



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122, Box 50088  
Honolulu, Hawaii 96850

In Reply Refer To:  
2008-F-0231

Mr. Keith A. Takata  
U.S. Environmental Protection Agency  
Region IX  
75 Hawthorne Street  
San Francisco, California 94105

**FEB 10 2009**

Subject: Formal Section 7 Consultation for Proposed UXO Removal and Marpi Point Village Homestead Development, Saipan, Commonwealth of the Northern Mariana Islands

Dear Mr. Takata:

The U.S. Fish and Wildlife Service (Service) is in receipt of your June 5, 2008, letter requesting formal Section 7 consultation for proposed unexploded ordnance (UXO) assessment and removal at Marpi Point Village homestead on Saipan, Commonwealth of the Northern Mariana Islands (CNMI) (proposed project). We received your letter on June 10, 2008.

The Environmental Protection Agency (EPA) awarded the CNMI Department of Public Lands (DPL) a Brownfields Assessment cooperative agreement, as well as a Brownfields Cleanup cooperative agreement to assess and remove UXOs on three parcels in the Marpi area of Saipan. DPL wishes to remove the UXOs in order to redevelop the parcels into the Marpi Point Village Homestead Development which will support approximately 500 homesteads and related infrastructure (homestead). The homestead development is not funded by EPA and is a DPL action; however, the homestead can only be built on the project site if the UXOs are removed. Therefore, we consider the development of the project site into homesteads an interrelated and interdependent action under section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*) and have evaluated potential effects from the homesteads within this biological opinion.

At issue are the potential effects of the proposed project on the threatened Mariana fruit bat (*Pteropus mariannus*) (bat), endangered Mariana swiftlet (*Aerodramus bartschi*), endangered Micronesian megapode (*Megapodius laperouse*), and endangered nightingale reed-warbler

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(*Acrocephalus luscini*). This document transmits the Service's biological opinion based on our review of the proposed project and its response is in accordance with section 7 of the Act.

The findings and recommendations in this consultation are based on: 1) letters; 2) electronic mail; 3) various reports regarding the project (including the Biological Assessment prepared by SWCA Environmental Consultants (SWCA)); 4) meetings regarding the project description and conservation measures; and 5) other information available to us in our review of the proposed project (see consultation history). A full administrative record is available at the Pacific Islands Fish and Wildlife Office.

#### *Summary of the Species and/or Critical Habitat Likely to be Affected*

##### *Mariana fruit bat (*Pteropus mariannus*)*

In the request for consultation, you indicated that the proposed project may affect, but is not likely to adversely affect the Mariana fruit bat. The Mariana fruit bat is known to use habitats on and adjacent to the project site. No colonial bat roosts or individual bats were detected during site-specific project related biological surveys (SWCA 2008). However, individual bats may enter or leave an area each day and do not necessarily have site fidelity as compared to a roost. Bats on Saipan typically flush due to human disturbance and noise and are expected to leave the project site, if present, upon initiation of the project each day. Prior to clearing vegetation, the UXO technician will ensure that no individual bats are roosting in vegetation to be cleared (See conservation measure 1.3). If a bat is detected, then a 50 meter (m) (164 feet (ft)) buffer will be established around the bat until it leaves the project site of its own volition. Each worker will receive instruction regarding the ramifications of poaching and AMPRO (DPL hired AMPRO, a private consulting firm, to remove the UXO) will ensure that no poaching occurs during any activities associated with UXO removal. The routine flushing of bats by humans is expected to harass the bats, but not such that it significantly disrupts breeding, feeding, or sheltering. Therefore, we consider this harassment discountable and based on the absence of a roost on site, the conservation measures, and project description below, we concur that the proposed project may affect, but is not likely to adversely affect the Mariana fruit bat.

##### *Mariana swiftlet (*Aerodramus bartschi*)*

In the request for consultation, you indicated that the proposed project may affect, but is not likely to adversely affect the Mariana swiftlet. The Mariana swiftlet exhibits colonial roosting and nesting behavior and almost exclusively uses natural limestone caves for these activities (de Cruz *et al.* 2008 and references within). No roosting and nesting caves are known from or near the proposed project site nor were potential roosting or nesting caves discovered on the project site during surveys (de Cruz *et al.* 2008; SWCA 2008). This species forages over a variety of habitat types and may prefer ridge crests and open grassy areas (Service 1991a). Mariana swiftlets were observed on multiple occasions foraging over open field/grassland habitats and to a smaller extent foraging over secondary forest habitat on the project site (SWCA 2008). Mariana swiftlet count data indicated as few as two and up to seven individuals were observed at any one time. However these data should be used with caution as individuals were likely re-counted on multiple occasions (SWCA 2008). Enbring *et al.* (1986) estimated that approximately 14 percent of Saipan is represented by open field habitats. Therefore, based on the absence of a roosting and nesting cave on site or within the project vicinity, and the

availability of potential foraging habitats at other locations on Saipan, we concur that the proposed project may affect, but is not likely to adversely affect the Mariana swiftlet.

*Micronesian megapode (Megapodius laperouse)*

In the request for consultation, you indicated that the proposed project may adversely affect the Micronesian megapode. The Micronesian megapode generally uses native limestone forest habitats and tangantangan (*Leucaena leucocephala*) habitat to some extent (SWCA 2008 and references within; Mosher 2008). On the proposed project site during the 1980s, the Micronesian megapode was detected using a variety of habitat types (Glass and Adlan 1988; Enbring *et al.* 1986). SWCA (2008) found at least two individuals using the native limestone forest area of the proposed project site, but did not detect this species elsewhere on the property. No nesting was detected on the project site during recent surveys (Christy 2008); though nesting behaviors on Saipan are unknown and are generally very cryptic on other islands. The proposed project site consists of approximately 3 hectares (ha) (7.4 acres (ac)) of native limestone forest in the northeast section of the parcel that is adjacent to and contiguous with native limestone forest in the Marpi Commonwealth Forest. Micronesian megapode populations are estimated to be low range wide (approximately 1,500 individuals) and very low on Saipan (less than 20 individuals) with the majority of individuals in the Marpi area on Saipan (SWCA 2008 and references within). Enbring *et al.* (1986) estimated that only five percent of the native limestone forest remained on Saipan. Because Micronesian megapode population numbers are low and because little habitat remains for this species on Saipan, DPL (subsequent to the consultation request) has proposed to avoid the native limestone forest habitat on site (see Conservation Measure 1.1) by removing it from the proposed project footprint. The area will remain in Public land and if any other activity is proposed for the site, the action will be reviewed under section 7 or section 10 of the Act. Additionally, DPL will attempt to reduce predation pressure to the Micronesian megapode that is associated with homestead development (see Conservation Measure 2.1 to 2.4). Because of the incorporation of avoidance measures, protection of onsite native limestone forest habitat, and minimization measures to reduce predation pressure; we determined that the proposed project may affect, but is not likely to adversely affect the Micronesian megapode.

*Nightingale reed-warbler (Acrocephalus luscini)*

In the request for consultation, you indicated that the proposed project may adversely affect the nightingale reed-warbler. During recent surveys, four nightingale reed-warbler pairs were found with active nests and territories within the project footprint and action area (SWCA 2008). At least one, if not two, additional singing males were also detected on at least one occasion (SWCA 2008). The nightingale reed-warbler was using open field/grazed lands and secondary forest habitats on site. The proposed project will remove approximately 59 ha (145.8 ac) of these two habitat types combined, thereby permanently destroying four nightingale reed-warbler territories and rendering the parcel unsuitable for future breeding, feeding, or for shelter. Therefore, we concur that the proposed project will adversely affect the nightingale reed-warbler and the information below represents our Biological Opinion regarding the effects from the proposed project to this species.

**Critical Habitat**

No critical habitat for any species is designated on the island of Saipan; therefore none will be adversely modified or destroyed.

## CONSULTATION HISTORY

May 24, 2007. An initial meeting was held between Ben Camacho (CNMI Division of Fish and Wildlife (DFW)), Annie Marshall (Service); Franz Reksid, DPL; and Jim Callier, CNMI Division of Environmental Quality (DEQ)).

June 15, 2007. A meeting was held at the Service office in Honolulu, Hawaii, to further discuss the proposed project and next steps. We indicated that a Biological Assessment would be needed and recommended surveying for listed bird species. We also provided information regarding the use of the area by migratory birds.

August 23, 2007. Jim Callier (DEQ) sent an email to the Service requesting consultation guidance.

September 21, 2007. We sent a letter to Jim Callier (DEQ) providing: a species list, a list of information needed per interagency consultation regulations, and guidance to prepare a consultation initiation package (Service File Number 2007-TA-0335).

November 16, 2007. We received a letter dated November 2, 2007, from John S. Delrosario, Jr., Secretary CNMI DPL requesting section 7 consultation and providing additional information requested in our September 21, 2007, letter.

December 5, 2007. We sent an email to Jim Callier (DEQ) indicating that formal consultation would be necessary and a letter was being prepared. We requested a map of the project area and also recommended species surveys be completed. We suggested a conference call to begin discussing the project description.

December 11, 2007. Franz Reksid, DPL, emailed a map of the project site and set a date and time for the conference call.

December 12, 2007. A conference call was held between Holly Herod (Service); Franz Reksid, DPL; Jim Callier, DEQ; Paul Radley, DFW; Ray Masga, DEQ; John Scott, AMPRO; and Steve Simanonok, EPA. During the call we discussed the scope and desired timeframe of the project, content of the letter that the Service was preparing, and the different species on site and the need for surveys. The Service indicated that recommended survey methods would be provided by December 15. EPA indicated they would look into a spectral vegetation analysis of the Marpi area and would provide a grant extension to DPL.

December 13, 2007. We emailed draft conference call notes to all parties on the December 12, 2007, call and requested any corrections or edits. No requested edits or changes were received.

December 17, 2007. We emailed final conference call notes to all parties on the December 12, 2007, call and indicated that the survey guidelines were not ready for distribution.

December 18, 2007. We emailed notification to Franz Reksid, DPL; Jim Callier, DEQ; Paul Radley, DFW; Ray Masga, DEQ; John Scott, AMPRO; and Steve Simanonok, EPA; that draft survey guidelines were prepared but required internal review prior to release.

December 19, 2007. We sent Jim Callier (DEQ) the letter regarding the need for formal consultation. (Service File Number 2008-TA-0048).

December 30, 2007. Jim Callier (DEQ) requested an update regarding survey methods and suggested a joint agency meeting in February.

January 7, 2008. We responded (via email) indicating that we were still internally reviewing the methods.

January 15, 2008. We sent the draft survey guidelines to several species experts, including DFW, for their review and comment.

January 16, 2008. Paul Radley (DFW) provided comments related to the survey guidelines.

January 17, 2008. Laura Williams (DFW) and Stephen Mosher (private consultant with nightingale reed-warbler survey expertise) provided comments related to the survey guidelines.

February 5, 2008. Holly Herod (Service) forwarded recommended survey guidelines to all project parties.

February 15, 2008. Holly Herod (Service), Franz Reksid (DPL), Mario Cepeda (DPL) Steve Simanonok (EPA), Norwood Scott (EPA), Vincent Pereira (Guam Environmental Protection Agency), Ray Masqa (DEQ), Ed maribusan (DEQ), and Jim Callier (DEQ) to discuss the proposed project and potential conservation measures.

February 25, 2008. Jim Callier (DEQ) requested (via email) a change to the nightingale reed-warbler survey timing and transect structure, a modification to the recommended survey guidelines.

March 10, 2008. We agreed to the proposed modifications to the survey guidelines for the proposed project.

April 16 – 17, 2008. We received the first survey results, discussed these via conference call with Franz Reksid (DPL), Mario Cepeda (DPL), John Scott (AMPRO), and John Gourley (private consultant conducting the biological surveys), and requested minor changes to the reporting requirements.

June 10, 2008. We received a request for formal consultation from the EPA and the “Biological Assessment of the Marpi Point Village Homestead Site, Saipan, CNMI.”

June 10 – 12, 2008. Holly Herod (Service) met with Steve Simanonok (EPA), John Scott (AMPRO), Jim Callier (DEQ), Franz Reksid (DPL) to review the proposed project, evaluate conservation measures, and estimate a timeline to complete the consultation.

June 17, 2008. We requested additional information from Steve Simanonok (EPA), Jim Callier (DEQ), John Scott (AMPRO), Franz Reksid (DPL), Paul Radley (DFW) and Michelle Christy (SWCA, private consultant coordinating the biological surveys) via email to clarify biological data and provide information on previous land use.

June 24, 2008. We requested additional information from Steve Simanonok (EPA), Jim Callier (DEQ), John Scott (AMPRO), Franz Reksid (DPL), Paul Radley (DFW) regarding an area proposed for protection of the nightingale reed-warbler.

June 30, 2008. We received additional clarification from Michelle Christy (SWCA) regarding the biological data presented in the biological assessment.

July 15, 2008. We received additional information from Paul Radley (DFW) regarding the area proposed for protection of the nightingale reed-warbler.

August 21, 2008. We requested a modification of the area proposed for protection of the nightingale reed-warbler and provided a draft copy of the agreed upon and proposed conservation measures to Steve Simanonok (EPA), Dave Hodges (EPA), Jim Callier (DEQ), John Scott (AMPRO), Franz Reksid (DPL).

September 29, 2008. We received comments from Franz Reksid (DPL) regarding the proposed conservation measures.

September 30, 2008. We provided feedback to Dave Hodges (EPA) regarding the September 29, 2008, comments on the proposed conservation measures.

October 10, 2008. We had a conference call with Dave Hodges (EPA), John Scott (AMPRO), and Jim Callier (DEQ) to resolve all outstanding conservation measures, including the boundary of the nightingale reed-warbler protected area. EPA requested a draft biological opinion on October 24, 2008 and gave permission to provide the draft biological opinion to DPL, DEQ, and AMPRO.

November 9, 2008. We received a map of the conservation areas and buffer zones for the nightingale reed-warbler and Micronesian megapode.

November 10, 2008. We provided the draft biological opinion to the EPA, DPL, DEQ, and AMPRO.

December 17 and 18, 2008. We received comments from the DPL, DEQ, and AMPRO via email from EPA on the draft biological opinion. We also had a conference call with Dave Hodges (EPA), Norwood Scott (EPA), Sandra Leon (EPA), Marie Rongone (EPA), John Scott (AMPRO), JD Robinson (AMPRO), and Franz Reksid (DPL) to review comments and outline

reinitiation procedures if more nightingale reed-warblers are detected than take is authorized. EPA requested a revised draft biological opinion.

December 23, 2008. Holly Herod (Service) emailed Dave Hodges (EPA), Norwood Scott (EPA), Pankaj Aora (EPA), Sandra Leon (EPA), Marie Rongone (EPA), John Scott (AMPRO), and Franz Reksid (DPL) proposed expedited reinitiation procedures discussed during the December 18, 2008, conference call. EPA, DPL, and AMPRO provided written concurrence via email.

December 24, 2008. Holly Herod (Service) emailed a revised draft biological opinion to Dave Hodges (EPA), Norwood Scott (EPA), Pankaj Aora (EPA), Sandra Leon (EPA), Marie Rongone (EPA).

January 13, 2009. Holly Herod (Service), Dave Hodges (EPA), Marie Rongone (EPA) and Sandy Leon (EPA) had a conference call to discuss comments on the revised draft biological opinion. The Service made the additional corrections and provided these revisions to the EPA to ensure that they were accurately captured.

January 27, 2009. Dave Hodges (EPA) emailed Holly Herod (Service) additional changes to the draft biological opinion.

February 5, 2009. Dave Hodges (EPA) emailed Holly Herod (Service) requested revisions from DPL to the draft biological opinion.

## **BIOLOGICAL OPINION**

### **Action Area**

The action area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). The Marpi Point Village Homestead site consists of several adjacent parcels (Lot 058 A05, Lot 058 A 10, Lot 058 A 09) located on approximately 62 ha (153 ac) in northern Saipan, CNMI (Figure 1). The project location is bounded by, the Saipan Upland Mitigation Bank, other public lands, Highway 31, and the Far East Broadcasting Corporation. Due to the nature of the proposed project (see Project Description, below); the Service has included a 100 m (328 ft) impact zone within the effects analysis, surrounding the outside of the project footprint, into the action area. This additional impact zone was evaluated because this is the area likely to experience the greatest impacts from habitat fragmentation and edge effects, noise, and increased potential for access to these areas.

### **Description of the Proposed Action**

#### Project Description

The proposed project funded by the EPA Brownfields Program includes site preparation (vegetation removal, grubbing and grading) and UXO removal and disposal. The following description is summarized from DPL (2008a) and notes from the February 15, 2008, meeting. Grids and transects will be established based on existing 1940s era coral roadbeds. All surface vegetation and any obstructions and overburden will be cleared from the grids including rubble,

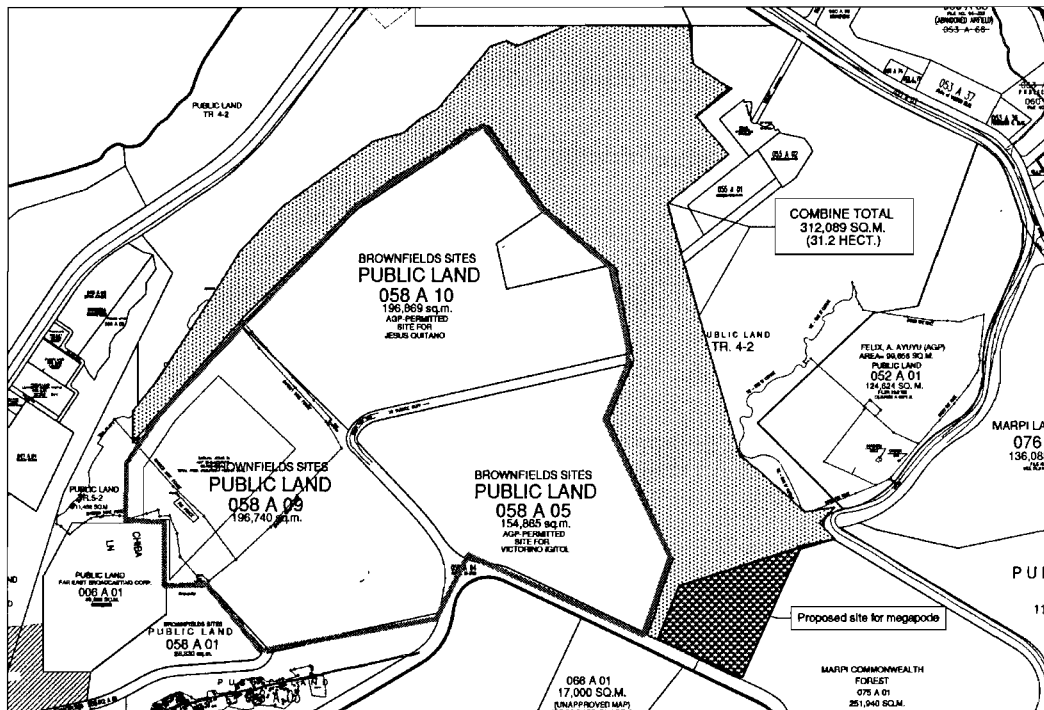


Figure 1. Location of the proposed Marpi Point Village Homestead (orange outline) and conservation and buffer areas for the nightingale reed-warbler (light green hatch) and Micronesian megapode (dark green hatch).

and man-made objects (fences, farm material, berms, etc.). Berms are present on the uphill side of each roadbed to prevent erosion. No ponding basins will be needed for erosion control which will prevent the attraction of the endangered Mariana common moorhen (*Gallinula chloropus guami*) to the project site. Therefore this species was not considered within this consultation. All man-made structures and other debris (excluding UXO) will be removed, including: a known trash pile consisting of farming related trash (*i.e.*, small containers, vehicle parts, small structures, metal sheeting, and fencing material). Three cattle farmers were also relocated from the site to other areas on Saipan.

The site development plan will include retention of selected large decorative or ornamental trees (such as *Acacia* sp., flame trees, etc.), otherwise all vegetation will be cleared using a bulldozer and will occur on alternating transects (beginning upslope) to reduce erosion. Any existing revetments will be bulldozed to align with existing ground contours. Buffer zones and protected areas will be marked and avoided. Vegetation will be disposed of by: mulching and depositing as fill in low areas on site, removal by truck, distribution to charcoal manufactures on island, or other legal means. The bulldozer will be accompanied by a UXO technician who will clear vegetation approximately 80 m (262.5 ft) ahead of the UXO work crews. The UXO work crew will walk the transects, flag any UXO detected visually or with a magnetometer. Once identified, the UXO will be removed by hand using a shovel and pick if the ordnance is small.



Soil will be excavated to a depth below the UXO to ensure all UXO is removed from the area. UXO will be placed in a truck and hauled to an appropriate disposal site. In the unlikely event that larger UXO are still on site, they may need to be exploded in place. After UXO removal, the entire project area will be graded flat.

Clearing will be completed in phases and will begin on lot 058 A 10, and continue to lot 058 A05. Lot 058 A 09 will be cleared last and will be cleared in two sections. Each area will require approximately 30 days to remove vegetation (CNMI DPL 2008a). It will take approximately 9 to 12 weeks to clear each area of UXO. Then vegetation removal of the next area will commence. All actions will be conducted between sunrise and sunset so that UXO can safely be removed. Heavy equipment (i.e., bulldozers, front end loaders, tractors, etc.) and service vehicles (i.e., vehicles with tools, spill response equipment, etc.) will be onsite to implement the UXO removal. All access to the site will be from existing roads and all workers will park on the edge of the project site and not on or next to adjacent parcels.

The purpose of removing the UXO is to develop the area into the Marpi Point Village Homestead. The homestead is not funded by EPA and is a DPL action; however, the homesteads can only be built on the project site if the UXO is removed. We consider the grading and development of the project site into homesteads interrelated to the proposed project and have evaluated homestead development under interrelated effects.

#### Conservation Measures

The following are conservation measures agreed to by DPL to avoid or minimize effects to the listed species reviewed in this consultation and are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to re-initiate this consultation.

1. DPL has proposed to remove a portion of the project site from the project footprint in order to avoid impacts to the Micronesian megapode which would otherwise result from habitat loss associated with the proposed project. This area consists of approximately 3 ha (7.4 ac) of native limestone forest habitat and a buffer zone that extends from the old World War II roadbed located in the eastern corner of parcel 058 A 05 of the project site, eastward to and contiguous with native limestone forest in the Marpi Commonwealth Forest (Figure 1). The area will remain in Public Lands and consultation under section 7 or 10 of the Act will be sought if the area is proposed for any use.
2. DPL has proposed to put a portion of public lands located directly adjacent to the project site into perpetual conservation (Nightingale Reed-Warbler Conservation Area) in order to offset impacts from habitat loss that will occur from implementation of the proposed project. The Nightingale Reed-Warbler Conservation Area is approximately 31.2 ha (77 acres) in size and is located adjacent to the northwest and east sides of the project site and is bordered by cliff line to the west and north and existing developed areas to the south (Figure 1). The entire area is above the cliff line. This area shares two nightingale reed-warbler territories within the project site and should provide opportunity for at least these two pairs to reestablish their territories. The area is large enough to protect 1.75 potential territories for each territory that will be impacted by Phase I (i.e.,  $1.75 \times 4 =$  habitat for 7 territories). This area will be a conservation area and will be

perpetually set aside for the nightingale reed-warbler and no clearing, construction, recreation, or other activities that are incompatible with nightingale reed-warbler protection will be allowed.

3. No individual bats were detected on site; however, individual bats may enter or leave an area each day and do not necessarily have site fidelity as compared to a roost. Prior to clearing vegetation, the lead UXO technician will ensure that no individual bats are roosting in vegetation to be cleared. If detected, then a 50-m (164 ft) temporary avoidance buffer zone will be established around the bat until it leaves the project site of its own volition.

4. DPL (or its designee) will prepare a Project Work Plan which will include flagging and marking procedures to denote the project boundary, any protected or conservation areas and temporary avoidance buffer zones to ensure that no accidental parking, habitat clearing occurs and no debris, vegetation, soil, or other materials of any kind are pushed or dumped into these areas. The flagging or other markings will be installed prior to any clearing and must remain in place and in clear view throughout all project phases including clearing, UXO removal, and construction.

5. The Service or CNMI-DFW will be allowed on site with 24-hour written notice to DPL and their UXO contractor to inspect any construction-related activities at the project site to ensure that land adjacent to the project site and temporarily avoided areas are not subjected to unnecessary take of listed species and to ensure that no unauthorized destruction of their habitat occurs. All Service and DFW representatives must comply with the site health and safety plan and any directions or instructions from the onsite health and safety officer or access will not be allowed. The health and safety plan will be provided to the Service and CNMI-DFW one week prior to implementation of any activity covered within this Biological Opinion. Service Law Enforcement are excluded from the 24-hour written notification.

6. No canine or feline pets or weapons (except for Federal, State, or local law enforcement officers and security personnel) shall be permitted at the project site by personnel under the supervision of AMPRO or DPL during the activities associated with UXO removal to avoid harassment, injuring, or killing listed species.

7. The DPL (or its designee) will prepare a Project Work Plan that will include the following elements to reduce the attraction of non-native predators to the area:

- A litter control program shall be instituted at the entire project site. All workers ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers shall be removed from the project area at the end of each working day.
- All tools, gear, and construction scrap will be removed upon completion of work in order to prevent the attraction of non-native pests (*i.e.*, rats).
- The DPL (or its designee) shall ensure that any materials imported from Guam to be used at the project site during project construction must be thoroughly searched for the brown treesnake (*Boiga irregularis*) at the CNMI port, prior to transportation to the project

construction or storage sites. Searches for the presence of snakes will be conducted on cargo shipped from Guam by CNMI Customs or Quarantine personnel under established CNMI procedures. All onsite personnel will receive instruction regarding the brown treesnake and what to do immediately in case of a sighting.

8. DPL (or its designee) will prepare a Project Work Plan that will include an erosion control and restoration plan to control short-term and long-term erosion and sedimentation effects. This will include all necessary local jurisdiction requirements regarding erosion control and will implement Best Management Practices (BMPs) for erosion and sediment control as required by the DEQ Earthmoving Permit. Oversight for compliance will rest with DEQ. The work plan will include the following elements:

- The project site will be inspected after each significant rain event to ensure that any BMPs for erosion control are functioning as intended and repaired or improved as necessary. In the event of pending storms, erosion control devices will be inspected to ensure that such devices are in place and are functional. If erosion control devices are found to be non-functional, they will be fixed within the requirements of the DEQ erosion control permit. Monitoring and maintenance of erosion control devices and adjacent disturbed areas will continue during and immediately after significant storm events.
- Vehicles belonging to the biological monitor and construction supervisors will be parked at the nearest point on existing access roads.
- The stockpiling of any materials, during project implementation, will be located a minimum of 50 m (164 ft) away from Protected Areas, temporary avoidance buffer zones or areas of potential runoff. All stockpiles will be removed or covered and protected with soil stabilization measures, and a temporary perimeter sediment barrier, as required by the DEQ earthmoving permit.
- Construction access points and staging areas, if needed for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants, will be onsite and at least 50 m (164 ft) from any Protected Areas or temporary avoidance buffer zones.

9. DPL (or its designee) will prepare a Project Work Plan that will include a spill prevention and clean-up plan. DPL will ensure compliance with spill prevention plan requirements as established by EPA/DEQ with DEQ oversight. The work plan will incorporate elements to ensure that any spills are cleaned up so that they do not encroach upon adjacent property or temporary avoidance buffer zones.

10. DPL (or its designee) will prepare a Project Work Plan that incorporates all conservation measures listed in this biological opinion and any specifically developed plans described within the conservation measures will be made available on the project site and will be reviewed with all workers.

11. DPL (or its designee) will ensure that all project staff will receive training by a qualified biologist regarding the importance of avoiding impacts to listed species and their habitats, habitat sensitivity, and required practices before the start of construction. The training shall include the conservation measures that are being implemented to conserve these species as they relate to the project, the penalties for non-compliance, the boundaries of the project area, and a field training exercise with a focus on the recognition of species, nest types, habitat and voice calls.

12. Upon completion of all worker education described above, workers will sign a form stating that they attended the training, understand the information presented, and will implement all the conservation measures. Training shall be conducted in languages other than English, as appropriate.

13. For UXO that must be exploded in place, the UXO will be marked, covered with soil to reduce total explosion, and only the minimum amount of plastic explosive will be used. The Senior UXO Specialist will make a determination as to the severity of the safety hazard to the public and, if supportable, UXO will not be blown in place if they are within 50 m (164 ft) of an existing nest until after the nest has fledged and the vegetation cleared.

### **Status of the Species**

#### Legal Status (listing history)

The nightingale reed-warbler was federally listed as endangered in 1970 (Service 1970). No critical habitat has been designated for this species. The Recovery Plan for the Nightingale Reed-Warbler (*Acrocephalus luscini*a) was finalized in 1998 (Service 1998a) and a five-year status review is underway (Service 2007).

#### Description and Taxonomy

The nightingale reed-warbler is known on Saipan, in the Chamorro language, as *ga'ga'karisu* (bird of the reeds) and is a medium-sized, yellowish, long-billed passerine (Service 1998a). The nightingale reed-warbler belongs to the Old World reed-warbler group (Sylviinae: *Acrocephalus*), which is widespread from Europe through Australasia (Watson *et al.* 1986). Three subspecies of the nightingale reed-warbler are currently recognized: (1) *A. l. luscini*a on Guam, Saipan and Alamagan; (2) *A. l. nijoi* on Aguiguan; and (3) *A. l. yamashinae* on Pagan (Pratt *et al.* 1987, Watson *et al.* 1986). Previously, Yamashina (1942) recognized four subspecies: (1) *A. l. luscini*a on Guam; (2) *A. l. hiwae* on Saipan and Alamagan; (3) *A. l. nijoi* on Aguiguan; and (4) *A. l. yamashinae* on Pagan. Mitochondrial DNA analysis provides some evidence that nightingale reed-warblers from Guam and Saipan are not sister taxa and that the Guam reed-warblers may be descended from a different continental ancestor (Beth Slikas, *in litt.* 2000).

#### Distribution and Range

The nightingale reed-warbler is endemic to the Mariana Islands and is known historically from five islands in the Mariana archipelago: Guam; Aguiguan; Saipan; Alamagan; and Pagan. The nightingale reed-warbler is also known prehistorically from Tinian (Steadman 1999). The nightingale reed-warbler has been extirpated from Guam since the late 1960s (Engbring *et al.* 1986, Reichel *et al.* 1992, Tenorio and Associates 1979). On Aguiguan, two singing males were

observed in 1992 (Craig and Chandran 1992), one was observed in 1993 (Lusk 1993), and another was observed in 1995 (Service 1998a). However, during surveys conducted on Aguiquan in 2008, nightingale reed-warblers were not detected (Camp *et al. in prep*). The Pagan subspecies was extirpated from Pagan between the 1960s and 1981 (Glass 1987). Prehistoric evidence of the species' existence on Tinian was discovered (Steadman 1999); however, there is no evidence of any recent occupation of Tinian by the nightingale reed-warbler. Therefore, the current distribution and range of the nightingale reed-warbler includes Saipan and Alamagan.

### Life History

#### *Habitat*

On Saipan, the nightingale reed-warbler is found in areas of dense understory, including reed marshes, wetland/edge vegetation, forest edge and openings, mixed tangantangan/grassland habitat, mixed tangantangan/secondary forest, and tangantangan forest. This species is largely absent from mature native forest, beach strand, and swordgrass (*Miscanthus floridulus*) savannah (Craig 1992, Reichel *et al.* 1992, Service 1998a). The nightingale reed-warbler has also been detected in limestone forests, near golf courses, and in residential areas. However, these habitats are considered less suitable and statistically significant declines ( $p < 0.0001$ ) in nightingale reed-warbler densities (60 individuals/km<sup>2</sup> in 1982 versus 0.05 individuals/km<sup>2</sup> in 2007) have been documented in residential areas (Camp *et al. in review*).

#### *Home Range and Core Area*

Nightingale reed-warblers are highly territorial and territory size appears to be affected by the specific habitat in which they are located (Mosher 2006). Home range is the area that a nightingale reed-warbler uses for foraging and routine behaviors. Nightingale reed-warblers in *Phragmites* (*Phragmites karka*) wetlands had smaller home ranges, followed by birds in tangantangan while birds in the mangrove complex had some of the largest home ranges in the study. Mosher (2006) reported a mean home range for males of  $3.73 \pm 1.12$  ha ( $9.2 \pm 2.8$  ac,  $n=9$ ) in upland tangantangan habitat,  $1.98 \pm 0.59$  ha ( $4.9 \pm 1.5$  ac,  $n=5$ ) in a *Phragmites* wetland, and  $7.86 \pm 3.59$  ha ( $19.4 \pm 8.9$  ac,  $n=5$ ) in a mangrove wetland (Mosher 2006). In addition, Mosher (2006) found that the greatest mean distance between locations was observed in males in the mangrove complex and that maintaining a buffer of trees and shrubs around *Phragmites* wetlands appears of importance to foraging birds.

Male nightingale reed-warblers show high site fidelity, defend their territories by singing, and tend to remain in the same territory, although the boundaries may change. Females are more likely to change territories than males (Craig 1992). Home range size for males and females in upland tangantangan combined is  $4.19 \pm 2.1$  ha ( $10.4 \pm 5.2$  ac,  $n=13$ ). Neighboring nightingale reed-warblers consistently have overlapping home ranges (Mosher 2006).

Mosher (2006), reported that the core area (the area of heaviest use within the home range, that may contain, roosting or feeding trees, nest sites, or water sources, etc.) for male and female nightingale reed-warblers within the home range in upland tangantangan is similar in size for both males and females (mean  $0.95 \pm 0.54$  ha;  $2.3 \pm 1.3$  ac,  $n=13$ ). Based upon the maximum mean core size of 1.49 ha ( $0.95 + 0.54$  ha) (3.6 ac ( $2.3 + 1.3$  ac)) and a minimum mean home range size of 2.09 ha ( $4.19 - 2.1$  ha) (5.2 ac ( $10.4 - 5.2$  ac)) of male and female nightingale reed-

warblers in upland tangantangan, the core area may occupy approximately 71 percent of a territory (1.49 / 2.09 ha x 100) (3.6 / 5.2 ac x 100).

#### *Food Habits*

Nightingale reed-warblers forage within the forest and feed on insects and their larvae, geckos, lizards, snails, and spiders (Marshall 1949, Mosher 1997a, Seale 1901; Craig unpublished data). Mosher (1999) observed nestlings being fed grasshoppers, moths, ants, small caterpillars, praying mantids, spiders, skinks and geckos.

#### *Life Cycle*

Nightingale reed-warblers appear to be monogamous at least within breeding seasons and males were found to associate with only one female over three peak breeding seasons (Craig 1992) while females are known to change mates (Mosher, *in litt.* 2005). Active nests were observed in all months except November and December. The frequency of breeding is bimodal showing a peak between January and March and another between July and September, with predation and typhoons influencing the timing and breeding of nightingale reed-warblers on Saipan (Craig 1992, Mosher 1997b, Mosher and Fancy 2002). Nesting often occurs in the canopy above 4 m (13 ft) from the forest floor (Mosher 2006). Females lay two to four eggs per clutch, incubation is by both sexes and lasts 15 to 17 days (mean =  $16.0 \pm 0.84$  (SD) days,  $n = 7$ ), and the nestling period is between 15 to 19 days (mean =  $16.7 \pm 1.73$  days,  $n = 15$ ) (Mosher 2006, Mosher and Fancy 2002).

#### Population Dynamics and Range Wide Trends

The nightingale reed-warbler occurs on Alamagan and Saipan and may be extirpated from Aguiguan (see Distribution and Range). Surveys on Alamagan in 1988, estimated 350 to 1,000 nightingale reed-warbler pairs (Reichel *et al.* 1992) and in 1992, more than 2,000 individuals were estimated on the island (Stinson 1993). De Cruz *et al.* (2000) conducted surveys on Alamagan and estimated there were 173 pairs (120-227, with a 95 percent confidence interval) of nightingale reed-warblers on the island. The variation in the above estimates may be due to differences in survey methodology and clearly future surveys should be conducted using standardized methodology to provide clarification regarding the status of this species on Alamagan.

Island-wide surveys for avian species, including the nightingale reed-warbler, have been completed on Saipan during 1982, 1997, and 2007 (Engbring *et al.* 1986, Service 1998b, Camp *et al.* in review). These data were summarized by Camp *et al.* (in review) and the population density and abundance data indicates that the nightingale reed-warbler population has declined since 1982 (Table 1). Population abundance estimates should be viewed with caution as they were calculated from a mean density applied to all habitat types, though density actually varies by habitat type; therefore, population abundance is an overestimate for all years.

Based on the best current available information, there are likely between 2,105 and 3,484 pairs of nightingale reed-warblers distributed over three islands: (1) Aguiguan (0 to 6 individuals); (2) Saipan (1,985 to 3,254 pairs); and (3) Alamagan (120 to 227 pairs) (de Cruz *et al.* 2000, Service 1998a; Camp *et al.* in review). These data indicate that the nightingale reed-warbler populations on Saipan have declined by approximately 61 percent since 1982. Trend data are not

available for the nightingale reed-warbler on Alamagan and the species may be extirpated from Aguiguan. There is no human presence on Aguiguan; however goats are impacting forest habitats and predators (*i.e.*, rats) of nightingale reed-warblers are present on the island (C. Kessler, pers. comm., 2008). Alamagan has a low human population level (less than 20 people) with little development; however feral ungulates (*i.e.*, goats, cattle, pigs) may be impacting habitats and predators (*i.e.*, rats and cats) of nightingale reed-warblers are present on the island (C. Kessler, pers. comm., 2008). Though the potential loss of up to 6 individuals of nightingale reed-warblers from Aguiguan does not substantially alter the estimated population size, it does further restrict the range of this species and makes the species more vulnerable to random events and habitat impacts.

Table 1. Population density and abundance estimates for nightingale reed-warbler pairs on the Island of Saipan (Camp *et al. in review*). Mean density = #/km<sup>2</sup>; abundance = density multiplied by the area of Saipan, 115.39 km<sup>2</sup>). All estimates have a 95 percent confidence interval estimates in parenthesis.

	<u>1982</u>	<u>1997</u>	<u>2007</u>
Mean Population Density	57.7 ± 6.0 (46.2 – 69.8)	40.2 ± 4.5 (31.8 – 49.3)	22.5 ± 2.8 (17.2 – 28.2)
Mean Abundance	6,658 (5,331 – 8,054)	4,639 (3,669 – 5,689)	2,596 (1,985 – 3,254)

## Threats

### *Habitat Loss*

The main threats facing the nightingale reed-warbler include habitat loss and degradation (including wetland destruction, upland forest conversion, and habitat succession by non-native invasive plant species) and predation by introduced animals such as rats, cats, and possibly monitor lizards (*Varanus indicus*). Other threats include competition among avian species, the potential for the establishment of brown treesnake populations on islands where this species occurs, and global climate change.

Prior to World War II, agricultural activities resulted in the cutting of reed beds and draining of wetlands reducing wetland habitat availability (Service 1998a and references within). After the war, many agricultural lands transitioned into scrubby habitats that the nightingale reed-warbler was able to exploit. Camp *et al. (in review)* provided evidence from the U.S. Census Bureau which indicates the human population has increased on Saipan by 429 percent between 1980 and 2000. As a result of this growth, wetlands, edge, and mixed forests habitats are being converted for agriculture, homesteads, tourist-related facilities, and other development. Habitat loss also occurs from feral ungulates compacting soils and grazing and browsing in forests, which reduces habitat integrity and the ability of the habitat to recover after natural events like typhoons (Service 1998a and references within). Habitat is also degraded from introductions and subsequent expansions of non-native invasive plant species.

Since listing in 1970, the Service has reviewed approximately 31 projects to analyze their potential impacts to nightingale reed-warblers on Saipan. A majority of these projects implemented avoidance and minimization measures and it was determined the nightingale reed-warbler was not likely to be adversely affected. Six proposed projects that would have adversely affected the nightingale reed-warbler were not issued incidental take statements by the Service due to a determination that the project would jeopardize the survival and recovery of the Mariana common moorhen. From the projects that were issued non-jeopardy biological opinions, incidental take statements were issued for: the harm and harassment of 64 adult birds; mortality of 8 adult birds; harm and harassment of 12 eggs or fledglings; and mortality of 58 eggs or fledglings. An undetermined number of juveniles may have been taken through implementation of these projects. A minimum of 68 ha (168 ac) of wetland and upland habitat has been impacted, filled, modified, cleared, or otherwise destroyed through the implementation of these projects. Habitat loss, fragmentation, and other degradation, including the loss of unoccupied, but suitable habitats (tangantangan) used by this species, is a threat to the nightingale reed-warbler. No projects have been reviewed by the Service on Alamagan or Aguiguan.

### *Predation*

The extent of the threat posed by introduced predators in the Mariana Islands is under debate (*e.g.*, Amar 2004, Sachtleben 2005, VanderWerf *et al.* 2007). There is evidence that the threat posed by the suite of introduced predators is high (Mosher 1999, Mosher 2006) and warrants further study. For example, Mosher (2006; *in litt.* 2005) found that out of 28 active nightingale reed-warbler nests that failed, 75 percent failed due to predation: 15 from rats, 1 from a feral cat, and 5 due to unknown predator(s). Rat predation has been documented in reducing reproductive success and contributing to the decline and extinction of avian species in other areas including island ecosystems (Atkinson 1985, Lindsey *et al.* 1999, Thibault *et al.* (2002), Tomich 1986, VanderWerf 2001, VanderWerf and Smith 2002). Cats are well documented as predators negatively affecting avian species in Hawaii (*e.g.*, Hodges and Nagata 2001, Hoshida *et al.* 1990, Hu *et al.* 2001, Perkins 1903, van Riper 1978).

Monitor lizards are opportunistic and omnivorous, eating small mammals, insects, other lizards, birds, and eggs (McCoid and Witteman 1993; S. Vogt *in litt.* 2006). In the Marianas, monitor lizard predation has been confirmed on Mariana common moorhen eggs, Micronesian megapodes (S. Vogt *in litt.* 2006) and a yellow bittern (*Ixobrychus sinensis*) chick (Wiles *in litt.* 2006). The extent and role of monitor lizard predation on the nightingale reed-warbler is unclear as the above bird species are or generally are considered ground nesting species, while the reed-warbler uses branches in the tree canopy. It is possible that a monitor lizard may be able to reach reed-warbler nests that are near trunks of trees or dislodge nests on smaller branches and then consume eggs, chicks, and possibly adult birds.

The most serious threat, however, is the potential for the establishment of the brown treesnake on additional islands in the Mariana archipelago. The brown treesnake was found to be the main cause of the decline of the native forest birds on Guam as it opportunistically preys upon eggs, nestlings, and adult birds (Conry 1988, Savidge 1986, 1987). Extirpations of all but two resident forest avian species in southern Guam occurred within 27 to 32 years after accidental introduction of the brown treesnake. In northern Guam, the average time for the bird populations to decline by 90 percent was 8.9 years (Wiles *et al.* 2003). Because the ecosystem on Saipan is



biologically similar to that of Guam, establishment of a brown treesnake population on Saipan is likely to have consequences similar to those of Guam (Brown Treesnake Working Group 2005). Equipment and materials (*e.g.*, for construction) shipped from Guam have the potential to carry and therefore spread brown treesnakes to areas around Saipan, increasing the ability of the snake to establish itself island-wide.

There have been 77 credible sightings of brown treesnakes on Saipan since 1982. These sightings have resulted in eleven captures of live brown treesnakes, eight of which were in the vicinity of the seaport or airport and three were in the interior of the island (N. Hawley, pers. comm. 2007). Evidence of an established or recruiting population of brown treesnakes is lacking for Saipan; however, due to the number sightings and captures, the snake may be in the process of becoming established (Rodda and Savidge 2007).

### *Competition*

In addition to these introduced species, there is evidence that native species may act to competitively exclude or prey upon nightingale reed-warblers. For example, Mosher (2006) found three nightingale reed-warbler nests in which at least one egg in each of the clutches had a circular 'peck' hole with no other disturbance to the nest. One of the three nests had a pair of golden white-eyes (*Cleptornis marchei*) nesting within 2 m (6.6 ft) of the nightingale reed-warbler nest. Other native species, including collared kingfishers (*Halcyon chloris*) and Micronesian starlings (*Aplonis opaca*) are known avian predators (Sachtleben 2005; F. Amidon, pers. comm. 2007); however, to date these species have not been observed preying upon nightingale reed-warbler nestlings. Observed behavior (territorial defense and changes in calling) indicates that the nightingale reed-warbler recognizes the collared kingfisher as a potential threat (Mosher 2006).

### *Non-native Invasive Plants*

The following information regarding scarlet gourd was summarized from L. Williams (pers. comm. 2008). Scarlet gourd was first identified on Saipan in 1998, and has spread across the island following road edges and invading the forest through gaps. Scarlet gourd covers trees (even in canopies that are greater than 4 m (13 ft)), bending and breaking branches and at a minimum shading trees. Scarlet gourd competes with other vegetation for resources (*i.e.*, water, nutrients) and has killed sections of forest. Scarlet gourd grows rapidly and can destroy a secondary forest and convert it to low grasses within a few years. Secondary forest of tangantangan, appears to be particularly susceptible to scarlet gourd as evidenced by the loss of tangantangan forest at the northern and southern edges of American Memorial Park; a 0.15 ha (0.4 ac) section of forest near Bird Island Conservation Area; and large areas near Obyan and Naftan point near the Saipan International Airport. As described earlier, tangantangan is heavily used by the nightingale reed-warbler and the impacts to this habitat from scarlet gourd have a variety of effects upon the reed-warbler. Scarlet gourd forms a thick blanket over trees, from the ground to the top of the canopy, that is difficult for birds to move within; the nightingale reed-warbler generally nests in the canopy at heights of 4 m (13 ft) or greater; however, after scarlet gourd bends the branches the bird appears to avoid nesting there. Also, the dense covering of scarlet gourd facilitates greater rat activity by providing an easier pathway into the canopy and supplies a relatively constant food source due to the large fruits it produces.

### *Global Climate Change*

Saipan, like other small islands, is likely to be vulnerable to the effects of global climate change, sea level rise, and extreme weather events (Mimura *et al.* 2007). Currently, Saipan has a tropical climate with a mean annual temperature of 28.3 °C (83 °F) and maximum range from 19 to 31 °C (67 to 88 °F). Humidity ranges from 79 to 86 percent. The rainy season is from July through October with an average annual precipitation of 213 centimeters (cm) (83.8 inches (in)). Global climate change is likely to affect local conditions near the island of Saipan, but the potential impacts are not well documented. The climate change information provided below is not specific to Saipan, but rather general information regarding climate change (<http://www.epa.gov/climatechange/science/futurecc.html> 2008, Mimura *et al.* 2007 and references within). The extent and rate of climate change is driven by the level of greenhouse gas (and aerosol) emissions over time. Near term climate change models developed by the Environmental Protection Agency indicate that global non-CO<sub>2</sub> greenhouse gas emissions are projected to grow 44 percent by 2020 relative to 1990 levels.

Average surface temperatures may increase by 1.1 to 6.4 °C (2 to 12 °F) by the end of the 21st century, relative to 1980 to 1990 temperatures. The increases in temperatures will not be distributed evenly around the planet and will differ by season. Surface temperature change maps suggest that temperatures around the Pacific Ocean near Saipan are expected to increase by 2 to 3 °C (3.6 to 5.4 °F) by the end of the 21st century, relative to 1980 to 1990 temperatures. It is unknown how the nightingale reed-warbler would tolerate increased ambient temperatures.

Increases in temperature are likely to lead to changes in precipitation and may result in increased average annual precipitation and, an increase in the intensity of precipitation events, particularly in tropical regions. Tropical storms and hurricanes are predicted to become more intense with stronger peak winds, and increased rainfall. At this time, there is no scientific consensus on how climate change is likely to affect the frequency of tropical storms. Increased storm intensity is likely to lower population numbers, as population numbers reported by de Cruz *et al.* (2006) and from breeding bird survey data appear to generally decline after tropical storms. Tropical storms and typhoons alter habitat through defoliation. Nests have been documented to fail and banded adults have been lost due to super-typhoons (Mosher 2006). Habitat damage from tropical storms likely results in temporary territory loss, either displacement or mortality of adults, mortality of active nests, and additional energetic expense to re-nest.

Changes in sea level are expected with estimates of an average increase by 18 to 59 cm (7.2 to 23.6 in) by 2100 relative to 1980 to 1999 sea level. Changes in sea level could alter or inundate mangrove and wetland habitats along Saipan's coastline which are currently used by the nightingale reed-warbler. Mean home range for males is greater in mangrove wetlands than *Phragmites* wetlands or upland tangantangan (Mosher 2006), indicating that the nightingale reed-warbler would be less dense and need greater physical space to support its population in mangrove habitats. In *Phragmites* wetlands, home range is significantly less than in the other two habitat types (Mosher 2006) suggesting that the nightingale reed-warbler would be more dense and less physical space is needed to support the population in *Phragmites* wetlands. Mangrove and coastal wetland habitats on Saipan are limited and their relative significance as habitat is unclear. However, because the nightingale reed-warbler is mainly restricted to Saipan and to a lesser extent Aguiguan and Alamagan, all available habitat is valuable. Inundation

could render these habitats unsuitable and also cause changes in land use forcing people to higher elevations where some of the conservation lands are set aside for the species. Additional habitat clearing, fragmentation, edge effects and increased risk of predation (*i.e.*, rats and cats) would be expected if people moved near conservation lands. The result would be a loss of coastal habitat and degradation or loss of upland habitat. Global climate change is likely to affect the nightingale reed-warbler and its habitat on Saipan; however, the extent of this impact is unclear.

#### Survival and Recovery Needs

The nightingale reed-warbler has been extirpated from Guam and Pagan, is likely extirpated from Aguiguan, resulting in the loss of at least one to possibly three subspecies. The nightingale reed-warbler is declining on Saipan, and the status on Alamagan is uncertain. The nightingale reed-warbler is currently subject to pressures from habitat loss and fragmentation, introduced species, competition with native species and global climate change (see Threats section above). The recovery plan for the nightingale reed-warbler includes the identification and protection of essential habitat as a recovery goal and states that the development of an island-wide Habitat Conservation Plan (HCP) for Saipan will aid in protecting this species (Service 1998a). The primary goal of the recovery plan is to protect existing populations of the nightingale reed-warbler and the habitat upon which they depend, as well as to protect them from the threat of the establishment of a breeding population of the brown treesnake (Service 1998a).

#### *Conservation Efforts*

The CNMI passed Public Law 10-84 on January 9, 1998, designating three conservation areas, the Bird Island Wildlife Conservation Area, Kagman Wildlife Conservation Area and the Marpi Commonwealth Forest (all on Saipan) to be “preserved in perpetuity for wildlife conservation and managed to enhance habitat functions for targeted endangered and threatened species.” The public law further indicated that these areas could be part of a conservation banking system. Public Law 10-84 prohibits any activities that are incompatible with listed species conservation that may have previously been allowable.

Prior to the enactment of PL 10-84 the Bird Island Wildlife Conservation Area (WCA), and Kagman WCA were under the management of the CNMI Department of Lands and Natural Resources through a ‘Grant of Public Domain’ registered in 1991. The Grant of Public domain allowed for the conservation of wildlife and agricultural uses in the Kagman WCA and was not specific on the general ‘wildlife’ uses allowable in the Bird Island WCA. Consequently, some agricultural uses were undertaken in these areas; however, they were discontinued after the enactment of the public law as these activities were incompatible with the conservation of listed species. Kagman WCA is 135.5 ha (330 ac) and nightingale reed-warbler are known to use the area.

The Bird Island WCA is approximately 89 ha (220 ac) and was created on July 16, 1991, and was under the management of the CNMI Department of Lands and Natural Resources for wildlife conservation, public enjoyment of wildlife resources and other uses consistent with these purposes. A CNMI 1997 Joint Resolution authorized a lease of 24 ha (59 ac) within the WCA to a development corporation. This development project did not take place in the timeframe designated by the lease; however, the leased area has not reverted back to CNMI Division of

Public Lands as intended (Schroer 2007). Although there have been no further legislative acts since Public Law 10-84 that affect the established conservation areas, the 1997 Joint Resolution established a precedent that demonstrates conservation areas that are not under a specific agreement with the Service could be leased for incompatible activities. Nightingale reed-warblers are known to use this WCA.

Susupe Wetland is regulated under CNMI Public Law #2-51 for the protection, restoration, and preservation of freshwater wetlands, habitat and species (Protected Areas Inventory 2008). The Service Recovery Land Acquisition Program provided funds to the CNMI Department of Lands and Natural Resources to purchase 3.8 ha (9.5 ac) of habitat along Lake Susupe, Saipan (A. Henry, pers. comm. 2007). The site is one of the only known large, freshwater wetlands in the CNMI. At least one nightingale reed-warbler pair uses this area.

Costco Park Wetland Mitigation Pond on Saipan was created for wetland mitigation under the Clean Water Act of 1972 to mitigate the wetland impacts from the Costco development on Saipan (L. Williams, pers. comm. 2008). The wetland can not maintain open water (a requirement of the permit issued by the U.S. Army Corps of Engineers) without annual clearing and dredging to remove abundant reeds (*Phragmites* spp). The endangered Mariana common moorhen needs the open wetland and a pair of nightingale reed-warblers uses the reed habitat. The abundance of nightingale reed-warblers is not expected to increase due to the dredging of reed habitat.

The Saipan Upland Mitigation Bank is currently being reinstated. The Saipan Upland Mitigation Bank will protect and manage 419 ha (1,035 ac) into perpetuity for the nightingale reed-warbler and other species within its boundaries. Subsequently, the Saipan Upland Mitigation Bank will be used as a conservation option for eligible projects that will result in unavoidable impacts to the nightingale reed-warbler or its upland habitat. The area within the Saipan Upland Mitigation Bank is set aside for protection of the nightingale reed-warbler; however no active habitat management is currently occurring as no eligible projects have opted to use the Saipan Upland Mitigation Bank to date.

Currently, the Service and CNMI DFW implement a brown treesnake inspection program on Saipan. This program includes maintaining active traps at strategic locations on Saipan, inspecting over 90 percent of all Guam-origin cargo at the ports of entry using snake detector dog teams, responding to potential sightings, and providing education to the general public regarding actions to take to prevent accidental introductions and actions to take in case of a sighting (Hawley 2008).

As mentioned previously, the Service has issued many biological opinions that allowed incidental take of the nightingale reed-warbler. Conservation measures, reasonable and prudent measures, and terms and conditions within these consultations were proposed as part of a project description or required in order to avoid or minimize take. General measures include: pre-activity surveys completed by a qualified biologist, to determine the number of active nests; flagging the active nests so that they are avoided by a minimum of 15 m (50 ft) up to 75 m (246 ft) until the nests have fledged or are abandoned; habitat alteration activities should be conducted during the non-breeding season; delineation of areas to be impacted, with flagging to prevent

accidental habitat removal and debris dumping on adjacent parcels; education of workers regarding listed species and impacts from the proposed projects; allowing vegetation to grow back after project implementation; and when wetlands were impacted other wetlands were enhanced and new wetlands were created (to support listed species) to meet the “no net loss” policy under the Clean Water Act. Other project specific avoidance and minimization measures include: post monitoring of project sites and mitigation areas; fencing of differing types; predator control programs; brown treesnake barriers; inspections of materials shipped from Guam to ensure brown treesnakes are not accidentally transported; education of homestead residents regarding listed species protection; and research (population viability analysis) to define a stable population and prepare for future recovery actions.

### **Environmental Baseline**

The environmental baseline represents the current status of the listed species and the factors responsible for that condition in the action area. The baseline usually includes State, local, and private actions that have affected or are currently affecting the listed species up to the time of the consultation. Unrelated Federal actions that have already undergone formal or informal consultation are also a part of the environmental baseline. Federal actions within the action area that may benefit listed species or critical habitat are also included in the environmental baseline. The environmental baseline describes the species’ health at a specified point in time, and it does not include the effects of the action under review in this consultation.

The action area was formerly used by the U.S. Department of Defense as a munitions storage area during World War II. Over 4,000 tons of explosives have been removed from the site since the late 1960s; however, current estimates suggest that this amount of UXO represents less than half of the total UXO present onsite (SWCA 2008). The area has never been developed due to the presence of UXO. The area has been grazed by livestock (10 to 12 cattle on one portion and less than 6 cattle on two other areas) with temporary structures in place (pig pen, cattle sheds, watering stations) while other areas have been reclaimed by vegetation (SWCA 2008, CNMI DPL 2008b). Currently, the vegetation within the project footprint is approximately 40 percent open field/grazed lands, 55 percent secondary forest, and less than 5 percent native forest habitat (SWCA 2008).

Project site specific surveys indicated the action area was being used by four pairs and up to two unpaired nightingale reed-warblers. Several other listed and rare species are known to use habitats on or adjacent to the project site. There are no known consultations for any listed species within the action area. The proposed project site is within an undeveloped area of Saipan. Recent survey data indicate that nightingale reed-warbler populations in the Suicide region (including the Marpi area) and Tanapag appear to be stable, whereas, populations in highly developed areas (Fadang, Garapan, Kagman, and Susupe) are declining. Camp *et al.* (pers. comm. 2008) suggests this pattern may be due to the absence of development within the Suicide area and only recent development in Tanapag.

### **Effects of the Action**

Site preparation and UXO extraction will clear all existing habitat (except ornamental trees) on the entire 62 ha (153 ac) parcel rendering the parcel unsuitable to support breeding, foraging, or sheltering of the nightingale reed-warbler, nearly doubling the amount of known habitat lost

(*i.e.*, habitat loss tracked by the Service) since the species was listed. To minimize effects from habitat clearing, active nests will be avoided by a 50-m (164-ft) buffer until the nest has been abandoned or successfully fledged. Because the nightingale reed-warbler can nest year round, it is likely that clearing and construction will occur during the nesting periods, therefore, buffer areas will be used to minimize impacts to nightingale reed-warblers nesting on the property and adjacent to the property. Additionally, the project boundary and any onsite buffer areas will be delineated with plastic fencing or flagging to prevent accidental habitat removal. Workers will be educated on the importance of precisely implementing the conservation measures to protect listed species.

Buffer areas should minimize mortality to the nightingale reed-warbler; however, the loss of habitat will negatively affect the species. Adults displaced by habitat loss, degradation, or fragmentation will attempt to establish new territories in habitats that may be already occupied by other nightingale reed-warblers. The nightingale reed-warbler is territorial, and neighboring pairs are likely to aggressively confront the displaced adults. A frequently observed pattern of intra-specific passerine bird territorial behavior is that the bird defending its territory is more aggressive than an intruder and is usually successful at driving the intruder away (Van Tyne and Berger 1976). The confrontation may interrupt the neighboring pairs' normal nesting behavior patterns (being away from their nests or fledglings during which time, the nests or fledglings will be exposed to predation and subject to cooling of eggs or missed feeding events) but because of buffer areas for clearing associated with this biological opinion, effects to eggs, nestlings, or fledglings from reduced incubation and feeding should be minimized. The protection of 31 ha (77 ac) of adjacent land for nightingale reed-warblers will provide potential area for territory establishment and may minimize intra-specific competition.

An unknown number of juveniles may also be directly or indirectly affected by the proposed project; however, there is minimal information on juvenile behavior or dispersal at this time (Mosher, *in litt.* 2006). Displaced adult males are likely to move farther from the project site until they encounter a patch of unoccupied suitable habitat where they will attempt to reestablish their territories. The likelihood of the males finding suitable habitat to establish new territories is unknown. Displaced females may or may not remain with their mates. The likelihood of females finding new mates is also unknown. Displaced birds will be subjected to stresses associated with searching for new habitat, competition with birds in the surrounding habitat, and the potential loss of their mates, and may not survive. If they do find habitat and survive, they may experience lowered reproductive success due to stress, loss of their mates, or having to settle in degraded or lower quality habitat. Birds displaced because of habitat loss have been shown to have low survival rates (Burton *et al.* 2006, Lambeck 1991). In addition, displaced birds may be subject to increased predation (see Threats – *Predation*) while moving in unfamiliar areas looking for new habitat. Displacement could result in lowered reproductive success as new territory quality may be poorer, stress due to searching for a new territory, increased predation risk, or desertion of areas under construction by female nightingale reed-warblers who exhibit lower site fidelity than males. Territories of lower quality may no longer support a breeding pair of birds, resulting in an overall loss of habitat for the species in the area.

Habitat fragmentation and alteration have also been implicated in reduced species richness, avian abundance, reduced productivity, and even reduced food supply (e.g., Blake and Karr 1987,

Burke and Nol 1998, Coulter 2005, Porneluzi and Faaborg 1999, Robinson 1998, Trine 1998, VanderWerf 1993). Bayne and Hobson (2001) found that female ovenbirds (*Seiurus aurocapillus*) avoid edges, such that males with territories further from edges had a greater probability of attracting a mate. Burke and Nol (1998) found that the proportion of paired ovenbirds was significantly greater in patches with more core area, which they also attributed to the reluctance of females to nest near edges. Burke and Nol (2000) studied nesting success of five species of songbirds in south-central Ontario and found that for four of five species, adult female reproductive success was at or above replacement levels in large forest fragments and continuous forest and below replacement levels in small forest fragments. The productivity of red-eyed vireo (*Vireo olivaceus*), was especially low in all the forest fragments monitored, although populations were close to replacement level in continuous forest. Herkert *et al.* (2003) found that nest predation of four grassland species was highest in the small (<100 ha; <247 ac) and lowest in large (>1,000 ha; >2,471 ac) prairie fragments. Fort and Otter (2004) studied the effect of habitat disturbance on the reproduction of black-capped chickadees (*Poecile atricapillus*) and found that overall, birds nesting in disturbed habitats experienced lower nest success than those breeding in undisturbed habitats. Crowding effects may occur in remaining habitat adjacent to new clearcutting (Darveau *et al.* 1995, Hagen *et al.* 1996). Hagen *et al.* (1996) also found ovenbirds had lower pairing success in fragmented habitat and suggest this may be a result of behavioral dysfunction resulting from abnormally high densities.

While few studies have been completed for nightingale reed-warblers in particular, the effects of habitat destruction and disturbance on avian species have been well researched and documented cross-taxa and we have no reason to believe effects on nightingale reed-warblers would vary. It is clear from monitoring nightingale reed-warblers during other land clearing projects, that disturbance can at least cause birds to move around, change their use of the area, or even their territories (Gourley and Johnson 2002, MES 2006). The Service has used 50 m (164 ft) in the past as a recommended no-activity buffer area around active nightingale reed-warbler nests discovered during monitoring of construction projects. The efficacy of various buffers is likely a function of many factors, as the following examples demonstrate. Some research suggests that predation pressure declines dramatically at distances beyond 45 to 50 m (148 to 164 ft) from the forest edge (Burke and Nol 1998, Gates and Gysel 1978, Paton 1994, Winter *et al.* 2000) while other studies suggest that predation pressures may extend beyond 100 m (164 ft), even 200 to 300 m (656 to 984 ft) into the forest interior (Andren and Angelstam 1988, Manolis *et al.* 2002).

Habitat loss and fragmentation is a great threat to the nightingale reed-warbler (See Threats – *Habitat Loss*). Densities of nightingale reed-warbler are currently considered stable in the Suicide (including Marpi) area (Camp, pers. comm. 2008). The proposed project will remove both occupied and unoccupied habitat which will likely contribute to a loss in population stability in the area as significant declines within nightingale reed-warbler densities have been detected in residential areas over time (Camp *et al.* in review). In order to minimize impacts to the nightingale reed-warbler and its habitat and to help reduce declines in population stability in the Marpi/Suicide area, DPL has proposed to set aside a 31 ha (77 ac) Nightingale Reed-Warbler Protected Area adjacent to the property that is large enough to provide habitat to support at least seven nightingale reed-warbler territories. At least two pairs of nightingale reed-warbler use this Protected Area along with the project site. By establishing a Protected Area into perpetuity, the effects from displacement and competition for new territories will be minimized.

### *Predation*

Nest predation pressure (see Threats – *Predation*) on the nightingale reed-warbler may also increase in the area surrounding the project site as a result of increasing edge effects and fragmentation of the habitat. Predation accounted for at least 75 percent of nightingale reed-warbler nest failures in a study by Mosher (2006). To minimize impacts from predation the DPL has incorporated multiple conservation measures into the project description that are designed to reduce the attraction of predators to the area and to prevent the spread of non-native invasive species.

### Interrelated Effects

Homestead development includes creating infrastructure (roads, utilities, schools, etc.) and homestead construction across the entire property except the portion of the project footprint removed in order to avoid the Micronesian megapode (see Conservation Measure 1). DPL is responsible for the oversight of infrastructure and homestead construction. Infrastructure for the homesteads will be installed approximately two to three years after UXO removal. Upon installation of infrastructure, homesteaders are expected to begin building and additional UXO clearance may be necessary.

DPL has proposed to implement several conservation measures to minimize impacts from the homestead development. DPL will maintain the Marpi Point Village Homestead property in appropriate vegetation types (low grasses and shrubs that are non-invasive or low risk of becoming invasive) to discourage attraction of listed species to the area prior to homestead and infrastructure construction so future construction impacts will not include additional habitat loss or interruption of breeding and nesting behaviors on site. Additionally, during homestead development (infrastructure, any additional UXO removal, site preparation, and home construction), DPL will delineate each homestead or project boundary so that accidental habitat clearing does not occur and no debris, vegetation, soil, or other materials of any kind are pushed or dumped into the buffer areas. The flagging or other markings shall remain in place and in clear view until clearing activity is completed. Erosion and spill control requirements will be provided within any DEQ permits issued to DPL or individual homestead applicants.

As much as is practicable through efficient land use practices and, in accordance with the needs of the Land Use Master Plan, DPL will establish land uses that will reduce impacts to the Nightingale Reed-Warbler Conservation Area and the area supporting Micronesian megapode that are associated with habitat fragmentation, edge effects, and increased predators. For example, a school and playground or a park could be established adjacent to these areas. Ninety days prior to the onset of homestead development DPL will provide the Service with the homestead development plan which will detail the location of homestead sites, schools, roads, utilities, and all any other related building or infrastructure. The Service will be provided the opportunity to review and provide recommendations for to locate compatible land uses next to areas supporting listed species.

DPL will print and distribute an educational brochure (prepared by the Service) to homestead applicants as part of the application package to alert homeowners to the special resources near their properties and the need to prevent introductions of non-native species, control pets, and prevent the spread of rats and brown treesnakes.



The homestead development will result in increased noise and human presence associated with urban areas and is likely to cause indirect effects to individuals within a population. These indirect effects may effect nightingale reed-warbler by increasing stress, lowering reproductive success (see above), and increasing predation risk.

Predation pressure from rats and cats may increase after homestead construction (See Threats – *Predation*). This increase is expected as a result of a potential increase in rat numbers around human dwellings. We expect an increase in cat densities, as pets or as feral cats attracted to the area due to increased availability of potential prey such as rats. Thus, in the long-term, there are also likely to be indirect impacts to the nightingale reed-warblers pairs on or adjacent to the project site. The extent of these indirect impacts on nightingale reed-warblers in the project area is difficult to determine. However, installing fencing between the project site and Protected Areas will help to minimize impacts from predation. Educating homesteaders, as described under the conservation measures, should also help to minimize impacts from pets and rats.

Noise can affect an animal's physiology and behavior and as a chronic stress, noise can be injurious to an animal's energy budget, reproductive success, and long-term survival (Radle 2006). Delaney *et al.* (1999) found that flushing frequency for Mexican spotted owls (*Strix occidentalis lucida*) was 13 percent with chainsaw noise at 46 to 60 m (151 to 197 ft) compared to 50 percent at less than 30 m (98 ft) (Delaney *et al.* 1999). Bald eagles (*Haliaeetus leucocephalus*) are sensitive to a variety of human activities during nesting season, and disruption, destruction, or obstruction of roosting and foraging areas can also negatively affect bald eagles, with variability in reactions attributed to visibility, duration, noise levels, extent of area affected by activity, prior experiences with humans, and the tolerance of the individual birds (Steidl and Anthony 2006, Service 2006). Great blue herons are negatively affected by human disturbance, in that the type of barrier acting as a buffer zone preventing human intrusion, and the types of human disturbances experienced, were associated with fledging success (Carlson and McLean 2006). Red-cockaded woodpeckers flushed in response to vehicle noise less than 50 m (164 ft) from nests (Delaney *et al.* 2002). Many other studies show that human disturbance impacts birds, sometimes with seemingly minor results (e.g., Gill *et al.* 2001, Gutzwiller and Anderson 2006) and other times it may have more detrimental effects on feeding behavior or on reproductive success (e.g., Burger and Gochfeld 1991, Fernandez-Juricic 2000, Gill *et al.* 1996, Henson and Grant 1991, Klein *et al.* 1995, Robert and Ralph 2006, Safina and Burger 1983).

In a consultation for the endangered least Bell's vireo (*Vireo bellii pusillus*), federally listed as endangered, the Service determined that indirect effects from noise would occur when the noise level was greater than 60 decibels A-weighted (dBA). In establishing the 60 dBA threshold, the Service was primarily concerned with the effects of noise masking song and altering behaviors of the vireo, though noise may cause other deleterious effects (Hein, *in litt.* 1997). Once the noise threshold was reached, minimization measures (i.e., using sound barriers) were implemented to reduce the level of noise. Observational data indicated that nightingale reed-warbler remained present at a site adjacent to heavy equipment use where the noise level, at least occasionally, exceeded 100 dBA (J. Scott, pers. comm. 2008). However, it is not known if the individual was actively engaging in normal behaviors. In this case, there is not enough information on the noise levels that will occur during the construction of potential projects, nor on what the effects of noise on the nightingale reed-warbler are, to determine exact impacts. A 50-m (164-ft)

temporary avoidance buffer zone will be established around each active nest to reduce potential impacts from noise. Additional research is needed to determine the most effective noise buffer distance for nesting nightingale reed-warblers.

### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Act. There are no known actions that are reasonably certain to occur in the action area.

### **Conclusion**

After reviewing the current status of the nightingale reed-warbler, the environmental baseline of this species, and the effects of the proposed action including interrelated and cumulative effects, it is the Service's biological opinion that the proposed UXO removal and Marpi homestead development, Saipan, is not likely to jeopardize the survival and recovery of the nightingale reed-warbler. No critical habitat has been designated for this species, therefore none will be affected.

The Service reached a non-jeopardy conclusion because the number of nightingale reed-warblers that will be impacted is a small percentage of the overall nightingale reed-warbler population and is unlikely to represent a threat to the continued existence or to the recovery of the species. This determination is made based on the knowledge that: (1) the nightingale reed-warbler population is successfully breeding on Saipan (Mosher 2006) (*i.e.*, the species is not senescent); (2) adjacent habitat will be protected so that harassed birds may establish territories adjacent to their existing territories; and (3) multiple conservation measures have been incorporated into the project description to minimize overall impacts.

## **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harass is defined as an intentional or negligent act that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Incidental take is any take of listed animal species which result from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency (EPA) or the applicant (DPL). Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the action is not considered a prohibited taking provided that such taking is in compliance with this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken DPL in binding conditions of any grant or cooperative agreement issued by EPA to DPL, as appropriate, for the

exemption in section 7(o)(2) to apply. The EPA has a continuing duty to ensure that the activity covered by this incidental take statement is governed by the terms and conditions of the Brownsfields grants or cooperative agreements during the life of the agreements. If the EPA (1) fails to assume and implement the terms and conditions or (2) fails to require DPL to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, DPL must report the progress of the action and its impact on the nightingale reed-warbler as specified in this incidental take statement to EPA and the Service (following section 1.2 of Terms and Conditions).

#### Amount or Extent of Take Anticipated

The Service anticipates incidental take of the nightingale reed-warbler will be difficult to quantify because males occupy territories, while females move between territories, and juvenile use of territories is generally unknown. We have assumed that a territory is occupied by a pair (one male and one female) of nightingale reed-warblers which will produce the maximum number of eggs per nest (4 eggs), all eggs hatch and fledge, and juveniles stay in the same vicinity of the adults. We recognize that this scenario is unlikely and this represents an overestimation of probable take. Therefore, the Service anticipates the following forms of incidental take:

1. Two individuals were detected onsite but had not established territories at the time of the surveys. Four territories (i.e., four pairs) of nightingale reed-warblers were located on site. All adult nightingale reed-warblers (individuals and pairs) and their offspring will be harassed as a result of UXO clearance. Therefore, we anticipate up to 10 adult (4 pairs plus 2 individuals) and 16 juvenile (4 eggs or fledglings x 4 pairs) nightingale reed-warblers may be harassed as a result of the site preparation and UXO removal.
2. No incidental take is expected or authorized for the homestead development because vegetation will be maintained such that listed species are not attracted to the project site and minimization measures will be incorporated to ensure no harassment and harm of individuals occupying adjacent habitats will occur. If this is not possible DPL will contact the Service to determine how to avoid take.

#### Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in extinction or a reduction of opportunity for recovery of the nightingale reed-warbler.

#### Reasonable and Prudent Measures

The reasonable and prudent measures given below, with their implementing terms and conditions, are designed to minimize the impacts of incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation. The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take on the nightingale reed-warbler. The measures described below are non-discretionary and must be implemented.

1. Take of adult and juvenile nightingale reed-warblers will be minimized.
2. Habitat loss, degradation, and fragmentation for the nightingale reed-warbler will be minimized.

#### Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, EPA will ensure that DPL complies with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement reasonable and prudent measure number one.

- 1.1 One week prior to any site preparation or clearing within any area of the project site, DPL (or its designee) will ensure the area is searched for the presence of active (eggs or hatchlings) nests. A qualified biologist experienced with nightingale reed-warbler nest location, will confirm if the nest is an active nightingale reed-warbler nest. If confirmed, the contractor will establish a 50-m (164-ft) temporary avoidance buffer zone (with construction fencing or flagging) around the nest. The Service (facsimile: 808/792-9581) shall be notified of the location and stage (e.g., egg or nestling stage) of the nest within two calendar days of its discovery and be provided a project site map showing its location. When an experienced biologist determines that the young have fledged or the nest has become inactive, the Service shall be notified and the temporary avoidance buffer zone can be cleared.
- 1.2 DPL will submit a summary report to EPA and Service describing the effectiveness of all conservation measures and terms and conditions, upon completion of UXO removal of each area and if any UXO were blown in place. The report will include a summary describing whether any active nightingale reed-warbler nests were found during the onsite surveys that will be conducted prior to clearing event. The report will detail how each nest was avoided and the outcome of each nest (failed, successful, number of eggs, number of chicks, number of fledglings). If during the interim, the conservation measures are not achieving the desired level of avoidance and minimization, DPL should contact the Service and EPA immediately to determine if minor adjustments can be made that would enhance the measure. If more than four nests are detected, then DPL will immediately contact EPA and Service to reinstate this consultation (following agreed upon expatiated procedures).

The following terms and conditions implement reasonable and prudent measure number two.

- 2.1 DPL will provide the Project Work Plan (see Conservation Measures) to the Service within five (5) working days prior to onset of any project related activities. The Service will respond within two (2) working days to alert EPA and DPL of any minor changes necessary to further minimize potential impacts from invasive species, erosion, or spills.

- 2.2 Summary reports described above (term and condition 1.2) will include photographs and a written summary describing the extent of habitat clearing and the effectiveness of boundary markers, flagging, etc. for habitat protection.
- 2.3 Within 90 days of the onset of actions for site preparation and UXO removal, DPL will submit a Memorandum of Understanding to the Secretary of CNMI Division of Land and Natural Resources and the Service to formalize protection and conservations uses of the Nightingale Reed-Warbler Conservation Area into perpetuity.


### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as the Service's non-binding suggestions resulting from formal or informal consultation that: (1) identify discretionary measures a Federal agency can take to minimize or avoid the adverse effects of a proposed action on listed or proposed species, or designated or proposed critical habitat; (2) identify studies, monitoring, or research to develop new information on listed or proposed species, or designated or proposed critical habitat; and (3) include suggestions on how an action agency can assist species conservation as part of their action and in furtherance of their authorities of 7(a)(1) of the Act.

1. If possible, habitat clearing for site preparation and UXO removal should begin between October through December or April through June. However, the Service recognizes that construction activities must be able to be conducted throughout the year as other factors (weather, permitting requirements, equipment, labor, funding, etc.) apply to the project.
2. EPA may, consistent with its authorities and available appropriations, contribute funding to the Saipan Upland Mitigation Bank, once re-established, to further offset habitat loss, fragmentation, and edge effects from this project.
3. EPA should encourage DPL to work with CNMI DFW and the Service to establish basic avoidance measures that a landowner (homesteader or agricultural) can implement to avoid adversely affecting listed species.
4. EPA should encourage DPL to purchase a credit or use CNMI Government reserved credits in the Saipan Upland Mitigation Bank, once re-established, to support predator control as increased predators are expected to result from homestead development.
5. EPA should encourage DPL to shield streetlights so that the light is reflected downward in order to prevent attraction of seabirds to the project area. The Service can provide additional guidance on shielding lights.
6. EPA should encourage DPL to limit homestead construction to day time hours only to prevent attraction of seabirds to the project area.

### REINITIATION-CLOSING STATEMENT

This concludes formal consultation on the project described in this biological opinion. As provided for in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency (EPA) involvement or control over the action has been maintained (or is authorized by law), and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action (site preparation and UXO removal) may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action (site preparation and UXO removal) is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action (site preparation and UXO removal). In instances where the amount or extent of incidental take is exceeded, any operations causing such take should cease pending reinitiation.

Sincerely,  


Patrick Leonard  
Field Supervisor

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