U.S. Fish & Wildlife Service

Recovery Implementation Strategy
for the Southern California Distinct Population Segment of the Mountain Yellow-legged Frog (*Rana muscosa*)

Photo courtesy of Adam Backlin (U.S. Geological Survey)

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An electronic copy of the recovery plan is available at:
http://ecos.fws.gov/ecp0/profile/speciesProfile?sId=8037

Additional copies may be obtained from:

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RECOVERY IMPLEMENTATION STRATEGY

SOUTHERN CALIFORNIA DPS OF MOUNTAIN YELLOW-LEGGED FROG

INTRODUCTION

This Recovery Implementation Strategy specifies the activities necessary to fully implement the recovery actions that are specified in the Recovery Plan for the Southern California Distinct Population Segment of the Mountain Yellow-legged Frog (*Rana muscosa*)(U.S. Fish and Wildlife Service (Service) 2018)[1]. Along with the recovery actions, the recovery plan contains the recovery strategy, recovery objectives, and recovery criteria for the species. Designed to provide more focused detail than the recovery actions in the recovery plan, the recovery activities found herein are prioritized in terms of their importance for recovery. An assessment of the biology, life history, and status of the southern California *Rana muscosa* is available in the Species Biological Report, which can be found at https://ecos.fws.gov. The Species Biological Report and this Recovery Implementation Strategy will be updated on a routine basis as necessary.

RECOVERY ACTION AND ACTIVITY NARRATIVE

The recovery actions, as specified in the recovery plan, as well as the more detailed activities identified below are those that, based on the best available science, we believe are necessary to bring about the recovery of southern *Rana muscosa* and ensure its long-term conservation. However, these recovery actions and activities are subject to modification as dictated by new information, changes in species status, and completion of other recovery actions. Each recovery activity has been assigned a priority number (see below) according to our determination of what is most important for recovery of southern *R. muscosa* based on its status, life history, ecology, and threats. Recovery activities are assigned a priority number for implementation.

Priority 1: An activity that must be taken to prevent extinction or to prevent a species from declining irreversibly.

Priority 2: An activity that must be taken to prevent a significant decline of the species population/habitat quality, or some other significant negative impact short of extinction.

Priority 3: All other activities necessary to provide for full recovery of the species.

This numeric recovery priority system follows that of all Service recovery plans. Because situations change over time, priority numbers must be considered in the context of past and potential future actions at all sites. Assigning priorities does not imply that some recovery activities are of low importance; instead, it implies that those activities may be deferred while

[1] U.S. Fish and Wildlife Service. 2018. Recovery Plan for the southern California distinct population segment of the mountain yellow-legged frog. U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. iv + 24 pp.

higher priority recovery activities are being implemented. Therefore, the priority numbers assigned are intended to guide, not to constrain, the allocation of limited conservation resources.

The timing and order in which actions are implemented may also be affected by the availability of funding, landowner permission, and the extent of information required to formulate an appropriate management activity to address the threat. Some threats may require specific research in order to inform management activities, while others can be addressed based on the current information available (for example, control of unauthorized recreational activities in occupied habitat).

The **Recovery Action and Activity Narrative** provides details of the activities necessary to achieve recovery of southern *Rana muscosa*. Although we have identified these actions and activities as necessary to recover the species, recovery plans and this recovery implementation strategy are guidance and planning documents only. Identification of an activity to be implemented by a Partnering Agency is not intended to limit involvement by other parties or to require the involvement of the party identified. Being listed as Partnering Agency does not create a legal obligation beyond existing legal requirements. We anticipate that implementing most if not all of the identified activities will require coordination and collaboration with appropriate partners and stakeholders. Collaboration is needed not only to plan and implement site-specific activities, but to help inform future activities both within and, where appropriate, across the watersheds. Collaboration among parties will also maximize opportunities for complementary uses of resources.

Although this list of actions will likely change during the recovery implementation process, we recommend the following activities as a comprehensive list using all available methods to lead to the recovery of southern *Rana muscosa*.

1. Conduct research to inform management actions where appropriate throughout the range of the species. There are numerous gaps in our understanding of mountain yellow-legged frog biology and ecology. Additional information will help us make informed management decisions throughout the range of the species, including in the planning and implementation of Recovery Actions 3 through 6 (below). Research is needed to identify suitable habitat conditions and to identify how to best minimize impacts caused by recreation, actions that impact water quality, wildfire, predation, disease, and small population size.

    1.1. Investigate sensitivity of environmental DNA (eDNA) techniques to assist with rangewide monitoring, detection of unidentified extant populations, and monitoring for Bd, particularly in areas considered for releases (Priority 3).

    1.2. Conduct genetic analysis of frogs throughout the range to inform movement of individuals to augment or reestablish populations (Priority 2).

    1.3. Research the historical impact of Bd and current potential treatments for southern *Rana muscosa* (Priority 1).

1.4. Investigate the cutaneous microbial community structure on wild and captive individuals. Evaluate utility of bioaugmentation as a potential tool to prevent infections on released individuals and to treat wild individuals (Priority 1).

1.5. Investigate potential impacts from contaminants, specifically considering chemicals used during fire suppression and for maintenance of cannabis plantations (Priority 3).

1.6. Investigate threats that may impact captive populations (Bd treatment and water quality) (Priority 1).

1.7. Conduct research to improve captive breeding success, including consideration of husbandry and behavioral training, and release strategies of captive-bred or translocated individuals (Priority 3).

1.8. Determine metrics for evaluating effectiveness of translocations (Priority 1).

1.9. Investigate overwintering habitat use (Priority 3).

1.10. Investigate the use of cameras and photo stations to improve detection and monitoring of frogs (Priority 3).

2. Create and implement a protocol for rangewide surveys and monitoring. This protocol will allow for comparison of the relative status of the species within and between watersheds and would help in the development of a PVA.

2.1. Continue annual monitoring of extant populations (attempt three surveys at each extant population each year to standardize effort and provide greater confidence in trends in abundance and demography). After monitoring for 5 years, monitoring for effectiveness of releases and translocations should be incorporated into regular monitoring responsibilities. Collect and report data on threats during annual monitoring (Priority 2).

2.2. Prioritize and conduct surveys for unidentified populations based on information from previous survey efforts and the expertise of USGS, USFS, and CDFW biologists (particularly to identify trout-occupied waters and perennial waters) (Priority 3).

2.3. Develop a formal presence/absence survey protocol to determine occupancy throughout the range (Priority 3).

2.4. Use data from monitoring and research to develop a Population Viability Analysis (PVA) for southern *Rana muscosa* in each management unit (MU). A PVA would help inform the implementation of other recovery actions and the assessment of recovery criteria. Include PVA with augmentation and without augmentation or removal of animals for translocation.

2.4.1. Develop a PVA for the San Gabriel MU (Priority 3).

2.4.2. Develop a PVA for the San Bernardino Mountains MU (Priority 3).

2.4.3. Develop a PVA for the San Jacinto Mountains/Palomar Mountain MU (Priority 3).

3. Ameliorate **Factor A** threats associated with present or threatened destruction, modification, or curtailment of the habitat or range where appropriate throughout each of the three Management Units:

3.1. Address recreational impacts through continued monitoring at extant locations, use of closure orders, and public education. All, or a combination of, these actions are of particular importance at the Little Rock and Dark Canyon populations (Priority 2).

3.2. Test water quality near cannabis plantations or other occupied areas for potential detection of herbicides, pesticides, rodenticides, and fertilizers. Remove illegal plantations and associated infrastructure and restore substrate to natural conditions (Priority 3).

3.3. Increase communication between USFS, Caltrans, and other necessary parties to prevent future roadwork-related spills or other impacts into occupied and critical habitats. Install markers indicating sensitive habitat along all roads with the potential to impact extant populations or critical habitat and post maps of occupied and critical habitats in Caltrans work stations (Priority 2).

3.4. Develop and implement appropriate fuel reductions in watersheds with extant populations to reduce wildfire risk (For example, conduct thinning of dense stands) (Priority 3).

3.5. Reduce impacts related to wildfire suppression activities by avoiding certain activities to the extent feasible, including limiting use of fire retardants in proximity to occupied habitat and water drafting from occupied habitat (Priority 1).

3.6. Identify and pursue land acquisitions to ensure habitat is available for southern *Rana muscosa* recovery (Priority 3).

4. Ameliorate **Factor C** threats associated with predation and disease where appropriate in each of the three Management Units:

4.1. Prioritize areas for nonnative predator removal according to southern *Rana muscosa* risk and areas needed to reestablish connectivity and maintain self-sustaining metapopulations. Some areas for potential nonnative predator removal

may include Big Rock Creek, Little Rock Creek, and Tahquitz Canyon. Also, avoid trout stocking in such areas (Priority 1).

4.2. Implement nonnative predator removal where necessary to restore habitat or protect southern *Rana muscosa* (Priority 1).

4.3. Continue barrier construction and maintenance where feasible to expand nonnative predator removal efforts and monitor for effectiveness of barriers (Priority 1).

4.4. Based on results of Bd research (Recovery Activity 1.3), implement actions to better understand the current impacts to southern *Rana muscosa* from disease (Priority 1).

4.5. Based on information from Recovery Activity 4.4, develop and implement management that will minimize potential disease impacts (Priority 1).

5. Ameliorate **Factor E** threats associated with other natural or manmade factors affecting the continued existence of southern *Rana muscosa* where appropriate in each of the three Management Units.

5.1. If a potential exposure to contaminants occurs (for example, through fire suppression or maintenance of cannabis plantations in occupied areas), test waterways for specific components of contaminants. Identify contingency plans for such exposures, including removal from the wild or translocation of exposed individuals, habitat restoration, or long-term monitoring of contamination (Priority 1).

5.2. Identify and manage potential risks associated with ultraviolet radiation, nitrogen deposition, and acid precipitation (Priority 3).

5.3. Identify and manage potential risks associated with global climate change.

5.3.1. Monitor habitat variables (temperature, drought periods, and stream volume from snow-fed waters) and responses to changes in environmental conditions that may be attributed to global climate change (aerial deposition, endocrine disruption, range shift, reduction in prey base, and changes in overwintering and breeding phenology) (Priority 2).

5.3.2. Consider likelihood of future perennial water availability during reestablishment planning. Adaptively manage any threats that manifest as a result of global climate change, such as decreased water flows, or increased temperatures (Priority 2).

6. Ameliorate **Factor E** threats associated with small population size. Use reestablishment and augmentation as tools to increase abundance and expand distribution in the wild at those locations determined to be appropriate.

6.1. Assess and select areas within the historical range for reestablishment or augmentation. To guide decision-making when choosing future receiver sites, incorporate the following information: extinction probabilities of populations at potential receiver sites, abundance and genetic representation of source and receiver populations, threats at each receiver site, abundance of each lifestage to be utilized for augmentation or reestablishment, reestablishment of metapopulation dynamics, and land management issues (Priority 1).

6.2. Based on genetic data of frogs in each mountain range, develop a genetic management plan to help conserve the genetic diversity of southern *Rana muscosa* in each management unit when conducting reestablishment or augmentation (Manage the captive animals to match the genetic diversity of the wild) (Priority 2).

6.3. Determine what triggers would require individuals to be bred from different mountain ranges in an attempt to preserve the genetic diversity (Priority 3).

6.4. Continue captive propagation efforts to provide animals for release to augment or reestablish populations where necessary throughout the range (Priority 1).

6.5. Reestablish or augment populations using captive-bred or translocated individuals. Use methods established in Recovery Activity 1.7. Captive-bred or translocated individuals should be used to:

6.5.1. Augment existing populations to prevent extinction, and increase abundance or genetic diversity (Priority 1).

6.5.2. Reestablish historically occupied areas to create connectivity between populations and reestablish metapopulation dynamics (Priority 1).

6.5.3. Investigate the use of isolated pools or ponds to help facilitate augmentation and reintroduction of frogs (Priority 1).

6.5.4. Determine ability of southern *Rana muscosa* to coexist with native fishes (Priority 2).

6.6. Based on work conducted in Recovery Activity 1.8, monitor the effectiveness of augmented and reestablished populations:

6.6.1. In augmented populations, mark released individuals to help monitor effectiveness of efforts. Monitor survivorship, breeding capacity, and movement of released animals (Priority 1).

6.6.2. In reestablished populations, conduct marking of translocated and captive-bred individuals (for example, polymers or PIT tags) to track effectiveness of program. Monitor survivorship, breeding capacity, and movement of

translocated individuals and individuals released from captivity (Priority 1).

6.7. Identify the density of southern *Rana muscosa* in streams to inform selection of future sites as reestablishment areas (Priority 2).

IMPLEMENTATION SCHEDULE

The following implementation schedule outlines activities and estimated costs. This schedule prioritizes activities, provides an estimated timetable for performance of activities, indicates the cooperating parties, and estimates costs of performing activities. Cost estimates are provided for the entire recovery period (estimated to be 20 years) as well as detailed for the first 5 years of the recovery period.

1. Key to additional terms and acronyms used in the Implementation Schedule:

Definition of activity durations and costs:

Number: The predicted duration of the activity in years or the cost of the activity.

Ongoing: An activity that is currently being implemented and will continue throughout the recovery period.

Continual: An activity that is not currently being implemented but will be implemented continuously throughout the recovery period once begun.

Unknown: Either activity duration or associated costs are not known at this time.

2. Partnering agencies:

Partnering agencies may voluntarily participate in any aspect of implementation of particular tasks listed within the recovery plan and this implementation strategy. They may willingly participate in project planning, provide assistance with funding or staff time, or help with any other means of implementation. All currently occupied occurrences and the majority of potential reestablishment areas occur on Federal lands managed by the U.S. Forest Service or the Bureau of Land Management. Therefore, consistent with ESA section 7(a)(1) responsibilities requiring federal agencies to aid in the conservation of listed species, we will focus efforts with our Federal partners to work towards recovery of the southern *Rana muscosa*.

The identification of partnering agencies for specific tasks in the Implementation Schedule (Table 4) is not intended to limit involvement by other parties or to require the involvement of the party identified. Although some identified potential reestablishment areas are within Tribal lands, in accordance with the President's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments (59 FR 22951), E.O. 13175, the Department of the Interior's manual at 512 DM 2, Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), and S.O. 3335 of August 20, 2014 (Reaffirmation of the Federal Trust Responsibility to Federally Recognized Indian Tribes and Individual Indian Beneficiaries), we acknowledge that Tribal lands are not subject to the same controls as Federal public lands, are not part of the public domain, and are not subject to Federal public land laws. We recognize our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, including recovery planning, and our responsibility to consult with federally recognized tribes on a government-to-government basis. In recognition of Tribal rights, we will coordinate recovery

planning with non-Tribal stakeholders and cooperate with tribes to implement this recovery plan in a manner that minimizes, or if possible, avoids social, cultural, and economic impacts to Tribal communities. We also recognize that some Tribes may want to assist with species' recovery; we value Tribal partnerships and welcome voluntary Tribal participation in recovery actions. Key non-Tribal land managers, land owners, or other stakeholders that have been identified include (but are not necessarily limited to) the following:

- California Department of Fish and Wildlife (CDFW)
- California Department of Parks and Recreation (CDPR)
- California Department of Transportation (Caltrans)
- Henry Doorly Zoo (HDZ)
- San Diego Zoo Institute for Conservation Research (ICR)
- Los Angeles Zoo (LAZ)
- Santa Ana Zoo (SAZ)
- U.S. Army Corps of Engineers, Los Angeles District (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Forest Service (USFS)
- U.S. Geological Survey (USGS)

We expect that this list will not be static through time and that additional Partnering Agencies will be identified as specific recovery activities are implemented.

Table 1. Implementation Schedule

San Gabriel Mountains, San Bernardino Mountains, and San Jacinto Mountains and Palomar Mountain Management Units											
Activity number	**Priority**	**Description**	**Partnering agencies[2]**	**Duration (years)**	**Fiscal Year Cost Estimates (thousands of dollars)**						**Total cost of activity for recovery (thousands of dollars)**
					FY1	**FY2**	**FY3**	**FY4**	**FY5**	**Total**	
1.1	3	Investigate sensitivity of environmental DNA (eDNA) techniques to assist with rangewide monitoring, detection of unidentified extant populations, and monitoring for Bd, particularly in areas considered for releases	USFWS, USGS	1	100					100	100
1.2	2	Conduct genetic analysis of frogs throughout the range to inform movement of individuals to augment or reestablish populations	USFWS, USGS, ICR	2	100	100				200	200
1.3	1	Research the historical and current impact of Bd and current potential treatments for southern *Rana muscosa*	USFWS, USGS, ICR	Unknown	TBD						TBD

[2] The identification of partnering agencies for specific tasks is not intended to limit involvement by other parties or to require the involvement of the partner identified.

1.4	1	Investigate the cutaneous microbial community structure on wild and captive individuals. Evaluate utility of bioaugmentation as a potential tool to prevent infections on released individuals and to treat wild individuals	USGS, ICR	Unknown	TBD						TBD
1.5	3	Investigate potential impacts from contaminants, specifically considering chemicals used during fire suppression and for maintenance of cannabis plantations	USFS	Continual	TBD						TBD
1.6	1	Investigate threats that may impact captive populations (Bd treatment and water quality)	ICR, LAZ, HDZ, SAZ	Continual	TBD						TBD
1.7	3	Conduct research to improve captive breeding success, including consideration of husbandry and behavioral training, and release strategies of captive-bred or translocated individuals	ICR, USGS	5	75	75	75	75	75	375	375
1.8	1	Determine metrics for evaluating effectiveness of translocations	ICR, USGS	5	25	25	25	25	25	125	125

1.9	3	Investigate overwintering habitat use.	USGS	TBD							TBD
1.10	3	Investigate the use of cameras and photo stations to improve detection and monitoring of frogs	USGS	TBD							TBD
2.1	2	Continue annual monitoring of extant populations (attempt three surveys at each extant population each year to standardize effort and provide greater confidence in trends in abundance and demography). After monitoring for 5 years, monitoring for effectiveness of releases and translocations should be incorporated into regular monitoring responsibilities. Collect and report data on threats during annual monitoring	USGS	25	50	50	50	50	50	250	1,250
2.2	3	Prioritize and conduct surveys for unidentified populations based on information from previous survey efforts and the expertise of USGS, USFS, and CDFW biologists (particularly to identify trout-occupied waters and perennial waters)	CDFW, USGS, USFS	5	40	40	40	40	40	200	200

2.3	3	Develop a formal presence/absence survey protocol to determine occupancy throughout the range	USFWS, USGS	1	15					15	15
2.4.1	3	Develop a PVA for the San Gabriel MU	USFWS, USGS	1	25					25	25
2.4.2	3	Develop a PVA for the San Bernardino Mountains MU	USFWS, USGS	1	25					25	25
2.4.3	3	Develop a PVA for the San Jacinto Mountains/Palomar Mountain MU	USFWS, USGS	1	25					25	25
3.1	2	Address recreational impacts through continued monitoring at extant locations, use of closure orders, and public education. All, or a combination of, these actions are of particular importance at the Little Rock and Dark Canyon populations	USFS	Continual							TBD
3.2	3	Test water quality near cannabis plantations or other occupied areas for potential detection of herbicides, pesticides, rodenticides, and fertilizers. Remove illegal plantations and associated infrastructure and restore substrate to natural conditions	USFS	Continual							TBD

3.3	2	Increase communication between USFS, Caltrans, and other necessary parties to prevent future roadwork-related spills or other impacts into occupied and critical habitats. Install markers indicating sensitive habitat along all roads with the potential to impact extant populations or critical habitat and post maps of occupied and critical habitats in Caltrans work stations	USFS, Caltrans, USFWS, Los Angeles County	Continual							TBD
3.4	3	Develop and implement appropriate fuel reductions in watersheds with extant populations to reduce wildfire risk (For example, thinning of dense stands)	USFS	10							TBD
3.5	1	Reduce impacts related to wildfire suppression activities by avoiding certain activities to the extent feasible, including limiting use of fire retardants in proximity to occupied habitat and water drafting from occupied habitat	USFS	Continual							TBD
3.6	3	Identify and pursue land acquisitions to ensure habitat is available for southern *Rana muscosa* recovery	USFWS, USFS, CDFW	Continual							TBD

4.1	1	Prioritize areas for nonnative predator removal according to southern *Rana muscosa* risk and areas needed to reestablish connectivity and maintain self-sustaining metapopulations. Some areas for potential nonnative predator removal may include Big Rock Creek, Little Rock Creek, and Tahquitz Canyon. Also, avoid trout stocking in such areas	CDFW, USFWS, USGS, USFS	1						5	5
4.2	1	Implement nonnative predator removal where necessary to restore habitat or protect southern *Rana muscosa*	CDFW, USFWS, USGS, USFS	20	30	30	30	30	30	150	600
4.3	1	Continue barrier construction and maintenance where feasible to expand nonnative predator removal efforts and monitor for effectiveness of barriers	USFS	20							TBD
4.4	1	Based on results of Bd research (Recovery Activity 1.3), implement actions to better understand the current impacts to southern *Rana muscosa* from disease	USGS, ICR	Continual							TBD
4.5	1	Based on information from Recovery Activity 4.4, develop and implement management that will minimize potential disease impacts	USGS, ICR	Continual							TBD

5.1	1	If a potential exposure to contaminants occurs (for example, through fire suppression or maintenance of cannabis plantations in occupied areas), test waterways for specific components of contaminants immediately. Identify contingency plans for such exposures, including removal from the wild or translocation of exposed individuals, habitat restoration, or long-term monitoring of contamination	USFS, PVT	Continual							TBD
5.2	3	Identify and manage potential risks associated with ultraviolet radiation, nitrogen deposition, and acid precipitation	Unknown	TBD							TBD
5.3.1	2	Monitor habitat variables (temperature, drought periods, and stream volume) and responses to changes in environmental conditions that may be attributed to global climate change (aerial deposition, endocrine disruption, range shift, reduction in prey base, and changes in overwintering and breeding phenology)	USGS, ICR	Continual							TBD
5.3.2	2	Consider likelihood of future perennial water availability during reestablishment planning. Adaptively manage any threats that manifest as a result of global climate change, such as decreased water flows, or increased temperatures	USGS, USFS, ICR	Continual							TBD

6.1	1	Assess and select areas within the historical range for reestablishment or augmentation. To guide decision-making when choosing future receiver sites, incorporate the following information: extinction probabilities of populations at potential receiver sites, abundance and genetic representation of source and receiver populations, threats at each receiver site, abundance of each lifestage to be utilized for augmentation or reestablishment, reestablishment of metapopulation dynamics, and land management issues	USFWS, USGS, ICR, CDPR	5	40	20	20	20	20	120	120
6.2	2	Based on genetic data of frogs in each mountain range, develop a genetic management plan to help conserve the genetic diversity of southern *Rana muscosa* in each management unit when conducting reestablishment or augmentation (Manage the captive animals to match the genetic diversity of the wild) (Priority 2)	USFWS, USGS, ICR	3	75	75	100				250
6.3	3	Determine what triggers would require individuals to be bred from different mountain ranges in an attempt to preserve the genetic diversity	USFWS, USGS, ICR	1				75			75

6.4	1	Continue captive propagation efforts to provide animals for release to augment or reestablish populations where necessary throughout the range	ICR, LAZ, HDZ, SAZ	Ongoing							TBD
6.5.1	1	Augment existing populations to prevent extinction, and increase abundance or genetic diversity	USGS, ICR, LAZ, HDZ, SAZ	20	10	10	10	10	10	200	200
6.5.2	1	Reestablish historically occupied areas to create connectivity between populations and reestablish metapopulation dynamics	USGS, ICR, LAZ, HDZ, SAZ	Ongoing							TBD
6.5.3	1	Investigate the use of isolated pools or ponds to help facilitate augmentation and reintroduction of frogs	USFWS, USGS, ICR	5							TBD
6.5.4	2	Determine ability of southern *Rana muscosa* to coexist with native fishes	USFWS, USGS, CDFW	5							TBD

6.6.1	1	In augmented populations, mark released individuals to help monitor effectiveness of efforts. Monitor survivorship, breeding capacity, and movement of released animals	USGS, ICR	25	50	50	50	50	50	250	1,250
6.6.2	1	In reestablished populations, conduct marking of translocated and captive-bred individuals (for example, polymers or PIT tags) to track effectiveness of efforts. Monitor survivorship, breeding capacity, and movement of translocated individuals and individuals released from captivity	USGS, ICR	25	50	50	50	50	50	250	1,250
6.7	2	Identify the density of southern *Rana muscosa* in streams to inform selection of future sites as reestablishment areas	USGS	5							NA[3]

[3] This activity is not expected to add to the cost of recovery beyond the monitoring costs.