SUBJ: FY2019 ANNUAL REPORT FOR BIOLOGICAL OPINION 01EPIF00-2015-F-0025 AND 01EPIF00-2016-F-0185

Annual Report for the Biological Opinion for the Department of the Navy's Relocation of the U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam

Reporting Period: October 1, 2018 to September, 30 2019

Introduction: This annual report addresses the implementation of the conservation measures and terms and conditions during the Fiscal Year 2019 (FY19) for the relocation of Marine Corps personnel from Okinawa, Japan to Guam. Relocation efforts consist of the construction and operation of a main cantonment area, including family housing; and construction and operation of a live-fire training range complex (LFTRC); and training activities on Guam. The format of the annual report follows the format of the biological opinions (2015, 2017, & 2018). Construction contracts for work at Finegayan, Andersen Air Force Base, Northwest Field (rifle range, pistol range, non-standard small arms range and modified record of fire range), Andersen South, and Naval Base Guam were on-going or initiated in FY19 (Attachment 1). Construction contracts and the resulting ground disturbance prompt the implementation of most conservation measures commensurate with the impact associated with the ground disturbance or the operation of facilities or training. Unless otherwise stated, the above construction work and associated ground disturbance are the prompts for all the conservation measures and terms and conditions.

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PART I: BIOLOGICAL OPINION 01EPIF00-2015-F-0025 OF JULY 31, 2015 (2015 BO)

1. General Conservation Measures to Contribute to the Recovery of Listed Species

a. Forest Enhancement: Includes the installation of ungulate fencing, removal of ungulates and invasive plants, and outplanting of native plant species commensurate with the amount of recovery habitat cleared by the Department of the Navy (DON)-related projects.

Action Implementation: Includes total clearing associated with listed species recovery habitat of approximately 586 acres (237 ha) (Attachment 1).

Conservation Measure Implementation: DON awarded a contract in October of 2017 for the establishment of a native plant nursery, collection of seed, salvage of plant materials, propagation of native limestone forest species, and the operation of a native plant nursery on Naval Base Guam Telecommunication Site. The nursery became operation at the end of February 2019. Additionally, the J-001B project includes the construction of ungulate enclosure fence protecting a total of 669 acres (270 ha) of northern Forest Enhancement Site at Finegayan. The first phase (encompassing approximately 330 acres or 134 ha) of the fence is scheduled to be completed at the end of October 2019.

b. Guam *Serianthes nelsonii* Adult Tree: Includes fencing around the adult *Serianthes* tree at Northwest Field (NWF) to protect it from ungulates and outplanting of 30 individuals of *Serianthes nelsonii*.

Action Implementation: Includes two construction contracts that will remove portions of the existing Ritidian ungulate fence. The first construction contract which is for the known distance ranges at NWF was awarded in August of 2017, however, vegetation clearing for this project was delayed due to a variety of reasons. A portion of the existing Ritidian ungulate fence was removed as part of the construction clearing on the range footprint (Range Road) at NWF, which was initiated on 18 March 2019. The second construction contract, which will be for the Multi-Purpose Machine Gun Range project (the range closest to the *Serianthes* tree), is planned for award in March of 2020.

Conservation Measure Implementation: Fence construction was not initiated in FY19, but is anticipated to begin in early 2020 and be completed by July of 2021. No outplanting of the *Serianthes nelsonii* individuals occurred in FY19. Outplanting will occur as part of forest enhancement activities.

c. Sea Turtle Public Outreach and Coordination: An educational program to inform military and civilian personnel about sea turtle nesting and the potential impacts to the species from nest disturbance, direct harassment of sea turtles, beach disturbance, and other threats.

Conservation Measure Implementation: DON developed and distributed sea turtle conservation posters, tri-fold brochures and activity booklets for elementary school children. No outreach nor coordination was conducted in FY19 as there has not been an increase in the military nor civilian personnel population associated with the Marine Corps relocation program.

d. Brown Treesnake (BTS) Control and Suppression: Includes implementation of projects in the BTS Technical Working Group Strategic Plan and installation of BTS barriers.

Conservation Measure Implementation: DON entered into an Interagency Agreement in FY18 with USGS to develop a multi-species barrier fence design and prototypes. The period of performance is from May 2018 through October 31, 2019. The scope of the project includes conducting a literature review, developing and evaluating a multi-species barrier fence, constructing a prototype, conducting exclusion prototype trials, and estimating annual and long-term maintenance costs. A summary of the project results will be included in the FY20 report.

2. Conservation Measures to Minimize the Effects of Construction

a. Contractor Education Program: Ensures that construction contractor personnel are informed of the biological resources in the project area, including invasive species, special status species, avoidance measures, and reporting requirements.

Conservation Measure Implementation: Contractors from all active construction projects were provided training by the Marine Corps Activity Guam Natural Resources staff in FY19.

b. Contractor Plans and Specifications: All construction will occur within the limits of construction shown in the plans and specifications.

Conservation Measure Implementation: The construction contracts have language included in the *Unified Facilities Guide Specifications*, under Temporary Environmental Controls SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROL 1.6.1 Preconstruction Survey and Protection of Features, to require the construction contractor to stay within the limits of construction. Officer in Charge of Construction continues emphasis to contractors to stay within project limits. No construction project limits were breached during the FY19 reporting period.

c. Pre-Construction Surveys for the Mariana Fruit Bat: For projects within or in the vicinity of suitable fruit bat habitat, surveys following the Service-approved Joint Region Marianas (JRM) protocol will be conducted one week prior to the onset of work.

Conservation Measure Implementation: Marine Corps Activity Group Environmental (MCAG EV) bio-monitors conducted surveys at J-001B, P-102 and P-715 (Attachment 2). To further minimize potential impacts to Mariana fruit bats, MCAG provides natural resources awareness training to all contractor and DON personnel working within proposed action footprint. Pamphlets are distributed to aide in the identification of Marina fruit bat in the field and provide information on reporting protocols for sightings of Mariana fruit bat.

d. Guam Landscaping Guidelines: Appropriate or non-invasive species will be planted in all new landscapes.

Conservation Measure Implementation: Guam Landscaping Guidelines are included in all construction specifications awarded to date. However, no landscaping actions occurred in FY19.

e. LFTRC Range Berm Controls: LFTRC range berms will contain native or non-invasive herbaceous vegetation, and other engineering controls.

Conservation Measure Implementation: Clearing and grubbing of the range footprint has been initiated: however, no construction of the range berms occurred in FY19. Since berms have not been constructed yet, no conservation measures associated with the berms were implemented in FY19.

f. Lighting Installation: Either hooded or "night-adapted" lights will be installed at the LFTRC.

Conservation Measure Implementation: Lighting design was addressed in the construction contract awarded in August 2017. Clearing and grubbing of the range footprint has been initiated; however, no construction of facilities (which would include installation of lighting) has occurred in FY19.

g. Monitoring Construction Contractors: DON will be responsible for oversight of avoidance, minimization, and conservation measure implementation by the contractors for projects associated with the proposed action.

Conservation Measure Implementation: Oversight for natural resources compliance was completed by bio-monitor staff for all active construction projects (Attachment 3). Biological monitoring was conducted by MCAG natural resources staff and contracted personnel.

In FY 18, the J-001B contractor went outside the project limits and cleared approximately 2.16 acres (0.85 ha) that included 20 *Tuberolabium guamense*. The DON required the construction contractor to submit a work plan detailing how they were going to repair the damage to the 2.16 acres. Due to the impacts to *Tuberolabium guamense*, DON submitted the contractor's restoration work plan to the Service in February 2019, and the work plan was approved by the Service in September 2019. However, associated with the approved work plan, there is an outstanding issue regarding the definition of "survival". DON conservation measures defines "survived" as the documented observation of new root growth after transplantation. Although this restoration work was not part of the proposed action, any activities associated with the Marine Corps relocation program, authorized or unauthorized, are part of the project. We contend the definition of survived in the BO should apply to this restoration plan.

3. Conservation Measures to Minimize the Effects of Invasive Species

a. Onsite Vegetation Waste Management: Green waste is handled by the contractors at designated laydown areas within the limits of construction. Contractors are required to divert all green waste. The larger-sized green waste, consisting of trees and stumps, is processed into mulch and the smaller sized green waste is processed into compost.

Conservation Measure Implementation: Onsite vegetation waste management procedures are included in all construction specifications awarded to date.

b. DON's Final Guam Landscaping Guidelines: DON has developed a manual providing landscaping design guidelines specific to appropriate plant selection and establishment for all the DON construction activities on Guam.

Conservation Measure Implementation: Guam Landscaping Guidelines are included in all construction specifications awarded to date.

c. Biosecurity Outreach and Education: DON has initiated, and will continue to implement, a targeted, comprehensive biosecurity outreach and education program for DoD and civilian populations. These programs focus on biosecurity prevention.

Conservation Measure Implementation: The outreach and education project held a kick off meeting and the contractor is developing a work plan to align with scheduled military training dates.

d. HACCP Planning: A pathway management tool that provides a comprehensive method to identify risk and focus procedures to prevent spread of species though pathways.

Conservation Measure Implementation: All construction contracts contain a requirement to develop a Hazard Analysis Critical Control Point (HACCP) Plan, which will identify risks and potential pathways for non-native species and will outline procedures for controlling and removing risks identified. All contracts with HACCP programs include: J-001B/J-006/J-007/J-755/P-103/P-250/P-260/P-715, little fire ant, bio-monitor and HACCP evaluation surveys. Monthly natural resource inspections were conducted by the DON in FY19 to ensure the HACCP programs were being implemented. HACCP Plan reports are available upon request.

e. Monitoring to Evaluate Effectiveness of HACCP: To document the effectiveness of the HACCP implementation at construction sites, the DON has developed and implemented a long-term monitoring program for terrestrial vegetation. If new non-native, invasive species are detected, the DON will notify the Service and the DON will develop and implement an eradication plan or control effort to prevent infestation.

Conservation Measure Implementation: The requirement to evaluate effectiveness of HACCP is included in Unified Facilities Guide Specifications under Supplemental Temporary Environmental Controls DPRI SECTION 01 57 19.04 3.1.4 Biosecurity. Ongoing construction activities are implementing their approved HACCP plan. In FY19, long term vegetation program HACCP evaluation surveys were conducted for J-001B, 001B/J-006/J-007/J-755/P-102/P-103/P-250/P-260/P-715. No new non-native invasive species were detected in FY19.

f. Brown Treesnake Interdiction: DON will fund any increase of current federally funded brown treesnake interdiction measures (in Guam, CNMI and Hawaii) where the increase is related to direct, indirect and induced growth caused by the Marine Corps relocation to Guam and coordinated with the USGS regarding the Brown Treesnake Research Closed Population Facility at NWF.

Conservation Measure Implementation: DON has worked with USDA and the Service to determine brown treesnake interdiction cost increases. As of September 30, 2019, there has been no measurable increase in interdiction costs according to USDA. The LFTRC is still under construction and not operational, therefore there has been no coordination with USGS regarding the Brown Treesnake Research Closed Population Facility at NWF.

4. Conservation Measures to Minimize the Effects of Fire

a. Fire Management Plan for the LFTRC: Fire management is a key component of range management. The Fire Management Plan will be finalized for the LFTRC prior to operation of the first range at the LFTRC.

Conservation Measure Implementation: A cooperative agreement was entered into with Colorado State University, Center for Environmental Management of Military Lands in September of 2017 for the development of a Fire Management Plan for the LFTRC on Guam. A draft of the Fire Management Plan is planned to be submitted on October 31, 2019. The LFTRC is still under construction and will not be operational until calendar year 2022.

5. Conservation Measures to Minimize the Effects of Training

a. Aviation Training in Naval Munitions Site (NMS): All aviation training will be conducted so that flights will approach the southern portion of the NMS over the Talofofo River watershed and Fena Reservoir at heights of 1,000ft (305 m) or greater above ground level.

Conservation Measure Implementation: No aviation training has been conducted to date.

b. Ground Training at NMS: DON will maintain 328 ft (100 m) "no-training buffers" around the known Mariana swiftlet nesting coves (eg., Mahlac Cave, Fachi Cave, and Maemong Cave) in NMS.

Conservation Measure Implementation: No aviation training has been conducted to date.

6. Other Actions Considered for Analysis

a. Guam Micronesian Kingfisher (GMK) Memorandum of Agreement (MOA)

(1) Since the signing of the Guam Micronesia Kingfisher Memorandum of Agreement (MOA) in 2015, the DON has funded a number of projects in support of the MOA objectives, including brown tree snake eradication trials, allocating funds for staffing, and planning and compliance activities in support of management actions.

(2) In FY19, we awarded five projects for a total amount of $1,480,189. Projects included: (1) Optimizing Monitoring of Brown Treesnakes, (2) Estimation of Brown Treesnake Predation Threat Thresholds for Persistence of Reintroduced Birds on Guam, (3) Continuation of HMU Monitoring and Eradication Evaluation, (4) Eradication of Brown Treesnakes within the HMU, and (5) Barrier Construction (Ungulate Fence) at Haputo Ecological Reserve.

(3) In addition, we have been working with FWS to develop a Structured Decision-Making workshop to chart out the various elements related to reintroduction of Guam Micronesian kingfishers. Although reintroduction is not the purpose of the MOA, providing durable habitat protection to support native habitat restoration and land management for the survival and recovery of the Guam Micronesian kingfisher is one of the purposes of the MOA.

7. Terms and Conditions. Terms and Conditions from the 2015 BO are superseded by the 2017 BO amendment.

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PART II: BIOLOGICAL OPINION 01EPIF00-2016-F-0185 OF JULY 19, 2017 (2017 BO)

1. General Conservation Measures to Contribute to the Recovery of Listed Species

a. Fencing of the Haputo Ecological Reserve Area (ERA) Access Trail, Signage, and Education: The fencing will prevent overuse by military and civilian personnel and potential damage to terrestrial biological resources within the ERA.

Conservation Measure Implementation: the Haputo ERA is closed to military and civilian personnel. A contract for the fencing of the northern portion of the Haputo ERA was awarded in the fourth quarter of FY19. Construction will be initiated in the first quarter of FY20.

b. Pre-construction Survey, General Listed Plant Salvage and Translocation: DON will conduct pre-construction surveys to identify all listed plant species prior to the commencement of construction activities. If pre-construction surveys identify a listed plant species present in the construction area and the individuals cannot be avoided or translocated, then healthy plant material will be salvaged or available seeds will be collected, and such material will be housed in the Native Plant Nursery or directly transplanted into protected habitat or Forest Enhancement Sites.

Conservation Measure Implementation: DON has conducted pre-construction surveys for five construction projects (J-001B, P-715, P-102, P-103 and J-755) to identify all listed plant species prior to the commencement of construction activities. Table 1 identifies the number of plants salvaged, and the percent survival as of September 20, 2019. Attachment 4 provides detail on the species of plants salvaged by construction project.

Table 1. Percent survival of plants salvaged or seed collected

Species Name	# Salvaged	# Alive	# Dead	# Missing	# Seeds	% Survival
Bulbophyllum guamense	71	71	0			100%
Cycas micronesica	1,460	7	1453			.48%
Dendrobium guamense	20	18	2			90%
Heritiera longipetiolata	0	N/A	N/A	N/A	6 seeds	N/A
Tabernaemontana rotensis	0	N/A	N/A	N/A	Approximately, 1,392 seeds from 20 different trees	N/A
Tuberolabium guamense	6357	4806	1536	16		76%

c. Native Plant Nursery: Developed for the stoage and propagation activities of native and listed plant species, associated with the proposed action.

Conservation Measure Implementation: The nursery became operational at the end of February 2019. The nursery contractor obtained a 10(a)(1)(A) permit in March of 2019. The work plan for the threatened and endangered plant collection associated with the Marine Corps relocation to Guam was approved in August of 2019. The nursery has accepted approximately, 1,392 seeds from 20 different *T. rotensis* trees and 6 *H. longipetiolata* seeds from P-715.

d. Authorized Biologist Qualifications and Propagation/Translocation Authorization Process: Prior to commencing translocation of the listed species the DON shall submit a statement of qualifications for potential biologist to the Service.

Conservation Measure Implementation: Jessica DeBlieck was approved as an authorized biologist for snail work at J-755 in March 2019. No other authorized biologist requests were submitted to the Service in FY19.

e. Annual Reporting of Conservation Measures: The authorized biologist shall record each observation of each species handled in an annual monitoring report.

Conservation Measure Implementation: A summary of each species handled during FY19 by authorized biologists is provided as Attachment 5.

f. Avoidance of Listed Orchid Species in Small Location at Finegayan: DON will not construct within the area designated as "No Construction Area" within the proposed Main Cantonment because the location is not suitable for construction.

Conservation Measure Implementation: No construction has occurred within the area designated as "No Construction Area" within the main cantonment.

g. Forest Enhancement Sites, Ungulate Eradication Areas and BTS Exclusion Fences: Contribute to the recovery of listed species within two Forest Enhancement Sites (North Finegayan and Finegayan), the NWF Ungulate Control Area, and two BTS Exclusion Fences (North Unit and South Unit).

Conservation Measure Implementation: Forest enhancement and restoration activities conducted to date include:

(1) Identification of forest restoration/enhancement blocks;

(2) Mapping the proposed forest restoration/enhancement area boundaries;

(3) Authorization received from Andersen Air Force Base for specific area of forest to be restored or enhanced and vegetation clearance approach for permanent ungulate fences, access-grid trails, and temporary cross fencing;

(4) Obtaining clearance for any ground disturbing activities from UXO specialist;

(5) Performing forest inventory for species density and dominance (ongoing by Iowa State University); a draft report expected November 2019, and;

(6) Constructing permanent ungulate exclusion fence around perimeter of the enhancement site (ongoing – anticipated to be complete in October 2019.

h. Brown Treesnake Exclusion Fences

Conservation Measure Implementation: Addressed in Part 1, item 1.d.

i. Northwest Field Ungulate Control Area: Construct an ungulate exclusion fence to exclude feral ungulates from the LFTRC in NWF.

Conservation Measure Implementation: On October 30, 2018, the FWS issued an amendment to the July 15, 2015 and July 19, 2017 BO's to clarify that the total linear feet of ungulate fence is 4.06 miles (6.5 km). The initial construction contract included installation of 3.69 km of security fencing, which will also act as an ungulate control fence. Fence construction has not stated (as of September 30, 2019), but is anticipated to begin in early 2020 and be completed by July 2021.

2. Conservation Measures for Specific Species

a. Mariana Eight Spot Butterfly: DON will conduct pre-construction surveys to identify any stages of the Mariana eight spot butterfly prior to the commencement of construction activities. If any life stage of the Mariana eight spot butterfly is located within a project footprint, it will be relocated onto an appropriate host plant within similar sites away from the project footprint. In addition, DON will plant the Mariana eight spot host plants (*P. pedunculata* and *E. calcareum*) within the Forest Enhancement Sites and on the backside of the earthen berms of LFTRC ranges.

Conservation Measure Implementation: Pre-construction surveys were conducted in 2018. Butterfly life stages were translocated from the P-715 project footprint to the recipient site at Northwest Field in July of 2018. One year of monitoring was completed in July of 2019. A draft project report has been submitted to DON for review. A copy of the final report can be provided to FWS, if requested.

As of September 30, 2019, no Mariana eight-spot host plants (*P. pedunculata* and *E. calcareum*) have been planted within the forest enhancement sites or on the backside of the earthen berms of LFTRC ranges. No earthen berms have been constructed within the LFTRC ranges and the forest enhancement sites have not been fenced to preclude ungulates.

b. Guam Tree Snails [Guam, fragile and humped tree snail]: Pre-construction surveys to identify any Guam tree snail, fragile tree snail, or humped tree snail within the project footprint

prior to the commencement of construction activities. If any listed snail is found, the authorized biologist will translocate the listed snail away from the project footprint and into suitable habitat.

Conservation Measure Implementation: As of the September progress report, 694 Guam tree snails have been salvaged from the J-755 (Andy South) project footprint. The snails have been translocated to the Haputo Ecological Reserve Area.

c. Mariana Fruit Bat: Surveys following the Service-recommended JRM protocol will be conducted one week prior to the onset of work.

Conservation Measure Implementation: MCAG provides natural resources awareness training to all contractor and DON personnel working within construction footprint. Pamphlets are distributed to identify Mariana fruit bat in the field and provides information on reporting protocols.

d. Listed Plant Species: Healthy listed plants located within a project footprint will be transplanted into Forest Enhancement Sites or other suitable protect areas (e.g., NWF Ungulate Control Area) prior to clearing.

Conservation Measure Implementation: DON conducted plant salvage at fie construction sites (J-001B, J-755, P-102, P-103, and P-715). For more information please refer to Table 1 and Attachment 4.

3. Conservation Measures to Minimize the Effects of Construction: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 2 of this report)

4. Conservation Measures to Minimize the Effects of Invasive Species: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 3 of this report)

5. Conservation Measures to Minimize the Effects of Fire: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 4 of this report)

6. Conservation Measures to Minimize the Effects of Training

a. Aviation Training in NMS: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 5 of this report)

b. Ground Training in NMS: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 5 of this report)

c. Designated No Wildlife Disturbance Areas: Addressed under the response for the July 31, 2015 Biological Opinion on the Department of the Navy's Relocation of U.S. Marine Corps from Okinawa to Guam and Associated Activities on Guam. (See Part I, Paragraph 5 of this report)

7. Terms and Conditions (T&C)

a. Note: Habitat Surrogate Approach - As discussed during the Quarterly Meeting in June, DON would like to review the Terms and Conditions with the Service to determine if they are consistent with the habitat surrogate approach used to express and monitor the anticipated extent of take in the BO. The Reasonable and Prudent Measure for the Mariana fruit bats is to monitor the level of incidental take using a habitat-based surrogate. As noted in the biological opinion, it is not practical to detect or monitor the take of individuals that are small, cryptic, and are exposed to excessive noise levels or other human disturbance. Some of the Terms and Conditions focus on the individual and not the habitat-based surrogate. We would like to discuss this further during our quarterly meeting in Honolulu on November 15, 2019.

b. T&C 1: Implementation of Conservation Measures: Addressed in Parts I and II of this report.

c. T&C 2: Minimization of the level of incidental take of the Mariana fruit bat, Mariana eight spot butterfly, Guam tree snail, humped tree snail, humped tree snail, and fragile tree snail

<u>T&C Implementation</u>:

[2.a] Surveys have been conducted for Mariana fruit bats. No bats have been observed to date within 492 ft (150 m) of a construction site.

[2.b] Hooded lighting is being planned for actions within 482 ft (150 m) of all potential Mariana fruit bat roost habitat. No hooded lights have been installed to date.

[2.c] Educational materials regarding Mariana fruit bat appearance, behavior, and biology have been provided to all pertinent DON personnel so that they can correctly identify any Mariana fruit bats near or within the action construction and operation area. The LFTRC is still under construction and not operational.

[2.d] There have been no changes to noise contour as it relates to the action; and, to date, no Mariana fruit bat habitat has been subjected to increased noise levels from aircraft operations. Operation of the LFTRC is greater than one year out from September 30, 2019.

[2.e] There have been no changes to noise contour as it relates to the action; and, to date, no Mariana fruit bat habitat has been subjected to increased noise levels from aircraft operations. Operation of the LFTRC is greater than one year out from September 30, 2019.

[2.f] The construction contract for the MPMG range was not awarded in FY19. Therefore, operations have not started, and no noise studies at the Guam National Wildlife Refuge and Ritidian Point have been initiated.

[2.g] The DON provided the Service with a copy of the work plan in October 2018 and received concurrence on the work plan in November 2018. Removal of snails from J-755 (Andy South) is on-going.

[2.h] The one-year maintenance and monitoring period for the life stages of the Mariana eight spot butterflies relocated from the P715 project footprint was completed in July of 2019. The salvage and transplant of butterfly life stages from the P-715 construction footprint presented an opportunity to test the success rate of certain methods for Mariana eight-spot butterfly salvage. Host plant portions cut and inserted into floral tubes filled with 1% vinegar solution survived approximately three weeks after salvage activities. The salvage method was successful in preserving host plant portions long enough for dependent life stages to complete metamorphosis or relocate. The 1% vinegar solution utilized inside of the floral tubes attracted fauna from the surrounding secondary limestone forest (e.g., coconut crabs). Within 5 days of transplant, vials appeared to be scratched and clawed in an attempt to retrieve the sugary solution. Other sites may not encounter these issues, but it is an observation worth noting when considering methods for future salvage projects. Eighty-one percent of the eggs observed over the 12-month monitoring period appeared to be parasitized.

c. T&C 3: LFTRC Fence. DON shall **c**omplete the NWF Ungulate Control Fence within two years of awarding the contract for construction of the portion of the LFTRC that removes the existing Ritidian Ungulate Fence.

T&C Implementation:

[3.a] The construction contract for work at the known distance ranges (P-715) at NWF was awarded in August 2017. However, construction was delayed. Clearing and grubbing of the project that removed existing portions of the Ritidian ungulate fence did not begin until March 2019. The construction contract includes 3.69 km of security fencing.

[3.b] The NWF ungulate fence has not been constructed to date. However the cliff line section of the new ungulate fence is expected to begin installation in early 2020, while the perimeter sections of the ungulate control area are expected to be fenced in early 2021.

d. T&C 4: Take Monitoring Plan

T&C Implementation: A Take Monitoring Plan for the Mariana fruit bat, Mariana eight spot butterfly, Guam tree snail, humped tree snail, and fragile tree snail was provided to the Service on September 19, 2017.

PART III: BIOLOGICAL OPINION 01EPIF00-2016-F-0185 OF JULY 19, 2017 (OCTOBER 30, 2018 -2018 BO AMENDMENT)

1. General Conservation Measures to Contribute to the Recovery of Listed Species

a. Annual Reporting of Conservation Measures – The annual reporting of the Conservation Measures shall include the salvage and translocation of threatened and endangered plant species covered under separate 10(a)(1)(A) permit(s) for actions conducted in support of the Conservation Measures listed in the 2015 and 2017 Bos, as well as this reinitiation.

Conservation Measure Implementation: Annual reports are included as Attachment 5.

b. Forest Enhancement Sites, Ungulate Eradication Areas, and BTS Exclusion Fences - DON added the construction of approximately 1.76 miles (2.81 km) of ungulate control fence at NWF. Fence is to be constructed within three years of awarding the contract for construction of the portion of LFTRC that removes the existing Ritidian Ungulate Fence. The construction contract for work at the known distance ranges (P-715) at Northwest Field (rifle range, pistol range, non-standard small arms range and modified record of fire range) was awarded in August of 2017 however construction has been delayed. Clearing and grubbing of the project footprint did not begin until March of 2019.

Conservation Measure Implementation: Fence construction has not started, but is anticipated to begin in early 2020 and be completed by July of 2021.

END OF REPORT