

# **SAFE HARBOR AGREEMENT BETWEEN MICHAEL, MELANIE, AND PAUL KERNS AND THE U.S. FISH AND WILDLIFE SERVICE FOR SHASTA CRAYFISH LOCATED IN KERNS POND IN CASSEL, SHASTA COUNTY, CALIFORNIA**

## **1. INTRODUCTION**

This Shasta Crayfish Safe Harbor Agreement (“Agreement”) is between Michael, Melanie, and Paul Kerns (Landowners) and the U.S. Fish and Wildlife Service (Service), hereinafter referred to as the “Parties.” This Agreement follows the Service’s Safe Harbor Agreement policy (64 FR 32717) and regulations (50 C.F.R. §§ 17.22(c) and 17.32(c)), both of which implement section 10(a)(1)(A) of the Endangered Species Act (Act). The main purpose of this agreement is to provide a net conservation benefit for the federally-endangered Shasta crayfish (*Pacifastacus fortis*) by promoting Kerns Pond to serve as a refuge for the Shasta crayfish while giving assurances to the Landowners that no additional future regulatory restrictions will be imposed as a result of their conservation actions. This Agreement pertains to the pond located on the Landowners’ property in Cassel, Shasta County, California.

Upon approval, this Agreement will serve as the basis for the Service to issue an enhancement of survival permit (Permit) under Section 10(a)(1)(A) of the Endangered Species Act (Act). The Permit authorizes the incidental taking of the Shasta crayfish associated with restoration, maintenance, other routine activities, and the potential future return of any property subject to the Agreement to pre-Agreement conditions (baseline).

## **2. LOCATION AND DESCRIPTION OF ENROLLED PROPERTY**

The Enrolled Property is located in Cassel, Shasta County, California (See Exhibit A). The approximately 0.25 acre pond is fed by spring accretion that enters from lava fields on the south side of the pond. The outflow is on the north side of the pond, which borders Cassel-Fall River Road. What appears to be ideal Shasta crayfish habitat occurs at the south side of the pond, where spring inflows maintain a relatively clean lava substrate. Kerns Pond serves as the domestic water intake for the current land owner.

Kerns Pond is fed by an isolated spring that flows from an extensive basalt lava flow. The water from the spring is ponded by a levee that was originally built in the early 20<sup>th</sup> century. Water flows out of the pond through a drain pipe into a ditch along the side of the Fall River-Cassel Road and goes subsurface. Based on proximity, surface topography, and the high porosity of the basalt bedrock, it is assumed that water from Kerns Pond likely combines (subsurface and down gradient) with water from Rock Spring, which flows from a separate spring approximately 350 feet to the east of Kerns Pond. Rock Spring (which is a higher volume spring than Kerns Pond spring) flows underneath Fall River Cassel Road through a culvert and resurfaces down slope as Rock Creek, which is a tributary to Baum Lake (an impoundment of Hat Creek). Other smaller springs including Mancuso Pond, which is a spring-fed pond on the north side of Fall River-Cassel Road approximately 200 feet west of Kerns Pond, also contribute water to Rock Creek.

No fish predators or non-native crayfish species are known to occur within Kerns Pond. The pond contains abundant algae such as periphytons and small invertebrates used by the Shasta

crayfish for feeding. In addition, the pond contains high quality volcanic rock substrate that the Shasta crayfish can utilize for feeding, breeding, and protection from predators. Kerns Pond is an isolated pond, with barriers both upstream and downstream and no direct inflow or outflow from surface waterways. These barriers prevent non-native crayfish or predatory fish species from entering the pond. In summary, key factors in the Service's determination that Kerns Pond provides high quality habitat for Shasta crayfish are: (1) it contains barriers that isolate its above-ground water flows from other water sources, reducing the threat of invasion by non-native crayfish; (2) it is fed by a cold-water spring with little temperature fluctuation, typical of sites Shasta crayfish inhabit; (3) it has a relatively clean volcanic substrate, also typical of sites Shasta crayfish inhabit; and (4), it is free of the non-native crayfish and fish predators that are often cited as the most significant threat to the species..

Kerns Pond is within the historic range of Shasta crayfish. The nearest documented occurrence is from Hat Creek, at the confluence of Rock Creek and Hat Creek, about 0.75 mile north of Kerns Pond.

### **3. SCIENTIFIC AND COMMON NAMES OF COVERED SPECIES**

This Agreement covers the federally endangered Shasta crayfish (*Pacifastacus fortis*), hereafter referred to as the Covered Species.

### **4. ECOLOGY OF SPECIES**

#### **A. Species Distribution**

Shasta crayfish is one of only three crayfish species native to California and only five species native west of the continental divide (all in the genus *Pacifastacus*). The Shasta crayfish is both federally and state-listed as endangered. Within the small range of the Shasta crayfish, its distribution is very fragmented and limited to only a few areas (Service 1998, Ellis 1999). Most populations of Shasta crayfish occur in the headwater spring pools and streams where there are abundant lava cobbles and boulders on clean gravel (Ellis 1999). Shasta crayfish prefer stable unembedded substrate in systems with minimal sediment transport. This type of habitat is found primarily in the Fall River and Hat Creek subdrainages and Sucker Springs Creek in the midreaches of the Pit River drainage, Shasta County, California. Because of the spring-fed nature of these waters, the habitat in the spring areas is generally of high quality with very stable temperature and flow conditions (i.e., minimal seasonal or annual change in water temperature, flow, or clarity).

#### **B. Species Description**

Adult Shasta crayfish have a total carapace length (TCL) typically in the range of 27–50 mm (1.06–1.97 inches). The most common coloration pattern for Shasta crayfish is a dark mocha-brown on the dorsal surface and a bright orange-red on the ventral surface, especially on the pincer-like claws (chelae). Occasional individuals are blue-green to bright blue on their dorsal surface and a light salmon on their ventral surface. Key field identification characteristics that distinguish Shasta crayfish from other crayfish species include: (1) Shasta crayfish have a

toothed (denticulate) margin on the rostrum (the protrusion on the carapace that extends between the eyes) and (2) the inside margin of the Shasta crayfish chelae is smooth.

### **C. Life History and Ecology**

Shasta crayfish are nocturnal and rarely observed during the day. They venture out from hiding places only after dark to browse on the periphyton that adheres to rocks and small invertebrates, such as pebblesnails (*Fluminicola* species).

Mating occurs in October or November when the male deposits spermatophores on the underside of the female. Shortly afterwards, the female lays 10–70 eggs, which she fertilizes with sperm from the spermatophores and then attaches to the underside of her abdomen or tail. In the spring, the eggs hatch into immature larval forms, which go through a series of three molts before the instars become free-living. Shasta crayfish are long-lived, possibly 10–15 years, and slow-growing. It takes 5 years for a Shasta crayfish to reach sexual maturity at 27 mm (1.06 inches) TCL.

### **D. Threats**

The introduction of numerous exotic species of fish and other aquatic organisms that have the potential to be predators, competitors, and sources of new diseases and pathogens, has created the biggest threat to the continued existence of the Shasta crayfish. Largemouth bass and green sunfish, in particular, are known to be voracious predators on crayfish. In addition, the recent invasion of the non-native Asian clam (*Corbicula fluminea*) to the Pit River in the Pit 1 Bypass Reach has resulted in layers of clam shells lining the margins of the channel, thus altering the habitat (Spring Rivers 2009, PG&E 2010). While the appearance is dramatic, the effects of the clam invasion on Shasta crayfish are unknown at this time.

Introduced non-native crayfish, in particular, threaten the continued existence of the Shasta crayfish. The introduction of non-native signal crayfish (*Pacifastacus leniusculus*) into the Pit River drainage has led to invasions into previously allopatric populations of the endangered Shasta crayfish. Although these species exhibit very different behaviors, they overlap along several important niche dimensions (Ellis 1999). As a result, within just a few decades after they were inadvertently introduced, signal crayfish were found throughout most of the drainage and continue to replace Shasta crayfish throughout much of its historic range. Differences in size, activity, aggression, reproduction, diet, and environmental tolerances support the hypothesis that signal crayfish will ultimately replace Shasta crayfish.

Signal crayfish are highly aggressive and possess a relatively large body size, characteristics that are common to invasive animal species. At the same age, signal crayfish quickly achieve a size advantage over Shasta crayfish, because they are faster growing. Signal crayfish reach reproductive size at about two years of age (three years earlier than Shasta crayfish), and females lay 100–300 eggs.

## **5. BASELINE CONDITIONS**

Baseline for this Agreement will be set at zero. A snorkel survey was conducted by Spring Rivers Ecological Sciences LLC (Spring Rivers) in February 2011 to determine the extent to which the Covered Species already inhabits the Enrolled Property. The survey did not reveal the presence of Shasta crayfish in Kerns Pond. Other native aquatic flora and fauna, which could be important for Shasta crayfish, are present and plentiful.

## **6. PERMITTEE'S CURRENT LAND AND WATER USE AND MANAGEMENT PRACTICES THAT AFFECT COVERED SPECIES AND THE HABITAT OF COVERED SPECIES**

Kerns Pond serves as the domestic water supply for the Landowners. Maintenance work on, or full replacement of, the water intake structure and associated pipeline is necessary from time to time. Maintenance work on the boat dock area may occur from time to time as well. The levee along Cassel-Fall River Road on the north side of the pond needs routine maintenance to prevent levee breaches and ensure the continued existence of the pond. Kerns Pond is used by the family and guests for recreational activities such as boating, lounging on the adjacent boat dock and deck, playing with their grandchildren, etc. Recreation on/in Kerns Pond is generally limited to a small rowboat. Currently, Shasta crayfish do not occur within Kerns Pond; therefore Shasta crayfish are not currently affected by these activities. However, if Shasta crayfish are translocated to Kerns Pond, these activities may affect the species. A discussion of these potential effects is provided in the following section.

## **7. PERMITTEE'S FUTURE LAND AND WATER USE AND MANAGEMENT PRACTICES THAT MAY AFFECT COVERED SPECIES AND THE HABITAT OF COVERED SPECIES**

The maintenance and recreation activities described above are expected to continue throughout the duration of this Agreement on the Enrolled Property. At this time, the Landowners do not anticipate any changes in land use during the duration of this Agreement.

The maintenance and recreation activities described above may affect the Shasta crayfish within the Enrolled Property once the species is translocated to the pond. However, any adverse effects are expected to be insignificant or discountable due to the nature of the activities or due to the implementation of avoidance and minimization measures. A discussion of these various activities follows:

### *Maintenance of the Water Intake Pipe*

It will be necessary to move the volcanic rock substrate to replace the plastic pipe located along the pond floor. Rocks would be gently lifted and placed back in their original positions once the new pipe is placed on the pond floor. In addition, the Kerns family will utilize Shasta crayfish experts, such as Spring Rivers personnel, or another entity approved by the Service and the Department, to remove the existing pipe and replace it with new pipe. The work will be done from floating mats to avoid disturbance from human feet on the pond bottom.

### *Maintenance of the Boat Dock and Deck and Levee Maintenance*

Because the boat dock and levee are located along opposite sides of the pond from the Shasta crayfish habitat, maintenance activities are unlikely to have adverse effects on Shasta crayfish within the Enrolled Property. Prior to maintenance activities within the water in these two areas, the landowners will notify the Service, the Department, and Spring Rivers to determine if any minimization measures are necessary.

### *Recreation Activities*

Recreation activities are unlikely to adversely affect Shasta crayfish within the Enrolled Property due to the presence of a volcanic rock substrate that provides significant hiding cover and the implementation of avoidance measures. In addition, Shasta crayfish are nocturnal and are rarely observed during the day, when the majority of recreation activities would occur. The Service, the Department, and Spring Rivers agree that it is highly unlikely that Shasta crayfish would be adversely affected by recreation activities such as boating because the boats would float on the water above the volcanic rock substrate. The primary risk to Shasta crayfish from recreation activities would come from moving the volcanic rock substrate in ways that could crush Shasta crayfish. The Kerns family has agreed not to disturb the volcanic rocks in the pond as part of recreation activities. The movement of volcanic rocks within Kerns Pond would only occur with help from a qualified biologist approved by the Service and the Department as part of maintenance activities.

## **8. MANAGEMENT ACTIONS (BENEFICIAL ACTIVITIES) AND TIMEFRAME FOR IMPLEMENTATION**

The Landowners will allow the Service, the California Department of Fish and Game (Department), and Spring Rivers personnel to enhance the current habitat for Shasta crayfish by placing boulders on clean substrate in the pond to serve as shelters. In addition, removal of some silt and flocculent matter from the bottom may be beneficial if additional Shasta crayfish habitat can be exposed and/or created. After this enhancement occurs, Shasta crayfish may be translocated from existing populations to Kerns Pond. The Service believes that Kerns Pond will likely support a self-sustaining Shasta crayfish population of between 50 and 100 crayfish. The pond is free of non-native predatory species and barriers exist both upstream and downstream of the pond to ensure that these harmful species do not enter Kerns Pond. The Landowners are also willing to allow individual Shasta crayfish to be relocated to Kerns Pond from other sites should this be deemed appropriate by the Shasta Crayfish Technical Review Committee (TRC).

### *Timeframe for Implementation*

The enhancement of the pond (i.e., adding rock substrate to the south end of the pond near the outflow) would occur soon after the signing of this Agreement and the issuance of the 10(a)(1)(A) Permit.

Based on a study of Shasta crayfish population genetics, the Service is working closely with the Department, Spring Rivers, and University of California, Davis to create a genetics management plan for the species to determine the most appropriate Shasta crayfish population to use as a

source population for introductions to Kerns Pond and to plan other recovery actions. It is expected that introductions into Kerns Pond will occur soon after the genetics management plan has been finalized. Due to the threat of extirpation of potential source populations as a result of displacement by non-native crayfish, the translocation of Shasta crayfish into Kerns Pond should occur as soon as possible after the signing of this Agreement, the issuance of the Permit, and the finalization of the genetic management plan.

At some time in the future, if the population of Shasta crayfish in Kerns Pond is large enough, Shasta crayfish from Kerns Pond may be utilized as a source population and be translocated from Kerns Pond to other suitable habitat free of non-native predators and competitors in order to repopulate extirpated populations within the historic range of the species. A specific timeframe for this action is not currently known and would depend on how long it would take for the population at Kerns Pond to reach a density high enough that the Service and the Department are comfortable with removing some of the individuals for translocation to other sites, as well as the availability of other suitable sites.

#### **9. DESCRIPTION OF POSSIBLE INCIDENTAL TAKE ASSOCIATED WITH MANAGEMENT ACTIONS (BENEFICIAL ACTIVITIES) AND OF THE ANTICIPATED SPECIES POPULATION AND HABITAT CHANGES OVER THE DURATION OF THE AGREEMENT**

The habitat enhancement actions proposed at Kerns Pond, which include placing boulders on clean substrate in the pond to serve as shelter for Shasta crayfish and the removal of some silt and flocculent matter from the pond bottom to expose additional habitat, will have no effect on Shasta crayfish because the species is not known to occur within Kerns Pond at this time.

After introduction of Shasta crayfish to Kerns Pond, incidental take in the form of capture will occur from time to time by qualified biologists during translocation activities, including translocating Shasta crayfish to Kerns Pond or from Kerns Pond to other suitable areas within the historic range of the species (as deemed appropriate by the Service and the Department). The translocation actions would be conducted by qualified biologists and authorized under a separate 10(a)(1)(A) Permit issued by the Service. Appropriate avoidance measures would be implemented to ensure that no Shasta crayfish are injured or killed as a result of translocation activities.

Incidental take of Shasta crayfish could also occur should the landowners wish to return the property to baseline conditions. The Service and the Department would be provided 120 days notice before termination of the agreement and a return to baseline conditions so that the Shasta crayfish within Kerns Pond could be captured by qualified biologists and relocated to another suitable site. All Shasta crayfish would be subject to take in the form of harassment and capture as Shasta crayfish are handled and moved to another suitable site. Utmost care would be given to ensure that no Shasta crayfish are injured or killed during translocation activities. Although every effort would be made to capture all Shasta crayfish in Kerns Pond in the event the landowner wished to return to baseline, due to the cryptic nature of the species and depending on

the life stages of the species present at the time, it is possible not all individuals would be located and captured. Any Shasta crayfish not captured at this time would be subject to take in the form of death, injury, harm, and harassment should the landowners decide to alter the pond's habitat features or use the pond in a manner that is not compatible with Shasta crayfish. The number of Shasta crayfish individuals that are not located and captured would be minimal since the actual area of habitat (the volcanic rock substrate next to the inflow of the pond) is very small and a thorough search of this area would be easily achievable.

#### *Anticipated Species Population and Habitat Changes*

After the enhancement of Kerns Pond occurs, the Enrolled Property will provide high quality habitat that is free of non-native crayfish and predatory fish species throughout the duration of this Agreement. There is a high likelihood that Kerns Pond will support a self-sustaining population of Shasta crayfish throughout the duration of this Agreement and possibly longer (see section 13, Net Conservation Benefit).

#### **10. AVOIDANCE AND MINIMIZATION MEASURES**

Kerns Pond serves as the domestic water intake for the current land owner. Maintenance work on, or replacement of, the water intake structure and associated pipeline may be necessary from time to time, which could have the potential to affect the Shasta crayfish within Kerns Pond. In such cases, the Service, the Department, and Spring Rivers will be available to help minimize any impacts on Shasta crayfish.

Avoidance and minimization measures will include:

- No wading or recreational swimming in or near the Shasta crayfish habitat (i.e., unsilted lava substrate) near the spring-inflow on the south side of the pond. Boating on the surface above the lava substrate is acceptable; utmost care will be given by the landowners to ensure that oars do not scrape the lava substrate.
- The Service and the Department will be notified of necessary maintenance work in or near the Shasta crayfish habitat near the spring-inflow on the south side of the pond.
- Work will be planned to minimize in-water work in or near the Shasta crayfish habitat (i.e., unsilted lava substrate) near the spring-inflow on the south side of the pond.
- Spring Rivers, or other qualified entity approved by the Service and the Department will provide assistance so that necessary in-water work in or near the Shasta crayfish habitat can be done by divers floating in the water to avoid wading in Shasta crayfish habitat.
- Routine levee maintenance may involve some wading in the water along the levee. Maintenance work may also be performed on the boat dock and deck. The Landowners will consult with the Service, the Department, and species experts such as Spring Rivers to determine if any avoidance measures are necessary during these maintenance activities.

## **11. DURATION OF AGREEMENT AND TAKE AUTHORIZATION DURATION**

The Agreement becomes effective upon issuance of the 10(a)(1)(A) Permit by the Service, which will be in effect for 30 years. Authorization of take of the Covered Species begins upon initiation of conservation measures. This Agreement and the 10(a)(1)(A) permit may be extended by mutual consent of the Parties. Landowners may opt out of this Agreement at any time without penalty.

## **12. ASSURANCES REGARDING TAKE**

Provided that take is consistent with this Agreement, the Landowners are authorized to take the Shasta crayfish incidental to otherwise lawful activities (as described in Section 6) in the following circumstances:

1. Implementing the beneficial activities (identified in Section 8) on Kerns Pond.
2. Conducting routine management activities (identified in Section 6) on Kerns Pond.
3. Returning Kerns Pond to Baseline conditions.

As used herein, "incidental" take refers to the unintentional or unavoidable killing or injuring of Shasta crayfish in the course of carrying out routine and ongoing activities.

## **13. EXPECTED NET CONSERVATION BENEFIT**

All known populations of Shasta crayfish are rapidly declining due to non-native predatory species and other threats discussed in this Agreement. The Service believes that after the enhancement of Kerns Pond occurs, the Enrolled Property will provide high quality habitat that is free of non-native crayfish and predatory fish species throughout the duration of this Agreement. Because of the lack of known predators and non-native crayfish at Kerns Pond, the barriers that exist both upstream and downstream of Kerns Pond, and the willingness of the Landowners to implement conservation measures for this species, Kerns Pond is an ideal location to translocate Shasta crayfish from other existing populations. If, at some future time, Shasta crayfish are relocated from one of the existing Shasta crayfish populations to Kerns Pond, the Service believes that the Shasta crayfish will thrive and increase in population within Kerns Pond. If Shasta crayfish are eventually established in Kerns Pond, this population could potentially be used to re-populate extirpated populations in other suitable areas within the historic range of the species.

The primary objective of the Shasta Crayfish Recovery Plan (Service 1998) is to stabilize and protect existing populations of this species. Shasta crayfish primarily live in cool, clear, spring-fed headwaters that are characterized by clean volcanic cobbles and boulders on top of gravel or sand. The volcanic cobble and boulders are essential habitat components because they provide protective cover for the crayfish. The main threats to Shasta crayfish include the introduction and expansion of non-native species of crayfish and fishes and disturbances related to land use practices. This Agreement ensures that a population of Shasta crayfish can be established in high-quality habitat free of non-native species that may outcompete or predate upon Shasta crayfish. This population is expected to thrive and reach numbers over 100 individuals. Once

established, the Kerns Pond This population could then be used as a source population in the future to stabilize other existing populations of Shasta crayfish or to repopulate extant sites that have been extirpated populations.

#### **14. DETAILED MONITORING AND REPORTING PROGRAM**

Annual monitoring on the Enrolled Property will be conducted by Spring Rivers and funded by Pacific Gas and Electric Company (PG&E) as part of the Shasta crayfish monitoring plans developed as part of the Federal Energy Regulatory Commission (FERC) licenses for the Pit 1 Hydroelectric Project (FERC Project No. 2687) and the Hat Creek Hydroelectric Project (FERC Project No. 2661). Data from monitoring on the Enrolled Property will be reported in the annual TRC reports. The annual TRC reports are provided to the TRC, Shasta Crayfish Recovery Team (Recovery Team), and the Service by May 31<sup>st</sup> of each year that the 10(a)(1)(A) permit and this Agreement are in effect. The TRC Reports will provide information on the terms and conditions of this Agreement and any incidental take authorized in the Permit. The FERC license for Pit 1 expires in 2032 and Hat Creek expires in 2042. Monitoring at Kerns Pond can occur through either of these licenses, so the monitoring required under these licenses is sufficient in duration to cover the monitoring for this Agreement, which will expire in 2042.

The annual TRC reports include summaries of all data collected during all Shasta crayfish monitoring surveys during the previous year. Reported data includes counts of all Shasta crayfish encountered by sex, size, and location, and all non-native crayfish captured and removed. The annual TRC reports also cover all other activities conducted according to the Shasta crayfish monitoring plans or through the TRC and/or Recovery Team.

The Parties agree that due to unforeseen circumstances, Spring Rivers may at some point in the future discontinue monitoring activities for PG&E for the two FERC licenses. Should this occur, the Service and the Department will request that PG&E hire a qualified biologist to continue monitoring as required under its FERC licenses, as well as to include monitoring required under this Agreement. If, for unforeseen circumstances, PG&E is unable to fulfill the monitoring requirements of this Agreement and under its FERC licenses, the Service and the Department will seek other alternatives including monitoring being performed by Service and/or Department biologists or by another qualified biologist, at no expense to the landowners.

#### **15. FUNDING ASSURANCES (TO CARRY OUT MANAGEMENT ACTIONS, DETERMINATION OF BASELINE CONDITIONS, AND MONITORING AND REPORTING FOR THE DURATION OF THE AGREEMENT).**

The Landowners own the Enrolled Property and are committed to implementing the provisions of the Agreement and Permit. For this Agreement, the Landowners are willing to allow restoration/enhancement activities to occur within their Enrolled Property and they are willing to allow Shasta crayfish to be translocated to their Enrolled Property from other existing populations. The Service, the Department, Spring Rivers, and potentially other entities will bear this expense and, therefore, no funding is required by the Landowners. Avoidance measures have been proposed during routine and ongoing maintenance activities of the water intake

structure and associated pipeline. The cost of implementing these avoidance measures are expected to be minimal to non-existent to the Landowners.

The Landowners will not incur the costs of gathering information and preparing the annual monitoring reports on the Enrolled Property for this Safe Harbor Agreement (see section 14, Detailed Monitoring and Reporting Program).

#### **16. RESPONSIBILITY OF LANDOWNERS**

1. Be the recipient of the Federal 10(a)(1)(A) Enhancement of Survival Permit for this Agreement.
2. Annual reporting will be part of the Shasta crayfish Pit 1 and Hat TRC reports. These reports will be provided to the Service May 31<sup>st</sup> of each year that the 10(a)(1)(A) permit and this Agreement are in effect. The Service and the Department will request that PG&E hire a qualified biologist to continue monitoring as required under its FERC licenses, as well as to include monitoring required under this Agreement. Should Spring Rivers no longer be able to perform the necessary monitoring and reporting requirements, the Service and the Department will work with the Kerns family to determine other suitable entities to perform these functions at no cost to the landowners.
3. Notify the Service 120 days prior to: (1) any planned activity that the Landowners reasonably anticipate will result in Take of species on the Enrolled Property; (2) Landowner's plan to return to baseline; (3) any plan to transfer or alienate the landowner's interest in the land or water.
4. Provide the Service, the Department, or their contractors or agents, with access to the Enrolled Property.
5. Landowners and Spring Rivers have entered into an agreement, by Memorandum of Understanding, in which Spring Rivers will assume the responsibilities of baseline data collection, annual monitoring, and reporting. Spring Rivers will perform these duties as part of its work with Pacific Gas and Electric, as described previously.

#### **17. RESPONSIBILITIES OF THE SERVICE**

1. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, the Service will issue to Landowners a permit in accordance with Section 10(a)(1)(A) of the Act.
2. Provide technical assistance to Landowners, to the maximum extent practicable, when requested.
3. Ensure adequate monitoring through review of the Pit 1 TRC annual report.

4. Ensure coordination with the Department. The Shasta crayfish is listed as endangered under the California Endangered Species Act.

## **18. CONTACT INFORMATION**

Any notices and reports, including monitoring and annual reports will be delivered to the following:

### **Service point of contact:**

Safe Harbor Program Coordinator  
U.S. Fish and Wildlife Service  
13501 Franklin Boulevard  
Galt, California 95632

### **Department point of contact**

Fisheries Program Manager, Region 1  
California Department of Fish and Game  
601 Locust Street  
Redding, California 96001

### **Permittee point of contact:**

Michael and Melanie Kerns  
P.O. Box 65  
Cassel, California 96016

## **19. EFFECTIVE DATE OF AGREEMENT**

The effective date of this Agreement is the last date signed by the parties in Section 26 of this Agreement.

## **20. MODIFICATIONS/AMENDMENTS**

Either party may propose amendments to this Agreement by providing written notice to, and obtaining the written concurrence of, the other Party. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

## **21. TERMINATION OF AGREEMENT**

Termination of the Agreement by the Landowners: the Landowners may terminate this Agreement for any circumstances by giving written notice not less than 120 days in advance to the Service. In such circumstances, the Landowners may return the Enrolled Property to

Baseline conditions, without penalties or disincentives for withdrawing participation, even if the conservation management activities identified in this Agreement have not been fully implemented, provided the Landowners give the Service the notification required by Section 16 of this Agreement prior to carrying out any activity likely to result in the taking of the Covered Species. Upon return to Baseline under these circumstances, the Permit will terminate.

**Take Authorization Suspension or Revocation by the Service:** The Service may suspend or revoke the take authorization for cause in accordance with the laws and regulations in force at the time of such suspension or revocation. The Service shall give not less than 90 days advance notice of the suspension or revocation, and give the Landowners an opportunity to cure any defaults. The Service also, as a last resort, may revoke the Permit if continuation of permitted activities would likely result in jeopardy to any of the Covered Species (50 C.F.R. 13.28(a)). In such circumstances, the Service will exercise all possible measures to avoid revoking the Permit.

## **22. BASELINE ADJUSTMENT**

The Baseline conditions for the Enrolled Property may, by mutual agreement of the Parties, be adjusted if, during the term of the Agreement and for reasons beyond the control of Landowners (e.g., floods or fires) or as an unintended result of properly-implemented management activities, the Baseline conditions are reduced from what they were at the time the Agreement was negotiated.

## **23. NEW LISTINGS OF SPECIES**

In the event that a species not authorized for take in association with this Agreement is subsequently listed as threatened or endangered under the Act, the Parties may consider amending the Agreement to add the newly-listed species as a Covered Species. The amendment of the Agreement shall determine the Baseline conditions for the subsequently listed species in a manner approved by the Service and agreed upon by Landowners.

## **24. ACTIONS UPON SALE OR TRANSFER OF ENROLLED LAND OR WATER**

If the Landowners transfer their interest in an Enrolled Property to another non-Federal entity, the Service will regard the new owner or manager as having the same rights and responsibilities with respect to the Enrolled Property as the Landowners, if the new owner or manager wishes to enter into a new safe harbor agreement or become a party to this Agreement with the Service.

## **25. OTHER MEASURES**

### **Remedies.**

No party shall be liable in monetary damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement or any other cause of action arising from this Agreement. Each Party shall have all remedies otherwise available to enforce the terms of the Agreement and Permit.

### **Dispute Resolution**

The Parties agree to work together in good faith to resolve any disputes. Modification to the Agreement shall follow the procedures detailed in Section 20 above. For disputes other than modifications, the Parties agree to meet and confer within 30 days of a request by any Party. If necessary, the Parties agree that a mutually agreed upon arbitrator may be used to solve the dispute.

### **Availability of Funds**

Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this Agreement to expend any Federal appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

### **No Third-Party Beneficiaries**

This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

### **Other Laws**

This Agreement and activities conducted under it are subject to all applicable Federal, State, and local laws and regulations.

### **Applicable Laws**

All activities undertaken pursuant to this Agreement and its associated Permit must be in compliance with all applicable State, Federal, tribal, and local laws and regulations.

### **Relationship to the Act and other Authorities**

The terms and conditions of this Agreement shall be governed by and construed in accordance with the Act and applicable Federal law. In particular, nothing in this Agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the Act. Moreover, nothing in this Agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the Federal government.

26. SIGNATURES

By our signatures below, each Party agrees to abide by and uphold the provisions of this Agreement and any conditions of the Permit associated with this Agreement.

Date: 3/23/12

Susan K. Moore  
SUSAN K. MOORE

Date: 03/23/2012

Paul E Kerns  
PAUL E KERNs

Date: 03/23/2012

Michael D. Kerns  
Michael D. Kerns

Date: 3-23-12

Melanie Kerns  
MELANIE KERNs

## 27. REFERENCES

- Ellis, M. J. 1999. Species invasions and replacements in a native crayfish community. Ph.D. Dissertation, Department of Biology, The University of Michigan, Ann Arbor, Michigan. 230 pp.
- Service. 1998. Shasta crayfish recovery plan. United States Fish and Wildlife Service, Portland, Oregon, USA.
- PG&E. 2010. Pit 1 Project 2009 macroinvertebrate study report. Prepared by Spring Rivers Ecological Sciences LLC. Prepared for Pacific Gas and Electric Company Environmental Services, 3401 Crow Canyon Road, San Ramon, California 94583. June 2010.

# EXHIBIT A

## Map of Kerns Pond, Shasta County, California

