

RECLAMATION

Managing Water in the West

Categorical Exclusion Checklist

Population Genetics Research, and Development of a Genetic Management Plan for the Callippe Silverspot Butterfly

MP-CEC-13-03

Prepared by:

Douglas Kleinsmith

Date: 9/18/13

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Concurred by:

Willa E. York
Archaeologist
Mid-Pacific Regional Office

Date: 09/18/2013

Concurred by:

Patricia L. Rivera
Native American Affairs Specialist
Mid-Pacific Regional Office

Date: 09/18/2013

Concurred by:

Daniel Strait

Date: 9/10/13

Daniel Strait
Program Manager, Central Valley
Project Conservation Program
Mid-Pacific Regional Office

Approved by:

Anastasia T. Leigh
Regional Environmental Officer
Mid-Pacific Regional Office

Date: 9/20/2013

Proposed Action

Reclamation proposes to provide \$114,434 from the Central Valley Project Conservation Program (CVPCP) to the University of the Pacific to analyze the population dynamics and genetic diversity of the Callippe silverspot butterfly (CSB) and develop a genetic management plan to provide quantitative recommendations for restoration and management.

Exclusion Category

516 DM 14.5 A.3: Research activities, such as nondestructive data collection and analysis, monitoring, modeling, laboratory testing, calibration, and testing of instruments or procedures and nonmanipulative field studies.

Scope of Work

The CSB is a federally listed endangered species. It was once widespread in native grasslands and oak savannah surrounding the San Francisco Bay Area where its plant host *Viola pedunculata* was found. Human development has caused loss of butterfly populations in the hills of Berkeley, Oakland, Milpitas, and the San Francisco peninsula.

The U.S. Fish and Wildlife Service (FWS) recognizes just two populations in the Bay Area (Cordelia Hills and San Bruno Mountain), although observations around the Bay Area suggest individuals with phenotypes resembling CSB are present outside of these populations.

Relatively little is known about the population dynamics and genetic diversity of this butterfly, and research has great potential to contribute to its management and restoration. Recent analysis of mitochondrial DNA indicates high levels of genetic differentiation with reduced genetic variation in some key populations. This suggests that habitat loss and the associated isolation of populations have resulted in reduced gene flow and genetic diversity among remaining populations. However, this analysis is limited because it is based on a single genetic locus, and therefore may not fully represent the genetic diversity of the species. Furthermore, it is limited to populations near the Bay Area and may not adequately describe natural levels of genetic diversity given the large potential for human impacts on wildlife in this region.

The CVPCP, managed by Reclamation, was developed by Reclamation and FWS during the Endangered Species Act Section 7 consultation process to ensure that the existing operation of the Central Valley Project (CVP) and renewal of CVP water service contracts would not jeopardize listed or proposed species or adversely affect designated or proposed critical habitat. Accordingly, the CVPCP implements actions that will protect, restore, and enhance special-status species and their habitats affected by the CVP.

Project Objectives

1. Develop a set of genome-wide population genetic markers for the CSB;
2. Develop multiplex polymerase chain reactions (PCR) that will allow efficient co-amplification of multiple genetic markers for CSB; (PCR is a biochemical technology in

molecular biology to amplify a single or a few copies of a piece of DNA across several orders of magnitude, generating thousands to millions of copies of a particular DNA sequence)

3. Gather samples to establish a baseline against which to compare CSB populations and assess whether wing tissue samples can be used for future monitoring;
4. Generate data to analyze contemporary and historic levels of genetic diversity, population size, and connectivity in Bay Area populations of the CSB;
5. Use the results of the population genetic analyses to produce publications and a CSB genetic management plan.

Collecting

Adult male CSBs will be collected in the locations shown in Figure 1 to reach target sample sizes when possible, leaving females to lay eggs. The reason there will be a preference to collect males over females is because (1) a single male mates with multiple females, so fewer males in the population will still be adequate to fully fertilize the female cohort, and (2) males are more active and conspicuous, and therefore more likely to be captured, than the more immobile and secretive females. In populations where observations suggest small population size, a small piece of hindwing tissue will be collected instead and the individual will be released after photographs are taken. Tissue taken this way will be used to assess the viability of non-destructive tissue sampling for future genetic analysis.

Permits

The principle investigator Dr. Ryan Hill and several other biologists have been listed in Federal TE permit no. TE07064A-0 to do specific work for several threatened and endangered species. This permit specifically authorizes him to conduct independent work on CSB. This permit expires June 9, 2014, and he will apply for his own TE permit to conduct this work. Dr. Hill has a valid California Department of Fish and Wildlife research permit (SC-008598) that expires August 18, 2016.

Extraordinary Circumstances

Below is an evaluation of the extraordinary circumstances as required in 43 CFR 46.215.

1. This action would have a significant effect on the quality of the human environment (40 CFR 1502.3). No Uncertain Yes
2. This action would have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources (NEPA Section 102(2)(E) and 43 CFR 46.215(c)). No Uncertain Yes
3. This action would have significant impacts on public health or safety (43 CFR 46.215(a)). No Uncertain Yes

4. This action would have significant impacts on such natural resources and unique geographical characteristics as historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (EO 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (43 CFR 46.215 (b)). No Uncertain Yes
5. This action would have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks (43 CFR 46.215(d)). No Uncertain Yes
6. This action would establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects (43 CFR 46.215 (e)). No Uncertain Yes
7. This action would have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects (43 CFR 46.215 (f)). No Uncertain Yes
8. This action would have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g)). No Uncertain Yes
9. This action would have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated critical habitat for these species (43 CFR 46.215 (h)). No Uncertain Yes
10. This action would violate a Federal, tribal, State, or local law or requirement imposed for protection of the environment (43 CFR 46.215 (i)). No Uncertain Yes
11. This action would affect ITAs (512 DM 2, Policy Memorandum dated December 15, 1993). No Uncertain Yes

12. This action would have a disproportionately high and adverse effect on low income or minority populations (EO 12898) (43 CFR 46.215 (j)). No Uncertain Yes
13. This action would limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007, 43 CFR 46.215 (k), and 512 DM 3)). No Uncertain Yes
14. This action would contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act, EO 13112, and 43 CFR 46.215 (l)). No Uncertain Yes

NEPA Action Recommended

CEC – This action is covered by the exclusion category and no extraordinary circumstances exist. The action is excluded from further documentation in an EA or EIS.

Further environmental review is required, and the following document should be prepared.

- EA
- EIS

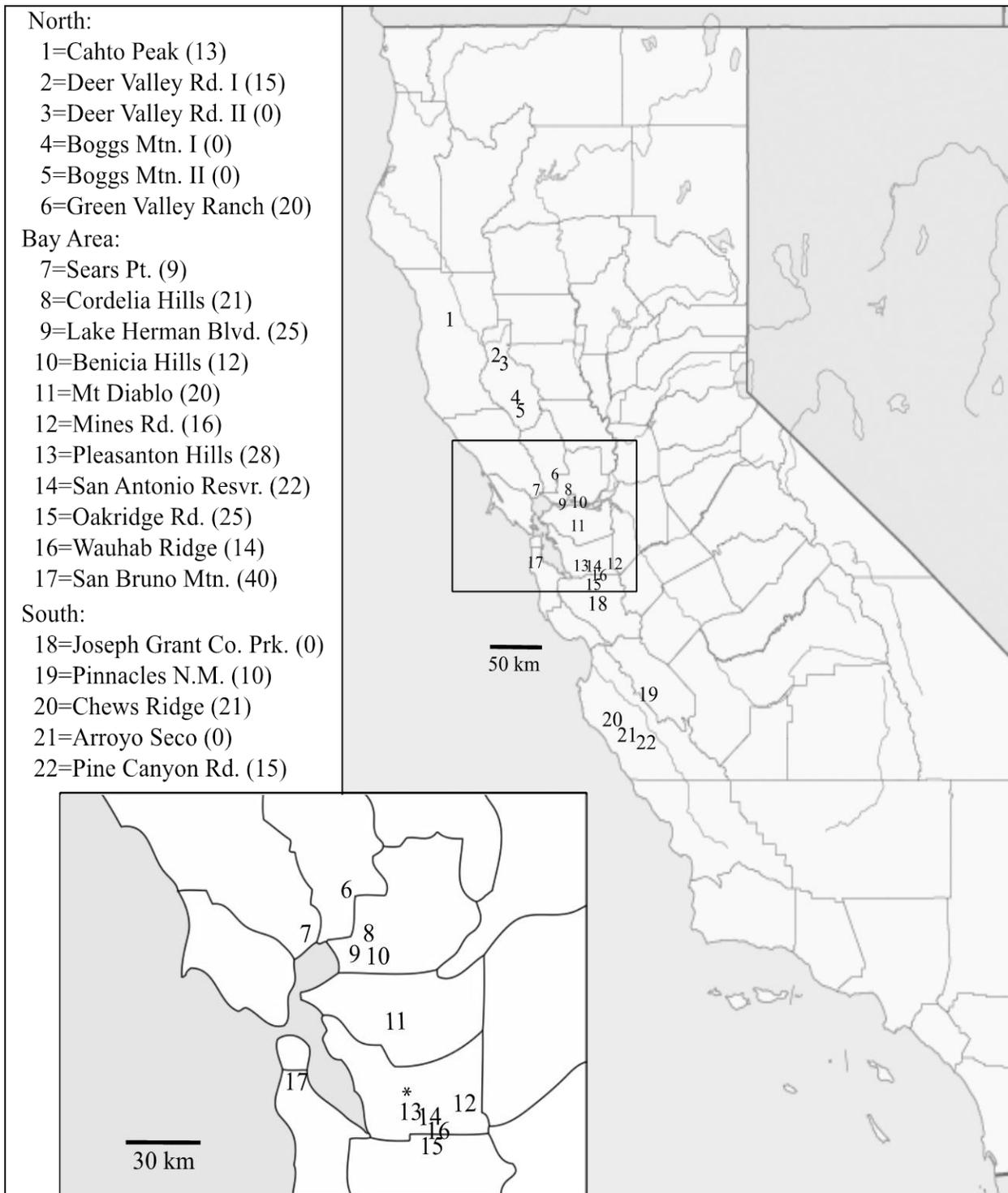


Figure 1. Approximate locations of proposed study populations for comparison of genetic diversity in disturbed and undisturbed areas in the California Coast Ranges. The inset shows finer detail for populations in the greater Bay Area. Note the cluster of sites located near Pleasanton(*), one of the CVP's "Highest Priority Areas". Names of populations given in the legend are followed by number of samples already⁵ obtained from each site. Except for 6 and 11, populations in the inset have been observed to have individuals resembling *S. callippe callippe*



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:
MP-153
ENV-3.00

VIA ELECTRONIC MAIL ONLY
May 29, 2013
MEMORANDUM

To: Daniel Strait
Manager, CVP Conservation Program and CVPIA Habitat Restoration Program, Division of Environmental Affairs MP-152

From: William E. Soule
Archaeologist, Division of Environmental Affairs MP-153

Subject: 13-CCAO-198 University of the Pacific Population Genetics Research, and Development of a Genetic Management Plan, for the Callippe Silverspot Butterfly

This proposed undertaking by Reclamation is the providing of Federal funds through the CVP Conservation Program and CVPIA Habitat Restoration Program for a project to collect and study genetic material from live specimens of Callippe Silverspot butterflies. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the National Historic Preservation Act (NHPA) Section 106 regulations codified at 36 CFR Part 800.3(a)(1).

The proposed action by the University of the Pacific is to capture and collect samples (wing material) from live Callippe Silverspot butterflies at several locations in the eastern San Francisco Bay Area. The use of Federal funds for this project constitutes an undertaking pursuant with Section 301(7) of the NHPA (16 U.S.C. 470). This proposed undertaking will not produce any ground disturbances.

I concur with a cultural resources evaluation in the Environmental Assessment (EA) for this action which states that it does not have the potential to cause effects to historic properties pursuant to 36 CFR § 800.3(a)(1). With this determination, Reclamation has no further Section 106 obligations. This memorandum is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

CC: Cultural Resources Branch (MP-153), Anastasia Leigh – Regional Environmental Officer (MP-150)



Re: ITA request for Callippe silverspot butterfly research

RIVERA, PATRICIA <privera@usbr.gov>
To: DOUGLAS KLEINSMITH <dkleinsmith@usbr.gov>

Tue, Aug 13, 2013 at 7:58 PM

Doug,

I reviewed the proposed action to provide \$114,434 from the Central Valley Project Conservation Program (CVPCP) to the University of the Pacific to analyze the population dynamics and genetic diversity of the Callippe silverspot butterfly (CSB) and develop a genetic management plan to provide quantitative recommendations for restoration and management.

The proposed action does not have a potential to impact Indian Trust Assets. The nearest ITA is the the Paskenta Band of Nomlaki Indians of California, approximately 4 miles West of the project location.

Patricia Rivera
Native American Affairs Program Manager
US Bureau of Reclamation
Mid-Pacific Region
2800 Sacramento, California 95825