# ENVIRONMENTAL ASSESSMENT

# OR-128-99-06

## A Proposal to Remove Exotic Fish from Heliponds on the Coos Bay District of the BLM

This Environmental Assessment discloses alternatives for and predicted environmental effects of removing exotic fish species from 3 heliponds around the Coos Bay District BLM (see map 1). This analysis is tiered to the *Coos Bay District Resource Management Plan & Environmental Impact Statement* and its *Record of Decision* (BLM, 1995); which is in conformance with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* with its *Record of Decision* and *Standards and Guidelines* (Interagency, 1994).

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**EA OR128-99-06**

## Section 1 - Purpose of and Need for Action:

### Purpose for Action

The purpose of this proposed action is to remove known exotic fish species from three human-made fire ponds around the Coos Bay District, Bureau of Land Management (see Map 1).

The BLM is mandated to protect aquatic systems and native species from damage as a result of exotic species introductions. The BLM Manual Rel. 6-118 Sec. 6720 G. states that "Introductions of nonnative and exotic species should be prevented in habitats where they would be harmful to the native biota or where it is against the established policy of the State fish and wildlife agency ." Furthermore, under the Endangered Species Act (ESA), the introduction of exotic species into the habitat of coho salmon would constitute a "take" since these fish are listed under the ESA as a "threatened" species. "Harm" would occur as a result of actions that actually killed or injured coho, such as disease introduction, prohibition of feeding, or direct predation. "Harassment" would occur as a result of disruption of normal behavioral patterns such as breeding, feeding, and sheltering. Finally, Section 2 of Presidential Executive Order #13112 (2/3/99) authorizes Federal agencies to "(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; . . ."

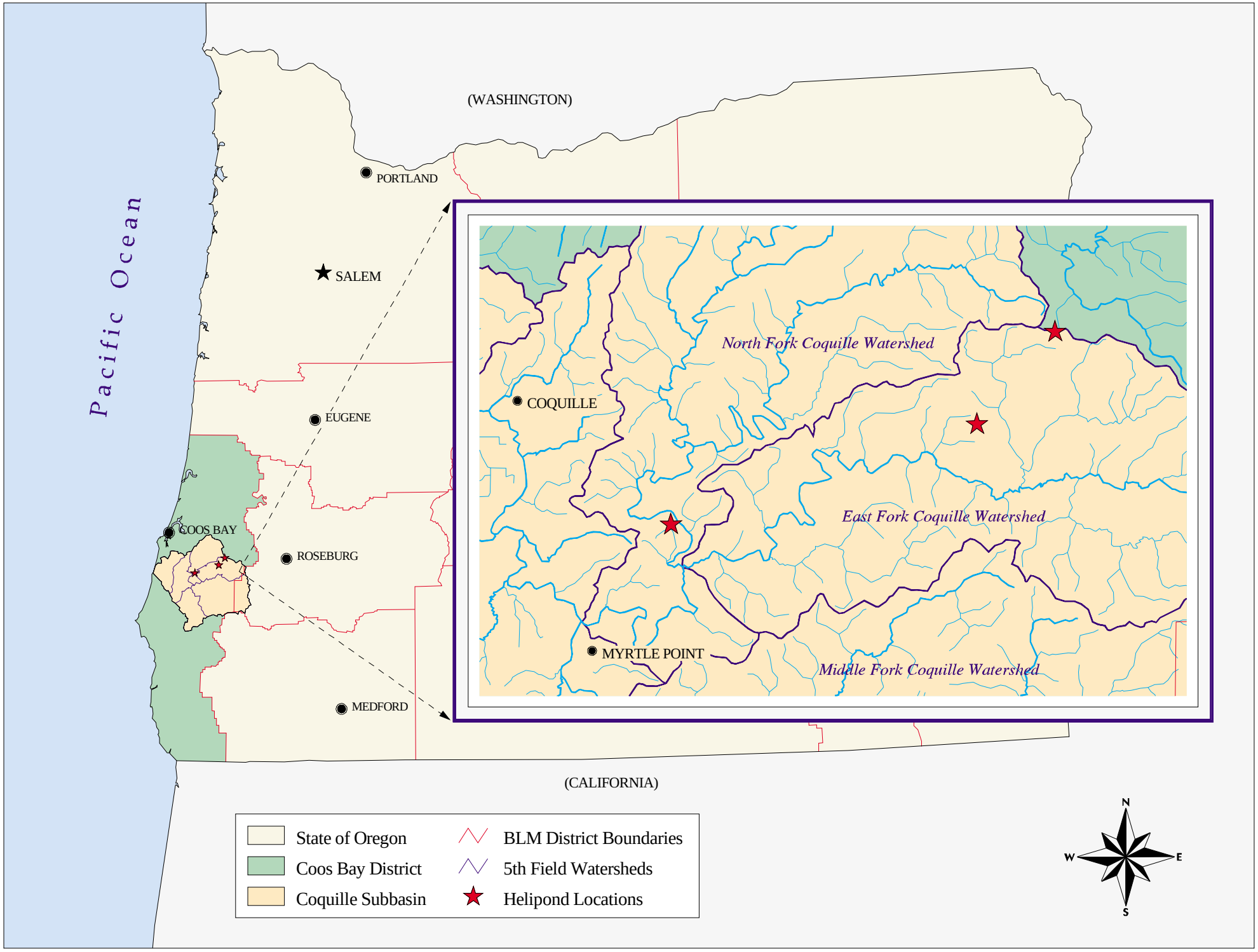
The purpose of this environmental assessment is to:

- assess any potential environmental impacts that may result if the No Action or the Proposed Action is implemented,
- identify appropriate mitigation measures, and
- document the decision-making process.

Additional specialist reports and analysis documents are contained in the analysis file and are hereby incorporated by reference.

### Need for Action

The need for this action stems from the potential of these exotic species to enter downstream water bodies, possibly impacting native aquatic fauna found in those downstream areas. During the wetter months, it is possible that higher flows could facilitate adult or juvenile fish passage out of these artificial ponds, into natural habitats. Should this occur, it is possible that these introduced species could establish viable populations, resulting in negative impacts on native populations of aquatic vertebrate and invertebrate species. In addition, there is the possibility




Map 1.0 - Vicinity map for the helipond exotic species eradication project.

that these exotic species could introduce diseases that would be detrimental to native aquatic species.

Based upon the depressed condition of many amphibian and salmonid populations in the Pacific Northwest, it is deemed beneficial to remove as many additional risks to these native species as possible.

**Decisions to be Made from this Analysis**

Based on the analysis documented in this environmental assessment, Myrtlewood Field Manager, Karla Swanson, and Umpqua Field Manager, Gary Johnson, will make the following decisions:

- Should exotic fish species be removed from various heliponds located on the the Coos Bay District, BLM?

- If so, should these fish be removed using accepted chemical treatment methods designed to remove undesired fish (i.e. rotenone)?

- Would implementation of this project have significant effects on the human environment and require documentation in an Environmental Impact Statement?

**Identified Issues and Resolutions**

**Scoping**

Scoping is a process used to surface and identify issues. Internal scoping for the project began with a project initiation letter and meeting held on April 26, 1999. Public scoping for the Helipond Exotic Species Eradication project began when the project was listed on the Coos Bay District's internet web page in the spring of 1999, and when articles requesting public comment were placed in Coquille, Myrtle Point, and Coos Bay area newspapers.

Issue: ***Potential effects on native wildlife***. At issue is the potential for this proposed project to impact native wildlife species utilizing these ponds. Species that may be impacted include various reptiles and amphibians, as well as birds and mammals that occasionally use these areas. Impacts could occur in the form of direct mortality in the case of gilled amphibians, or from the effects of direct chemical ingestion, through drinking treated water, eating chemically killed fish, etc.

> *Resolved* - Since these ponds were artificially created, and have concrete sides and bottoms, they do not contain large quantities of high quality breeding or rearing habitat for native reptiles and/or amphibians. In addition, at the low chemical concentrations needed to remove undesired fish, there is virtually no risk of impacting other animals utilizing those areas. With the relatively warm water temperatures that usually occur in these ponds during the late summer months, it is also likely that the rotenone used will completely break down in the span of four to seven days. In addition, the solvents and

dispersants contained in the formulation of rotenone proposed for use (napthalene, methylene, and liquid soap) will evaporate and/or break down in a similar time frame.

Issue: ***Potential impacts to water quality***. At issue is the potential for this proposed project to negatively impact water quality in the streams immediately adjacent to these ponds.

*Resolved* - Rotenone is a naturally occurring substance, and is relatively unstable when exposed to the environment. At the water temperatures occurring at the time of proposed treatment, it is likely that the rotenone will completely dissipate in four to seven days. It is ultimately converted into carbon dioxide and water.

Other chemicals found in the formulation of liquid rotenone proposed for use include napthalene and methylene (solvents), and liquid soap (a wetting agent). The solvents will likely evaporate into the atmosphere within four to five days, and the liquid soap will break down in a matter of several days. A key water quality design feature of this project is that the water level in these ponds will be lowered several feet prior to treatment to prevent chemically treated water from escaping into the adjacent streams. In addition, the streams that were originally diverted to supply water to the ponds would be permanently re-routed back into their original channels. Therefore, these ponds are not likely to refill during the summer months, making it highly unlikely that any chemically treated water would be discharged at the outlets during the summer of treatment. These facts, combined with the relatively short life of rotenone and its associated chemicals in relatively warm waters, would reduce the risks of impacting water quality in downstream areas.

## Section II - Alternatives Considered

**No Action:**

No action would be taken to eliminate exotic species from various heliponds on the Coos Bay District, Bureau of Land Management. These species would continue to survive and reproduce in the human-made ponds. There would be a continued threat of these non-native fish escaping and establishing viable populations in downstream water bodies.

**Proposed Action:**

The proposed action consists of treating three human-made heliponds with liquid rotenone in order to remove the exotic fish species found there, and installing devices to prevent potential future exotic species from moving to downstream areas.

Specific project activities would include 1) permanently diverting the small streams that supply water to the ponds back into their original channels, 2) lowering water levels in the ponds several feet in order to concentrate the fish, make chemical treatment more effective, and prevent chemically treated water from entering flowing streams, 3) treating the ponds with rotenone, 4) installing physical barriers (concrete catch basins) that would prevent potential future exotic

species introductees from escaping to downstream areas, and 5) installing small log booms at each pond outlet. Additional project specifics are listed below.

Pond water levels would be lowered by using a large siphon hose that would be placed to drain away from live streams and in areas resistant to surface erosion.

The specific formulation of rotenone proposed for use consists of 5% active rotenone, and 95% solvents and dispersants (napthalene, methylene, and liquid soap). Treatment would take place in the late summer months, when warmer water temperatures and consequent lower dissolved oxygen levels would make the treatments more effective, and would facilitate the rapid dissipation of the rotenone and its associated chemicals.

Combined, these ponds have a volume of 6 acre/feet (an acre/foot of water is equivalent to one square acre of water surface area, that is one foot deep). The concentration of active rotenone recommended for pond treatments of this nature is 0.05 ppm. In order to achieve this concentration in the three ponds, a total of 2.0 gallons of the liquid form would be needed for the entire project (the liquid form of this product contains 5% active rotenone).

The desired amount of liquid rotenone would be added to each pond by using a small, flat-bottomed aluminum boat, with a small outboard motor. The rotenone would be dripped into the turbulence created by the propeller wash, thereby thoroughly mixing the chemical into the pond waters and achieving the desired concentrations and results.

The majority of the fish will likely float to the surface shortly after chemical application. These fish will be collected and dispersed into the vegetation surrounding the respective ponds to prevent large nutrient pulses and resultant algal blooms, as well as odor problems from occurring in the pond waters.

The physical barriers to be installed would consist of prefabricated concrete box catch-basins filled with small gravel, located at the overflow outlets of the respective ponds. The concrete catch basins would be approximately 5' wide, 10' long, and 3' deep. They would be installed using a rubber-tired backhoe during the late summer months in order to minimize soil compaction and surface erosion.

Small log booms would be placed in the ponds near these outlets in order to skim fine material off the water surface before it reaches the overflow outlets. Logs would be roughly 10-15 feet in length, with diameters of approximately 8-10 inches (at the small end). These wood pieces would be obtained from existing cull decks from around the Coos Bay District.

Additional Design Features and Conservation Practices

- All ground disturbing activities would be in conformance with the Best Management Practices for Maintaining Water Quality and Soil Productivity described in the Coos Bay District ROD and RMP, Appendix D.

- Signs would be placed at each pond 1 week prior and maintained for 4 weeks after chemical treatment in order to inform any potential users of the proposed treatment. Signs would be written in English and Spanish.
- Any in/near stream work involving heavy equipment is subject to State and Federal Law governing petroleum spill prevention and cleanup. These include Oregon Administrative Rules (OAR) 340, Division 108, Oil and Hazardous Materials Spills and Releases (DEQ), and OAR 629-57-3600, Petroleum Product Precautions, and Oregon Forest Practices Act.
- To reduce turbidity during installation of concrete catch-basins at pond outlets, the small streams supplying water to the ponds would be re-routed back into their original stream channels. This would result in the streams effectively bypassing the areas where ground would be disturbed.

**Alternatives Considered but Eliminated From Further Study**

As another alternative, the interdisciplinary team discussed the option of physically removing the fish from each pond with nets and electroshockers. This has proven ineffective in the past for a variety of reasons: 1) it is extremely labor intensive and time consuming, 2) many fish can hide in the deeper parts of the ponds where it is difficult to shock or seine effectively, 3) it is virtually impossible to capture all fish using these methods, and 4) the ponds would need to be substantially drained in order to attempt this activity, thereby making them unusable as water sources for helicopters in the event of a forest fire.

Use of explosives to kill or stun fish was also an alternative considered. This action might result in cracks to the concrete catchment walls that form the heliponds, resulting in their reduced ability to hold water and function as heliponds. In addition, it was deemed too hazardous to seriously contemplate, and was removed from further consideration.

Draining the ponds using pumps or syphons was also considered. This action was dismissed due to the fact that each of these ponds would take several days to completely drain, it would be difficult to prevent erosion near pump or siphon outlets, and the ponds tend to refill relatively slowly, making them unusable in the event of a fire.

## Section III - Affected Environment

Location: The three heliponds proposed for treatment are located in the Coquille River Basin, on lands managed by the Coos Bay District BLM (see Map 1). One pond is located in the North Fork Coquille River 5$^{th}$ field watershed, and two are located in the East Fork Coquille River 5$^{th}$ field watershed. Additional information pertaining to these ponds is contained in Table 1, below.

| Pond # and Name | Legal Location | 5th Field Watershed | Comments |
|---|---|---|---|
| 1. Shuck Mountain Pond | T28S, R12W, Sec 23 | North Fork Coquille River | 150' x 80' x 10', Largemouth bass, bluegill, mosquitofish, koi, and bullfrogs |
| 2. Burnt Mountain Pond | T27S, R10W, Sec. 13/14 | East Fork Coquille River | 100' x 100' x 10', koi and bullhead minnows |
| 3. Brewster Rock Pond | T27S, R10W, Sec. 33 | East Fork Coquille River | 100' x 50' x 8', koi and bullhead minnows |

**Table 1: List of various pond specifics, including legal location, 5th field watershed, size, and exotic species present.**

## Wildlife, Including T & E Species

A species list for wildlife likely to occur in the areas of these pool is in the Coos Bay District Proposed Resource Management Plan Environmental Impact Statement, September 1994, Appendix T. Not all species listed in this Appendix should occur at these proposed project sites, however those listed under the "Temperate Coniferous Forest" heading and sub-headings of Early Seral, Mid-Seral, Late Seral, and Mature are likely to occur.

There are no aquatic molluscs which are Survey and Manage species or special status species expected to be affected by the proposed action or any of the alternatives. There has been no inventory of these animals, but because these are artificial facilities (created by human excavation), only the most common and most tolerant of adverse conditions are expected to occur in this system.

Aquatic herptiles (reptiles and amphibians) likely to occur in any or all of these impoundments include: Northwestern Salamander (Ambystoma gracile), Pacific Giant Salamander (Dicamptodon tenebrosus), Southern Torrent Salamander ( Rhyacotriton variegatus, found only in the associated stream habitats) *a federal species of concern*, Roughskin Newt (Taricha granulosa), Pacific Chorus Frog (Pseudacris regilla), Red-legged frog (Rana aurora) *a federal species of concern*, Bullfrog (Rana catesbeiana) an exotic species, Western Pond Turtle (Clemmys marmorata) *a federal species of concern* and not likely to occur in this ponds because of the lack of large woody material in the pools, Western Aquatic Garter snake (Thamnophis couchii), Western Terrestrial Garter Snake (Thamnophis elegans), Northwestern Garter Snake (Thamnophis ordinoides), and Common Garter snake (Thamnophis sirtallis). All of these species use aquatic habitats for some portions of their lives.

There is a wide variety of mammals which are likely to utilize the waters of these pools on a regular basis. No specific inventories for these animals have occurred at these sites. The only

special status mammal species likely to occur at these ponds include several species of bats which are likely to drink water and forage on insects at or above these pools. Other mammals which are likely to drink at these pools include: Black-tailed deer, Roosevelt elk, Black Bear, Bobcat, Mountain lion, Mink, short-tailed weasel, skunk, opossum, and others. Some of these species are likely to eat the contaminated carcases of fish if they are piled in the vicinity of the pools.

There are numerous species of birds which are likely to use the resources of the ponds. Although no specific inventories have been conducted, some of these species should include shorebirds, waterfowl, and passerines (perching birds and songbirds). Waterfowl and shorebirds may eat fish and/or insects contaminated with rotenone. Many of these species are likely to drink contaminated water before concentrations are completely dissipated. Species of raptors may forage on birds which have ingested contaminated materials.

T&E Wildlife Species

There is a Northern Spotted owl nest site in the area of the Brewster Rock pond, and the area is suitable for Peregrine falcons and Bald eagles, although no nests have been located for these species.

**Recreation Resources**

Engine and helicopter water reservoirs are not managed as recreation resources. However, it is not uncommon for recreationists to use these water reservoirs as places to watch wildlife and swim since public access is not restricted at these sites. The peak time period for recreationists visiting public lands generally occurs in the summer, from June to August. A second peak also occurs in the fall, coinciding with various hunting seasons. It is during this time period that the recreational public is most likely to utilize these water reservoir sites.

**Aquatic Habitat/Fisheries, Including T & E Species**

Each of the human-made heliponds proposed for treatment consists of a rectangular shape concrete catchment, with small concrete inlet and outlet structures. In each case, a small stream or road ditchline has been diverted into the catchment to provide a relatively consistent source of available water for fire suppression. However, stream flows during summer months are quite low, and are not capable of actually refilling these ponds if water levels were lowered significantly. Past maintenance work on similar ponds indicates that they refill annually from rainwater and/or snow-melt, and that the supply streams are not actually necessary.

Each of these ponds is located near the headwaters of small, first order streams, none of which support natural populations of native fish species. Therefore, the effected streams as well as the ponds, do not provide any habitat for native fish species.

None of the ponds are directly adjacent to fish bearing streams. The Shuck Mountain pond is located approximately 1.0 stream mile above a known fish bearing stream (main stem North Fork

Coquille River), but is approximately 300 feet away from a small stream that is considered to be accessible to fish. The Brewster Rock pond is located roughly 0.5 stream miles above known resident fish bearing waters, and approximately 1.0 stream miles above known anadromous fish bearing waters. The Burnt Mountain pond is located roughly 0.5 stream miles above known resident fish bearing waters, and 10 stream miles above the upper extent of anadromous fish bearing waters..

*Threatened and Endangered Species*

Populations of coho salmon within the Coquille River drainage are included in the larger Oregon Coast Coho ESU (Evolutionarily Significant Unit). These fish were listed as a Threatened species under the Endangered Species Act in August of 1998. In addition, populations of coastal cutthroat trout and steelhead trout within the Coquille River drainage are included in the larger Oregon Coast ESU. These fish were proposed for a Federal listing under the Endangered Species Act, and were determined to be a candidate species. A listing assessment is currently underway for these fish.

The Shuck Mountain Pond is the closest to any known habitat for coho salmon, located approximately 1.0 stream mile above the main stem North Fork Coquille River. However, there is no physical barrier that would prevent these fish from accessing the small stream located roughly 300 feet downstream from the pond. The Brewster Rock pond is located roughly 0.5 stream mile above known resident fish (cutthroat trout) bearing waters, and approximately 1.0 stream mile above known anadromous fish (steelhead and/or coho) bearing waters. The Burnt Mountain pond is located roughly 0.5 stream miles above known resident fish (cutthroat trout) bearing waters, and 10 stream miles above the upper extent of anadromous fish (steelhead, coho, and chinook) bearing waters..

**Vegetation, Including T & E Species**

No special status plant species, or survey and manage plant species are known to inhabit these artificial ponds, or the immediate areas surrounding them.

**Cultural Resources**

A review of project documentation and records (Class I inventory) showed that cultural resources were not reported in the vicinity of two pond areas, but were recorded at the third. The Shuck Mountain helipond (T28S, R12W, SE ¼ of Section 23) also is the location of a prehistoric site recorded with the Oregon State Historic Preservation Office (site #35CS78).

This site was described as covering an area of roughly 100 x 200 feet, and located on top of a broad terrace, with marshy areas located nearby. The site was also described as "considerably damaged by logging and erosion," as it was "clear-cut several years ago and cat-logged." In addition, the site was considered to be "quite shallow" and "approximately 20-30 cm. of topsoil and earth were removed by logging, severely mixing cultural debris."

The area was used to construct a helipond in 1987. The project involved excavation, fill, and construction. In addition to the construction of berm walls and creation of a concrete base, soil from the pond area (about 250 x 100 feet) was excavated and piled to the south. It is this soil which is now weathering and exposing cultural material. It appears that the pond excavation completely moved the archeological site.

**Noxious Weeds**

There are known populations of noxious weeds in the immediate vicinity of the ponds proposed for treatment. Each of these sites are located in an area that has been manipulated by large machinery, adjacent to a forest road, frequently visited by industrial forest workers or the general public, and their respective vehicles. These activities tend to introduce new populations of noxious weeds and spread existing populations off site.

Species found at these sites include but are not limited to: Scotch Broom, French Broom, and Tansy Ragwort.

## Section IV - Environmental Consequences

### Critical Element Evaluation of Each Alternative

This section describes the scientific and analytical basis for the comparison of the alternatives, and the probable consequences as they relate to the alternatives. The environmental consequences to critical elements of the elements of the human environment are outlined in Table 2 below.

| Critical Element of the Human Environment | Present in the Project Area | Affected by No Action | Affected by the Proposed Action |
|---|---|---|---|
| Air Quality | Yes | No | No |
| Area of Critical Environmental Concern | No | N/A | N/A |
| Cultural Resources | Yes | No | No |
| Farm Lands | No | N/A | N/A |
| Flood Plain | Yes | No | Yes |
| Native American Religious Concerns | No | N/A | N/A |
| Noxious Weeds | Yes | No | Yes |
| Port Orford Cedar Management | No | No | No |
| Threatened & Endangered Species (Wildlife) | Yes | Yes | Yes |
| Threatened and Endangered Species (Botanical) | No | N/A | N/A |
| Wastes; Solid or Hazardous | No | N/A | N/A |
| Water Quality; Drinking Water | Yes | Yes | Yes |
| Wetlands/Riparian Reserves | Yes | Yes | Yes |
| Wild and Scenic Rivers | No | N/A | N/A |
| Wilderness | No | N/A | N/A |

**Table 2 : Environmental consequences to the critical elements of the human environment**

### Evaluation of Consistency with various Watershed Analyses

A draft watershed analysis has been completed for the East Fork Coquille River. Elimination of non-native aquatic species from helicopter fireponds is recommended (page VIII-7). A watershed analysis has also been completed for the lower portion of the North Fork Coquille River (Middle Main Coquille/North Fork Mouth/Catching Creek Subwatershed Analysis). While there are no recommendations that pertain specifically to exotic fish species management in that analysis, there is sufficient language in the document that is focused on attaining ACS objectives. Therefore, if this project is consistent with ACS objectives, it should also be consistent with the findings and

recommendations of that watershed analysis as well.

**Evaluation of Consistency with Northwest Forest Plan S & G's**

The Record of Decision for the Northwest Forest Plan contains standards and guidelines designed to reduce the impacts on native aquatic organisms caused by fish stocking activities. Specifically, S&G FW-4 (Page C-38) is written as follows: Cooperate with federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, harvest and poaching that threaten the continued existence and distribution of native fish stocks occurring on federal lands.

**Consistency with ACS Strategy and Objectives**

There are four components of the Aquatic Conservation Strategy: Riparian Reserves, Key Watersheds, Watershed Analysis, and Watershed Restoration (ROD, page B-12).

- The design features contained within the Helipond Exotic Species Eradication EA are consistent with WA recommendations for riparian reserves, and the pertinent Standards and Guidelines contained within the ROD (C30-33).

- There are no Key Watersheds in the East Fork Coquille River 5$^{th}$ field watershed. In the North Fork Coquille River 5$^{th}$ field watershed, there are 2 smaller, tier 1 Key Watersheds; Cherry Creek and the Upper North Fork. None of the ponds proposed for treatment are located in Key Watersheds.

- The relevant watershed analyses are the draft East Fork Coquille Watershed Analysis, and the Middle Main Coquille/North Fork Mouth/Catching Creek Sub-Watershed Analysis.

- Watershed Restoration in these 5$^{th}$ fields is ongoing, and is addressed in the respective watershed analysis documents.

Table A-3, found in Appendix A, shows the relationships among the nine Aquatic Conservation Strategy (ACS) objectives, the measurable factors/indicators developed by NMFS, and site-specific impacts on actions proposed in the Helipond Exotic Species Eradication Project. The table demonstrates that the actions proposed in this project would meet Aquatic Conservation Strategy objectives. Fundamental to this conclusion is the assumption that site-specific design features which do not degrade the NMFS factors/indicators in the long-term will not prevent the attainment of the associated ACS objectives.

**Conclusion**

Based on the above review the proposed project was determined to be consistent with Watershed Analysis recommendations and findings, applicable Northwest Forest Plan Standards and Guidelines, NEPA Documentation, and applicable aspects of NMFS' March 18, 1997 Biological Opinion (Appendix B). In addition, the proposed project would not hinder or prevent attainment of Aquatic Conservation Strategy objectives at the 5th field watershed scale over the long-term.

**Wildlife, Including T & E Species**

*No Action Alternative*

Under this alternative, there would be no action and thus the environment described in Section III would remain unchanged. Other goals of the project would remain unresolved.

*Proposed Action Alternative*

Aquatic and Riparian Habitat - From a wildlife perspective the aquatic and riparian habitat of these pools are likely to have very short term affects from the proposed action. The concrete lined pool should have no effect on riparian habitats (there is none). The aquatic habitat will be affected by the loss of exotic fish and potentially exotic and native invertebrate life forms. Typically these life forms re-establish quickly because any residual eggs within the pool or organisms within the benthos are very likely to survive this proposed treatment. Upon emergence or hatching, populations are expected to recover within 30 - 45 days. Additions to these populations are also expected from the normal distribution strategy vectors such as flying insects using the pool after dissipation of the toxins occur, waterfowl using the pools and wind. According to literature from a distributor of "Rotenone" (Tifa Limited, Milllington , N.J.), dissipation of the chemical should occur (depending on the concentration used) within one to two weeks after application.

Wildlife - The timing of the proposed action fits the "Project Defined Criteria" (PDC) of the 1998 Timber Sale Consultation (BO 1-7-98-F-320) for protecting the habitat of northern spotted owls. Actions are planned for after June 6, and no blasting, habitat loss, or helicopter activity are anticipated. This proposal is considered a "No Affect" for any Threatened or Endangered species, because implementation will not affect nesting or brood rearing of any species, rotenone toxicity levels for birds and mammals is many times the concentration levels proposed for this project (EPA 1988) and dissipation of the chemical from water occurs within a period of 4 to 33 days and is accelerated with high temperatures and exposure to sunlight (ODFW, 1999). It is expected that waters treated with rotenone in this project would detoxify in 4 to 7 days, due to high solar exposure and warm water temperatures.

To increase the effectiveness of chemical application, drawing down the pools is necessary. This draw down may expose more steep sided surface of the pools. This is a potential concern where pools are concrete lined and a slick mud covered surface is exposed on the concrete material. Mammals which attempt to drink from such a surface may experience difficulty in entering or exiting the drinking area.

Gilled amphibians are likely to be killed by this treatment. This could include juveniles and some adults of the following species: the Northwestern Salamander (Ambystoma gracile), Pacific Giant Salamander (Dicamptodon tenebrosus), Roughskin Newt (Taricha granulosa), Pacific Chorus Frog (Pseudacris regilla), Red-legged frog (Rana aurora) *a federal species of concern*, Bullfrog (Rana catesbeiana) an exotic species, which are in the water of these pools at treatment time. Most of the juvenile forms of these species should have already metamorphosed to sub-adult or adult forms of life prior to treatment, minimizing any adverse impact to these species. There

should be no long term adverse impacts to any of these species from this action.

Air breathing species, such as the Western Pond Turtle (Clemmys marmorata) *a federal species of concern*, Western Aquatic Garter snake (Thamnophis couchii), Western Terrestrial Garter Snake (Thamnophis elegans), Northwestern Garter Snake (Thamnophis ordinoides), and Common Garter snake (Thamnophis sirtallis) are not likely to receive direct toxic doses of rotenone. However, these organisms may ingest low level amounts indirectly through foraging activities on contaminated species. This low level exposure has not been demonstrated to be hazardous to these species.

In summary, there are no anticipated adverse affects to wildlife from the proposed action because fish and gilled organisms show extreme sensitivity and toxicity to Rotenone while other forms of wildlife show little or no affect to doses much higher than those prescribed for this action. Many species of wildlife may not occupy these pond habitats because they are maintained for fire management purposes and the pools do not contain adequate habitat structure for the wildlife species. Lastly the timing of the proposal (to be conducted in the late summer during high temperatures), and the fact that there is residual water sources available from the original feeder stream (redirected into the original pre-construction channel) should eliminate any potential adverse impacts to any Threatened or Endangered wildlife. Animals which may have difficulty accessing waters because of the slick sides of a concrete lined pool should have access to water from the feeder stream and should have the ability to escape the pool area at lower gradient points within the basin.

**Recreation Resources**

*No Action and Proposed Action Alternatives*

Since the heliponds proposed for treatment are not managed for recreational use, no specific recreational resources will be affected by either alternative. While these areas do receive some limited recreational use, it is not anticipated that the proposed treatment would seriously impact this use.

**Aquatic Habitat/Fisheries, Including T & E Species**

*No Action Alternative*

Under the no action alternative, exotic species currently found in the respective heliponds are likely to continue to survive and reproduce. There would be a continued threat of these non-native fish escaping and establishing viable populations in downstream water bodies. There would be no other known effects (direct, indirect, or cumulative) related to this alternative.

*Proposed Action Alternative*

<u>Direct and Indirect Effects</u>

*Chemical Treatment*

Rotenone is a naturally occurring substance found in the stems and roots of certain tropical plants. Rotenone works by inhibiting a biochemical process in the fish cells, resulting in an inability of the fish to use oxygen in the release of energy during normal body processes (MSUES, 1999). Fish and other gilled aquatic organisms are highly sensitive to rotenone. At the concentrations necessary to remove most undesired fish (around 5 ppm of a 5% commercial formulation) it is not generally considered to be toxic to humans and other non-aquatic animals. Therefore, it is not likely that the active rotenone would have any negative impact on reptiles, birds, or mammals utilizing the treated areas.

In addition to the active rotenone, the specific formulation proposed for use also contains solvents (napthalene and methylene) and surfactants (liquid soap). The solvents used are petroleum distillates, and are likely to evaporate off into the atmosphere in 4 or 5 days (Livingston, personal communication). The liquid soap is also likely to dissipate in the span of 2 to 3 weeks (Livingston, personal communication).

Negative effects on reptiles, birds, or mammals have been known to occur from the ingestion of the solvents associated with liquid rotenone formulations. However, unusually large amounts of these chemicals would need to be ingested for these impacts to occur.

The direct effect of this chemical treatment would be the likely death of 99 to 100% of all gilled aquatic animals in the treated ponds. This would include fish, as well as tadpoles and juvenile salamanders. There would be no likely effect on organisms found in the small streams that formerly supplied water to these ponds, due to the fact that pond water levels will be drawn down to the point where there will be no outflow, and therefore, no chemically treated water entering live streams.

The majority of the fish killed from this treatment would likely float to the surface shortly after chemical application. These fish would be collected and dispersed into the vegetation surrounding the respective ponds in order to prevent large nutrient pulses and resultant algal blooms, as well as odor problems from occurring in the pond waters.

There may be additional impacts to wildlife utilizing these ponds if the chemical solvents associated with liquid rotenone are ingested shortly after initial pond treatment. These impacts would lessen over time as the rotenone, solvents, and liquid soap break down. After a period of approximately two weeks, it is unlikely that there would be enough chemical left to impact fish or wildlife.

*Catch Basin Installation*

The excavation required during installation of the pre-fabricated concrete catch basins would involve small amounts of ground disturbance at each of the heliponds. An estimated total of 300 $ft^2$ would be disturbed by this activity. These disturbed areas may result in small amounts of suspended sediment reaching stream channels during the first fall freshets. This sediment potential would be substantially reduced by seeding and mulching the disturbed areas immediately following the completion of the work.

*Supply-Stream Rerouting*

In order to re-divert the small streams that supply water to the ponds back into their original channels, the small boulder berms that divert the water would need to be dismantled. This work would be accomplished using hand tools, and is likely to cause a small amount of turbidity. Based upon the small amount of flow present in these channels during summer months, and the gravel/cobble nature of the substrates, it is likely that this turbidity would dissipate to non-detectable levels within 100 yards of the original source.

*Pond Draw Down*

In order to lower the water level in the ponds several feet, a large siphon hose would be used. The outlet end of this hose would be placed away from the adjacent stream channels, and in such a way as to prevent surface erosion and transfer of exotic species to live streams.. There would be no anticipated impacts from this aspect of the project.

Cumulative Effects

Rotenone is an unstable compound that breaks down when exposed to the environment. It is ultimately converted to carbon dioxide and water. The breakdown process is rapid and is affected by temperature, light, oxygen, and alkalinity. At 80° Fahrenheit, treated water will detoxify in about four days (MSUES, 1999). The ponds proposed for treatment are relatively shallow, have minimal shading, and are likely to have water temperatures in the 70-80°F range at the time of treatment. As a result, it is likely that the treated ponds would detoxify in the span of four to seven days. There would be a very minimal risk of water with active rotenone escaping from the ponds.

Other chemicals found in the formulation of liquid rotenone proposed for use include napthalene and methylene (solvents), and liquid soap (a wetting agent). The solvents would likely evaporate into the atmosphere within four to five days, and the liquid soap would break down in a matter of a few days. A key water quality design feature of this project is that the water level in these ponds would be lowered several feet prior to treatment to prevent chemically treated water from escaping into the adjacent streams. Therefore, there is an extremely low risk of chemically treated water entering a flowing stream. These ponds would not refill until the winter months, when heavy rains and/or snow (and subsequent melt) would refill the ponds. This fact, combined with the relatively short life of rotenone, and its associated chemicals, in relatively warm waters, would reduce the risks of impacting water quality in downstream areas.

No long term negative cumulative effects to native aquatic species are anticipated as a result of this treatment

**Vegetation, Including T & E Species**

*No Action and Proposed Action Alternatives*

This project would not impact any special status plants species, or Survey and Manage plant species.

**Cultural Resources**

*No Action and Proposed Action Alternatives*

The No-Action alternative would have no effect on cultural resources. The Proposed Action alternative is not likely to have a negative impact on cultural resources as long as project vehicles refrain from driving off the helipond perimeter road onto the lower terrace at the Shuck Mountain Helipond.

**Hazardous Materials**

*No Action and Proposed Action Alternatives*

Rotenone is a pesticide considered to be acutely hazardous. To ensure safe handling and use, chemical applications would only be done by an Oregon State Certified Applicator following applicable product label stipulations and State requirements (DEQ, ODA, OSHA) and federal EPA laws and FIFRA regulations. Transportation and application would be kept to a minimum as required for each specific job. Application would not exceed the recommended rates and concentrations of the active ingredient amounts per acre-foot and would follow the method of application and safety precautions, as specified by the FEISs, SEIS, RODs and stipulations in this EA. The inherent risks to public health and safety associated with using Rotenone are referenced in the hazardous materials appendix of this document. No existing hazardous materials are known to occur at the proposed project areas. The use of an approved SPCC (Spill Prevention, Control, and Countermeasure Plan) for the project would reduce the risk of contamination and ensure that correct procedures are followed if a spill occurs.

**Noxious Weeds**

*No Action and Proposed Action Alternatives*

The No-action alternative has direct and indirect effects on the additional spread of non-native invasive populations. Current invasive species numbers would continue to expand if left unchecked. These species tend to favor disturbed sites and would increase as surface disturbing activities occur. Human travel and hydrologic patterns would continue to provide the principal means of spread for invasive species.

Cumulative Effects

Populations of noxious weeds and other non-native aggressive plant species adjacent to roads and water sources would spread throughout the watershed. The spread of non-native species may involve remote locations which are more difficult to detect, leading to a greater contamination of the overall plant community health and diversity.

The direct, indirect, and cumulative effects of the proposed action alternative would be the same as no action alternative.

## Section V

### List of Agencies Consulted

Randy Smith, Fisheries Biologist, Oregon Department of Fish and Wildlife, Charleston, OR

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