ENVIRONMENTAL ASSESSMENT FOR STOCKING NONNATIVE TROUT AT RED ROCK LAKES NATIONAL WILDLIFE REFUGE, MONTANA

United States Fish & Wildlife Service
Red Rock Lakes National Wildlife Refuge

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ABSTRACT

Arctic grayling (*Thymallus arcticus*) are a rare and unique fish in the contiguous 48 states. The only self-sustaining native population left is the one added to the candidate list for Threatened and Endangered status in 2010. These grayling are the Upper Missouri River Distinct Population Segment (DPS). Between the 1960's and 1990's, the number of spawning nonnative hybrid cutthroat trout (Yellowstone Cutthroat [*Oncorhynchus clarki bouvieri*] *x* Rainbow trout [*Oncorhynchus mykiss*]) in Red Rock Creek of the Red Rock Lakes National Wildlife Refuge (RRLNWR) in Montana increased significantly. Nonnative trout are hypothesized to prevent the recovery of Arctic grayling from historical lows. Within the 15-year management plan of RRLNWR, approved in 2009, the decision was made to, "Where appropriate, remove nonnative fishes from Refuge lakes and streams to minimize competition with native fishes". This Environmental Assessment (EA) was completed to guide the decision for what to do with these nonnative trout once they are removed from Red Rock Creek starting spring of 2013. Careful consideration was given to public comments received during scoping, drafting and development of this EA. The potential environmental impacts associated with translocating fish were analyzed, the selected alternative made by Red Rock Lakes NWR includes euthanizing all female nonnative hybrid trout and many of the male nonnative cutthroat trout once removed from Red Rock Creek. The euthanized fish will immediately be processed and distributed to local area food banks for the public's consumption. Once a functioning year round fish screen can be implemented at the outlet of Widgeon Pond, we will begin moving male fish. The screen is needed to prevent fish from emigrating downstream, which could impact native species and Wilderness Character.

Based on the median number of male hybrid trout captured during the previous 9 years of trapping efforts on Red Rock Creek, we anticipate capturing 180 (1SD = 152) male fish during the first year. Therefore, we plan to stock between 100-200 male hybrid trout to Widgeon Pond each year of this fish removal experiment.

Due to limited food and space resources in Widgeon Pond, we anticipate survival of stocked fish to be lower because of an already established fish community. Therefore, we will only move a portion of the total number of male hybrid trout captured at the trap. The fish are being moved to satisfy public concerns that not all fish be euthanized. To improve efficiency and logistics, we will not transfer fish: 1) when we can prevent road impacts from vehicles during muddy conditions, 2) when we can minimize impacts to nesting Trumpeter swans, and 3) when a functional fish screen is not installed at the outlet. Functional means installed and low maintenance during all seasons of the year. If a functional fish screen is not in place on Widgeon Pond, then all fish will be food banked.

After the swan cygnets have hatched on Widgeon Pond fishing will reopen. Portions of the pond will be closed if angling disturbance is impacting adult and/or cygnet swans. The Refuge's official management plan will take precedent over this fish stocking EA. The nonnative fish experimental removal will last 5 years, which at that time the nonnative cutthroats stocked to Widgeon Pond will be removed. The measurable target goal is to remove at least 3,375 nonnative hybrid cutthroat trout over the 5-year experiment. An average of 675 cutthroat trout (excluding 2012) were captured at the fish trap during the previous 9 years of trapping effort. Though the selected alternative does not completely eliminate all environmental risks associated with stocking fish to Widgeon Pond, several steps have been taken to minimize the potential environmental risks. In addition to the fish screen at the outlet, all male trout stocked to Widgeon Pond will be tagged with a dorsal fin marker to monitor escapement from the pond. If we find evidence of escapement from Widgeon Pond, *all* hybrid trout will be euthanized and brought to the food bank for public consumption.

PURPOSE AND NEED

In 2009, the RRLNWR completed a Comprehensive Conservation Plan (hereinafter CCP) to guide all aspects of management for the next 15 years. The RRLNWR is implementing the fisheries management provisions of the CCP. Removal of nonnative Yellowstone cutthroat *x* Rainbow trout that spawn in Red Rock Creek, upstream of Upper Red Rock Lake, was discussed and reasoned in the CCP. The U.S. Fish and Wildlife Service will remove these hybrid trout using a fish trap and electrofishing in Red Rock Creek starting spring of 2013.

Need for Action

Arctic grayling once existed throughout the Upper Missouri River drainage, with two distinct life-history forms known to occur in Montana. Fluvial (i.e. river dwelling) Arctic grayling were once widespread in the drainage above the Great Falls, but currently persist only in the Big Hole River. Adfluvial (i.e. lake dwelling) Arctic grayling were also once widespread throughout the CV, but now persist primarily in Red Rock Creek and Upper Red Rock Lake.

Nonnative cutthroat trout hybrids are hypothesized to prevent the recovery of Arctic grayling abundance and distribution from historic lows. In recent years, the nonnative trout population has increased sufficiently to now raise concern of their impact on Arctic grayling through direct predation, or indirectly by competition for limited space and food resources.

Planning Process

Nonnative fish will be captured utilizing a fish trap operated by the U.S. Fish and Wildlife Service in Red Rock Creek, a place where nonnative trout spawn in high abundance. This experimental removal is expected to occur annually for 5 years.

Following the review of public comments submitted during a year of scoping and the 30-day comment period on the draft EA, we analyzed the risks to humans and the local environment if nonnative trout are translocated within the refuge. Several available alternatives were combined to provide the selected path. The selected alternative euthanizes all female and many of the male nonnative hybrid trout. The remaining male nonnative trout (i.e. 100-200/year) will be stocked to Widgeon Pond once a functional barrier screen is in place.

Purpose for Removing Nonnative Cutthroat Trout

The approved management actions for Arctic grayling within the CCP states, "Where appropriate, remove nonnative fishes from refuge lakes and streams to minimize competition with native fishes".

The U.S. Fish and Wildlife Service will begin removing nonnative trout from Red Rock Creek in 2013. Removal will occur annually until 2018. These particular nonnative cutthroat trout hybrids are a lake dwelling life history form, meaning they reside year round in Upper Red Rock Lake and briefly spawn in streams. When water temperatures warm sufficiently in the spring (i.e. ~6^{o}C), cutthroats ascend Red Rock Creek to spawn. During their spawning migration, these fish pass through the trap, where they will be permanently removed.

DESCRIPTION OF SELECTED ALTERNATIVE

Stock 100-200 Male Nonnative Cutthroat Trout Each Year for Up to Five Years to Widgeon Pond, and Euthanize all Female Trout and all remaining Male Cutthroat Trout

This action will temporarily establish a new nonnative cutthroat fishery so anglers are provided angling opportunity for these hybrid fish. Widgeon Pond is currently open to public fishing and

subject to current State and Federal regulations. Fishing from the bank is relatively difficult at Widgeon Pond. No boats or float tubes are allowed on Widgeon Pond to protect nesting Trumpeter Swans and other migratory birds.

Since each male trout stocked to Widgeon Pond will be tagged with a visual dorsal fin marker, we can then monitor escapement from the pond. If escapement occurs, then *all* fish will be euthanized and food banked during the remaining years of the experiment.

Seasonal closures on Widgeon Pond will continue during years when nesting trumpeter swans are present. The pond will be open once the swan nest has hatched. Other portions of Widgeon Pond will be closed if angling pressure is negatively impacting adult or cygnet trumpeter swans. The RRLNWR CCP will take precedent over this fish stocking EA with regard to Widgeon pond closures. Cutthroat hybrid males stocked to Widgeon Pond will be removed when the 5-year Red Rock Creek project ends.

AFFECTED ENVIRONMENT/ENVIRONMENTAL IMPACTS

Critical Elements of the environment are those factors believed to be impacted through the proposed management action of stocking fish to Widgeon Pond. The existing condition and potential impacts are identified during the analysis of the Affected Environment/Environmental Impacts.

Project Location and Setting

RRLNWR is located at the headwaters of the Missouri River and is one of the most remote National Wildlife Refuges in the contiguous United States. RRLNWR is located in the CV of Beaverhead County, Montana, 31 miles west of West Yellowstone, MT and 43 miles east of the town of Lima, MT. The RRLNWR contains 50,575-acres that varies in elevation from 6,607 to 9,400 feet above sea level, and lies east of the Continental Divide. The RRLNWR encompasses a 32,500-acre wilderness (64.3% of the area). The RRLNWR supports a diversity of migratory birds, native and nonnative fishes, and other resident wildlife populations. The RRLNWR has an estimated 12,000 human visitors annually.

Elk Springs Creek and its tributary Picnic Creek comprise the geographic location described in this EA (Figure 1). Both creeks are located in the eastern portion of RRLNWR. Both creeks are spring fed, providing a constant flow of water year round. For example, Culver Springs is the water source for both Culver and Widgeon ponds, which are manmade impoundments located along Picnic Creek. Elk Springs Creek is 5.4 miles long, while Picnic Creek is 2.5 miles long. Major aquatic vegetation types are similar between both creeks including: pondweeds (*Potamogeton* spp.), watermilfoil (*Myriophyllum* spp.), waterweed (*Elodea* spp.), and buttercup (*Ranunculus* spp.). Both creeks stay open throughout the winter, except for Widgeon Pond which freezes entirely, while Culver Pond remains mostly frozen throughout the winter months.

Historically, both Elk Springs and Picnic Creeks were some of the most important spawning streams for Arctic grayling in the CV and RRLNWR. For example, in 1898 a production hatchery was started on Elk Springs Creek by the U.S. Fish Commission to collect grayling gametes for stocking water bodies both locally and throughout the country. Between one and three million eggs were collected on an annual basis during the ten years of operation. Thirty million eggs were collected during the ten years. However, by the 1950's, the grayling spawning population dwindled in Elk Springs Creek due to a homestead era dam constructed across the creek channel in the early 1900's, and a RRLNWR dam constructed in 1952 that

created MacDonald pond. Arctic grayling were finally denied access to Picnic Creek starting in 1964 by the RRLNWR construction of Widgeon Pond.

Over the past several decades, efforts were made by the U.S. Fish and Wildlife Service, and Montana Fish, Wildlife and Parks to establish new nonnative fisheries within Widgeon and Culver Ponds. Besides introducing Arctic grayling, nonnative trout such as Rainbow andYellowstone cutthroat, and Brook trout were also stocked. However, Arctic grayling, and Rainbow and Yellowstone cutthroat trout never became established and currently do not reside in these ponds. A Brook trout fishery established in Culver Pond prior to the creation of Red Rock Lakes NWR in 1935; still exists today. There is little information on the presence of non-native cutthroat trout in the Elk Springs drainage. After consultation with several avid anglers in neighboring towns, a local fishing resort, fishing guides, and local biologists, there appears to be no evidence of an established cutthroat fishery in Elk Springs Creek drainage. For example, over the last 9 years, no guests from the Elk Lake Resort have caught *any* cutthroat trout in Elk Springs Creek. Reasons for this remain unclear. However, navigating through Swan Lake, which connects Elk Springs Creek to Upper Red Rock Lake, is difficult for fish due to low water levels that act as a potential migration barrier.

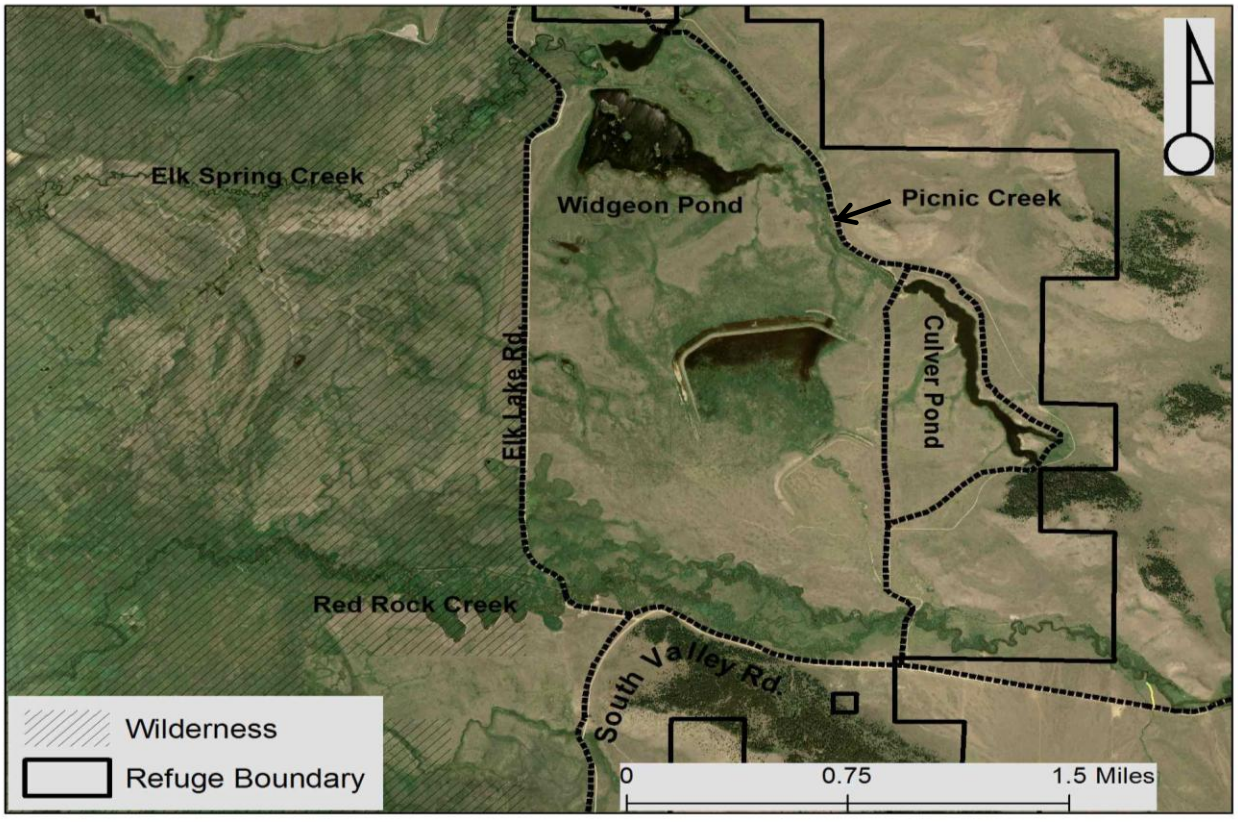

Figure 1. Map of project area within Red Rock Lakes National Wildlife Refuge, Montana. Important locations described in this EA are presented on the map. Nonnative Yellowstone Cutthroat *x* Rainbow trout hybrids will be removed from Red Rock Creek beginning in 2013. Male cutthroat trout will be transferred from Red Rock Creek to Widgeon Pond to compensate lost angling opportunity.

Critical Elements

Critical Elements were created and impacts to each element as a result of the proposed project were analyzed. Table 1 indicates whether the Selected Alternative to stock nonnative fish to Widgeon Pond would affect each of the Critical Elements.

Table 1. Critical Elements of the environment within this Environmental Assessment.

CRITICAL ELEMENTS		
Determination*	**Resource**	**Rationale for Determination**
NI	Whirling Disease (WD)	WD is present in the fish community in both Red Rock Creek, and Picnic Creek. Therefore, disease transmission is not a significant risk due to its established presence within the water bodies affected by this EA.
NP	Environmental Justice	This management action would not raise environmental justice issues.
PI	Spread of Invasive or Nonnative Species	The project would distribute a nonnative species on a National Wildlife Refuge. We are mitigating this risk by installing a functional fish screen barrier on the outlet of Widgeon Pond.
PI	Threatened, Endangered or Candidate Plant or Animal Species	Arctic grayling are a candidate species that reside within the watershed where nonnative fish will be stocked. The proposed action may affect downstream grayling conservation in Elk Springs Creek; however, a functional fish screen will be installed on the outlet of Widgeon Pond, preventing emigration of fish. Grizzly Bears are present at times in the Red Rock Creek drainage, usually early in the spring after hibernation. Efforts will be taken to avoid attracting a grizzly bear to the fish trap by using best management practices.
PI	Chemical Wastes	Nonnative trout will be eradicated from Widgeon Pond using broad-spectrum chemical after the 5-year experimental removal.
PI	Water Quality	The project may impact water quality of Elk Springs and Picnic Creek through the application of a broad-spectrum pesticide/piscicide. However, chemical eradication methods will be developed in a future management plan when the removal has ended.
PI	Aquatic and Terrestrial Linkages	The project will impact the movement of invertebrates from aquatic to terrestrial habitats, and vice versa. Introduced nonnative fish have far-reaching effects on the abundance of aquatic insects that emerge and feed terrestrial insectivorous birds. Foraging opportunities for migratory birds will be reduced.
PI	Wilderness Character	Wilderness Character will be impacted if residual pesticides flow downstream or nonnative cutthroats escape Widgeon Pond. Although the project is not located in Wilderness, Wilderness is downstream from Widgeon Pond. We will monitor impacts to Wilderness Character by tagging all male fish with a brightly colored dorsal fin tag prior to being stocked to Widgeon Pond.
PI	Breeding Bird Ecology	Trumpeter swans commonly nest on Widgeon Pond. Disturbance impacts will be minimized by closing the pond until the nest has hatched. If anglers appear to disturb swan cygnets when the pond is opened, portions will be closed to fishing. A reduction in the food source (e,g, invertebrate) for cygnets will occur, which could affect their growth rate and survival.

*Possible determinations:
NP = not present in the area impacted by the selected alternative
NI = present, but not affected to a degree that detailed analysis is required
PI = present and may be impacted to some degree. Will be analyzed in affected environment and environmental impacts. NOTE: PI does not mean impacts are likely to be significant in any way.

Direct and Indirect Impacts of Selected Alternative

In the selected alternative, nonnative cutthroat trout would be removed from Red Rock Creek for five consecutive years. Native terrestrial and aquatic species that forage on nonnative cutthroat trout may be temporarily impacted through reduced foraging opportunities. However, it is expected that native species will adapt and begin foraging on new food source(s) once cutthroats are removed from Red Rock Creek. However, some of the male cutthroats will go to Widgeon Pond, which may provide an additional food source for native species such as otters. In addition to Arctic grayling, an abundance of brook trout, suckers, whitefish, and burbot exists throughout the Centennial Valley.

The following factors were identified in the Critical Elements section (Table 1) that is affected by the selected alternative:

Spread of Invasive or Nonnative Species

Nonnative male cutthroat trout hybrids would be translocated from Red Rock Creek to Widgeon Pond. Given the best available information, there are currently no nonnative cutthroat trout residing in the Elk Springs Creek drainage, downstream of Widgeon Pond (Figure 1). We will prevent escapement of trout from Widgeon Pond by placing a functional fish screen barrier at the outlet.

Threatened, Endangered or Candidate Plant or Animal Species

Current conservation efforts are to reestablish a spawning population of Arctic grayling in Elk Springs Creek. If nonnative fish escape Widgeon Pond, they could have negative downstream impacts on the small population of Arctic grayling beginning to use Elk Springs and Picnic Creek. This risk will be minimized by placing a fish screen barrier on the outlet of Widgeon Pond to prevent the downstream migration of male fish. Even though no grayling were observed spawning in either Elk Springs or Picnic Creek in 2012, several individuals were observed near their historical spawning sites. We anticipate that Arctic grayling will spawn in Elk Springs Creek in 2013.

Grizzly bears are sometimes present during the spring in the Red Rock Creek drainage. Efforts will be taken to avoid attracting grizzly bears to the fish trap by using best management practices. This includes providing a safe environment for people and bears: by leaving no fish parts on the stream bank or the trap, and by removing dead fish from the area and not placing parts into the stream. Fish processing equipment will be cleaned the best we can, and equipment will be stored out of reach and sight of bears by placing it deep into the willows. The fish trap has been operated for the last 9 out of 18 years without any conflicts with bears. Bears have not learned that the trap is a food source, or the fish in the stream during the spring spawning. To our knowledge, bears have never been observed foraging on fish in Red Rock Creek. If bears frequent the area, we will take precautionary steps to avoid teaching bears the trap is a food source. If bears continue to be a problem, we will shut the trap down.

Chemical Wastes

After the experimental removal of nonnative fish has ended in 2018, a broad-spectrum chemical will be used to remove nonnative cutthroat from Widgeon Pond. This chemical would produce short-term hazardous material throughout the pond, and possibly Picnic and Elk Springs Creek. Broad-spectrum chemicals (e.g. Rotenone) work by inhibiting biochemical processes at the cellular level, which results in an inability of the fish and macro-invertebrates to use oxygen in

the release of energy during normal body processes. They suffocate due to lack of oxygen. If chemicals are used to remove the fish community from Widgeon Pond, a management plan will be produced and a National Environmental Policy Act public process followed.

Water Quality

When the nonnative fish are removed from Widgeon Pond, a broad-spectrum pesticide will cause short-term water quality issues. For the period during this work, we will strongly advise anglers to not consume fish from either downstream of Picnic Creek or Elk Springs Creek following the application of chemicals to Widgeon Pond.

Aquatic and Terrestrial Linkages

Linkages shared between terrestrial and aquatic food webs are increasingly recognized as being important for species residing in both habitats. Managers have only recently begun to identify important food web interactions across ecosystem boundaries, such as: 1) terrestrial invertebrates that fall directly into streams and feed fish, and 2) the reciprocal flow of adult aquatic insects that emerge into riparian zones and feed birds, bats, and spiders. Because of such interdependency, streams and riparian zones are coupled in their vulnerability to habitat alterations, because alterations can sever fluxes of invertebrate subsidies across the land-water interface.

Nonnative fish have been shown to sever trophic connections between stream and adjacent riparian habitat. For example, introduced rainbow trout in Japan and the Sierra Nevada Mountains of California have been shown to not only reduce the availability of terrestrial invertebrates that fall into aquatic habitats that feed native species (Baxter et al. 2005); they also indirectly reduce the abundance of insectivorous riparian birds by consuming a high proportion of aquatic insects before they emerge from the water (Epanchin et al. 2010). Introducing nonnative trout to Widgeon Pond may reduce the abundance and condition of insectivorous birds by reducing key invertebrate food sources that emerge from the water.

Wilderness Character

Wilderness could be impacted in two ways: nonnative fish escapement from Widgeon Pond and subsequent downstream establishment, and introduction of residual broad-spectrum pesticide to the Red Rock Lakes Wilderness Area. Greater than 30,000 acres of Wilderness exist at RRLNWR. Wilderness areas serve as ecological reference for native ecosystems and provide critical habitat for Artic grayling on RRLNWR. These ecological benefits may be compromised by nonnative species that compete with, prey upon, and transmit disease to native species. They may also alter ecosystem processes to the detriment of native species and their habitats. Even though these nonnative cutthroats are found in the RRLNWR Wilderness area, they are non-existent within the Elk Springs Creek drainage. The application of broad-spectrum checimals impact invertebrate species that vary from minor to substantial. Long-term (i.e. > 1 year) impacts to invertebrates remain unknown. All stocked fish will be tagged with a visible dorsal fin tag to determine if these fish are escaping Widgeon Pond. If male cutthroat trout escape Widgeon Pond, then *all* subsequent nonnative cutthroat trout will be euthanized and food banked.

Breeding Bird Ecology

A Trumpeter swan (*Cygnus buccinator*) nesting territory is located on Widgeon Pond, and has fledged cygnets in 2011 and 2012. Angler access to Widgeon Pond will be delayed until after the fate of the nest is determined (i.e. hatched, destroyed, or abandoned). Once the cygnets have

hatched, additional disturbance impacts could be caused by angler presence on Widgeon Pond. If this occurs, portions of Widgeon Pond will be closed to fishing to ensure space and time separation for swans.

Invertebrates are the main food source for cygnets. Invertebrate biomass will be reduced in Widgeon Pond following the stocking of cutthroat trout. Nonnative trout may indirectly affect cygnet growth and survival through a reduction in their prey base. Other water birds and aerial insectivores may also be impacted through a reduction in food.

Cumulative Impacts of Selected Alternative

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency implements a management action. Three cumulative impacts were identified as a result of stocking nonnative cutthroat trout to Widgeon Pond.

Within the RRLNWR's CCP, it states that a brood stock population of Arctic grayling and Westslope cutthroat trout will be established using Widgeon Pond within 15 years of completion of the CCP. Therefore, nonnative cutthroat trout stocked in Widgeon Pond will be removed after the five year project through various eradication methods.. This stocking and subsequent removal of fish may impact the CCP plan for creating a brood stock population of Arctic grayling and Westslope cutthroat trout in the pond.

The second cumulative impact identified in the moving of nonnative cutthroat trout to Widgeon Pond is that it may affect Arctic grayling restoration on Elk Springs Creek through a combination of competition for space or food, and predation on grayling fry. In 2010-12, tens of thousands of Arctic grayling fry were released into Elk Springs Creek to reestablish a historical spawning population. During the summer of 2012, Arctic grayling were observed in Elk Springs Creek near the Elk Lake Road. Even though there is no recent confirmed account of grayling spawning in the headwaters of Elk Springs Creek, grayling are expected to return and spawn in the spring 2013 because they are now sexually mature (e.g. grayling can reproduce at 3 years of age at RRLNWR).

Lastly, the stocking of nonnative cutthroat trout to Widgeon Pond could impact the current study planned to assess the relative role of nonnative cutthroat trout on Arctic grayling abundance. If nonnative trout escape Widgeon Pond and return to Upper Lake, this may impact the ability to test the role of nonnative cutthroat trout on the recovery of Arctic grayling.

ANTICIPATED DIRECT AND INDIRECT IMPACTS OF SELECTED ALTERNATIVE ON REFUGE PROGRAMS, FACILITIES, AND CULTURAL RESOURCES

Wildlife Dependent Recreation

Anglers will find fewer opportunities to catch nonnative cutthroats on Red Rock Creek during the five years of experimental removal. Angler numbers have always been low at RRLNWR but catch opportunity was usually good while nonnative hybrids were spawning in the spring. When these nonnative trout returned to Upper Red Rock Lake, catch opportunity in the stream declined significantly. Anglers asking for alternate locations to fish will be directed to downstream of the fish trap on Red Rock Creek, Culver Pond, Widgeon Pond, Elk Springs Creek and Odell Creek on the RRLNWR, Elk Lake or Hidden Lake on the Beaverhead Deerlodge National Forest, and the neighboring Henry's Lake in Idaho. All of these alternate locations are already open to fishing and support high abundances of sport fish. In addition to the removal of nonnative trout by USFWS staff, Montana Fish Wildlife and Parks changed fishing regulations for Red Rock

Creek. Beginning in 2013, Red Rock Creek will be closed to fishing while Arctic grayling are spawning in the creek from May 15 to June 14; otherwise, fishing is now open year round. The daily and possession limit is now 20 trout, so that anglers can assist in grayling conservation by removing high numbers of these nonnatives. However, we don't expect an increase in angler numbers with this regulation change. There will be extra work by RRLNWR staff who work the fish trap, and haul fish to the food banks in southwest Montana. No other RRLNWR programs should be impacted, directly or indirectly by the selected alternative. Non-consumptive users of the RRLNWR should see no change to their refuge opportunities.

Refuge Facilities

Little additional use of RRLNWR roads is anticipated with the selected alternative since many anglers traditionally fished other locations on the refuge and the national forest, traveling the same road system as they would if fishing Red Rock Creek. No more than 50 angler visits per day are expected to use RRLNWR roads even during the highest use days.

Cultural Resources

Angling in the CV has been a traditional form of wildlife-dependent recreation for over a century. Angling, regardless of method or species targeted, is a consumptive activity. Angling and removing nonnative trout do not pose a threat to cultural resources on or near the RRLNWR during the 5 year removal.

Anticipated Impacts of Stocking of Nonnative Trout to the Refuge Environment and Community

Minimal adverse impacts from implementation of the proposed action are expected on the RRLNWR environment, which consists of soils, vegetation, air quality, water quality and solitude. Impacts are anticipated to be positive for Arctic grayling populations. The communities in Beaverhead County and Gallatin County will benefit from the added food the fish will provide through dispersal to local area food banks.

Foreseeable Angling and Anticipated Impacts

The proposed movement of 100-200 male cutthroats to Widgeon Pond after a functional fish screen is installed carries some anticipated impacts to the environment. However, many of these impacts can be mitigated. Additionally, increased daily bag limit of 20 hybrid trout and extended fishing season length has been designed to provide added angling opportunity during periods of the year when Arctic grayling and their eggs are not in the Red Rock Creek. It is still unknown if anglers will take advantage of either fish stocked to Widgeon Pond or increased bag limits.

The RRLNWR does not foresee any changes to the selected alternative in the way of increasing the intensity of angling in the future. However, this action may reduce future angling because a valued sport fishery on the Refuge will be diminished. The last time the RRLNWR completed a change in angling opportunities was in 2009 when the CCP opened all streams on the refuge to angling. Only three streams were historically open prior to the CCP. Since the opening of all streams to fishing, refuge staff has seen no observable increase in angler numbers on these newly opened streams.

Anticipated Impacts if Individual Fishing Opportunities are allowed to Accumulate
National Wildlife Refuges, including RRLNWR, conduct fishing programs within the framework of State and Federal regulations. RRLNWR is at least as restrictive as the State and generally follows Montana State fishing regulations. The movement of fish to local area food banks, rather than stocking all of them in RRLNWR ponds, has been reviewed by the Montana Fish, Wildlife and Parks. Additionally, the RRLNWR coordinates with MTFWP annually to maintain regulations and programs that are consistent with the State management program.

RESPONSE TO PUBLIC COMMENTS FOR STOCKING NONNATIVE FISH AT RRLNWR
Comment 1: "Putting females in the ponds would be okay IF the existing control structure would keep them there, which I am not sure they are capable of doing".

Response 1: A custom-made fish screen is being built for the outlet structure on Widgeon Pond. We anticipate this device to preclude the downstream migration of fish once they are stocked to Widgeon Pond.

Comment 2: "With the understanding that removal of cutthroat trout cannot be reconciled with the Refuge's basic mission (Executive Order 7023), I support Alternative B".

Response 2: Refuge establishing language in, Executive Order (7023) includes the following: "As a refuge and breeding ground for wild birds and animals." This Refuge is a nationally important breeding ground for Arctic grayling. We view competition from cutthroat trout as a significant issue facing Arctic grayling conservation in the Centennial Valley.

Comment 3: "I believe the fish should be caught and released into the Widgeon Pond where fisherman would have the opportunity to catch and keep the fish".

Response 3: There were several comments similar to this one, essentially asking for the fish to be stocked in other Refuge water bodies. Red Rock Lakes NWR modified its preferred alternative in the draft EA to include the stocking of 100-200 male cutthroat trout per year to Widgeon Pond. This will partially compensate for lost angling opportunity. However, if some of these fish escape Widgeon Pond, then all fish will be euthanized and transported to local area food banks for the remaining portion of the experiment.

Comment 4: "We recommend that the preferred alternative would be that all trout captured be transported to the Blacktail Meadows Kids Fish Pond in Dillon and released to enhance that fishery".

Response 4: This is a great idea. However, many of these nonnative cutthroat trout test positive for Whirling Disease, and such translocation of these diseased fish are not permitted by Montana Fish, Wildlife, and Parks.

Comment 5: “Red Rock Lakes National Wildlife Refuge is the public’s property and every chance for the public to use it to its upmost should be the priority”.

Response 5: *Every stream on the Refuge was opened to public fishing after the completion of the official management plan (CCP). In addition, hunting opportunities were increased by opening more of the Refuge to waterfowl and big game hunting in 2012. The entire >50,000 acre Refuge is open for wildlife dependent recreation such as bird watching throughout the entire year. This National Wildlife Refuge is very user friendly to the public as long as the use is deemed compatible with the Refuge mission and purpose.*

Comment 6: “We would request that any non-native fish be euthanized using the most humane process possible”.

Response 6: *We will euthanize all non-native fish with a quick blow to the middle part of the head region when the fish are immediately removed from the fish trap. This will cause near immediate death. Unfortunately, there are no anesthetics that can be administered prior to their being euthanized because people will be eating these fish. Residual anesthetics can be stored in the body tissue of fish for several days, which can be transferred to humans after consumption.*

Comment 7: “Common sense would tell us that resident Otters focus on the Cutthroat Trout as opposed to Grayling as a food source, given the superior flavor, lack of bones, etc. This could also apply to the Brook Trout. If all of these non-natives are removed doesn’t it seem reasonable that Otters (and Eagles, Osprey, etc) will be forced to focus on threatened Grayling as a food source?”.

Response 7: *We will not remove all of the non-native trout; we will only suppress their population for a 5 year period. Animals that rely on fish for a food source may be impacted in the short term. However, some of the male cutthroats will go to Widgeon Pond, which may provide an additional food source for eagles, osprey and otters. In addition to grayling, there is an abundance of brook trout, suckers, whitefish, and burbot throughout the Centennial Valley. For example, Refuge staff routinely observes otter consuming burbot in Upper and Lower Lake. Eagles, osprey, and otters have coevolved with grayling long before nonnative cutthroat were introduced to RRLNWR. We expect no lasting impact on grayling from predator birds/otters and additional consumption of grayling by these predators will be minimal.*

Comment 8: “Moving the hybrids to another water will maintain some of the unique angler opportunities these fish represent – a large, adfluvial strain of wild trout. This opportunity is not available to our knowledge in any of the alternative angling destinations the refuge recommends”.

Response 8: Anglers can pursue native, large, adfluvial strain of wild westslope trout on Odell Creek, however, many of these fish are also hybridized with rainbow trout. Less than 10 people

are believed to fish this creek every year. Plenty of opportunity exists for anglers to catch a native strain of cutthroats in Odell Creek.

Comment 9: "Maintaining some of the angling opportunity for the removed fish – as long as it presents little risk – will help ensure there is greater angler buy-in for arctic grayling recovery efforts".

Response 9: This is a great point, however, based on the majority of comments from anglers, it appears anglers are prioritizing catching non-native fish over grayling conservation. We've discussed this internally. Your point is part of the reason we have come to support stocking fish to Widgeon Pond. We hope that stocking fish to an alternative location will produce angler buy-in for grayling conservation. However, this remains unclear.

Comment 10: "Because Yellowstone cutthroat trout were previously stocked in Widgeon Pond, this is not perceived to be a new introduction".

Response 10: The last time Yellowstone cutthroat trout were stocked to Widgeon Pond was 1977. However, based on the most recent gill netting efforts from Widgeon Pond, these fish are not present. Therefore, the Refuge views this fish stocking as creating a new non-native fishery in Widgeon Pond because there are currently none of this species present.

Comment 11: "P. 12 of the EA essentially concludes that the new 20-fish harvest limit will be an inducement for anglers to help in removing the nonnatives. We doubt that. Most anglers to Red Rock Lakes National Wildlife Refuge probably practice catch and release angling, and this ethic is so ingrained, especially when large fish are brought to hand, that most people, given the option, will likely return most fish to the stream."

Response 11: We embraced this comment, and subsequently decided to stock a maximum of 100-200 males per year to Widgeon Pond. We see little reason to stock more of these fish when the majority of anglers visiting Red Rock Lakes NWR practice catch and release, and an already established fish community in the pond. We appreciate the honesty of this comment, which comes from a group representing 3,400 conservation-minded anglers across Montana.