

# RECLAMATION

## *Managing Water in the West*

### Categorical Exclusion Checklist

Environmental DNA assays for listed vernal pool branchiopods and biodiversity assessment: Applications for range-wide surveys and conservation prioritization

MP-CEC-15-02

Prepared by:

Jamie LeFevre

Date: 1-26-16

Jamie LeFevre  
Natural Resources Specialist  
Mid-Pacific Regional Office

Concurred by:

Daniel Strait

Date: 1-27-16

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

Concurred by:

Joanne Goodsell

Date: 1-28-16

Joanne Goodsell  
Archeologist  
Mid-Pacific Regional Office  
Concurrence with extraordinary circumstance #8

Concurred by:

Kevin Clancy

Date: 1-28-2016

Kevin Clancy  
Native American Affairs Program Manager  
Mid-Pacific Regional Office  
Concurrence with extraordinary circumstance #11

Approved by:

Anastasia T. Leigh

Date: 1/28/2016

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



## **Action**

Reclamation has tasked the University of California, Davis, (UCD) Genomic Variation Lab to design, validate, and calibrate species-specific assays for detecting vernal pool branchiopods and California tiger salamander (*Ambystoma californiense*) in vernal pools, and to conduct metabarcoding to assess vernal pool community diversity through sampling of environmental DNA (eDNA) in four vernal pool complexes in Sacramento and Merced Counties, California.

## **Permits**

The principle investigator for UCD, Dr. Amanda J. Finger, will be accompanied by U.S. Fish and Wildlife Service (USFWS) Region 8 personnel to conduct sampling and collect voucher specimens of vernal pool tadpole shrimp (*Lepidurus packardii*), California fairy shrimp (*Linderiella occidentalis*), vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*B. conservatio*), mid-valley fairy shrimp (*B. mesovallensis*), and California tiger salamander. The Region 8 personnel have a recovery permit for vernal pool branchiopods and California tiger salamander under Section 10(a)(1)(a) of the Endangered Species Act (ESA), 16 U.S.C. §1531 *et seq.* (permit number TE-108507 and subpermit FWS SFWO-14) under which Dr. Finger's research activities will be permitted.

## **Project Location**

Four vernal pool complexes would be sampled. Two vernal pool complexes are located in Sacramento County and two vernal pool complexes are located in Merced County (Figure 1).

## **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 non-manipulative field studies.

## 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 3. This action would have significant impacts on public health or safety (43 CFR 46.215(a)).  | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 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 | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |

- |  |  |
|--|--|
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 11. This action would affect ITAs (512 DM 2, Policy Memorandum dated December 15, 1993).   | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |

***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.

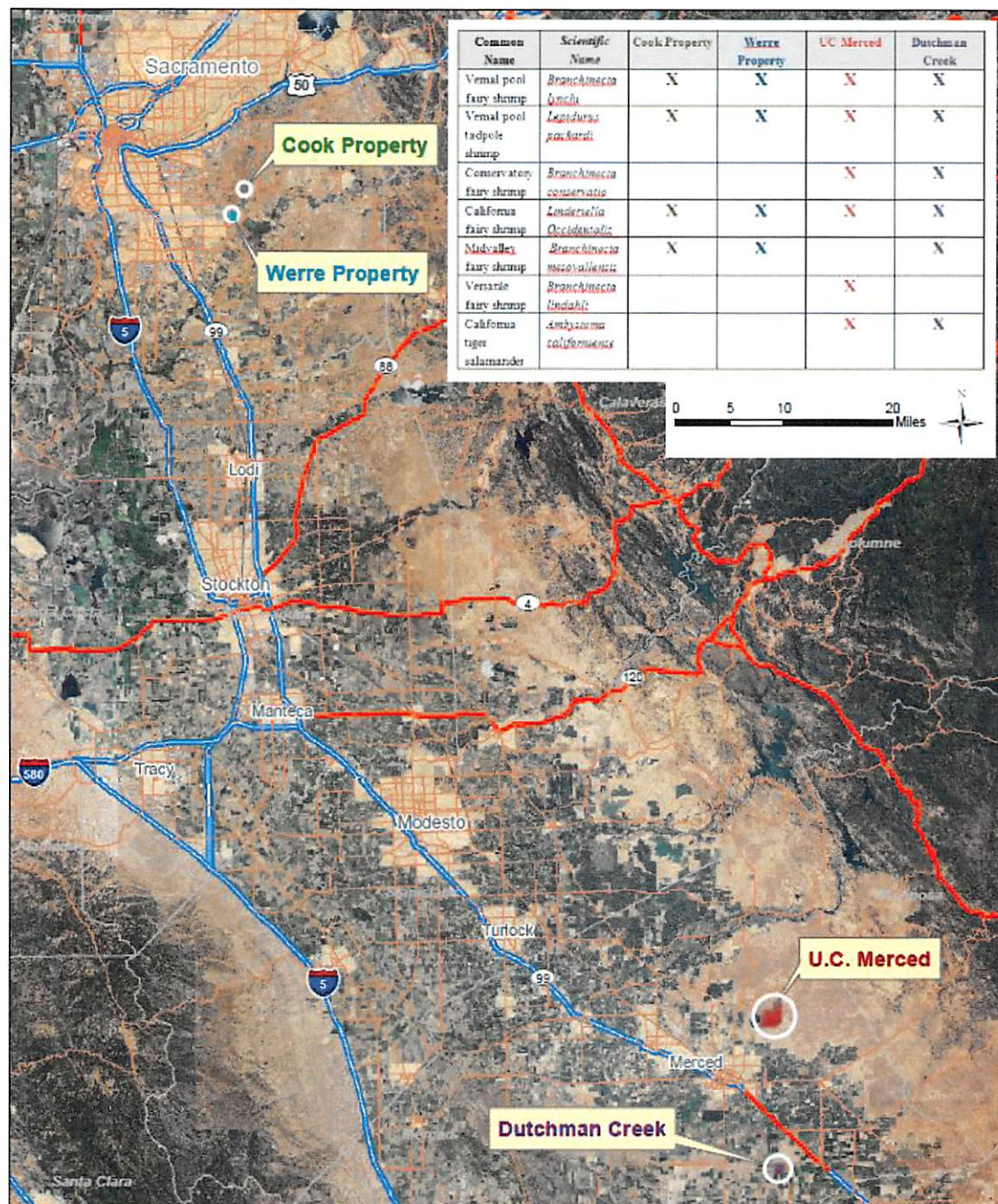
☐ Further environmental review is required, and the following document should be prepared.

☐ EA

☐ EIS



Figure 1. Overview map of sample sites



**Attachment A**  
**Cultural Resources Concurrence Memo**


**CULTURAL RESOURCES COMPLIANCE**  
**Division of Environmental Affairs**  
**Cultural Resources Branch (MP-153)**

**MP-153 Tracking Number:** 15-SCAO-220

**Project Name:** Environmental DNA Assays for Listed Vernal Pool Branchiopods and Biodiversity Assessment: Applications for Range-wide Surveys and Conservation Prioritization

**NEPA Document:** CEC

**NEPA Contact(s):** Jamie LeFevre, Natural Resources Specialist; Dan Strait, Manager, CVP Conservation Program and CVPIA Habitat Restoration Program

**MP-153 Cultural Resources Reviewer:** Joanne Goodsell, Archaeologist 

**Date:** July 13, 2015

---

Reclamation proposes to provide funding through the CVP Conservation Program and CVPIA Habitat Restoration Program for a UC Davis research project that aims to design, validate, and calibrate species-specific assays for detecting vernal pool branchiopods and California tiger salamander through sampling of environmental DNA (eDNA). This sampling would occur within four vernal pool complexes located in Sacramento and Merced Counties.

The purpose of the study is to demonstrate that eDNA assays can be incorporated into vernal pool monitoring plans and to identify habitat characteristics indicative of vernal pool community diversity that can be used to prioritize future vernal pool conservation. Field samples will be collected from selected vernal pools using either a dipnet or seine. Following filtration, DNA from the samples will be extracted and analyzed using established protocols. No ground disturbance will be required during field sampling or analysis.

Reclamation has determined that the proposed action involves the type of activity that does not have the potential to cause effects to historic properties, should such properties be present. In accordance with 36 CFR § 800.3(a)(1), Reclamation has no further obligations under 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA).

This document conveys the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should the proposed project change, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be required.

# **Attachment B**

## **Endangered Species Compliance Documentation**



JAN 26 2016

MEMORANDUM

To: CVPIA Habitat Restoration Program Manager  
Attn: MP-152 (DStrait)

From: Jamie LeFevre  
Natural Resources Specialist

Subject: Endangered Species Act No Effect Memo for Environmental DNA assays for listed vernal pool branchiopods and biodiversity assessment: Applications for range-wide surveys and conservation prioritization.

The Bureau of Reclamation (Reclamation) has tasked Dr. Amanda J. Finger (Project Manager) at the U.C. Davis Genomic Variation Lab with developing species-specific assays for detecting vernal pool branchiopods and California tiger salamander (*Ambystoma californiense*). Data would be collected from four vernal pool complexes in Sacramento and Merced Counties, California.

U.C. Davis researches would develop environmental DNA (eDNA) detection methods for vernal pool tadpole shrimp (*Lepidurus packardii*), California fairy shrimp (*Linderiella occidentalis*), vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*B. conservatio*), mid-valley fairy shrimp (*B. mesovallensis*), and California tiger salamander. Researchers would also assess the vernal pool community diversity through metabarcoding.

Protocol level sampling would be conducted at each vernal pool complex to document presence/absence of target species. Voucher specimens<sup>1</sup> of the target species would be taken from each vernal pool complex during sampling. Voucher specimens would be taken in accordance with U.S. Fish and Wildlife Service (USFWS) guidelines and the terms and conditions of a USFWS Recovery permit (see below). Water samples containing eDNA would also be collected at each of the vernal pool complexes. After sampling and data collection, the researches would analyze the data, develop assays, and a habitat model to identify the most important environmental characteristics correlated with vernal pool biodiversity.

Dr. Finger will accompany USFWS Region 8 personnel who will be conducting the field sampling and collecting voucher specimens of listed vernal pool species. The Region 8 personnel have a recovery permit for vernal pool branchiopods and California tiger salamander under Section 10(a)(1)(a) of the Endangered Species Act (ESA), 16 U.S.C. §1531 *et seq.* (permit number TE-108507 and subpermit FWsSFWO-14) under which Dr. Finger's research activities will be permitted.

Please retain a copy of this memo as part of the administrative record.

---

<sup>1</sup> A voucher specimen serves as a representative specimen of the animal. These specimens will be used to document occurrence and identification, and retained for further study.

**Attachment C**  
**Indian Trust Assets Concurrence Memo**

# Indian Trust Assets Request Form

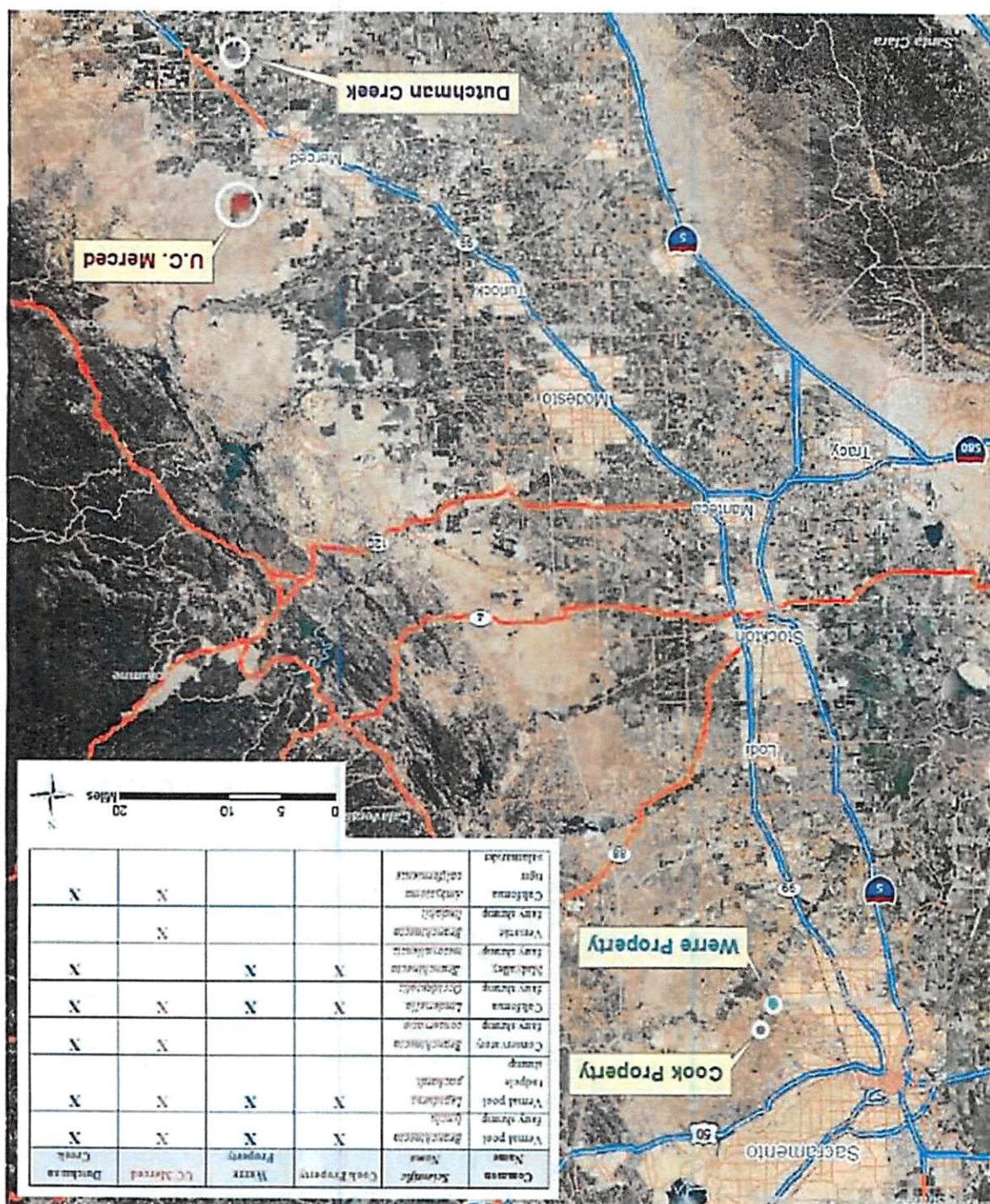
\*\*Please send your request to: Richard Stevenson, [rstevenson@usbr.gov](mailto:rstevenson@usbr.gov)

**Date:**

|   |   |
|---|---|
| <b>Requested by</b>   | Jamie LeFevre, x 5035   |
| <b>Fund</b>   | 15XR0680A3  |
| <b>WBS</b>  | RX304249930250000   |
| <b>Cost Center</b>  | 2015200   |
| <b>Region #<br/>(if other than MP)</b>  | (NA)  |
| <b>Project Name</b>   | Environmental DNA assays for listed vernal pool<br>branchiopods and biodiversity assessment: Applications<br>for range-wide surveys and conservation prioritization   |
| <b>CEC or EA Number</b>   | MP-CEC-15-02  |
| <b>Project Description</b>  | Reclamation proposes to provide \$427,828 from the<br>Central Valley Project Improvement Act Habitat<br>Restoration Program to the Amanda J. Finger, UC Davis<br>Genomic Variation Lab to design, validate, and calibrate<br>species-specific assays for detecting vernal pool<br>branchiopods and California tiger salamander<br>( <i>Ambystoma californiense</i> ) and metabarcoding to assess<br>vernal pool community diversity through sampling of<br>environmental DNA (eDNA) in four vernal pool<br>complexes.   |
| <b>*Project Location<br/>(Township, Range,<br/>Section, e.g., T12<br/>R5E S10, or XY<br/>cords)</b> | Field surveys and data collection would be taken at four<br>vernal pool complexes in Sacramento and Merced<br>Counties, California (Figure 1). Specifically, the Cook<br>Property vernal pool complex is located 38.500592, -<br>121.265286 (Figure 2), the Werre Property vernal pool<br>complex is located 38.465108, -121.285312 (Figure 3) in<br>Sacramento County. The U.C. Merced vernal pool<br>complex is located at 37.389715, -120.391911 (Figure 4),<br>and the Dutchman Creek vernal pool complex (Figure 5)<br>is located 37.180339, -120.396717 in Merced County. |

\*Please include map with request, if available.





### Figure 1. Project Location



Figure 2. Cook Property Vernal Pool Complex



### ITA Determination:

The closest ITA to the proposed **vernal pool DNA assay** activity is the **Wilton Rancheria** about 5.77 miles to the south (see attached image).

Based on the nature of the planned work it does not appear to <sup>circle one</sup> be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.



#### **ITA Determination:**

The closest ITA to the proposed **vernal pool DNA Assay** activity is the Wilton Rancheria about 3.43 miles to the south (see attached image).

Based on the nature of the planned work it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.



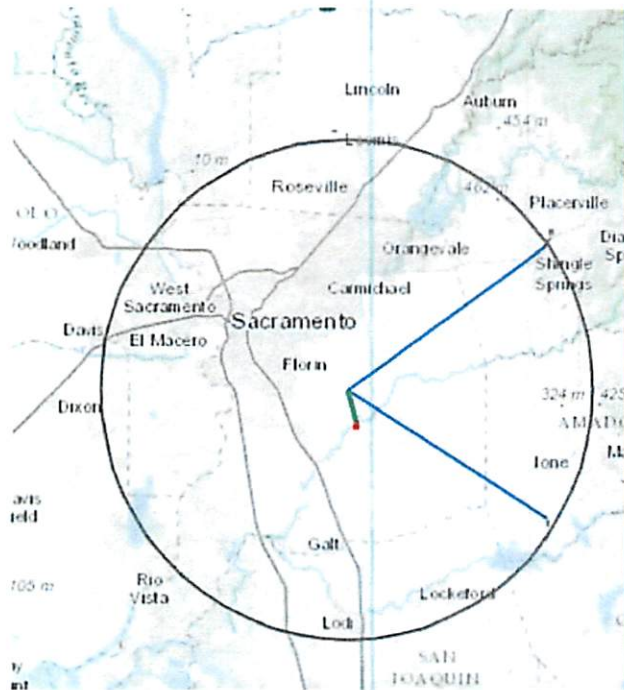
  
Signature

Richard M. Stevenson

Printed name of approver

Sept. 3, 2015

Date



25 ▼

Longitude and latitude

If you CLICK on the map, the lat/longs are inserted below

Longitude:

-121.285312

Latitude:

38.465108

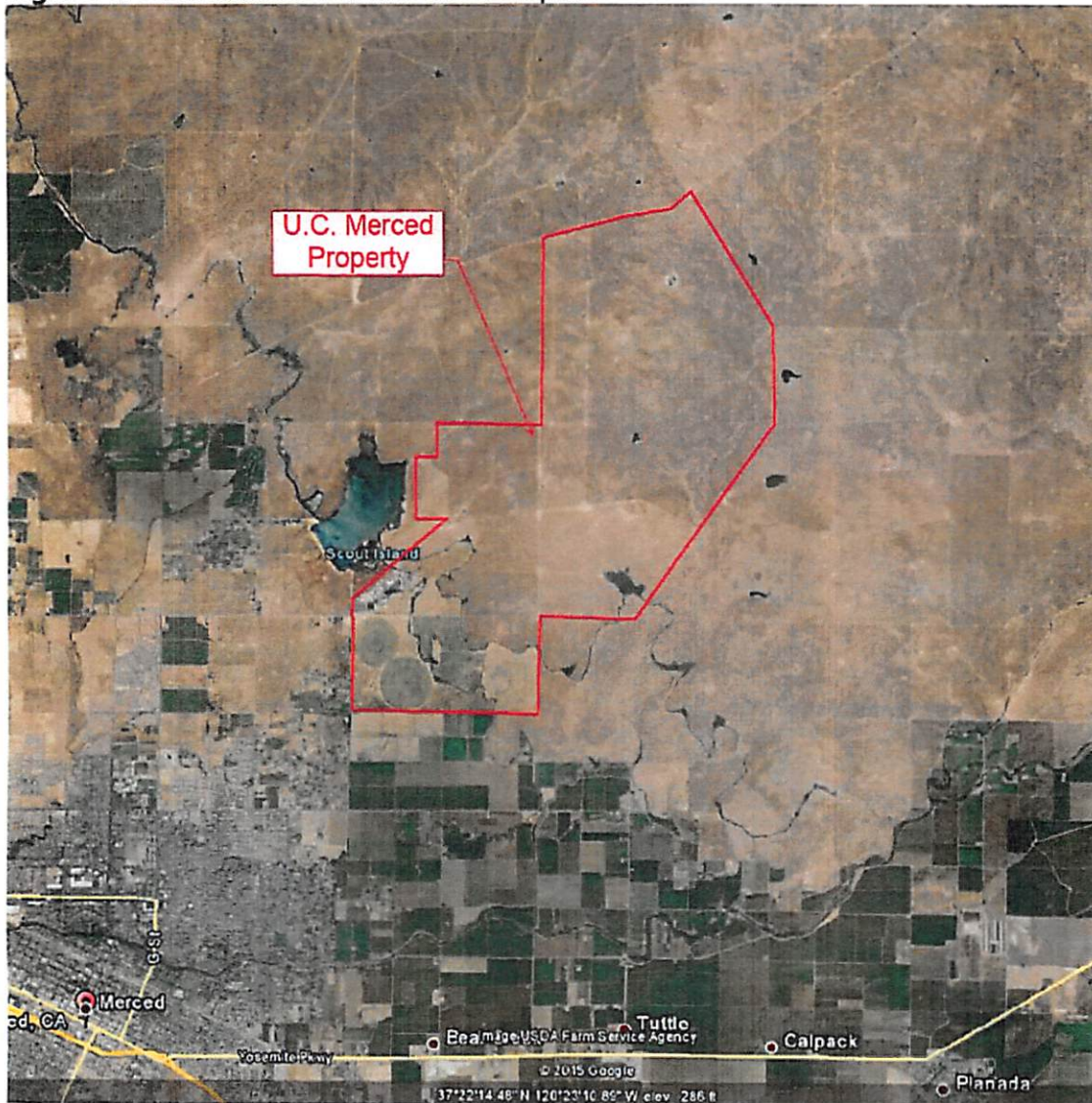
Find closest Native American Lands

Distance to closest native american land: 3.43 miles

Name: Wilton

Tribe: Wilton Rancheria

**Figure 4. U.C. Merced Vernal Pool Complex**



**ITA Determination:**

The closest ITA to the proposed vernal pool **DNA Assay** activity is public domain allotment 50H MS118 about 27.8 miles to the northeast (see attached image).

Based on the nature of the planned work it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is

reasonable to assume that the proposed action will not have any impacts on ITAs.



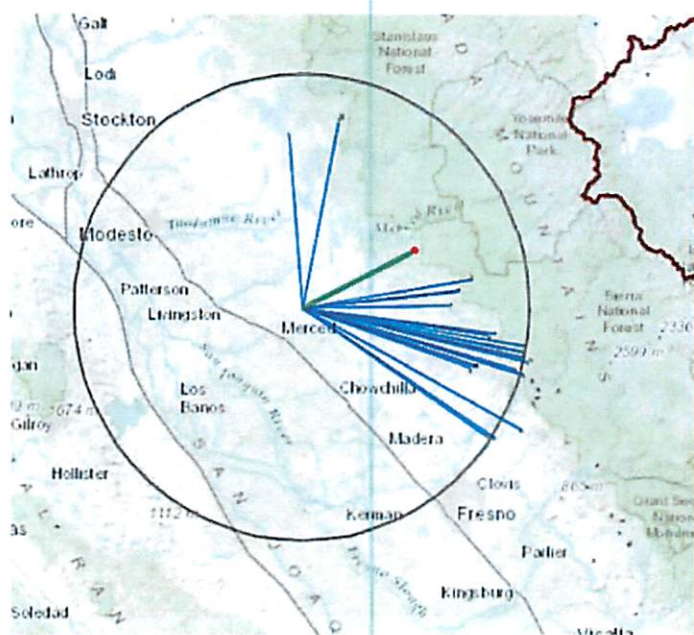
Signature

Richard M. Stevenson

Printed name of approver

Sept. 3, 2015

Date



Search radius in miles

50

Longitude and latitude

If you CLICK on the map, the lat/longs are inserted below

Longitude:

-120.391911

Latitude:

37.385

Find closest Native American Lands

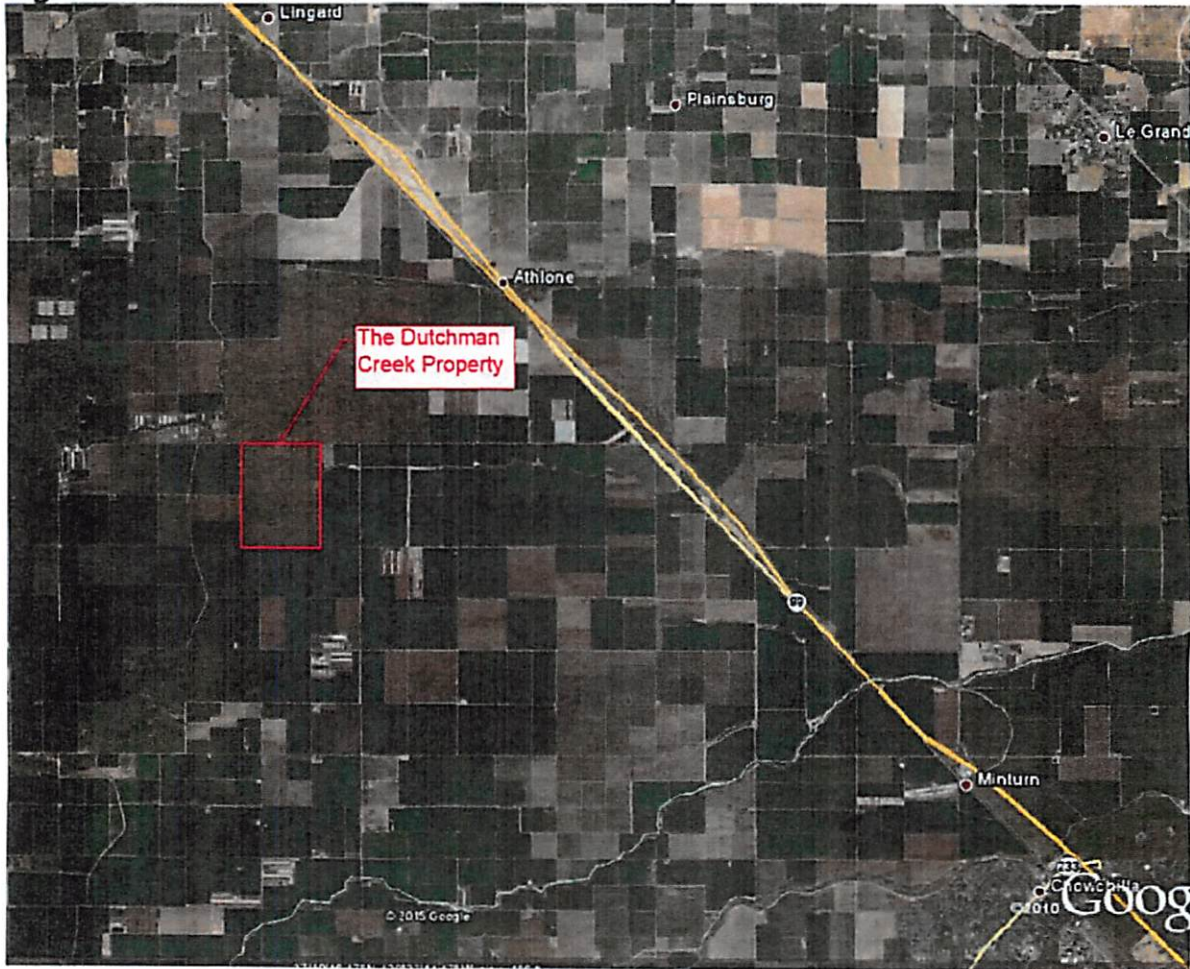
Distance to closest native american land: 27.08 miles

Name: SOH MS118

Tribe:



**Figure 5. Dutchman Creek Vernal Pool Complex**



**ITA Determination:**

The closest ITA to the proposed **vernal pool DNA assay** activity is public domain allotment 50H S158 about 35.62 miles to the northeast (see attached image).

Based on the nature of the planned work it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.



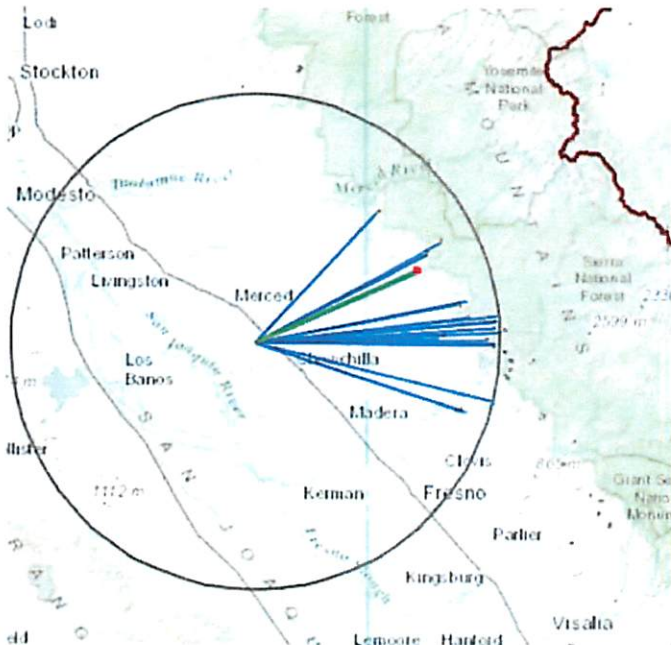
Signature

Richard M. Stevenson

Printed name of approver

Sept. 3, 2015

Date



Longitude and latitude

If you CLICK on the map, the lat/longs are inserted below

Longitude

-120.396717

Latitude

37.180339

Find closest Native American Lands

Distance to closest native american land: 35.62 miles

Name: 50H S158

Tribe