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|  | 1655 Heindon Road Arcata, California, 95521 Phone: (707) 822-7201 FAX: (707) 822-8411 |  |

In Reply Refer To:

Memorandum

To: Regional Director

Sacramento, California

From: Regional Chief, National Wildlife Refuge System

Assistant Regional Director, Ecological Services

Sacramento, California

Subject: Resolution of Interpretation Differences of Ashy Storm-Petrel Data Between Recent Service Documents

This memo presents the shared position of the Service’s Ecological Services (ES) and National Wildlife Refuge System (NWR) programs in Region 8, on topics related to ashy storm-petrel conservation status. Specifically, it documents potential data-interpretation inconsistencies between two recent Service documents, and the outcome of recent discussions to identify a common interpretation of the available scientific data. The recent Service documents are:

* The ES program’s [draft?] Species Report for the ashy storm-petrel (ASSP), prepared in support of a forthcoming decision on whether to list the ASSP under the federal ESA.
* The NWR program’s Draft Environmental Impact Statement (DEIS) prepared under NEPA for the proposed South Farallon Islands Invasive House Mouse Eradication Project, on the Farallon National Wildlife Refuge.

Central to potential inconsistencies is the interpretation of statements in a recent report (Nur *et al*. 2013) regarding ASSP population trends. The report was prepared for our NWR program by PRBO Conservation Science, to inform the proposed house mouse eradication on South Farallon Islands (SFI), within the Farallon National Wildlife Refuge.

**Background**

Nur *et al*. (2013) provides quantitative estimates of the anticipated benefit to ASSP from proposed house mouse eradication on SFI, compared to no removal. They used models and recent data on burrowing owls and ASSP in their evaluation. While ASSP trend analysis was not the purpose of their evaluation, in their evaluation they used models to estimate recent ASSP population trends on SFI. Their ‘best fit’ model suggested a statistically significant population increase of about 22.1 percent per year from 2000 to 2006, and a 7.19 percent annual decline in the ashy storm-petrel population from 2007 to 2012, but this latter trend estimate was not statistically significant, and its 95 percent confidence interval included a flat trend. Recognizing the uncertainty around this estimate, Nur *et al*. evaluated three scenarios for future ashy storm-petrel population trends. These scenarios included a “steep decline” scenario of about 7.2 percent per year, a moderate decline scenario of about 3.5 percent annual decline, and a near-stable scenario of about 0.5 percent annual population increase.

The two Service documents evaluate the results of Nur *et al*., but for different purposes. The DEIS evaluates the environmental effects of house mouse eradication from SFI, including effects on the ASSP population on SFI. The Species Report evaluates the conservation status of the ASSP species as a whole, to determine whether the species warrants listing under the ESA.

*Interpretation differences*. Differing purposes, exacerbated by project timelines and late report revisions by Nur and coauthors, lead to interpretation differences between the two Service documents. Subsequent to the release of the DEIS, inconsistencies of interpretation came to light, leading to meetings between ES and NWR programs to review their respective interpretations of Nur et al.’s 2013 report, and to reach agreement on an interpretation based on the available science. Specific interpretation issues were:

* The DEIS cites the 7.19 percent rate of decline in multiple places, and characterizes the **recent** ASSP trend on SFI as a “steep decline”, as does the Nur report. It concludes that house mouse removal would have significant, long-term positive benefits to the ASSP populations on the SFI (DEIS pages 167, 197). The Species Report evaluated this trend estimate, and concluded that while the population is currently experiencing fluctuations due to various factors, including avian predation, there is no consistent **long-term** trend in the species’ population nesting on SFI.
* Because it is critical of some aspects of Nur et al. (2013), the Species Report could be interpreted as questioning the validity of their analyses, and of the likely benefits of house mouse removal.

**Common position on interpretation of Nur *et al*. 2013**

***VERSION 1 of ASSP trends paragraph****:*

*ASSP population trends*. We find that the population trend estimates in Nur *et al*. (2013), including the 7.19 percent value, should be interpreted cautiously, and their use subject to caveats. The study was not designed to determine ASSP population trends. In addition to being subject to model uncertainty and uncertainty about future conditions and trends, the trend estimates in Nur *et al*. (2013) are based on recent, relatively short-term (2007-2012) population index numbers. Nur *et al*. (2013) recognized the uncertainties, and thus evaluated several scenarios of potential future ASSP population trends. While the shorter analytic time-frame is useful for comparing effects of near-future management alternatives for SFI, as was done in the DEIS, use of population data from a longer time period is more appropriate for evaluating the conservation status and risk of extinction for the species, as was done in the Species Report. Nur *et al*. (2013) note that for the longer period of 1992 to 2010-2012, the ASSP population on SFI increased by an estimated 116.8 percent. Also, for the entire 2000-2012 period considered by Nur *et al*. (2103, Figure 5), the trend appears to be either stable or increasing.

***VERSION 2 of ASSP trends paragraph****:*

*ASSP population trends*. We find that the population trend estimates in Nur *et al*. (2013), including the 7.19 percent decline value, should not be treated as representing current trends for the ASSP population breeding on SFI. The Nur *et al*. study was conducted for the purpose of evaluating the potential effects of house mouse removal on burrowing owl numbers, and, in turn, how reduced burrowing owl numbers would affect ASSP survival and the ASSP population on SFI. The study was not designed to determine ASSP population trends. In addition to being subject to model uncertainty and uncertainty about future conditions and trends, the trend estimates in Nur *et al*. (2013) are based on recent, relatively short-term (2007-2012) population index numbers. Nur *et al*. (2013) recognized the uncertainties, and thus evaluated several scenarios of potential future ASSP population trends. While the shorter analytic time-frame is useful for comparing effects of near-future management alternatives for SFI, as was done in the DEIS, use of population data from a longer time period is more appropriate for evaluating the conservation status and risk of extinction for the species, as was done in the Species Report. Nur *et al*. (2013) note that for the longer period of 1992 to 2010-2012, the ASSP population on SFI increased by an estimated 116.8 percent. Also, for the entire 2000-2012 period considered by Nur *et al*. (2103, Figure 5), the trend appears to be either stable or increasing.

*Benefits of house mouse removal*. We also find that the best available science, including the Nur *et al*. (2013) analyses, clearly indicate that regardless of future ASSP trend scenario used, burrowing owl predation is impacting the ASSP population on SFI, those impacts can be expected to continue, and reducing burrowing owl numbers should result in benefits to the ASSP population on SFI.

*Actions to be taken.* Changes will be made to the DEIS, the Species Report, and the 12-month finding (if needed) to address inconsistencies and to reflect the common position described above, which is based on our interpretation of the best available scientific information.

**CITATION**

Nur, N., R. Bradley, L. Salas, and J. Jahncke. 2013. Modeling the impacts of house mouse eradication on Southeast Farallon Island. Unpublished report dated July 2013, to the US Fish and Wildlife Service. PRBO Conservation Science, Petaluma, California. PRBO Contribution Number 1880. 53 pages.

**APPROVALS:**

**Regional Chief, National Wildlife Refuge System, Region 8**

Approve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_

**Assistant Regional Director, Ecological Services, Region 8**

Approve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_