considerations

NEPA requires federal agencies to assess, in detail, potential environmental impacts of their actions that could significantly affect the quality of the environment. At MCAS Miramar, the Environmental Management Department administers NEPA planning and ensures that NEPA compliance is accomplished in consultation with legal counsel. Department of Navy and Marine Corps policies require action proponents to fund and ensure completion of NEPA planning and other necessary documentation for their proposed actions, such as construction, maintenance, land development, leases, and easements (SECNAVINST 5090.6A; MCO 5090.2, Change 3, Chapter 12; *Marine Corps NEPA Manual* (Headquarters Marine Corps 2009); Miramar Station Order 5090.4).

NEPA is intended to help decision-makers make informed decisions based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment. Agencies are to use a systematic, interdisciplinary approach that integrates natural and social sciences and environmental design. While NEPA requires consideration of more than the natural environment, NEPA provides planners with a process (Figure 6.1.1 [Headquarters Marine Corps 2009]) to identify and initially assess natural resource issues requiring compliance. Additional information on the NEPA process and the guidance for evaluating impacts to natural resources on MCAS Miramar is included in Appendix A.

Figure 6.1.1. NEPA Process Chart



*All actions in orange require HQMC and ASN approval

6.1.2 Other Natural Resources Specific Compliance Considerations

NEPA cannot be finalized (*i.e.*, publication of final Environmental Impact Statement or signing a Finding of No Significant Impact) until “*all consultation and authorization processes required by law, including but not limited to, those set out in the Endangered Species Act, ..., Migratory Bird Treaty Act, Coastal Zone Management Act, Clean Air Act, are complete.*” (Memorandum for Chief of Naval Operations and Commandant of the Marine Corps, *Supplemental Policy Guidance to SECNAVINST 5090.6A for Consultations and Regulatory Coordination*, May 6, 2009, Assistant Secretary of the Navy [Installations and Environment], Washington, DC). This guidance was further clarified by the Commandant of the Marine Corps (*Supplemental Policy Guidance to SECNAVINST 5090.6A for Consultations and Regulatory Coordination*, July 27, 2009).

As part of project planning at MCAS Miramar, careful consideration will be given to project siting relative to Management Areas (MAs). This effort will support the Station’s overall conservation strategy of minimizing the development of areas supporting high densities of predominantly vernal pool habitat, threatened or endangered species, and other wetlands (*i.e.*, Level I, II, and III MAs). Benefits of this strategy are reduced delays in project approvals (consultation timelines may be eliminated or minimized) and decreased costs (mitigation requirements may be minimized).

Two major considerations relative to potential impacts on Special Status Species (as defined in this INRMP) and wetlands are compliance with the Endangered Species Act and Clean Water Act. Requirements of these two acts are summarized in Appendix A to facilitate consideration early in the planning process at MCAS Miramar. In addition, Appendix A also summarizes the Migratory Bird Treaty Act and requirements and exemptions applicable to military services.

6.2 Mitigation Planning

Mitigation, as discussed here, is lessening adverse effects an undertaking may cause relative to natural resources. Mitigation can include the following actions (DoD Instruction 4715.03; Definitions):

- 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 preservation and maintenance operations during the life of the action; and/or
- compensating for the effect by providing substitute resources or environments.

In general, regulatory agencies’ preferred order of performing mitigation is avoidance, then minimization, then compensation. For compensation, the latest DoD Instruction 4715.03 and the *Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment* to the Secretary of Defense, Secretary of Interior, Secretary of Agriculture, Administrator of the Environmental Protection Agency, and Administrator of the National Oceanic and Atmospheric Administration (November 3, 2015), state that agency policies should seek to encourage, and give preference to, advance compensation mechanisms, including mitigation bank-based approaches.

Mitigation 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 (MCO 5090.2 para. 12306). Generally, mitigation requirements in compensation for impacts by non-military actions on MCAS Miramar will be accomplished off-Station. Further, the Station lands cannot be used for mitigation credits by non-DoD entities (DoD Instruction 4715.03).

One typical form of mitigation is restoration of disturbed areas to compensate for lost resources (as noted above). Restoration 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. Methods used to restore disturbed areas include soil stabilization, irrigation, inoculating with mycorrhizal fungi, planting/seeding of native plants, prescribed burning, imprinting, and invasive species control. Techniques may involve ripping and cultivating, transplanting, mulching, soil additives, plant fencing, erosion wattles, water-holding devices and other newer technologies. 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.

Careful consideration will be given early in the planning process to the siting of proposed actions and potential compensating mitigation relative to MA designations (Chapter 5). As part of MCAS Miramar's ongoing efforts to avoid and/or minimize impacts on Special Status Species, vernal pool habitat, other wetlands, and constrained regional habitat linkages, first consideration for siting construction projects and new activities will be given to the use of Level V, then Level IV MAs (see Figure 5.1). Locating suitable mitigation sites on MCAS Miramar that will not conflict with military operation requirements is becoming increasingly difficult. Compensating mitigation actions will first be considered for siting in Level I and II MAs or preferably using off-Station conservation and mitigation banks or in-lieu fee programs.

Restoration of habitat on-station effectively puts restored habitat sites "off limits" to most military operational activities. Use of off-Station mitigation opportunities do not restrict on-Station land uses by creating additional "sensitive habitat" and such opportunities are often more cost effective when considering indirect, as well as, direct costs. DoD Instruction 4715.03 and the Presidential Memorandum dated November 3, 2015, now authorize and encourage the use of conservation and mitigation banks off installations. Off-station mitigation shall be the preferred approach where these opportunities exist and these shall be considered early in the planning process.

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 (Section 2.2, *Overview*), must maintain the flexibility to adapt its defense mission to political and technological developments (DoD Instruction 4715.03). Nevertheless, resource agencies providing authorizations or permits require mitigation projects to have long term conservation protections and management. Subsequent incompatible use of mitigation sites requires additional compensation for lost resources with agency approval.

The following briefly describes ongoing mitigation and presents mitigation planning information.

6.2.1 Mitigation Actions

Some projects and/or operations at MCAS Miramar result in damage to natural resources that cannot be avoided through planning and minimization efforts. Mitigation is an important part of these projects. Figure 5.1 identifies sites used for mitigation actions, and specific location mapping can be found in final restoration reports and the associated GIS data layer. Mitigation commitments that require continued active management on MCAS Miramar include the following items.

- West Coast Basing of MV-22 Osprey at MCAS Miramar committed to compensation for the loss of vernal pool wetland habitat supporting San Diego fairy shrimp (0.11 acres), coastal scrub vegetation (2.2 acres), and ephemeral streambed and associated wetlands (0.27 acres) (2009 Department of the Navy, Notice of Record of Decision, West Coast Basing of the MV-22 Aircraft; ESA Biological Opinion FWS-MCBCP-08B0678-09F0860; U.S. Army Sec. 404 CWA Permit

SPL-2013-01147-PJB). The coastal scrub vegetation mitigation was compensated through purchase of credits from the Daley Ranch conservation bank off-station. The vernal pool mitigation site is located between Kearny Villa Road and Interstate 15, and north of State Route 163. A total of 17 vernal pools were established within the restoration area, with a combined surface area of approximately 0.41 acre. The streambed and wetland mitigation site is located in San Clemente Canyon and included the restoration of 0.28 acre of stream and 0.20 acres of wetland habitat. The fourth year of maintenance and monitoring was completed for both projects in 2016 (NAVFAC SW 2016).

In addition to the above, planning has begun for mitigation associated with the Joint Strike Fighter F-35 stationing at MCAS Miramar and a vernal pool advance mitigation program.

Mitigation commitments already undertaken by the Station include:

- Establishment of 0.443 acre and enhancement of 0.067 acre of vernal pool habitat at the Miramar National Cemetery for the Miramar National Cemetery vernal pool restoration project (ESA Biological Opinion 1-6-06-F-4652.3; U.S.; Army Sec. 404 CWA Permit SPL-2008-00970-PJB). A total of 37 basins, of which 33 are established basins and 4 are enhanced basins. Additional upland watershed restoration was also conducted at the vernal pool restoration site. Compensation for the loss of coastal scrub and coastal California gnatcatcher habitat was done through the purchase of off-Station credits by the Dept. of Veterans Affairs. Completed in 2016.
- Joint Regional Confinement Facility Southwest (Miramar Naval Consolidated Brig alteration and expansion), Navy (NAVFAC SW) purchased a permanent conservation easement for 8.9 acres of coastal scrub occupied by California gnatcatcher on the Sycamore Westridge Preserve of the San Dieguito River Park (reference ESA Biological Opinion). Completed in 2009.
- The Replacement of the Jet Fuel Underground Storage Tanks and Distribution System project involved the restoration of areas temporarily disturbed during construction, including enhancement of surrounding habitat and compensation for the loss of coastal California gnatcatcher habitat with restoration of 7.2 acres of coastal scrub habitat in the Eastgate Mall parcel of the Station (reference ESA Biological Opinion 1-6-06-F-4755.2). Completed in 2008.
- Replacement of Engelmann oak trees at a 5:1 ratio in San Clemente and West Sycamore canyons to compensate for impacts from the construction of the Rifle/Pistol Training Range Complex at MCAS Miramar (reference EA/FONSI, 22 June 2001). Completed in 2001.
- Restoration of 0.50 acres of vernal pool habitat for impacts to San Diego fairy shrimp to compensate for maintenance, improvement and use of existing roads, lots, driveways, and loading docks at MCAS Miramar (reference ESA Biological Opinion 1-6-99-F-64); restoration work was completed in the Miramar Mounds National Natural Landmark area. Completed in 1999.
- Restoration of 0.6 ac of coastal scrub vegetation (*Artemisia californica* Alliance or *Eriogonum fasciculatum-Baccharis sarothroides* Alliance) within the southeastern corner of the Flightline Area to compensate for impacts associated with repair and widening of Ammunition Road (reference ESA Informal Consult letter 1-6-98-I-32). Completed in 1999.
- Mitigation obligations relative to impacts from the Realignment of NAS Miramar to MCAS Miramar, as described in the 1995 BRAC EIS (Ogden 1996), U.S. Army Sec. 404 CWA Permit (95-20158-ES) Biological Assessment (Ogden 1995), and Biological Opinion/Conference Opinion (1-6-95-F-33) for the realignment (USFWS 1996a). Regarding mitigation for the realignment of NAS Miramar to MCAS Miramar, the primary form of mitigation was restoration of previously degraded sites. Habitat mitigation actions beyond impact avoidance and on-site revegetation included restoration of 87.5 acres of coastal scrub at the west end of the Flightline, 1.03 acres of riparian wetland habitat in lower Murphy Canyon on Station, and restoration of 9.4 acres of vernal pool habitat widely distributed throughout the Station. Completed in 1999.

- Restoration of 25 acres of land in the Eastgate Mall portions of the Station to obtain 20 acres of coastal scrub vegetation to compensate for loss of 20 acres off-station by the Eucalyptus Hills (Ridge) Navy Housing Development in Lakeside, CA (reference ESA Biological Opinion 1-6-93-F-33). Completed in 1993.



Restoration of Vernal Pool Habitat (MV22 Mitigation Action)

Natural Resources Division

- Restoration of 0.4 acres of vernal pool habitat basin south of the Navy-Marine Corps Reserve Center that were damaged by tank training (reference ESA Biological Opinion 1-6-92-F-31). Completed in 1992.
- Creation of 8,250 square feet of vernal pool surface area and associated watershed in the northwestern portion of the Station (X1-3 Group) to compensate for vernal pools lost from construction of the West Coast Consolidated Brig (reference ESA Biological Opinion 1-6-87-F-34). Completed in 1987.

As a part of the mitigation for the 1995 BRAC ESA Biological Opinion and CWA permit, the Department of Navy also committed to preserving existing vernal pool habitat on a 1:1 basis on the Station. All vernal pools in the G Parcel (Vernal Pool Management Unit 6, Group AA4-7) are to be preserved in partial fulfillment of the realignment action preservation commitment. The remaining mitigation commitment of 1.14 acres was met by preserving 1.14 acres of the 1.78 acres of vernal pools located south of State Route 52 (Vernal Pool Management Unit 9, Groups U-15, U-19, and F16-17) to minimize effects on military activities on MCAS Miramar.

It is important to note that with the exception of the BRAC commitment to preserve vernal pools at a ratio of 1:1 (prior to DoD Inst. 4715.03), no other mitigation commitments made for resource impacts have committed to permanent preservation of restoration sites. While this is the case, regulatory agency expectation is that all compensatory mitigation projects will have long-term conservation. Compensating mitigation sites should be treated as though they have reached their restoration success criteria if ever considered for a use that would be incompatible with conservation of the resource. The final rule for Compensatory Mitigation For Losses of Aquatic Resources (FR 73:19594 of 10 Apr 08) authorized by Clean Water Act permits requires that mitigation sites receive long-term management and protection. As

an example, the CWA permit conditions associated with the MV-22 In-Line Fueling Facility specifically address this requirement.

A Finding of No Significant Impact was signed in August 2015 to establish and manage mitigation areas at MCAS Miramar to compensate for impacts to federally listed vernal pool species and/or jurisdictional areas. A site-specific plan and crediting agreement with the USFWS and ACOE will also be developed. These mitigation areas may include a formal joint ESA and CWA conservation/mitigation bank, in-lieu fee mitigation program, or advance mitigation.

6.2.2 Mitigation Planning Guidance

This section provides **guidance for persons responsible for planning** construction, facility maintenance, and other actions on MCAS Miramar that may adversely affect natural resources. This 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 regulated by federal law or are otherwise important to 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. This must be demonstrated in relevant planning documents, such as Environmental Assessments, Biological Assessments, and Clean Water Act permit applications. Often, these will be presented as “conservation measures” or “mitigation measures” to be implemented as a part of the proposed action.

This guidance applies to all federal actions on MCAS Miramar lands. Entities exercising rights granted under existing license, leases, easements, or any other form of permission are expected to follow this guidance as a minimum standard and as Station policy, to the extent applicable. As new real estate documents are developed and modifications to existing permissions are prepared, this INRMP guidance will be reinforced.

This guidance outlines general requirements that would commonly be expected to result from regulatory consultation and permitting processes in support of a proposed action and should be viewed as a consistent starting point. 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 does not replace planning, consultation, and conservation requirements discussed earlier in this chapter (6) and in Appendix A with respect to the National Environmental Policy Act, ESA, and CWA. Rather, the guidance is intended to help planners:

- evaluate environmental costs of siting facilities and actions;
- avoid impacts throughout the planning process;
- minimize construction delays due to seasonal timing constraints; and
- identify suitable mitigation for NEPA documents, biological assessments, and section 404 CWA permit applications.

On November 21, 2016, USFWS published a Notice of Final Policy in the Federal Register that announced revisions to their established Mitigation Policy, which has guided USFWS recommendations through the consultation process on mitigating the adverse impacts of land and water developments on fish, wildlife, plants, and their habitats since 1981 (USFWS 2016). The revisions are motivated by recent changes in conservation challenges and practices, including accelerating degradation of habitats and ecosystem function, spread of invasive species, epizootic disease outbreaks, effects of climate change, and advances in conservation science, as well as the substantially altered Federal statutory, regulatory, and policy context

of fish and wildlife conservation since 1981. In regards to the latter, this particularly relates to including the conservation of species that are listed as threatened or endangered under the ESA (expressly excluded from the 1981 Policy). The revised Policy provides a framework for applying a landscape-scale approach to achieve, through application of the mitigation hierarchy and informed conservation strategies, the goal of net gain or no net loss of resources and their values, services, and functions resulting from proposed actions. The revised policy integrates all authorities that allow the USFWS to issue mitigation recommendations and/or requirements, and serves as an umbrella under which more specific policies or guidance documents can be implemented in the future (USFWS 2016). Implications of this revised Policy on proposed MCAS Miramar projects would occur in mitigation decisions made by the USFWS during the coordination, consultation, and regulatory approval process.

Likewise, the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency jointly published a Final Rule on April 10, 2008, governing permittee-responsible compensatory mitigation, mitigation banks, and in-lieu fee mitigation programs for activities authorized by permits issued by the Department of the Army (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2008). This rule improves the planning, implementation, and management of compensatory mitigation projects (i.e., restoration, enhancement, establishment, and/or preservation) by emphasizing a watershed approach in selecting compensatory mitigation project locations, requiring measurable, enforceable ecological performance standards and regular monitoring for all types of compensation, and specifying the components of a complete compensatory mitigation plan, including assurances of long-term protection of compensation sites, financial assurances, and identification of the parties responsible for specific project tasks (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2008). A follow-on Regulatory Program Standard Operating Procedure was implemented by the U.S. Army Corps of Engineers, South Pacific Division in 2012 (12501-SPD). 12501-SPD introduces a more detailed procedure for determining compensatory mitigation ratios, as required for Department of the Army permits under Section 404 of the Clean Water Act, Section 9 and 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. Implications of this rule on MCAS Miramar would occur during the permitting process for projects that require Department of the Army-issued permits.

Mitigation costs are the responsibility of the action proponent as they are a cost of any proposed action (MCO 5090.2 para. 12306). Final mitigation details and requirements for a specific proposed action are determined during the NEPA and regulatory consultation and permitting processes. Project and construction planning must include timelines for regulatory processes and execution of mitigation. Mitigation may include seasonal timing limits on an action, or the start of an action. Additionally, substantial effort may be required to plan compensatory mitigation, either through purchase of off-Station conservation/mitigation credits/easements or restoration on-station at a site compatible with operations.

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 or bare ground. It is usually paved, 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. Additional information on developed areas can be found in Appendix C and in Section 4.2.14, *Developed*.

Disturbed Land - Areas where past or present physical disturbance (e.g., grading, tilling, 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. Additional information on disturbed lands can be found in Appendix C and in 4.2.13, *Disturbed Habitat (Vegetation)*.

Growing/Breeding Season - The period within which active growth (plants) or breeding (animals) occurs. For wetlands, including vernal pool habitat and associated species, the growing/breeding season would occur during the rainy season or when the soil remains wet (about November through May, depending on annual precipitation). For other threatened and endangered species, the growing/ breeding season would generally be within the period of 15 February – 31 August. Conservation of migratory birds may warrant different project-specific timelines for different species as applicable.

Compensation (and “compensating”) - Action that compensates for lost values and functions for the target resource by providing them at another site. Often accomplished by restoring a disturbed or degraded site but may also be accomplished by securing and permanently protecting resources off-Station. This may include conservation and/or mitigation bank credits or an in-lieu fee program for mitigation. More specific guidance is provided later in this section regarding the application of compensatory mitigation for MCAS Miramar projects.

Enhancement - Action that heightens, intensifies, or improves one or more habitat function. Improvement of a habitat can be made through such methods as weeding, invasive 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 that are unsuitable for restoration (see below). Habitat enhancement may often be feasible on the same site that is restored to original condition, following a temporary impact, if the pre-impact condition is a disturbed vegetation type, or “disturbed land”, and the goal is a higher quality end state. Enhancement is often undertaken for a specific purpose such as to improve water quality, flood water retention, or wildlife habitat. Enhancement work must be described in a plan, either in association with other restoration activities or separately. This plan must specify enhancement actions to be undertaken, anticipated benefits, and detailed, site-specific success criteria based on the needs of the Special Status Species involved. As much as is possible, planning for a specific proposed action should identify locations and site-specific enhancement methods and goals during biological assessment work.

Establishment - The development of a resource where it did not previously exist through manipulation of the physical, chemical, and/or biological characteristics of the site. Successful establishment results in a net gain in the desired habitat, plant, aquatic, or wetland community.

Restoration (and “restore”) - Re-establishment of habitat values and functions (including soils, topography, hydrology, and key biota) in a plant, aquatic, or wetland community following some condition that caused severe degradation or loss of those on a site, for the purpose of returning natural or historic functions and characteristics. 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 Active restoration involves positive actions to improve soil stability, reduce erosion, establish vegetation, irrigation of establishing plants during dry periods, specifically controlling competing species, applying amendments if necessary, maintenance and monitoring, and applying adaptive management during changing conditions.

Passive Restoration Passive restoration may include any combination of revegetation techniques (*e.g.*, erosion control device installation, native seed sowing, appropriate invasive species control, etc.) to assist

open/disturbed areas revegetate in a naturally evolving manner with minimal active management following initial treatment. Sites should be checked periodically to ensure that invasive weeds are not invading, adequate soil protection is being realized, and that desired plants are becoming established at the site.

Revegetation - Action that focuses on the re-establishment of native vegetation after an area has been disturbed or degraded. This improvement involves seeding (manually by hand or by hydroseeding) and/or installing container plants or plugs. Sites should be revegetated to plant communities that existed prior to disturbance.

Where the pre-impact site condition was a disturbed vegetation type, “disturbed land”, or developed, additional restoration actions may be feasible on area temporarily disturbed by projects to meet enhancement and/or compensation commitments.

Occupied Habitat - Land known to be occupied by a species of interest during at least some period of the year.

Permanent Habitat Loss - Conversion of land area where above-ground vegetation, seed bank, soil fertility and root zones are severely damaged/removed or soil is severely disturbed to the point that the area will not support species of interest. Return to the appropriate native landscape without extreme restoration activities (e.g., replacement of soil, total replanting and reseeded of the area, etc.) is unlikely.

Temporary Habitat Loss - A disturbance causing damage to a naturally vegetated area that can once again support naturally occurring vegetation following cessation of the disturbance. Often, temporary impacts occur in association with construction projects and can be restored following completion of the project. Temporary impacts can be restored actively or passively, although a substantial time and plant composition difference would result depending on which approach is performed.

U.S. Army Corps of Engineers Regulated Vernal Pool - A vernal pool as defined by the Regional General Conditions to the Nationwide Permits published in a U.S. Army Corps of Engineers Special Public Notice dated November 25, 1997. This Public Notice defines a vernal pool and lists indicator species for vernal pools. As a result of 2001 Supreme Court Decision⁹, vernal pools that are isolated from navigable Waters of the U.S. may not be U.S. Army Corps of Engineers Regulated Vernal Pools.

Vernal Pools - Wetlands that seasonally pond in depressions as a result of a shallow, relatively impermeable layer (*i.e.*, 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, including several species which are either proposed or already federally listed as threatened or endangered. It is important to differentiate between true vernal pools and other depressions that may seasonally pond water and support species typically associated with vernal pools (seasonally ponded features). The Natural Resources Division can provide assistance regarding identification of true vernal pools.

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 (CWA regulatory discussion in Appendix A).

⁹Solid Waste Agencies of Northern Cook County (SWANCC) vs. the U.S. Army Corps of Engineers.

Instructions for Using this Guidance

This section provides only general guidance for mitigation. Clarification and additional detail are required for application to specific proposed actions. 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.

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. There are special allowances for emergency situations in the regulations of NEPA, CWA, and the ESA. The definition of “emergency,” however, is very narrowly written to address actions that could not be planned for in advance or required immediate response.

Tables 6.2.2a and 6.2.2b 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 (Figure 5.1). Vegetation types, vernal pool habitat, and threatened and endangered species¹⁰ are described in Chapter 4 along with maps showing the general distribution on the Station.

The following points are particularly important when planning mitigation.

- **Mitigation plans involving a threatened and endangered species or wetland often require regulatory approval prior to project approval and implementation.**
- ***The quality of vegetation/habitat types affects compensation ratios for habitat impacts presented in Tables 6.2.2a and 6.2.2b.*** When degraded vegetation/ habitat types are involved, ratios should be adjusted to achieve an equitable compensation. Thus, a lower compensation ratio would be appropriate where high quality habitat or off-station habitat preservation is being offered for impacts to a degraded habitat and equivalent biological value to the target species or resource. Disturbed or degraded habitat that is demonstrated to be actively used by listed species should still be offset at a minimum compensation ratio of 1:1 to ensure no net loss of habitat. Important factors when evaluating biological value include density of target species, proximity to the coast (for gnatcatcher, in particular, proximity to the coast is closely tied to biological value), importance for habitat connectivity, and contribution to long term regional conservation plans, such as the MSCP.
- ***Differentiate between true vernal pools and other depressions that may look like vernal pools, such as road ruts, puddles, and ditches.*** The loss of *true vernal pools* must be mitigated at least on a 1:1 ratio to achieve “no net loss” of wetlands; however, regulatory agencies typically require higher mitigation ratios due to uncertainties of complete replacement of functions and values. Contact the Natural Resources Division regarding the identification of true vernal pools. Planners must be aware that some vernal pool-associated species, including five vernal pool-associated threatened and endangered species, do occur in puddles, ruts, and ditches that pond water during the vernal time of the year. In such cases, mitigation for the loss of endangered species habitat may be required for sites not considered to be true vernal pools.
- ***Data within this INRMP and its associated maps should not be used without additional field verification and up-to-date and detailed project site evaluation.*** These data are provided to help with initial planning. Before budgeting supplemental surveys, planners should contact the Natural Resources Division for the most up-to-date resource data.
- ***Sensitive habitats and species are more susceptible to damage or harassment during active growing and breeding seasons; therefore, contract timelines are extremely important.*** This is especially true where vernal pool habitat occurs in close proximity to other threatened and

¹⁰ Do not rely exclusively on INRMP lists for these species as USFWS/CDFW/CNPS lists are updated regularly.

endangered species. As such, careful project planning and coordination with the USFWS are necessary to minimize overall effects of a proposed action to all resources involved. See definition of *Growing/Breeding Season* in *Definitions of Terms* earlier in this section. Action proponents and planners should consider these timeframes in early project development.

- ***Impacts to differing resources often can be phased or avoided through careful planning.*** For example, where impacts to vernal pool habitat can be avoided by careful conduct of activities, limitations on activities based on vernal pool habitat 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 impact minimization measures should be planned for and expected from regulatory agencies.
- ***Identification of suitable sites for compensatory actions must be an early consideration when planning for impacts to natural plant communities and habitats.*** Authorizing resource agencies 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 do not infringe on operational requirements are becoming increasingly rare on MCAS Miramar. Compensation for habitat impacts shall be considered in areas beyond Station boundaries. DoD policy now encourages use of off-installation mitigation banks and credits stating that they “may provide a preferred alternative” (DoD Inst. 4715.03, Enclosure 3). Federal Clean Water Act mitigation requirements identify the use of approved mitigation banks as the most preferred alternative. Compensating mitigation requirements for impacts by non-DoD actions must be planned for off-station.
- ***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, the compensation would require two acres of habitat elsewhere. The two acres of compensation must then be treated as high habitat value whereas those acres previously had a very low habitat value, thus resulting in twice the amount of restricted acreage on Station.
- ***Costs of mitigating impacts to natural resources must be considered when evaluating proposed action alternative locations and planning for funding.*** Mitigation is a part of the project that must be fully funded by the action proponent. Resource mitigation costs can be highly variable depending on specific details of the project (e.g., extent of habitat impacts, type of habitat impacted, duration of impacts, habitat compensation site conditions, and technologies). 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.). Construction costs may be higher for an alternative or design that avoids impacts, however, total project costs may turn out to be lower when compensatory mitigation costs are included.
- ***CWA compensatory mitigation requirements must now be determined using the U.S. Army Corps of Engineers, Regulatory Program Standard Operating Procedure (12501-SPD).*** For determination of mitigation ratios associated with section 404 permits, this SOP provides guidance, checklists and worksheets needed to determine the compensatory mitigation requirements.
- ***Utilization of off-station opportunities for compensation or habitat created in advance that is “banked” is strongly encouraged as first option of consideration.*** These options, when available, do not result in the loss of military land use as would be the result of developing compensatory habitat or wetlands on the Station. DoD Inst. 4715.03 now encourages off-installation use of conservation and mitigation banks as a preferred alternative to on-installation mitigation. Any such proposals must be approved by the appropriate chain of command and applicable regulatory agency because this may warrant different mitigation ratios.

Concurrence from regulatory agencies is often required prior to finalizing mitigation plans. For initial planning of projects and actions, this guidance provides the best starting point for estimating mitigation requirements.

Mitigation Trigger	T/E Species* Occupied	Required Impact Avoidance, Minimization, and Compensation**	T/E Species Consultation Required?	CWA Permits Required?
All Upland Vegetation Communities, Disturbed Areas, and Developed Areas	No	<ul style="list-style-type: none"> ✓ Active restoration of any native habitat temporarily disturbed. ✓ Replace any damaged oak trees at a 5:1 ratio. ✓ Take action to minimize erosion and sediment laden stormwater runoff. ✓ Minimize temporary indirect impacts on adjacent habitat occupied by T/E species in accordance with the T/E species present. Compensatory mitigation may be required if impacts cannot be avoided to adjacent habitat occupied by T/E species. 	No	No
	Yes	<ul style="list-style-type: none"> ✓ All above actions, plus enhancement of the same habitat type as the occupied habitat at a 1:1 ratio if active restoration of project-disturbed vegetation is required. Impacts must be planned to occur outside of the breeding/active growing season. 	Yes	No
Riparian Scrub, Riparian Woodland, Freshwater Marsh, and Drainages***	No	<ul style="list-style-type: none"> ✓ Obtain and implement CWA Section 404/401 permits if area of impact is considered jurisdictional wetlands or waters of the U.S. Some restoration beyond the impact footprint may be required. ✓ Active restoration of any habitat temporarily disturbed. ✓ Replace any damaged oak trees at a 5:1 ratio. ✓ Take action to minimize erosion and sediment laden stormwater runoff. ✓ Minimize temporary indirect impacts on adjacent habitat occupied by T/E species in accordance with the T/E species present. Compensatory mitigation may be required if impacts cannot be avoided to adjacent habitat occupied by T/E species. 	No	Yes (if CWA jurisdictional wetlands or Waters of U.S. involved)
	Yes	<ul style="list-style-type: none"> ✓ All above actions, plus, enhancement of the same habitat type as the occupied habitat at a 1:1 ratio if active restoration of project-disturbed vegetation is required. Impacts must be planned to occur outside of the breeding/active growing season. 	Yes	Yes (if CWA jurisdictional wetlands or Waters of U.S. involved)
Vernal Pool Watersheds and Basins^^	No	<ul style="list-style-type: none"> ✓ Obtain and implement CWA Section 404/401 permits if area of impact is considered jurisdictional wetlands or waters of the U.S. Restoration beyond the impact footprint may be required. ✓ For true vernal pools, restore area of impact and enhance the surroundings to improve 	No	Yes (if CWA jurisdictional Waters of U.S. involved)

Table 6.2.2a. Mitigation Guidance for Projects with Temporary Impacts				
Mitigation Trigger	T/E Species* Occupied	Required Impact Avoidance, Minimization, and Compensation**	T/E Species Consultation Required?	CWA Permits Required?
		vernal pool function. ✓ Where possible, cover basin areas with metal plates or sheets of plywood to provide protection. ✓ Salvage vernal pool soil (plants, seeds, cysts, and soil) in the dry season prior to construction for restoration purposes. ✓ Take action to minimize decreases of water quantity, increases of sediment transport, and changes in water quality of the runoff to pool basins. ✓ No work in vernal pools during rainy season or when ground is wet (approximately 1 November to 1 June).		
	Yes	✓ If presence/absence of T/E species is not confirmed or T/E species are present, implement above required actions to include all basins supporting T/E species.	Yes	Yes (if CWA jurisdictional Waters of U.S. involved)
Breeding Season	Between 15 February and 31 August, minimize habitat-disturbing activities to nesting migratory birds. If disturbance of suitable nesting habitat cannot be avoided, conduct pre-activity surveys for nesting birds. If bird nests are located, maintain appropriate buffers as advised by the Natural Resources Division. Any additional requirements for threatened and endangered species must be implemented.			
*Federally listed species only. **See text (Section 6.2.2, <i>Definition of Terms</i>). Mitigation ratios should be equitable with the quality of vegetation/habitat impacted. Project-specific update of vegetation and land cover mapping must be done prior to determining appropriate mitigation ratios. ***Contact MCAS Miramar Natural Resources Division for a determination whether CWA jurisdictional wetlands or waters of the U.S. are present. ^^Contact Natural Resources Division to assist with clearly documenting whether T/E species are in a vernal pool watershed and whether T/E species would be indirectly impacted by work in the watershed. Planners should also contact the Natural Resources Division regarding the identification of true vernal pools (vs. other seasonally ponded features) and whether they are CWA jurisdictional wetlands or waters of the U.S.				

Table 6.2.2b. Mitigation Guidance for Projects with Permanent Impacts				
Mitigation Trigger	T/E Species* Occupied	Required Impact Avoidance, Minimization, and Compensation**	T/E Species Consultation Required?	CWA Permits Required?
All Upland Vegetation Communities, Disturbed Areas, and Developed Areas	No	<ul style="list-style-type: none"> ✓ Maintain a minimum width of 500 feet for wildlife movement corridors in Level I, II, and III areas. ✓ For impacts in Level I, II, III, and IV areas, implement habitat compensation for <u>regionally rare native plant community types</u> (e.g. sage and sagebrush scrub) at a 1:1 ratio targeting the same habitat elsewhere. ✓ Additional habitat compensation may be appropriate if significant impacts would occur to other sensitive species or plant community based on the NEPA analysis. ✓ Implement Temporary Impact Guidance, as applicable. 	No	No
	Yes	<ul style="list-style-type: none"> ✓ All above actions, plus compensation for occupied habitat lost at a 2:1 ratio. 	Yes	No
Riparian Scrub, Riparian Woodland, Freshwater Marsh, and Drainages***	No	<ul style="list-style-type: none"> ✓ Obtain and implement Section 404/401 permits if area of impact is considered jurisdictional wetlands or waters of the U.S. under the CWA. ✓ Implement compensation for the loss of wetlands or waters of the U.S. in accordance with ACOE SOP (12501-SPD) for determining CWA sec. 404 compensatory mitigation requirements. Expect a mitigation ratio of 2 to 5:1. 	No	Yes (if CWA jurisdictional wetlands or Waters of U.S. involved)
	Yes	<ul style="list-style-type: none"> ✓ All above actions, plus compensation for occupied habitat lost at a 2:1 ratio (habitat compensation may concurrently meet wetland mitigation requirement). 	Yes	Yes (if CWA jurisdictional wetlands or Waters of U.S. involved)
Vernal Pool Watersheds and Basins^^	No	<ul style="list-style-type: none"> ✓ Obtain and implement Section 404/401 permits if area of impact is considered jurisdictional wetlands or waters of the U.S. under the CWA (in accordance with ACOE SOP (12501-SPD) for determining CWA sec. 404 compensatory mitigation requirements. Expect a mitigation ratio of 2 to 5:1. ✓ For non-jurisdictional true vernal pools, implement compensation of the same habitat type at a 1:1 ratio. ✓ When watersheds are affected but basins remain, take action to minimize decreases of water quantity, increases of sediment transport, and changes in water quality of the runoff to pool basins. ✓ Salvage vernal pool soil (plants, seeds, cysts, and soil) in the dry season prior to 	No	Yes (if CWA jurisdictional Waters of U.S. involved)

Table 6.2.2b. Mitigation Guidance for Projects with Permanent Impacts				
Mitigation Trigger	T/E Species* Occupied	Required Impact Avoidance, Minimization, and Compensation**	T/E Species Consultation Required?	CWA Permits Required?
		✓ construction for restoration purposes. No work in vernal pools during rainy season or when ground is wet (approximately 1 November to 1 June).		
	Yes	✓ If presence/absence of T/E species is not confirmed or T/E species are present, implement above required actions plus compensation for occupied habitat at a 3:1 ratio (consider quality equivalency). This may also concurrently contribute to any required CWA mitigation requirement.	Yes	Yes (if CWA jurisdictional Waters of U.S. involved)
Breeding Season	Between 15 February and 31 August, minimize habitat-disturbing activities to nesting migratory birds. If disturbance of suitable nesting habitat cannot be avoided, conduct pre-activity surveys for nesting birds. If bird nests are located, maintain appropriate buffers as advised by the Natural Resources Division. Any additional requirements for threatened and endangered species must be implemented.			
<p>*Federally listed species only. **See text (Section 6.2.2, <i>Definition of Terms</i>). Mitigation ratios should be equitable with the quality of vegetation/habitat impacted. Project-specific update of vegetation and land cover mapping must be done prior to determining appropriate mitigation ratios. ***Contact MCAS Miramar Natural Resources Division for a determination whether CWA jurisdictional wetlands or waters of the U.S. are present. ^^Contact Natural Resources Division to assist with clearly documenting whether T/E species are in a vernal pool watershed and whether T/E species would be indirectly impacted by work in the watershed. Planners should also contact the Natural Resources Division regarding the identification of true vernal pools (vs. seasonally ponded features) and whether they are CWA jurisdictional wetlands of the U.S.</p>				

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.

- 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. 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 (Appendix A).
- ***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, landscape maintenance and concentrated human foot traffic at a newly constructed facility may damage resources that were avoided by construction of a building. Often, maintenance and safety considerations associated with new or re-utilized facilities are overlooked by planners and are not realized until use is implemented (e.g. clear zones and firebreaks). Another example occurs when a new facility displaces field training from sites traditionally used for exercises. Such considerations must be treated as part of the initial project and mitigated accordingly.
- ***Less tangible direct and indirect effects*** must be evaluated and mitigated as a part of proposed actions. A common issue with wildlife is noise associated with construction and subsequent use

that extends beyond the project footprint, particularly during the breeding season. 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 temporary effects that may result from construction are avoided by performing work outside 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*** must be made using survey guidelines developed by the USFWS or other means acceptable to them. Where no such guidelines or protocols exist, surveys must be conducted by qualified persons (as defined below for biological monitors) 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 also be surveyed. If a site 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, Quino checkerspot butterfly, and fairy shrimp.
- A ***biological monitor*** should be retained to educate workers, oversee and implement impact avoidance, minimization, and document impacts for all proposed actions that require active avoidance or will actually affect threatened or endangered species or wetlands (including vernal pool habitat), require active revegetation, or require 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. For contracted actions, the biological monitor will work with the contracting officer's representative to stop work.
- 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 for all standard operating procedures, work requests, and contracts during planning.
- ***Migratory birds*** and their nests are protected by the Migratory Bird Treaty Act and implementing regulations and orders. Planners must review proposed actions with regard to conduct of actions during the active breeding season (may be January-September) 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 that 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 that has been used for construction contracts on MCAS Miramar.
- ***Compensating mitigation*** on the Station should be planned to occur in level I, II, or III MAs if at all possible, in that order. Consideration of off-station sites shall be a preferred method since using those locations would not limit on-station flexibility. Site evaluations and approvals for compensation and enhancement must be initiated concurrently with proposed action planning. Ideally, compensating work should start concurrent with or before the action causing an impact.

All actions that require active habitat restoration, enhancement, and/or compensating mitigation should have an appropriate mitigation plan developed prior to implementation. Such plans must discuss site conditions, methods to be implemented, monitoring and maintenance (usually 5 years or more), 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 finalized through the Natural Resources Division on MCAS Miramar.

6.2.3 Vernal Pool Advance Mitigation Program

In 2015, MCAS Miramar prepared an Environmental Assessment for a Vernal Pool Advance Mitigation Planning project, which described six potential “Mitigation Areas” that could be used as part of a future mitigation/conservation strategy that reduces mitigation cost and agency permitting processes. The program would develop compensatory mitigation in advance for unavoidable impacts to federally listed threatened and endangered vernal pool species and Clean Water Act jurisdictional Waters of the U.S to support MCAS Miramar ongoing activities (maintenance, repair, and renovation) and new actions (such as adding new land uses, facilities, or training areas). The six areas included about 699 acres on the Station at sites deemed compatible with currently known operational requirements. This planning included coordination with the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service with both agencies being supportive of the concept. Because of the substantial disturbance that site restoration would involve, Section 106 National Historic Preservation Act consultation for undertaking restoration on all sites was completed with a determination that no historic properties would be affected.

While all six potential mitigation areas were evaluated in the Environmental Assessment and a determination that all could be approved for vernal pool wetland habitat development, a decision was made to focus on one area, Area Delta (128 acres located between I-15 and Kearny Villa Rd.), as a first candidate for developing advance mitigation. This area already has some vernal pools supporting multiple endangered species, the MV-22 basing vernal pool mitigation project, and many acres suitable for development of additional new vernal pools. A site specific vernal pool wetland habitat development plan, environmental condition of property assessment, and full draft prospectus were developed in August 2016 to support agency approvals (Leidos 2016).

Further progress has been delayed because of staffing requirements for all (USFWS, ACoE, and Station) to support F-35 Basing facilities development planning, consultation, and execution. When the F-35 construction projects have finished, NRD staff expects to re-engage work on this effort with the appropriate agencies. Funding has been programmed as a COLS 2 project to start initial habitat development work in 2022.

6.2.4 Planning Alternatives for Future Mitigation

Off-Installation Mitigation

Given existing constraints to land use at MCAS Miramar, the use of existing and/or creation of mitigation/conservation banks off-Station as an option for meeting natural resources mitigation requirements shall be given serious consideration as a preferred approach. Participation in approved off-installation conservation/mitigation banks or in-lieu fee programs is encouraged as a preferred alternative to meet ecosystem goals and future mission requirements (DoD Inst. 4715.03, Enclosure 3). The primary objective of conservation and mitigation banking is to develop credit for habitat/wetland improvement, development, and long-term conservation that can be used, sold, or purchased as compensation for impacts elsewhere. However, while use of off-Station banks is encouraged, another option is to create conservation banks on

DoD owned-lands. However, selling, trading, or transferring credits to non-DoD entries is not allowed for conservation banks on DoD lands (DoD Inst. 4715.03, Enclosure 3).

In recent years, many large-scale conservation and mitigation banks have been established in California. With many conservation banks in operation or being established, San Diego County has opportunities (<https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks>) to provide off-Station mitigation (e.g., Daley Ranch, Crestridge, Cornerstone Lands, and Pilgrim Creek Banks). In 2010, credits for unoccupied coastal sage scrub mitigation were purchased from the Daley Ranch Conservation Bank in Escondido to compensate for the loss of similar habitat on the Station.

Purchase of conservation easements can also provide a means for securing compensatory mitigation. In late 2009, the Naval Facilities Engineering Command Southwest (NAVFAC SW) completed purchase of an off-Station, perpetual and irrevocable, conservation easement for 8.9 acres of California gnatcatcher occupied habitat owned by the San Dieguito River Park Joint Powers Authority in compensation for permanent impacts to habitat from the Navy Joint Regional Confinement Facility Southwest (Brig Alteration and Expansion Project on MCAS Miramar).

Off-Station opportunities for compensating mitigation through purchase of mitigation credits, perpetual conservation easements, and similar arrangements consistent with regional conservation plans and installation buffering shall be considered favorably as a preferred method for providing natural resource mitigation. Although off-installation options may not be available or preferred in all situations, or for all resource types, such an approach maintains future land-use flexibility on the Station to support military readiness. When comparing cost, indirect costs of staff time needed to manage on-Station restoration efforts and loss of land-use must be considered in addition to direct costs. Federal regulatory agency approval for compensating mitigation will be required if ESA species or CWA permitting is required.

Encroachment Partnering

Under authority of the Readiness and Environmental Protection Initiative and Readiness and Environmental Protection Integration (REPI) Program authorized by Congress in 2003 (10 U.S.C. § 2684a), installations “*may enter into an agreement with a State or private entity to limit development or property use that is incompatible with the mission, to preserve habitat, or to relieve anticipated environmental restrictions that would restrict, impede, or interfere with military training, testing, or operations on the installation*” (U.S. Department of Defense and U.S. Fish and Wildlife Service 2004).

The primary objective of the environmental partnering program is to ensure that encroachment does not threaten the ability on an installation to achieve its mission objectives and support military readiness. Environmental partnering is a cost effective means to limit incompatible land use and support local conservation efforts. This program is not intended to expand DoD land holdings, however, it is intended to relieve encroachment pressures restricting use of military lands. The Marine Corps’ vision and approach to creating land and conservation buffering partnerships on an installation has the following components:

- maintain integrity of military installation,
- conserve open space and natural resources, and
- enhance the community’s quality of life.

Usually, a non-governmental organization, such as The Nature Conservancy or The Trust for Public Lands, acquires either the land or easements on the land from willing sellers on behalf of the partnership. If an easement is purchased, the landowner can usually remain on the land and conduct their preferred lifestyle, whether it is forest management, ranching, etc. These lands will be managed in perpetuity in a manner to conserve the ecosystem and limit urbanization along the military installation boundaries. Real property

interest will normally take the form of a restrictive or conservation easement. Lands acquired under this authority are not to be directly used (e.g., maneuver or other training) for military purpose. Indirect use (e.g., overflights, noise) is permitted.

Notable successes with this process are on many military installations, including Marine Corps installations Camp Pendleton, Camp Lejeune, and MCAS Miramar. A 2015 DoD report to Congress¹¹ on the status of the Readiness and Environmental Protection Initiative stated the program, "...is a key tool for ensuring the sustainability of our military's training, testing, and operational capabilities through cooperative land-use planning and integrated land protection around installations and ranges."

A 2007 RAND Corporation study¹² of the Readiness and Environmental Protection Initiative stated, "*The key to combating this issue is speed... A number of these bases don't have the immediate funding or partnerships to compete with development pressures and buffer additional land, which in the long-term would save them money due to increases in property values over time... In many cases, the clock is ticking.... Once the opportunity to purchase undeveloped land has passed, it will be very difficult and expensive to buffer these bases.*"

Through coordination for Camp Pendleton's Buffer Lands Acquisition Program, the USFWS stated¹³, "*we recommend that both MCB Camp Pendleton and MCAS Miramar consider conservation opportunities for listed species within western San Diego County (approximately west of the crest of the Peninsular Mountain Range), western Riverside County (west of Banning Pass and the crest of the San Jacinto Mountains), and Orange County, as these areas contain the great majority of occurrences of listed species on MCB Camp Pendleton and MCAS Miramar.*" The USFWS continued by stating, "*The use of offsite conservation and restoration to offset impacts to listed species is a novel approach for MCB Camp Pendleton and MCAS Miramar, so we encourage continued close coordination with our office on the development of the crediting program and on the suitability of offsite conservation/restoration opportunities for addressing project-related impacts.*"

MCAS Miramar is working alongside MCB Camp Pendleton and the USFWS in an effort to develop a crediting agreement for REPI acquisitions for the threatened coastal California gnatcatcher to relieve restrictions to on-installation military operational land-use. MCAS Miramar has a goal to relieve ESA-related restrictions on undeveloped lands on the Station to support field operations and wildland fire management. The first property acquired to accomplish this goal is the 409-acre Lakeside Downs property, which is 2.3 miles east of MCAS Miramar. The DoN holds a conservation easement on the property that requires habitat preservation in-perpetuity, and the Endangered Habitats Conservancy hold fee title on the property and will manage it as a preserve. The property has high quality and regionally rare coastal scrub habitat and is occupied by the federally threatened coastal California gnatcatcher and a federal candidate for listing, the Hermes copper butterfly. The Lakeside Downs property has supported up to 13 breeding territories of coastal California gnatcatcher. The USFWS estimated that 279 acres of historically occupied habitat will provide coastal California gnatcatcher recovery credits proportional to DoD contributions. Because field training is restricted in occupied habitat during coastal California gnatcatcher breeding season on-installation, this will help to alleviate restrictions of on-installation military land-use.

¹¹ *Readiness and Environmental Protection Integration Program*. March 2015. Ninth Annual Report to Congress. Deputy Under Secretary of Defense for Acquisition, Technology and Logistics, Washington, DC.

¹² *The Thin Green Line: An Assessment of DoD's Readiness and Environmental Protection Initiative to Buffer Installation Encroachment*. June 2007 Press Release, RAND Corporation, Office of Media Relations.

¹³ Ecological Services, Carlsbad Fish and Wildlife Office, Carlsbad, CA. Dec. 9, 2009, letter to Commanding Officer, Marine Corps Base, Camp Pendleton, CA, *Buffer Lands Acquisition Program and Offsite Conservation for Marine Corps Base Camp Pendleton and Marine Corps Air Station Miramar, San Diego County, California*.

As needs and staffing permit, MCAS Miramar will continue to pursue REPI acquisition projects that can directly support military operations and readiness. Areas that are occupied by federally threatened and endangered species on MCAS Miramar will be the focus of acquisition due to the relief on operational restrictions that can be realized.

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). A conservation agreement was effectively used at MCAS Yuma to assist the flat-tailed horned lizard. Through this conservation agreement (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003a) and a Rangewide Management Strategy (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003b), it was possible to preclude a formal listing of the species onto the Endangered Species List. When appropriate, MCAS Miramar will consider conservation agreement options.

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