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Via email and USPS

Joint Guam Program Office (JGPO)
C/O NAVFAC Pacific
258 Makalapa Drive, Suite 100
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Attention: GPMP

***Rebuttal to DOD Responses to Comments on
Potential Impact on the Mariana Eight Spot Butterfly,
an Endangered Species Living on Route 15 Lands***

My colleague, Dr. Ross Miller, and I spent considerable time and effort commenting on "Potential Impact on the Mariana Eight Spot Butterfly, an Endangered Species Living on Route 15 Lands" in response to the DEIS. Thank you for responding to each of our comments. I am glad that JGPO improved the EIS by incorporating some of our suggestions and correcting some of the errors we found in the DEIS.

However, I find your FEIS assessment of potential impacts to the butterfly and other native species living in the limestone forest on "Route 15 Lands" in the Pagat area is unscientific, biased, and incomplete. I strongly disagree with your assertion that "impacts are expected to be less than significant" and find your proposed mitigation plans inadequate. I am dissatisfied, disappointed and dismayed with responses to some of our comments and have chosen to rebut a few of them.

Guam is home to two butterfly species which have been candidates for the Endangered Species List since 1997. One species, the Marianas rusty butterfly, has not been observed since the 1970's (Schreiner & Nafus 1997) and is probably already extinct. The Mariana eight-spot butterfly, is still occasionally seen on Guam but this species may well become extinct before it is fully protected by the Endangered Species Act. In 2009 USFWS gave this rare species a high

priority for inclusion in the endangered species list (level 3 out of 12 with 1 being the highest priority) (USFWS 2009). This species is also listed by the Government of Guam as a Species of Greatest Conservation Need (GDAWR 2006). Note that the FEIS Volume 2 consistently and incorrectly indicates that the Mariana eight-spot butterfly is not Guam-listed, even though the fact sheet in Volume 9 says that it is.

The Mariana eight-spot butterfly lives in Guam's limestone forests and it is at risk of extinction from habitat destruction and fragmentation and negative interactions with invasive species. The limestone forest on the "Route 15 Lands", which includes the ancient village of Pagat, Sasajyan Valley, and the Guam International Raceway, is part of a contiguous coastal fringe of limestone forest habitat which runs north all the way up to Ritidian Point (the northern tip of Guam) and then extends south as far as Gun Beach in Tumon. Most of this habitat is on land already occupied by DOD (AAFB and NCTMS). In the DEIS, DoD did not provide substantive alternatives for building firing ranges for the Marines. Alternative A and B both require acquisition of the same large tract of property between Route 15 and the ocean. Both alternatives will destroy and fragment high quality limestone forest habitat. This action will further endanger the Mariana eight-spot butterfly and many other species living in that habitat.

My rebuttal to DoD responses to comments on the DEIS follows:

DEIS Comment:

1. According to the DEIS Volume 2, Chapter 10, page 14: "Survey methods are provided in detail in the *Natural Resources Survey Report* (NR Survey Report, in preparation, estimated completion in November-December 2009)." This report is cited 58 times in Volume 2, Chapter 10 although it is missing in the list of references for this volume of the DEIS. One of us (AM) requested a copy of the report and were informed that it is not available (see email exchange with NAVFAC in Appendix 1). Without detailed information on survey methods, geographic coverage, and sampling effort, it is impossible to evaluate validity of conclusions based on the natural resources surveys. In our opinion it is unethical for NAVFAC to withhold their Natural Resources Survey Report until after the end of the DEIS public comment period. Surely a draft of this report exists and data from it were used to write the DEIS. This draft should be shared with those interested in reviewing of the DEIS.

FEIS Response:

The Natural Resources Survey Report is still in preparation. The report is expected to be available in late spring well before the publication of the Final EIS. Once the report has been prepared and reviewed by Navy biologists, a copy will be provided to all interested parties for review and comment.

Rebuttal:

In 2008 and 2009, during the period when JGPO was leading the people of Guam to believe that the 31% of Guam occupied by DoD would be sufficient for the buildup, biological surveys were being conducted by DoD on "Route 15 Lands". The Natural Resources Survey Report which contains the methodology and results of these surveys is cited 58 times in Volume 2, Chapter 10 of the DEIS.

On January 18, 2010 I emailed a request for a copy of the Natural Resources Survey Report and JGPO responded: "The NR survey report is not completed yet. Surveys have been ongoing and the report couldn't be included within the DEIS. As soon as we have it, we can send it to you." At the FEIS presentation at the University of Guam on July 23, 2010, I again asked JGPO for a copy of the report and was told that this report is not yet available as it is still in preparation.

JGPO's failure to release the Natural Resources Survey Report is clearly in violation of NEPA (CEQ Regulation 1502.21; <http://ceq.hss.doe.gov/nepa/regs/ceq/1502.htm#1502.21>):

"No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment."

DEIS Comment:

Authors of the DEIS kindly provided a technical reference for species mentioned in the DEIS (Volume 9, Chapter 2). Unfortunately, information provided in this appendix is inaccurate and badly in need of review by competent biologists with some experience with the Guam flora and fauna. The Navy employs several experts in this area. Here are a few errors we noticed concerning the Mariana eight spot butterfly.

Volume 9, Chapter 2, Page 2.1

- "ababang" is not the Chamorro name for this species, "ababang " is simply the generic name for all butterflies
- *oticula* is misspelled; should be *octocula*

Volume 9, Chapter 2, Fact Sheet for Mariana Eight Spot Butterfly, no page number provided

- "ababang" is misspelled; should be "ababang"
- "ababang " is not the Chamorro name for this species, "ababang " is simply the generic name for all butterflies
- *oticula* is misspelled; should be *octocula*
- *mariannensis* is misspelled; should be *marianensis*
- The image is wrong. This is a photo of a *Hypolimnas bolina* female, a very common butterfly on Guam. If one reads the species description section of the fact sheet, it becomes obvious that the image is wrong.

Note: While misspelled scientific names may be regarded as inconsequential typos by some, they are not. Scientific names are intended as globally unique identifiers that allow biologists to access all known information about a taxon of interest. Since *Hypolimnas octocula* is not spelled correctly anywhere in the DEIS, this important document will not show up in digital searches for information on this endangered species. Please check and correct scientific nomenclature for all species before publishing the EIS.

FEIS Response:

"Pg 2, paragraph 5 1st bullet: we acknowledge that the Chamorro term ababang is generic for all species of butterflies but have been told that it is acceptable to use this term for any species of butterfly especially since there is no Chamorro name for the specific species. 2nd bullet: according to the USFWS, the full species name of the Mariana eight-spot butterfly is *Hypolimnas octocula mariannensis* (see the species profile webpage at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=I0R7> and the 2008 Species Assessment and Priority Listing Assignment Form for the Mariana eight-spot butterfly available at http://ecos.fws.gov/docs/candforms_pdf/r1/I0R7_I01.pdf"

http://ecos.fws.gov/docs/candforms_pdf/r1/I0R7_I01.pdf A decision was made to follow USFWS naming within the EIS for consistency. However, we acknowledge the misspelling of the species name in Appendix G, Chapter 2, Section 2.2, Species List, pg 2-1. Thank you for pointing this out and it has been corrected in the FEIS to octucula in accordance with USFWS naming; and the subspecific name has also be added. Pg 2, paragraph 6 1st bullet: there are numerous accepted spellings of Chamorro names and we have seen both 'ababang' and 'ababbang' used to refer to butterfly. Per your request, we have changed all to ababang. 2nd bullet: see response to the 1st bullet in previous paragraph. 3rd and 4th bullets: see response to 2nd bullet in previous paragraph. 5th bullet: Thank you for the correction. A correct picture of a Mariana eight-spot butterfly has been inserted. Pg 2, paragraph 7: *Hypolimnas octucula* is only misspelled in the table of species names and this has been corrected. In all other occurrences within the DEIS (the scientific name only occurs in Vol 9, Appendix G), the species name is spelled correctly in accordance with the USFWS"

Rebuttal:

Hypolimnas octucula mariannensis is not a valid scientific name. Two spelling errors are evident to any reasonably literate reader. The valid name for this subspecies is:

Hypolimnas octocula marianensis

octocula: oct = eight; ocula = eyes

marianensis: from the Mariana Islands

According to the [U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form](#): "This subspecies was originally described by Butler and is recognized as a distinct taxon (Swezey 1942). Swezey (1942) is the most recent and accepted taxonomy for this species." The name provided by Swezey (1942) is "*Hypolimnas octocula marianensis*". USFWS consistently misspells this name, but there is no justification for DoD to intentionally propagate these errors.

I see that you pasted the image I provided with my DEIS comments onto your fact sheet. However, you failed to copy the attribution which I provided for the image. The correct attribution is:

"Mariana eight spot butterfly, *Hypolimnas octocula marianensis*, male. Image from Butterflies of Micronesia by Ilse H. Schreiner & Donald M. Nafus, University of Guam 1997." The current attribution on your fact sheet is "Photo:

<http://www.botany.hawaii.edu/basch/uhnpscesu/htms/parkrota/butterfly.htm#top>". This URL is linked to the image which appeared on the DEIS version of your fact sheet: a misidentified image of *Hypolimnas bolina* provided by the CNMI Department of Land and Natural Resources on Rota, an island on which *H. octocula* has never been observed.

DEIS Comment:

Comments on Potential Impacts to the Endangered Mariana Eight Spot Butterfly

1. Alternative A and B for construction of firing ranges on Route 15 lands will destroy and fragment limestone forest habitat which is critical for the survival of the Mariana eight spot butterfly and several other species of endangered, endemic plants and animals. The minimum habitat size for these species is unknown and loss of even a small area could wipe out the existing population.

FEIS Response:

Comment #1: The loss of limestone forest due to the construction and operation of the live-fire ranges on Rte 15 Lands would not result in a significant loss of existing limestone forest on Guam when considered in the context of the total amount of limestone forest remaining on Guam. Although the construction of the proposed ranges would result in the loss of limestone forest, the operation of those ranges and the fencing of the associated restricted safety area would result in the protection of a greater area of limestone forest that was previously not protected.

Rebuttal:

Chamorros value the limestone forest around Pagat. They have been managing this habitat for centuries as a resource for medicinal plants, coconut crabs, and other game animals. The limestone forest habitat on "Route 15 Lands" is healthier than similar habitat to the north which has been managed by DoD. I am sure that your Natural Resources Survey Report will provide evidence for this if and when it is made public. To be truthful, there is no healthy limestone forest left on Guam following extirpation of seed dispersing and insectivorous birds by the brown treesnake, and near extirpation of fadang (*Cycas micronesica*) and other endemic plants from infestations of invasive insects. Intact, high quality limestone forest habitats such as those on "Route 15 Lands" need to be protected from destruction, fragmentation and invasive species. The Mariana eight spot butterfly should be considered as a token for many animals and plants that are found only in the Guam's limestone forest habitat and nowhere else in the world. Many of these species have not yet been described and named by biologists. The Guam limestone forest habitat is at risk of extinction, not just the one butterfly species.

By disallowing access by hunters, much of the limestone forest on DoD lands has been severely degraded by extremely high densities of non-native deer and pigs. Wiles et al. (1999) claim that ungulate browsing on the two larval host plants of the Mariana eight spot butterfly, (*Elatostema calcareum* and *Procris pedunculata*) is a major reason for this butterfly's demise. The statement "Fencing of the associated restricted safety area would result in the protection of a greater area of limestone forest that was previously not protected." is entirely misleading. Fencing the safety

area and denying access by hunters will guarantee further degradation of the habitat after the construction of the firing range complex. Denying access to the fenced area by local biologists will prevent this habitat degradation from being monitored and documented. The best way to protect the natural resource on "Route 15 Lands" is to exercise the "No Action Alternative".

DEIS Comment:

2. The 2009 survey (Campora and Lee 2009), intended to evaluate the status of the Mariana eight spot butterfly, detected the presence of the Mariana Eight Spot butterfly within all three linear transects even though sampling effort was minimal:
 - The survey lasted only 10 days, July 15 through July 24, 2009. Thus the survey results in a "snapshot" which provides no information on seasonal temporal or spatial changes in the distribution of Mariana eight spot butterflies living on Route 15 lands.
 - The transects covered only a minute proportion of the Route 15 lands (See Figure 1 in this document)
 - The North transect extended onto the footprint of the proposed project by only a few meters, and only on one day, July 15, 2009 (See Figure 2 in this document)
 - The South transect extended into the area within the footprint for the proposed machine gun firing range on one day, July 16, 2009. (See Figure 3 in this document)

Because of the small area covered and limited sampling effort, it is not surprising that this rare butterfly was not detected within the footprints of the proposed firing ranges, even though individuals may be living within these areas. The adult observed in 2008 was only 91 m from the Alternative A proposed machine gun range and the adult observed in 2009 was only 15 m northeast of the proposed northern-most fenceline. Adult butterflies require resources in addition to host plants for oviposition, such as flowers as nectar sources and puddles for minerals. These resources may be ephemeral and widely dispersed within the habitat. Most butterflies are highly mobile and cover large areas during daily foraging. Minimum habitat size for sustaining a population of Mariana eight spot butterflies is unknown.

3. The DEIS states that "Scattered individuals of its two host plants were also observed within the proposed fenceline and access road footprints. Because only scattered host plants would be removed and the large mixed host plant areas would remain, impacts would be less than significant." (DEIS-Volume 2, Chapter 10, page 10-112). It is a mistake to assume that large clumps of host plants are more valuable to this species than individual plants scattered over larger areas. Survival on isolated plants could may be higher because of lower predation and parasitism. Presence of host plants may not be sufficient for larval survival. Many species of caterpillars can only utilize young leaves which have not hardened and which do not contain high levels of plant toxins. For these species, a large area of habitat is required to ensure that there are enough plants with young foliage to nourish caterpillars.

FEIS Response:

Comment #2: Before implementation of any of the proposed alternatives, the Navy would conduct more comprehensive pre- and post-construction surveys within the proposed range areas to better determine the presence of host plants, larvae, and adult butterflies within the project area. Additional periodic surveys would be conducted once the ranges are operational to provide long-term monitoring of the status and presence of listed and candidate species within the Rte 15 Range Complex.

Rebuttal:

Data gained from surveys may lead to implementation of mitigation, but surveys cannot be considered as mitigation. Having the Navy conduct surveys to monitor eight-spot butterflies on the proposed firing range on "Route 15 Lands" is like asking a fox to guard a hen house. DoD has not always been forthright in sharing data and results of environmental surveys with Guam's public or the scientific community, and results are seldom published in peer reviewed journals. For example, JGPO has not yet made public the Guam Natural Resource Survey on which much of the EIS is based.

To be fair, the FEIS does hint at the beginnings of a mitigation plan: "If eggs or larvae of this species were detected, they would be moved to host plants outside the affected area, or reared for release." Transferring eggs and larvae to new host plants in the field is likely to be a waste of time because many individuals will not survive this kind of handling. There is also a problem of identification. The DEIS points out that immatures of the Mariana eight spot butterfly, *Hypolimnas octocula*, cannot be readily differentiated from its very abundant congener, *Hypolimnas bolina*.

DoD should be aware that Guam Department of Agriculture has developed an action plan for this species which includes captive rearing in parasite and predator free enclosures for eventual release into suitable habitats (GDAWR 2006). This plan has not been implemented because of limited funding and resources. I suggest that DoD may want to consider funding DAWR or the University of Guam to implement this plan as part of their mitigation plan.

DEIS Comment:

4. The DEIS states that "The eight-spot butterfly is unlikely to be affected by noise and activity in nearby ranges. Impacts would be less than significant.."(DEIS-Volume 2, Chapter 10, page 10-114) We don't think there is any science to support this statement. One or more studies of the impact of noise on butterflies need to be cited. It is possible that noise, such as that from guns, will disrupt the behavior of caterpillars which use acoustic communication.

FEIS Response:

Comment #4: Additional information regarding the potential for noise associated with the proposed action to impact butterflies and caterpillars has been incorporated into the FEIS impact analysis. Given the distance from the range firing area to any potential caterpillars or adult butterflies, the intensity of the noise associated with the weapons proposed for use, the frequency of the noise, and the intermittent nature of proposed range activities (i.e., weapons firing is not a continuous operation and the associated noise is also not continuous), it is highly unlikely that weapons firing within the ranges would acoustically impact caterpillars or adult butterflies.

Rebuttal:

The statement, "it is highly unlikely that weapons firing within the ranges would acoustically impact caterpillars or adult butterflies.", is an opinion which has no scientific basis. In contrast, the FEIS (10-131) states that "The frequency of noise that butterflies or caterpillars respond to and are most sensitive to, and their hearing threshold at that frequency, are unknown." If acoustic effects of noise on butterflies and caterpillars are unknown, then there is no factual basis for claiming that acoustic impact on these insects is "highly unlikely".

There are many research articles published on bioacoustic behavior of butterflies and caterpillars. It is obvious that DoD did not bother to consult this body of literature in their analysis and they did not practice due diligence in considering potential effects of noise on the Mariana eight spot butterfly.

DEIS Comment:

5. In discussion of the Alternative B for construction of firing ranges on Route 15 lands, the DEIS claims that "No host plants or butterflies have been documented within or near the range footprints." (page 10-117) and it claims that "This candidate species was observed near the Alternative B UD range area during 2008 site-specific surveys (NR Survey Report in preparation). Its two host plants were also observed in that area, and in areas within the UD range footprint." (page 10-120). Obviously, one of this statements is false but there is no way to find out which is correct without access to the Natural Resources Survey Report.

FEIS Response:

Comment #5: Thank you for pointing out the inconsistency and the incorrect statement on page 10-117. The FEIS has been revised accordingly to reflect that butterflies and host plants were observed within the vicinity of the proposed ranges.

Rebuttal:

Thank you for removing the incorrect statement.

References

GDAWR 2006. Guam Comprehensive Wildlife Conservation Strategy (GCWCS)
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