



In reply refer to:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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Memorandum

To: Regional Director
Sacramento, California

From: Assistant Regional Director (acting), National Wildlife Refuge System
Assistant Regional Director, Ecological Services
Sacramento, California

Subject: Representation of Ashy Storm-Petrel Data Used in Two Recent Service Documents

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This memo presents the shared position of the Service's Ecological Services (ES) and National Wildlife Refuge System (NWRS) programs in Region 8, on topics related to ashy storm-petrel conservation status. Specifically, it identifies potential language differences between two recent Service documents, summarizes the outcome of recent discussions between ES and NWRS to identify more common language, and documents actions that will be taken to address this matter. The recent Service documents are:

- The ES program's draft Species Report for the ashy storm-petrel (dated August 16, 2013), prepared in support of a forthcoming decision on whether to list the ashy storm-petrel under the federal Endangered Species Act (ESA).
- The NWRS program's Draft Environmental Impact Statement (DEIS) prepared for the proposed South Farallon Islands Invasive House Mouse Eradication Project, on the Farallon National Wildlife Refuge.

Central to this discussion are representations of a recent report (Nur *et al.* 2013) that analyzed the impacts of burrowing owl predation on ashy storm-petrels at the South Farallon Islands. The report was prepared for our NWRS program by PRBO Conservation Science (now known as Point Blue) as a decision support tool for the DEIS.

Background

Nur *et al.* (2013) provides quantitative estimates of the anticipated benefit to ashy storm-petrels on Southeast Farallon Island from proposed house mouse eradication, compared to no eradication. Ashy storm-petrels are expected to benefit from house mouse removal because the invasive, non-native mice attract a population of fall migrant burrowing owls, which feed primarily on mice during the fall and early winter. After the mouse population crashes each winter, the owls switch to feeding primarily on storm-petrels. Nur *et al.* (2013) used models and recent data on burrowing owls, ashy storm-petrels, and recent burrowing owl predation rates on the storm-petrels in their evaluation. While analyzing ashy storm-petrel population trends was not the purpose of their evaluation, they used models to estimate recent ashy storm-petrel

population trends on Southeast Farallon Island. Their ‘best fit’ model suggested a statistically significant change in trend between 2006 and 2007, from a significant population increase of about 22.1 percent per year from 2000 to 2006 to an estimated 7.19 percent annual decline from 2007 to 2012. However, this latter trend estimate was not statistically significant. Recognizing the uncertainty around this estimate, Nur *et al.* (2013) based modeling of future potential ash storm-petrel population trends on three estimated short-term population trends: 1) a “steep decline” scenario of about 7.2 percent per year; 2) a “moderate decline” scenario of about 3.5 percent annual decline; and 3) a “near-stable” scenario of about 0.5 percent annual increase. Nur *et al.* (2013) then used these three scenarios to project potential outcomes of house mouse eradication if there were: 1) no reduction in burrowing owl numbers (i.e., no mouse eradication); 2) a 50% reduction in burrowing owl numbers; and 3) a 71.5% reduction in burrowing owl numbers on Southeast Farallon Island.

The two Service documents evaluate the results of Nur *et al.* (2013), but for different purposes. The DEIS evaluates the environmental effects of house mouse eradication from the South Farallon Islands on a diversity of ecosystem values, including effects on the ash storm-petrel population on the islands. The draft Species Report evaluates the conservation status of the ash storm-petrel species throughout their entire range, to determine whether the species warrants listing under the ESA.

Differences between documents. Subsequent to the release of the DEIS, Service Staff identified language differences in the two documents that were in part related to the differing purposes underlying the two documents. Because these differences raised the possibility of different interpretations of the results of Nur *et al.*, meetings between the ES and NWRS programs were convened to review their respective descriptions of Nur *et al.*’s (2013) report, and to reach agreement on appropriate representation of the report based on the available science. Specific interpretation issues were:

- While the DEIS summarizes the findings of the Nur *et al.* (2013), including a discussion of uncertainty in recent ash storm-petrel population trend estimates, certain DEIS sections only referred to a worst case scenario of a recent 7.19 percent decline without fully accounting for the uncertainty in this trend estimate. Also, the DEIS stated that the No Action alternative (i.e., no house mouse removal) would have significant, long-term negative impacts to the entire ash storm-petrel population, while assessments of the action alternatives determined that eradication would benefit the Farallon population. The draft Species Report evaluated the trend estimates in Nur *et al.* (2013), 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 the South Farallon Islands.
- Because it recognized some limitations in the ability to use Nur *et al.* (2013) for assessing the current status of the species, the draft Species Report could be interpreted as questioning the validity of their analyses, and of the likely benefits of house mouse removal.

After careful consideration of the Nur *et al.* (2013) report and extensive discussion between Ecological Services and Refuges staff, the Service has determined that the following conclusions

can be drawn from the report.

Ashy storm-petrel population trends. The study was not designed to examine long-term population trends across the species range, but to examine the recent impacts of burrowing owl predation on ashy storm-petrels and project potential future population trajectories on Southeast Farallon Island if the most recent conditions were to continue. The trend estimates in Nur *et al.* (2013) are based on recent, relatively short-term (2007-2012) ashy storm-petrel population index numbers. Nur *et al.* (2013) recognized that there was uncertainty about future conditions and trends, and thus evaluated several scenarios of potential future ashy storm-petrel population trends. While the shorter analytic time-frame is useful for comparing effects of near-future management alternatives for the South Farallon Islands, 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. Thus, it is relevant in determining listing status that, Nur *et al.* (2013) estimated that the Farallon ashy storm-petrel population in 2010-2012 was more than double what was estimated in 1992.

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 ashy storm-petrel trend scenario used, burrowing owl predation is impacting the ashy storm-petrels on the South Farallon Islands, those impacts can be expected to continue, and reducing burrowing owl predation by eradicating invasive mice should result in benefits to the ashy storm-petrel population on the South Farallon Islands. However, burrowing owl predation is limited to the Farallon colony and is not affecting the species in other portions of its range.

Actions to be taken. Appropriate text changes will be made to the DEIS, the draft Species Report, and the draft 12-month finding as necessary) to clarify the application of the model results for the purposes of the respective documents 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.

