



United States Department of the Interior

NATIONAL PARK SERVICE

Yosemite National Park
P. O. Box 577
Yosemite, California 95389

IN REPLY REFER TO:
L7615(YOSE-PM)

Memorandum

To: Travis Espinoza, Project Manager, Yosemite National Park

From: Superintendent, Yosemite National Park

Subject: NEPA and NHPA Clearance: 2015-024 Pacific Fisher Assisted Migration (60050)

The Executive Leadership Team has reviewed the proposed project and completed its environmental assessment documentation, and we have determined the following:

- There will not be any effect on threatened, endangered, or rare species and/or their critical habitat.
- There will be no adverse effect on historical, cultural, or archeological resources.
- There will not be serious or long-term undesirable environmental or visual effects.

The subject proposed project, therefore, is now cleared for all NEPA and NHPA compliance requirements as presented above. Project plans and specifications are approved and construction and/or project implementation can commence.

For the proposed project actions to be within compliance requirements during construction and/or project implementation, the following mitigations must be adhered to:

- No mitigations identified.

Recommendations for Conditions or Stipulations:

None

For complete compliance information see PEPC Project 59280.

// Don L. Neubacher //

Don L. Neubacher

Enclosure (with attachments)

cc: Statutory Compliance File

*The signed original of this document is on file at the
Environmental Planning and Compliance Office in
Yosemite National Park.*



Categorical Exclusion Form

Project: 2015-024 Pacific Fisher Assisted Migration

PEPC Project Number: 60050

Project Description:

The park proposes to release four Pacific fisher kits that are currently in a rehabilitation center into the park during September 2015, to the area just north of the Merced River. This project will jump start a four-year assisted migration of the federal candidate species. Craig Thompson, a researcher with the USFS Pacific Southwest Research Station, modeled the habitat and developed the release plan. He determined that (1) there is enough habitat north of the Merced River to maintain a viable population, and (2) releasing 4 kits this year and 2-4 kits annually over the next three years has a high chance of establishing a viable population. During years there are no rehabilitated kits, the park will move a minimum of 3 juveniles or sub-adults caught in the nearby Sierra Nevada Adaptive Management Project. This project is a partnership between the the park and the USFS Pacific Southwest Research Station and the California Department and Fish and Wildlife and is supported by the Southern Sierra Nevada Fisher Working Group.

In 2015, two denning females died and both litters were successfully rescued. Both litters consist of one male and one female. Both litters were recovered from the Sierra National Forest. The kits were initially taken to the Fresno-Chaffee Zoo for care, then moved to an outdoor wildlife rescue/rehabilitation facility near Oakhurst, CA when capable of eating solid food. As of July, all four kits are thriving, being fed a diet of both live and dead natural prey items. Given the expected gradual increase of intra-sibling rivalry and the natural dispersal behavior of fishers, it is expected that they will need to be released in September 2015.

The working group proposes to begin using orphan kits to facilitate expansion of the southern Sierra fisher population north of the Merced River in two phases. First, the four kits currently in captivity would be released in the park immediately north of the Merced River in fall 2015. Exact release dates would depend on the kits' development and ability to pursue and capture live prey. These 4 kits would be tracked via VHF-implant transmitters. Their survival and habitat selection would be evaluated; if they survived at rates comparable to wild-born kits and appeared able to find suitable habitat, the area between the Merced River and the Rim Fire perimeter would become the priority release sites for any additional orphans rescued during research activities. In years when no orphans were available, the population would be augmented by 2-3 juveniles removed from the Sierra Nevada Adaptive Management Project/Sugar Pine or Kings River research areas. Such a release would accomplish the following objectives:

- 1) facilitate migration across the Yosemite Valley/Merced River corridor, currently believed to be a barrier to fisher expansion in the region.
- 2) come at limited cost to the source population; these orphans are surplus animals that would have died without intervention. Cost to the population will therefore be limited to augmentation in years when no orphans are acquired.
- 3) provide a seed population and breeding opportunities for any individuals naturally migrating across that corridor. If the orphans do not thrive, it would inform future management decisions.

4) provide a priority release point and monitoring plan for any orphans recovered in future years.

This effort would not represent a focused, large-scale translocation or assisted migration effort in the classic sense, and could potentially fail to facilitate northward migration, however representatives of the Southern Sierra Fisher Working Group believe it represents the best use of these kits in the interest of promoting fisher population viability region-wide. It provides an empirical test of the habitat north of the Merced River, and it would open significant research opportunities in understanding the utility of juvenile animals for conservation efforts.

Project Locations:

Tuolumne County, CA
Mariposa County, CA

Describe the category used to exclude action from further NEPA analysis and indicate the number of the category (see Section 3-4 of DO-12):

E.2 Restoration of noncontroversial native species into suitable habitats within their historic range and elimination of exotic species.

On the basis of the environmental impact information in the statutory compliance file, with which I am familiar, I am categorically excluding the described project from further NEPA analysis. No exceptional circumstances (e.g. all boxes in the ESF are marked "no") or conditions in Section 3-6 apply, and the action is fully described in Section 3-4 of DO-12.

Superintendent: _____ *// Don L. Neubacher //* _____ **Date:** _____ 9/9/2015 _____
Don L. Neubacher

The signed original of this document is on file at the Environmental Planning and Compliance Office in Yosemite National Park.



ENVIRONMENTAL SCREENING FORM (ESF)

DO-12 APPENDIX 1

Date Form Initiated: 08/26/2015

Updated May 2007 - per 2004 Departmental Manual revisions and proposed Director's Order 12 changes

A. PROJECT INFORMATION

Park Name: Yosemite National Park
Project Title: 2015-024 Pacific Fisher Assisted Migration
PEPC Project Number: 60050
Project Type: Resource Management (RM)
Project Location:
 County, State: Tuolumne, California
 County, State: Mariposa, California
Project Leader: Travis Espinoza
Is project a hot topic (controversial or sensitive issues that should be brought to attention of Regional Director)?

B. RESOURCE EFFECTS TO CONSIDER:

Identify potential effects to the following physical, natural, or cultural resources	No Effect	Negligible Effects	Minor Effects	Exceeds Minor Effects	Data Needed to Determine/Notes
1. Geologic resources – soils, bedrock, streambeds, etc.	No				
2. From geohazards	No				
3. Air quality	No				
4. Soundscapes	No				
5. Water quality or quantity	No				
6. Streamflow characteristics	No				
7. Marine or estuarine resources	No				
8. Floodplains or wetlands	No				
9. Land use, including occupancy, income, values,	No				

Identify potential effects to the following physical, natural, or cultural resources	No Effect	Negligible Effects	Minor Effects	Exceeds Minor Effects	Data Needed to Determine/Notes
ownership, type of use					
10. Rare or unusual vegetation – old growth timber, riparian, alpine	No				
11. Species of special concern (plant or animal; state or federal listed or proposed for listing) or their habitat		Yes			potential benefit if assisted migration is successful
12. Unique ecosystems, biosphere reserves, World Heritage Sites	No				
13. Unique or important wildlife or wildlife habitat	No				
14. Unique or important fish or fish habitat	No				
15. Introduce or promote non-native species (plant or animal)	No				
16. Recreation resources, including supply, demand, visitation, activities, etc.	No				
17. Visitor experience, aesthetic resources	No				
18. Archeological resources	No				
19. Prehistoric/historic structure	No				
20. Cultural landscapes	No				
21. Ethnographic resources	No				
22. Museum collections (objects, specimens, and archival and manuscript collections)	No				
23. Socioeconomics, including employment, occupation, income changes, tax base, infrastructure	No				

Identify potential effects to the following physical, natural, or cultural resources	No Effect	Negligible Effects	Minor Effects	Exceeds Minor Effects	Data Needed to Determine/Notes
24. Minority and low income populations, ethnography, size, migration patterns, etc.	No				
25. Energy resources	No				
26. Other agency or tribal land use plans or policies	No				
27. Resource, including energy, conservation potential, sustainability	No				
28. Urban quality, gateway communities, etc.	No				
29. Long-term management of resources or land/resource productivity	No				
30. Other important environment resources (e.g. geothermal, paleontological resources)?	No				

C. MANDATORY CRITERIA

Mandatory Criteria: If implemented, would the proposal:	Yes	No	N/A	Comment or Data Needed to Determine
A. Have significant impacts on public health or safety?		No		
B. Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation, or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas?		No		
C. Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources (NEPA section 102(2)(E))?		No		

Mandatory Criteria: If implemented, would the proposal:	Yes	No	N/A	Comment or Data Needed to Determine
D. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks?		No		
E. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?		No		
F. Have a direct relationship to other actions with individually insignificant, but cumulatively significant, environmental effects?		No		
G. Have significant impacts on properties listed or eligible for listing on the National Register of Historic Places, as determined by either the bureau or office?		No		
H. 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?		No		
I. Violate a federal law, or a state, local, or tribal law or requirement imposed for the protection of the environment?		No		
J. Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898)?		No		
K. 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 (Executive Order 13007)?		No		
L. 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 and Executive Order 13112)?		No		

For the purpose of interpreting these procedures within the NPS, any action that has the potential to violate the NPS Organic Act by impairing park resources or values would constitute an action that triggers the DOI exception for actions that threaten to violate a federal law for protection of the environment.

D. OTHER INFORMATION

- 1. Are personnel preparing this form familiar with the site? N/A
 - 1.A. Did personnel conduct a site visit? No
- 2. Is the project in an approved plan such as a General Management Plan or an Implementation Plan with an accompanying NEPA document? No
- 3. Are there any interested or affected agencies or parties? N/A
- 4. Has consultation with all affected agencies or tribes been completed? Yes
- 5. Are there any connected, cumulative, or similar actions as part of the proposed action? (e.g., other development projects in area or identified in GMP, adequate/available utilities to accomplish project) No

E. INTERDISCIPLINARY TEAM SIGNATORIES

<u>Interdisciplinary Team</u>	<u>Field of Expertise</u>
Don L. Neubacher	Superintendent
Kathleen Morse	Chief of Planning
Randy Fong	Chief of Project Management
Jeff Hilliard	Chief of Administration Management
Ron Borne	Chief of Facilities Management
Linda C. Mazzu	Chief of Resources Management & Science
Kris Kirby	Chief of Business and Revenue Management
Tom Medema	Chief of Interpretation and Education
Kevin Killian	Chief of Visitor and Resource Protection
Chad Thomas	Project Leader
Madelyn Ruffner	Environmental Planning and Compliance Program Manager
Kyle Meakins	NEPA Specialist

F. SUPERVISORY SIGNATORY

Based on the environmental impact information contained in the statutory compliance file and in this environmental screening form, environmental documentation for this stage of the subject project is complete.

Recommended:

Compliance Specialists	Date
<u>// Kyle Meakins //</u> Compliance Specialist – Kyle Meakins	<u>9/2/2015</u>
<u>// Madelyn Ruffner //</u> Compliance Program Manager – Madelyn Ruffner	<u>9/8/2015</u>
<u>// Randy Fong //</u> Chief, Project Management – Randy Fong	<u>9/9/2015</u>

Approved:

Superintendent	Date
<u>// Don L. Neubacher //</u> Don L. Neubacher	<u>9/9/2015</u>



PARK ESF ADDENDUM

Today's Date: September 2, 2015

PROJECT INFORMATION

Park Name: Yosemite National Park
Project Title: 2015-024 Pacific Fisher Assisted Migration
PEPC Project Number: 60050
Project Type: Resource Management (RM)
Project Location:
 County, State: Tuolumne, California
 County, State: Mariposa, California
Project Leader: Travis Espinoza

PARK ESF ADDENDUM QUESTIONS & ANSWERS

ESF Addendum Questions	Yes	No	N/A	Data Needed to Determine/Notes
SPECIAL STATUS SPECIES CHECKLIST				
Listed or proposed threatened or endangered species (Federal or State)?		No		Pacific Fisher is proposed as a threatened federal species and is a State threatened species
Species of special concern (Federal or State)?		No		
Park rare plants or vegetation?		No		
Potential habitat for any special-status species listed above?		No		
NATIONAL HISTORIC PRESERVATION ACT CHECKLIST				
Entail ground disturbance?		No		
Are any archeological or ethnographic sites located within the area of potential effect?		No		
Entail alteration of a historic structure or cultural landscape?		No		
Has a National Register form been completed?		No		
Are there any structures on the park's List of Classified Structures in the area of potential effect?		No		

ESF Addendum Questions	Yes	No	N/A	Data Needed to Determine/Notes
WILD AND SCENIC RIVERS ACT CHECKLIST				
Fall within a wild and scenic river corridor? (Name the river corridor)		No		
Fall within the bed and banks AND will affect the free-flow of the river?		No		
Have the possibility of affecting water quality of the area?		No		
Remain consistent with its river segment classification?	Yes			
Fall on a tributary of a Wild and Scenic River?		No		
Will the project encroach or intrude upon the Wild and Scenic River corridor?		No		
Will the project unreasonably diminish scenic, recreational, or fish and wildlife values?		No		
WILDERNESS ACT CHECKLIST				
Within designated Wilderness?	Yes			See attached MRA
Within a Potential Wilderness Addition?		No		



ASSESSMENT OF ACTIONS HAVING AN EFFECT ON HISTORIC PROPERTIES

A. DESCRIPTION OF UNDERTAKING

1. Park: Yosemite National Park

2. Project Description:

Project Name: 2015-024 Pacific Fisher Assisted Migration

Prepared by: Kyle Meakins **Date Prepared:** 09/02/2015 **Telephone:** 209-379-1920

PEPC Project Number: 60050

Locations:

Tuolumne, CA

Mariposa, CA

Area of potential effects (as defined in 36 CFR 800.16[d])

N/A

3. Has the area of potential effects been surveyed to identify historic properties?

No

Yes

4. Potentially Affected Resource(s):

5. The proposed action will: (check as many as apply)

Destroy, remove, or alter features/elements from a historic structure

Replace historic features/elements in kind

Add non-historic features/elements to a historic structure

Alter or remove features/elements of a historic setting or environment (inc. terrain)

Add non-historic features/elements (inc. visual, audible, or atmospheric) to a historic setting

or cultural landscape

Disturb, destroy, or make archeological resources inaccessible

Disturb, destroy, or make ethnographic resources inaccessible

Potentially affect presently unidentified cultural resources

Begin or contribute to deterioration of historic features, terrain, setting, landscape elements,

or archeological or ethnographic resources

Involve a real property transaction (exchange, sale, or lease of land or structures)

Other (please specify): _____

6. Supporting Study Data:

(Attach if feasible; if action is in a plan, EA or EIS, give name and project or page number.)

B. REVIEWS BY CULTURAL RESOURCE SPECIALISTS

The park 106 coordinator requested review by the park's cultural resource specialist/advisors as indicated by check-off boxes or as follows:

[X] Anthropologist

Name: Scott Carpenter

Date: 08/31/2015

Comments: No issues.

Check if project does not involve ground disturbance []

Assessment of Effect: ___ No Potential to Cause Effect X No Historic Properties Affected ___ No

Adverse Effect ___ Adverse Effect ___ Streamlined Review

Recommendations for conditions or stipulations:

[X] Archeologist

Name: Sara Dolan

Date: 08/28/2015

Comments: There are no archaeological concerns.

Check if project does not involve ground disturbance [X]

Assessment of Effect: ___ No Potential to Cause Effect X No Historic Properties Affected ___ No

Adverse Effect ___ Adverse Effect ___ Streamlined Review

Recommendations for conditions or stipulations:

Doc Method: Park Specific Programmatic Agreement

[X] Historian

Name: Scott Carpenter

Date: 08/31/2015

Comments: No issues.

Check if project does not involve ground disturbance [X]

Assessment of Effect: ___ No Potential to Cause Effect X No Historic Properties Affected ___ No

Adverse Effect ___ Adverse Effect ___ Streamlined Review

Recommendations for conditions or stipulations:

[X] Historical Architect

Name: Scott Carpenter

Date: 08/31/2015

Comments: No issues.

Check if project does not involve ground disturbance []

Assessment of Effect: No Potential to Cause Effect No Historic Properties Affected No

Adverse Effect Adverse Effect Streamlined Review

Recommendations for conditions or stipulations:

Historical Landscape Architect

Name: Scott Carpenter

Date: 08/31/2015

Comments: No issues.

Check if project does not involve ground disturbance []

Assessment of Effect: No Potential to Cause Effect No Historic Properties Affected No

Adverse Effect Adverse Effect Streamlined Review

Recommendations for conditions or stipulations:

No Reviews From: Curator, 106 Advisor, Other Advisor

C. PARK SECTION 106 COORDINATOR'S REVIEW AND RECOMMENDATIONS

1. Assessment of Effect:

- No Potential to Cause Effects
- No Historic Properties Affected
- No Adverse Effect
- Adverse Effect

2. Documentation Method:

A. STANDARD 36 CFR PART 800 CONSULTATION

Further consultation under 36 CFR Part 800 is needed.

B. STREAMLINED REVIEW UNDER THE 2008 SERVICEWIDE PROGRAMMATIC AGREEMENT (PA)

The above action meets all conditions for a streamlined review under section III of the 2008 Servicewide PA for Section 106 compliance.

APPLICABLE STREAMLINED REVIEW Criteria
(Specify 1-16 of the list of streamlined review criteria.)

C. PLAN-RELATED UNDERTAKING

Consultation and review of the proposed undertaking were completed in the context of a plan review process, in accordance with the 2008 Servicewide PA and 36 CFR Part 800.

Specify plan/EA/EIS:

D. UNDERTAKING RELATED TO ANOTHER AGREEMENT

The proposed undertaking is covered for Section 106 purposes under another document such as a statewide agreement established in accord with 36 CFR 800.7 or counterpart regulations.

Explanation: 1999 Programmatic Agreement as amended in 2014.

E. COMBINED NEPA/NHPA Document

Documentation is required for the preparation of an EA/FONSI or an EIS/ROD has been developed and used so as also to meet the requirements of 36 CFR 800.3 through 800.6

G. Memo to SHPO/THPO

H. Memo to ACHP

SHPO/THPO Notes:

3. Additional Consulting Parties Information:

N/A

4. Stipulations and Conditions:

N/A

5. Mitigations/Treatment Measures:

**Measures to prevent or minimize loss or impairment of historic/prehistoric properties:
(Remember that setting, location, and use may be relevant.)**

No Assessment of Effect mitigations identified.

D. RECOMMENDED BY PARK SECTION 106 COORDINATOR:

Historic Preservation Officer:

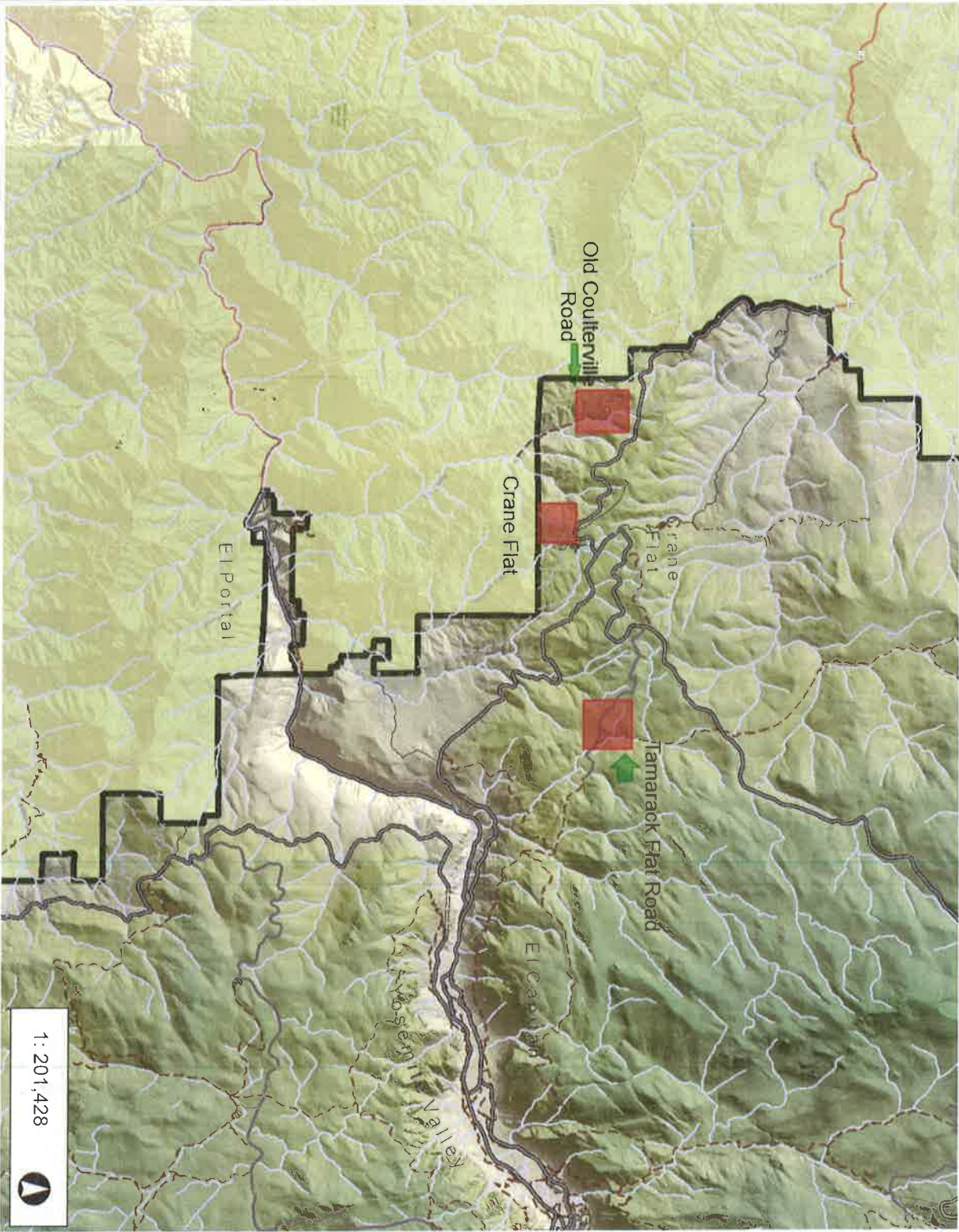
Kimball Koch // Kimball Koch // **Date** 9/8/2015

E. SUPERINTENDENT'S APPROVAL

The proposed work conforms to the NPS *Management Policies* and *Cultural Resource Management Guideline*, and I have reviewed and approve the recommendations, stipulations, or conditions noted in Section C of this form.

Superintendent: // Don L. Neubacher // **Date:** 9/9/2015
Don L. Neubacher

Potential Fisher Release Sites, Yosemite National Park



WGS_1984_Web_Mercator_Auxiliary_Sphere
© Yosemite National Park

1 : 201,428



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION



Legend

- Roads**
- Primary road
- Secondary road
- Tertiary road (residential)
- Campground road
- NPS service road
- Parking lot or pullout
- Dirt road
- Gravel road
- == Tunnel
- Trails
- Yosemite National Park
- Roads (Wilderness)
- TOPO_DEM_10M_clipYOSE_ High : 3981'
- TOPO_Hillshade_10m_clipYO Low : 501 High : 254
- Low : 0

Notes

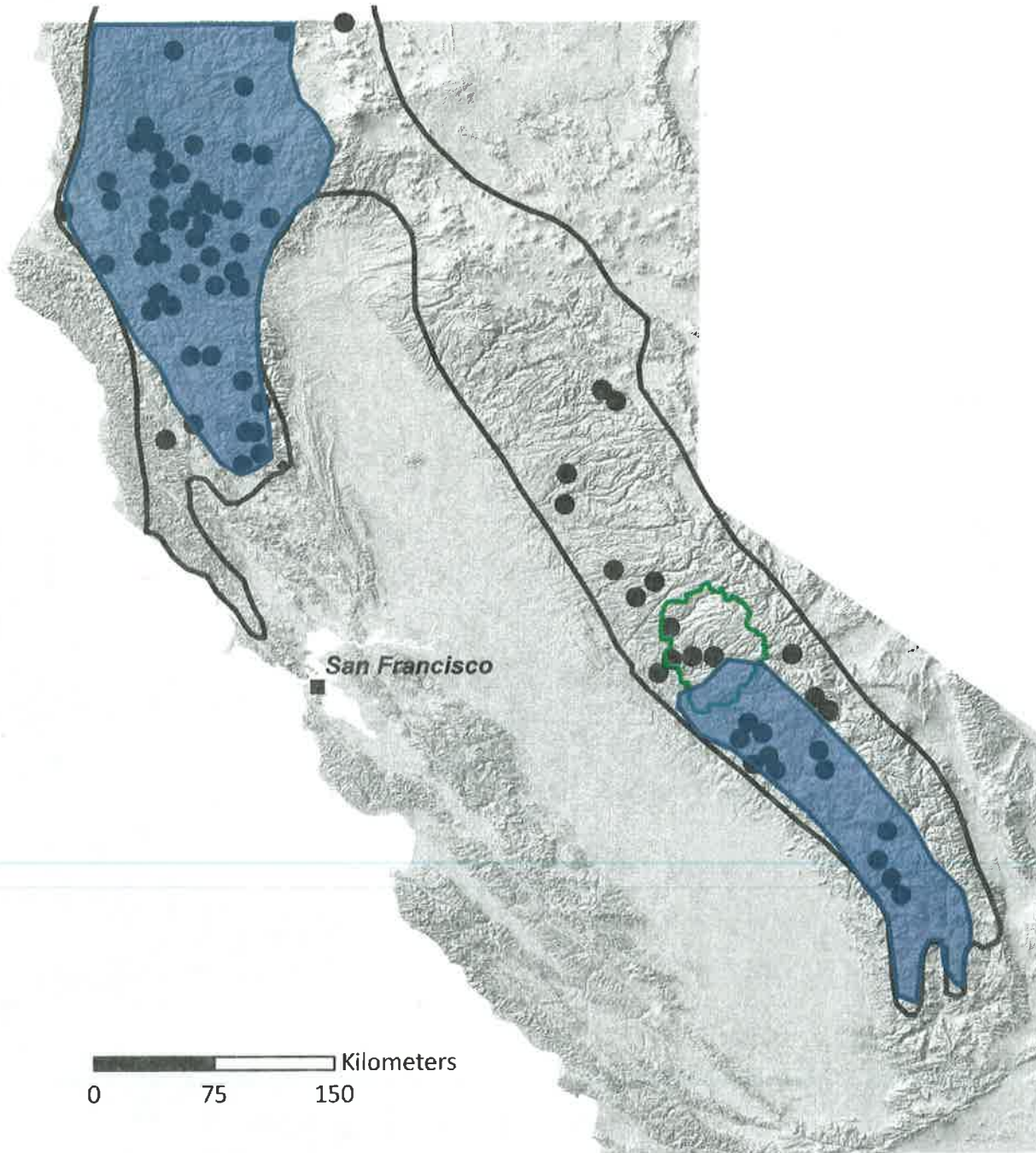


Figure 1. Historic range (1850-1925) of the Pacific fisher (black outline) as reported by Grinnell et al. (1937) and their current range (blue) in California. Black dots indicate historic fisher locations based on reports from trappers and collecting expeditions during 1919–1924. Current range is an approximation. The southern Sierra Nevada population is separated from fishers in northwestern California by 430 km (260 miles). Yosemite National Park (green outline) lies at the northern tip of the fisher's current range in the southern Sierra Nevada. Historic range courtesy of Tucker et al. (2012).

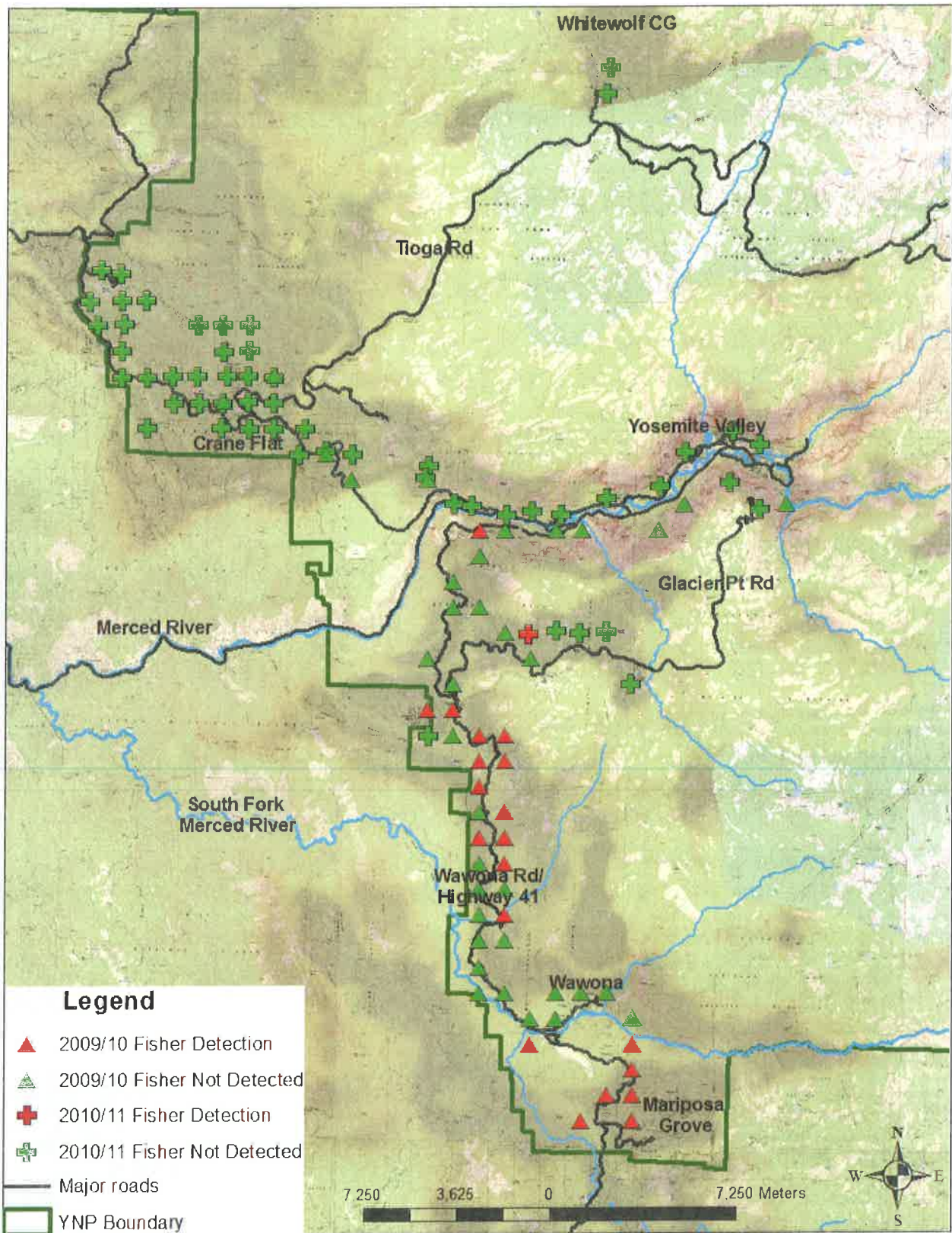


Figure 4. Locations of remote motion-sensing camera survey stations for Pacific fisher in Yosemite National Park from 2009 - 2011. The faded brown areas indicate high quality fisher habitat according to a habitat suitability model by Spencer et al. (2008). Survey year 1 (winter 2009/2010) camera stations are represented by green (fisher not detected) and red (fisher detected) triangles. Survey year 2 (winter 2010/2011) camera stations are represented by green (fisher not detected) and red (fisher detected) crosses. A total of 111 camera stations were completed over the two year survey period, covering 111 km².

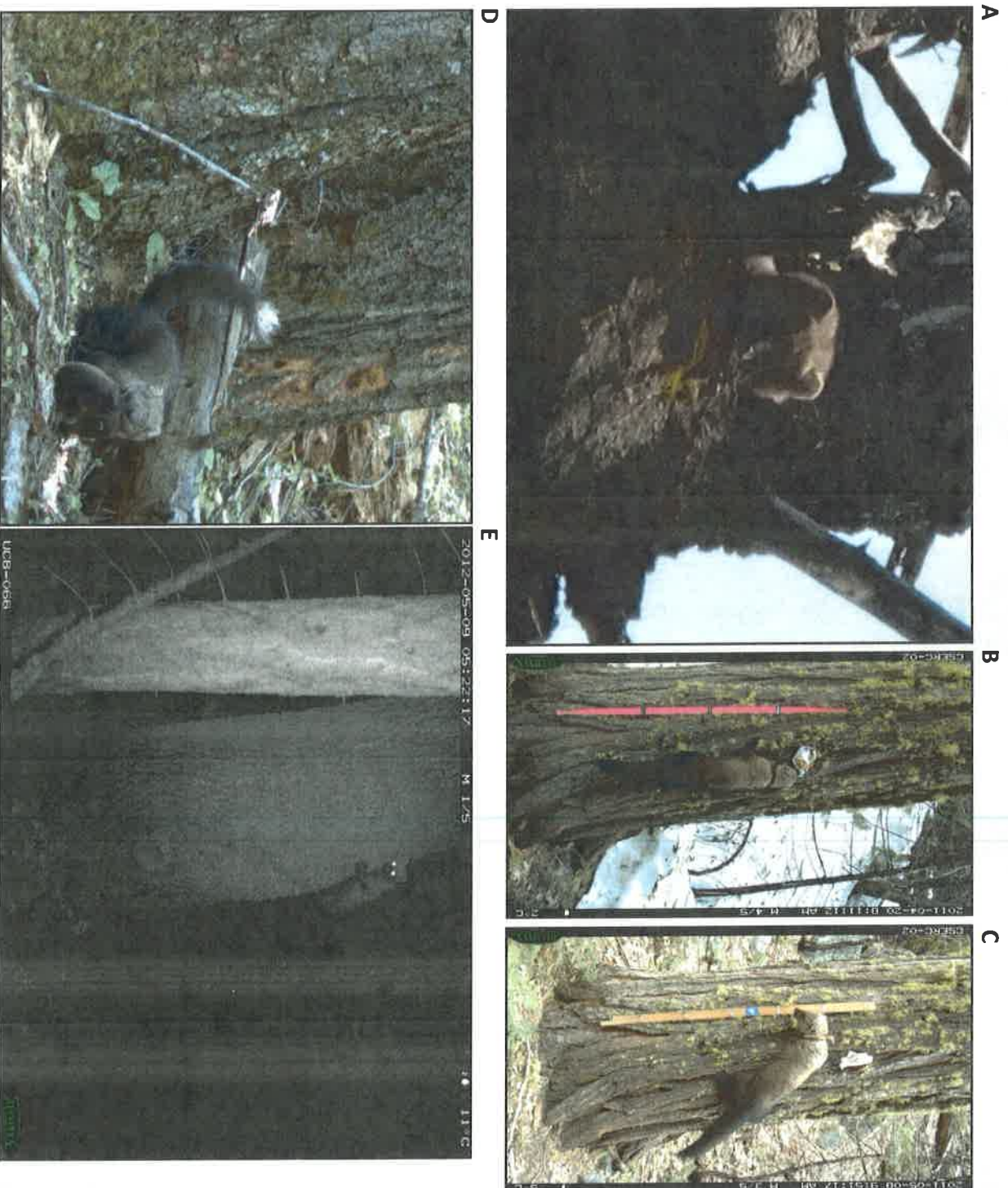


Figure 15. Images of Pacific fishers during the denning season of 2011 and 2012 in Yosemite National Park: (A) Female fisher (F34) resting in the top of her maternal den tree, a white fir snag with a broken-off top during spring 2011 and (B) visiting a camera station in 34 Mariposa Grove in April 2011. (C) Male fisher (M02) visiting the same camera station in May 2011. (D) Female fisher (F46) at her natal den tree, a white fir, moving one of her two kits to (E) her first maternal den tree, a large black oak, within the park during spring 2012.

Assisted Migration of Fisher in Yosemite Wilderness Minimum Requirement Analysis

Step 1: Problem Statement

The fisher (*Pekania pennanti*) is a threatened species under the California Endangered Species Act (CESA) and proposed as threatened under the federal Endangered Species Act (ESA) in the southern Sierra Nevada. This species once roamed throughout the Sierra Nevada, southern Cascades, and coastal mountain ranges in California. Their current California distribution is limited to two populations: a northern population and a southern Sierra population (Figure 1). The southern population ranges from the Kern River to the Merced River in Yosemite National Park.

In the late 1800's and early 1900's, fisher populations dramatically decreased in both abundance and distribution due to logging, trapping, fire suppression, and human development (Powell and Zielinski 1994; Zielinski et al. 2005; Lofroth et al. 2010). Habitat that was once occupied north of the Merced River in both Yosemite National Park and Stanislaus National Forest is now unoccupied, despite the presence of a population immediately south of the Merced River. This unoccupied area north of the Merced River represents a relatively large area of high quality, contiguous habitat.

The absence of this native keystone predator north of the Merced River impacts the ability of this ecosystem to function as it evolved over thousands of years. Fisher presence can influence abundance and distribution of prey species and other predator species (Powell and Zielinski 1994; Dark 1997; Campbell 2004). Increasing the geographic extent of fisher, particularly into this area, is identified as Objective 1.1 in the draft Southern Sierra Nevada Fisher Conservation Strategy (Spencer et al. 2015).

Step 2: Background

The fisher is a large mustelid carnivore once widely distributed throughout montane forests of North America (Gibilisco 1994, Lofroth et al. 2010, Raley et al. 2012). According to Grinnell et al. (1937), fishers in the early twentieth century were distributed in California from the Coast Range eastward to the southern Cascades and extending south throughout the Sierra Nevada. The current range of the fisher in California is less than 50% of the historical range described by Grinnell et al. (1937) and consists of two isolated native populations: one in the northwestern portion of the state that extends into southwestern Oregon, and the other in the southern Sierra Nevada (Zielinski et al. 1995, 2005) (Figure 1). Genetic analysis by Wisely et al. (2004) found that these two populations, separated by a distance of roughly 430 km, are highly differentiated, and there is little migration between populations from north to south. Anthropogenic pressures, including more than a century of logging, development, fire suppression, and trapping prior to 1946 resulted in a dramatic decline in fisher populations (Powell and Zielinski 1994, Zielinski et al. 2005, Lofroth et al. 2010). Although predator control (trapping) ceased in Yosemite National Park in 1925 and major commercial logging operations ended in 1929, fisher sightings continued to remain scarce despite regrowth of apparently suitable habitat and protection from trapping (Chow 2009). This decline prompted listing as a candidate species for protection under the ESA in June 2004. In October 2014, the U.S. Fish and Wildlife Service (FWS) proposed a rule to list the species as threatened. A final ruling is expected in late 2015.

Nineteen specimens collected in Yosemite National Park from 1914 - 1919 indicate that fishers were most commonly found between 6,000 and 7,000 feet in elevation from Crane Flat in the north through the south and southwestern portion of the park. Field notes from Joseph Dixon, an MVZ associate, suggest that "Hazelgreen to Crane Flat is the best place to look for fisher tracks" (J. Dixon field notes, 15 June 1921). Both of these locations are north of the Merced River. In recent years, the majority of reported fisher sightings and road-kills have occurred south of the Merced River along Wawona Road and in the Mariposa Grove area.

Results from two NPS camera studies occurring in 2009-2011 and 2014-2015 confirms that fishers are currently distributed in low abundance throughout a narrow corridor of habitat in the southern portion of the park that borders Sierra National Forest and along Wawona Road; fishers do not currently occupy suitable habitat north of the Merced River (Cline 2013) (Figure 2).

Fishers generally inhabit mid-elevation mixed conifer forests, ranging in elevation from 4,000 – 7,000 feet, and are in close proximity to human development and forest-altering activities (Zielinski et al. 2005). The fisher is among the most habitat-specific mammals in North America (Buskirk and Powell 1994). Fishers den and bear young in the cavities of large old-growth trees and snags in late-successional coniferous or mixed forests.

While suitable habitat north of the Merced River currently exists, there are numerous anthropogenic threats to fisher and their associated habitat. Current threats include road-related mortality; exposure to rodenticides and other pesticides at marijuana cultivation sites (Gabriel et al. 2012); catastrophic wildfires; and forest management activities that degrade old-growth forest. While studies of radio-collared fishers to the south have found that predation accounts for the largest source of mortality, road-kill mortalities along Wawona Road and anticoagulant rodenticide exposure also impact the fisher population (Cline 2013). There have been 10 documented road-kill fisher mortalities in Yosemite National Park over the past two decades (Cline 2013). Five road-kill fishers (of five tested) from 2008 onward tested positive for anticoagulant rodenticide exposure. The park has begun to address these threats by building wildlife crossing structures along Wawona Road and assessing potential crossing structures along the Big Oak Flat Road. Additionally, the Rim Fire and El Portal Fire burned large patches of habitat north of the Merced River. Those areas with high severity fire effects have degraded habitat but, after numerous iterations of population modeling, there is still sufficient habitat available to support a self-sustaining population (Craig Thomson, personal communication, August 2015).

Findings from fisher monitoring and management studies will inform the completion of the Conservation Strategy and, if listed, the implementation of the Recovery Plan. Federal agencies have an obligation to assist recovery implementation by addressing threats that result from their programs and actions. Section 7 of the ESA requires federal agencies to use their authorities to carry out conservation programs to benefit endangered and threatened species. The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend.

Step 3: Consider Actions Outside of Wilderness

Explain how any actions outside of wilderness may or may not mitigate or resolve the threats noted in step 1.

Much of the current and historical range of fishers in Yosemite National Park is located in designated wilderness. Non-wilderness areas outside of the park have more threats to fisher and their habitat, including low quality habitat from logging and development and increased exposure to rodenticides.

Step 4: Necessity for Action

Explain why any action in wilderness is necessary to preserve wilderness character.

Wilderness character has been negatively altered by the disappearance of fisher from the area north of the Merced River. The natural and primitive qualities will continue to be degraded without the presence of this keystone predator. In addition, the state of the fisher in Yosemite is a precarious one. Limited habitat and low abundance and recruitment rates threaten the existence of fisher in Yosemite and across the southern Sierra Nevada. Expansion into previously occupied areas will provide opportunities for both an increase in the population and provide important information about habitat use and response to these types of direct management actions. The return of fisher will enhance the natural and primitive qualities of wilderness character that have been negatively impacted for decades.

The Merced River corridor appears to be a significant barrier to natural fisher migration and range expansion. Given that fisher have been present south of the river for decades without successful northward expansion, it is unlikely that fisher will re-inhabit those areas north of the river without human intervention. The long-term goal of a fisher translocation project in the park would be to establish a wild, self-sustaining population north of the Merced River that would continue to expand into historic range farther north. This would address the threat to wilderness character, at least on the local level, into the future.

Step 5: Alternatives

Describe alternatives that address the threat(s) noted above.

Alternative 1: No Action

- No fisher releases would occur north of the Merced River.
- Current monitoring and research activities would continue as specified in the 2014 MRA (Cline).
- Expansion into the proposed area would only occur if fishers naturally migrated across the Merced River corridor.

Alternative 2: Only 2015 Releases

- 4 orphaned fisher kits would be released in September 2015 north of the Merced River.
- No additional releases beyond 2015.

- All kits will receive VHF transmitter implants. Implant battery life varies from 2-4 years depending on environmental conditions.
- Once VHF transmitters approach end of life, fishers may be caught and affixed with VHF collars.
- Aerial and ground based telemetry would be used for monitoring:
 - Weekly fixed wing aircraft flights over the project area to determine approximate location. Flights would occur over 1500 feet AGL.
 - Opportunistic vehicle based telemetry from Big Oak Flat and/or Tioga Road to determine approximate location.
 - Monitoring would continue as long as fisher remain in the area.

Alternative 3: Basic Translocations

- 4 orphaned fisher kits would be released in September 2015 north of the Merced River.
- Yearly releases of 2-4 kits through 2018. If orphaned kits aren't available, sub-adults (1-2 years old) or juveniles (<1 year old) will be removed from the population south of the park in the Sierra National Forest. These individuals will be captured and collared for another study regardless and the researchers there believe that their removal will not affect the long term viability of the source population.
- All kits will receive VHF transmitter implants. Once VHF transmitters approach end of life, fishers may be caught and affixed with VHF or GPS collars.
- Any kits born to the translocated population will not be implanted. They may be captured and collared once they are adults (>2 years old)
- Aerial and ground based telemetry will be used for monitoring:
 - Weekly fixed wing aircraft flights over the project area to determine location. Flights would occur over 500 feet AGL.
 - Opportunistic vehicle based telemetry from Big Oak Flat and/or Tioga Road to determine location.
 - Monitoring will continue beyond these translocations and will end once a self-sustaining population has been established.

Compared to Alternative 2, this alternative has additional releases in 2016-2018, potential use of juveniles and sub-adults for the releases, and potential use of GPS collars.

Alternative 4: Expanded Translocations

- 4 orphaned fisher kits would be released in September 2015 north of the Merced River.
- Yearly releases of 2-4 kits through 2018. If orphaned kits aren't available, sub-adults (1-2 years old) or juveniles (<1 year old) would be removed from the population south of the park in the Sierra National Forest. These individuals will be captured and collared for another study regardless and the researchers there believe that their removal will not affect the long term viability of the source population.
- If rates of survival are low for juveniles or sub-adults, adults may be captured and translocated from the source population to increase probability of success.
- All kits, juveniles, and sub-adults would receive VHF transmitter implants. Once VHF transmitters approach end of life, fishers will be caught and affixed with VHF or GPS collars. All adults would receive GPS and/or VHF collars.

- Any kits born to the translocated population will not be implanted. They may be captured and collared once they are adults (>2 years old)
- Aerial and ground based telemetry would be used for monitoring:
 - Twice weekly fixed wing aircraft flights over the project area to determine location. Flights would occur over 500 feet AGL.
 - Weekly ground-based telemetry by foot and vehicle into the study site to determine location.
 - Monitoring will continue beyond these translocations and will end once a self-sustaining population has been established.
- If individuals are in a high-risk or undesirable location, NPS can coordinate with cooperators to capture and relocate the animal to a more desirable location. Mortality risk and proximity to other fishers will be evaluated to maximize breeding and survival probability and genetic diversity.

Compared to Alternative 3, this alternative has the potential use of adults for releases, increased use of GPS and VHF collars, increased aerial and ground telemetry monitoring, lower flights, and potential capture and translocation of individuals within the study area for specific management goals.

Step 6: Analysis of Effects on Wilderness Character

Undeveloped:

All action alternatives have some impacts to the undeveloped quality of wilderness character. They consist of transmitter implants, possibly collars, and overflights. These impacts vary primarily in the total number of animals released with these instruments: Zero for no action, 4 for alternative 2, and 10-16 for alternatives 3 and 4. Any new kits born to the translocated population will not be given implants, but they may be affixed with collars once they are adults, increasing this impact for alternatives 3 and 4.

Overflights under alternative 2 will be above 1500' AGL; this is only 500' under the legal limit. Under alternatives 3 and 4 these flights may descend as low as 500', and under alternative 4 would be twice as frequent (twice a week instead of once a week).

Cumulative Effects: The proximity of the Crane Flat helibase accounts for significant numbers of low-level aircraft flights in this area through the summer months.

Numerous other animals in Yosemite have collars or implants: black bears, Sierra Nevada bighorn sheep, great grey owls, and spotted owls have radio transmitters. Some other animals, such as chipmunks and ground squirrels, have had short-term collars as part of research projects, and Sierra Nevada yellow-legged frogs are implanted with chips for identification.

Opportunities for solitude or a primitive and unconfined type of recreation:

The number of researchers in the field for this project will be negligible, with a negligible effect on solitude. There is no effect on "unconfined" as this project doesn't require new restrictions or

regulations. Both collars and overflights reduce opportunities for primitive recreation. Thus, Alternatives 3 and 4 will have an increased impact over 2 because of the greater number of collars. Fisher sightings are very rare, so it is unlikely that visitors will ever see the collars. Alternative 4 has a significantly greater effect on this quality compared to Alternatives 2 and 3 as the number of flights double; both alternatives 3 and 4 have lower flights and are therefore louder.

Cumulative effects: There are large numbers of high-level overflights above the wilderness, as well as significant numbers of low-level administrative helicopter flights associated with the Crane Flat helibase. Much of the reintroduction area also has significant amounts of road noise.

Natural:

The removal of keystone predators like the fisher can have profound, far-reaching impacts to ecosystems. In Yosemite, these effects have not been studied, and any attempt to do so would be complicated by the effects of trapping, fire suppression, logging, killing of other competing predators, and roads in the area in question. The importance of "top-down" forces like predation in ecosystems is well established, however, and it is a safe assumption that the local extirpation of the fisher in this area has had wide-ranging impacts to the naturalness of the area, even if they are hard to discern in light of other historic land use practices.

Both the no-action alternative and alternative 2 are unlikely to correct this condition. Decades of non-migration across the Merced River corridor would suggest that natural migration is not likely to succeed in re-establishing a sustainable population to the north of the river. Alternative 2 translocates only 4 kits (2 pairs of siblings). Even if they manage to survive long enough to reproduce, the lack of genetic diversity alone would cause severe long-term negative effects to this population. Alternatives 3 and 4, because they involve many more animals, have a better chance of establishing a sustainable, healthy population. Alternative 4 allows managers to protect fishers by moving animals away from unanticipated threats, which may increase the chance of survival. Because the translocated animals come from nearby, the genetics of the translocated population will be nearly identical to that of a population that migrated naturally.

Cumulative effects: Other unnatural conditions in the area are noted above. Systematic predator control through the 1800s and early 1900s affected many species, including those not directly trapped or killed. The California grizzly was hunted to extinction and the wolverine remains largely absent from the Sierra Nevada. Coyotes and mountain lions appear to have returned to fairly high numbers, although little is known about their local populations; numbers for mid-level predators (American martens, bobcats, foxes, river otters, skunks, ringtails, etc.) are not well understood in Yosemite. There have been numerous studies in montane habitats detailing the ecological effects of keystone predator removal. Not only is predation pressure removed from prey species, but we can also see an explosion of smaller, mid-level predator species. This chain reaction can have huge cumulative effects on the ecosystem. Even vegetation composition can be affected by an increase in herbivores that no longer have predation pressure.

Untrammelled:

All three action alternatives are a significant manipulation of natural processes and conditions, resulting in a significant negative impact to this quality. A number of factors of the proposed manipulation are considered when weighing the impacts to this quality:

Intensity/complexity: Under all alternatives, the proposed action is quite simple: releasing a locally extirpated animal into its historic habitat. While the number of fisher released varies with alternative, the manipulative actions are not different. Monitoring, whether through direct observation or through collars, does not significantly manipulate natural processes or conditions.

While this is a significant manipulation, only simple choices (for alternatives 2 and 3) have been made-whether, where and when to translocate the fisher. Alternative 4 is significantly more manipulative as it allows open ended capturing and moving of animals to what is assumed to be better habitat.

Risk of unintended consequences: While the ecological effects of the action alternatives may be complex, the risk of those effects being unnatural is fairly low because this is a native animal being reintroduced to its historic habitat. That habitat is still far from "natural" though- the area has suffered from both fire suppression and unnaturally large patches of high severity fire that have resulted from such suppression, for example. These changes increase the risk of unintended ecological consequences of the action.

Probability of Success: As discussed above, alternatives 3 and 4 have the greatest chance of success.

Sustainability: The root causes of the threat to this species have been mostly resolved: hunting and trapping of the species and logging are now prohibited in the park. New threats are significant, though. Roads, rodenticides from illicit marijuana growing operations, and increased risk of large high severity fires may jeopardize this effort. This effort does nothing to reduce these risks, although structural improvements to reduce risk from roads may be built in the future and updated forest plans for neighboring forests are incorporating management strategies to reduce the risk of large, catastrophic wildfires.

Magnitude: The number of animals with each alternative is noted above.

Cumulative effects: Several threatened and endangered species in the Yosemite wilderness are being manipulated to increase their chances of survival: Sierra Nevada bighorn sheep and Sierra Nevada yellow-legged frogs are being translocated. Frogs are also being treated for a non-native fungus. A small number of black bears are being negatively conditioned in an attempt to keep them from becoming habituated to humans.

Sierra-wide, fisher are being monitored and studied in several areas, but manipulation is minimal. Manipulation may increase if the species is listed as threatened, as is expected, in the next year.

Non-native species are manipulated as well. Non-native fish are being removed from some lakes and streams as are bullfrogs.

Vegetation manipulation is also common, with fire suppression, prescribed fire, and the removal of invasive, non-native plant species

Step 7: Analysis of Effects on Safety and Economics

Economics: This translocation is being funded by the U.S. Forest Service; the National Park Service is contributing a small amount of incidental monitoring. The cost of Alternative 2 is negligible; Alternatives 3 and 4 have similar costs except for overflight expenses.

Safety: There are no safety concerns other than those associated with any field project or airplane flight.

Mitigation: All flights below 2000 feet AGL will be coordinated with Yosemite Helitack through Yosemite Emergency Dispatch.

Step 8: Decision

The effects to the undeveloped and opportunities for primitive recreation qualities are minor; with the lower overflights of Alternatives 3 and 4 being the most significant factor. The most important part of the decision of whether and how to address this threat to wilderness character is a careful consideration of the impacts to the natural and untrammelled qualities of the Yosemite wilderness.

Given the primacy of the untrammelled quality in the Wilderness Act and its legislative history, any significant ecological manipulation needs to be carefully justified by examining both the threat and any proposed manipulation. In this case, the human causation of the threat is clear and well documented. The threat is widespread in California; and, given land practices and conditions in much of the fisher's range, the threat of decline and eventual extirpation is likely to increase over time. This is an ecologically important species, so its absence in its historic range affects many other species and processes. This condition isn't likely to correct itself. Populations of fisher in the park were severely reduced by trapping and logging in the late 1800s or early 1900s, yet after all that time they have not become re-established through natural migration north of the Merced River. All of these factors justify some kind of intervention to re-establish that population.

The action alternatives presented in this analysis are all fairly modest in scope and of low complexity. They have a low risk of unintended consequences. All three of these factors indicate that these actions are justified. The most significant question mark in these potential actions is the probability of success, and that is also the biggest distinction between the alternatives. There are still major questions about whether the modern threats to the sustainability of a healthy fisher population in this area are moderate enough to allow success. Given the even greater threats outside the wilderness, however, the attempt is worth the impact to the untrammelled quality.

Both the no action alternative and alternative 2 have little chance of establishing a sustainable population. Alternatives 3 and 4 have a much better chance of long term success. The increased flight frequency and additional collars of alternative 4 increases the impacts to the undeveloped quality while doing little to increase the chance of success (although increased monitoring may provide more robust data to answer research questions about fisher habitat use). Capturing and

moving fishers after initial release significantly increases the impacts to the untrammelled quality while the benefits to the animals are questionable. If monitoring reveals a clearly identified, easily mitigated threat to fisher survival after release, a separate MRA can be completed to consider that mitigation.

For these reasons alternative 3 is considered the minimum required action for the preservation of wilderness character. Actions will be limited to those noted in the alternative.

Required Mitigation: All flights below 2000 feet AGL will be cleared and coordinated with Yosemite Helitack through Yosemite Emergency Dispatch ahead of time.

Assisted Migration of Fisher in Yosemite Wilderness

Check one:

- The proposed action is a temporary activity occurring through 12/31/2018, with ongoing monitoring after that date
- The proposed action will be an on-going, long term activity.

Submitted By:

Travis Espinoza 8/27/15
Travis Espinoza, Wildlife Biologist Date

Reviewed By:

Carrie [unclear] (acting) 8/27/15
Chief, Division of Resources Management Date
(Attach any comments and conditions)

Al Deulaway 8/31/15
Wilderness Manager Date
(Attach any comments and conditions)

[Signature] 8/31/15
Chief Ranger Date
(Attach any comments and conditions)

Approved By:

[Signature] 9/1/15
Superintendent Date
(Attach any comments and conditions)

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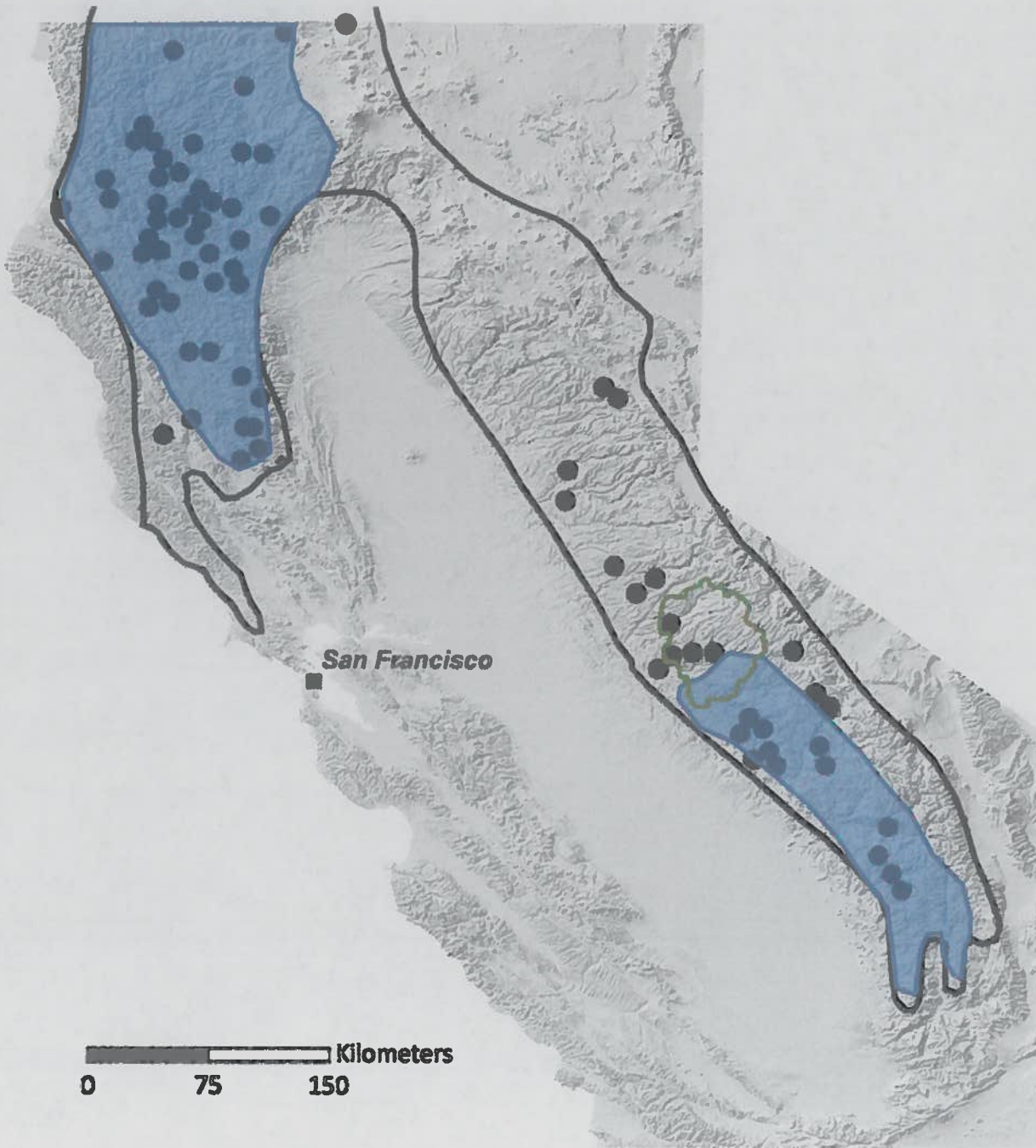


Figure 1. Historic range (1850-1925) of the fisher (black outline); current range (blue) in California. Black dots indicate historic fisher locations from 1919–1924. Historic range courtesy of Tucker et al. (2012).

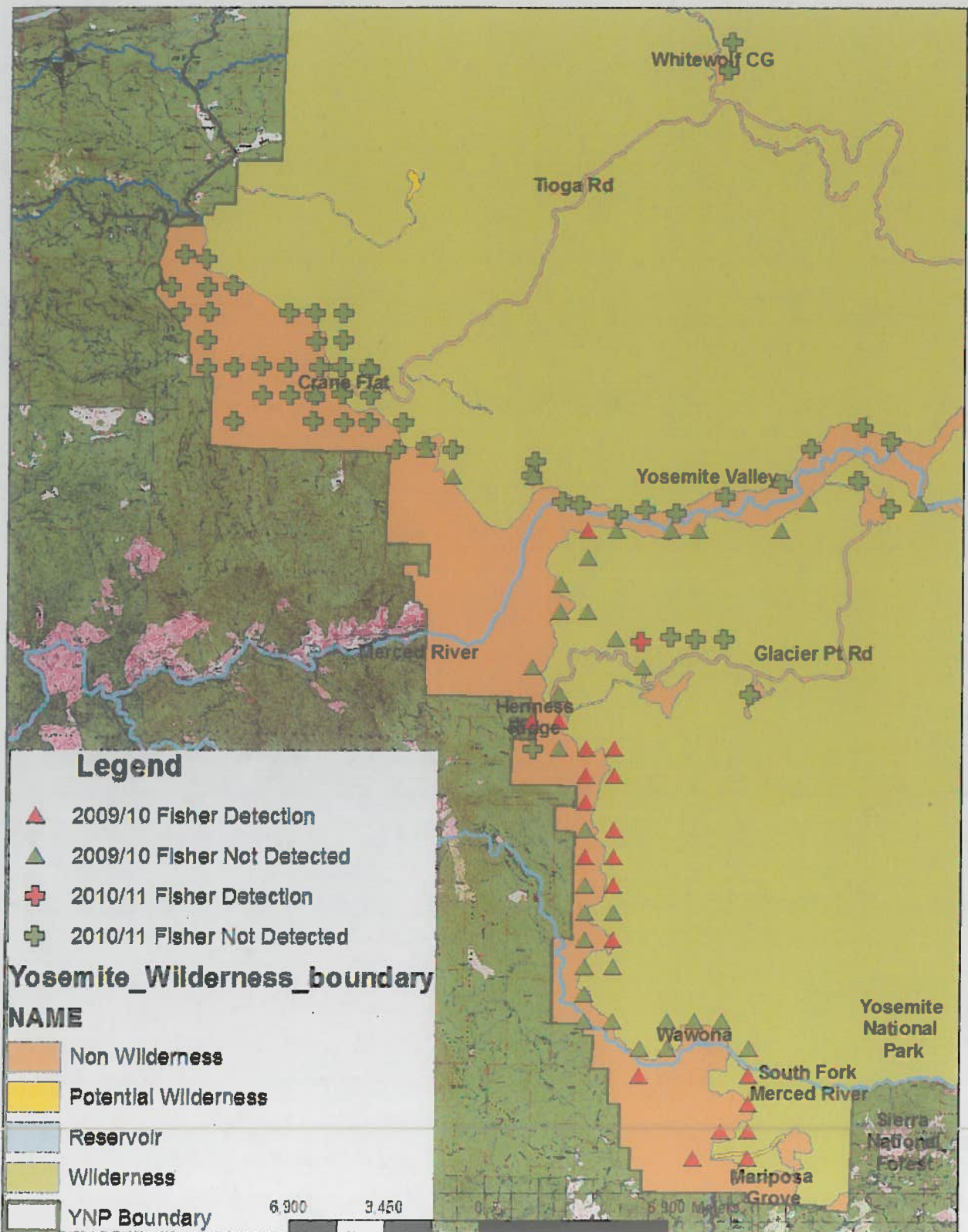


Figure 2. 2009-2011 fisher camera survey locations and wilderness boundary in Yosemite National Park.