Appendix P – Biological Assessments and Evaluations

Final

Biological Assessment of Effects of Treatment of Noxious Weeds Under the Proposed Frank Church-River of No Return Wilderness Management Plan On Snake River Spring/Summer Chinook Salmon Snake River Fall Chinook Salmon Snake River Sockeye Salmon Snake River Steelhead and Columbia River Bull Trout and Biological Evaluation for Westslope Cutthroat Trout and Region 1 Sensitive Spring Chinook Salmon

April 24, 2003

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Introduction

The Forest Service has utilized the interdisciplinary team process to integrate elements of various existing Forest Land and Resource Management Plans into one comprehensive, programmatic Wilderness Management Plan for the Frank Church-River of No Return Wilderness (FC-RONRW). This plan will update and amend six Forest Plans and ensure compliance with the National Forest Management Act (NFMA). Most of the decisions being made under the Selected Alternative of the Environmental Impact Statement are administrative in nature and will result in minor, if any, changes on the ground. Included in the proposed action are minor modifications of the FC-RONRW's ongoing noxious weed management program.

This programmatic Biological Assessment (BA) determines the effects of the FC-RONRWs noxious weed management program, including proposed modifications identified under the EIS's Selected Alternative, on Snake River sockeye salmon (*Oncorhynchus nerka)* and their designated critical habitat, Snake River spring/summer and fall chinook salmon (*Oncorhynchus tshawytscha*) and their respective designated critical habitats, Snake River steelhead (*Oncorhynchus mykiss*) and their designated critical habitat, and Columbia River bull trout (*Salvelinus confluentus*). This document also includes a Biological Evaluation (BE) of the effects of the proposed action on westslope cutthroat trout (*Oncorhynchus clarki lewisi*). Biological Evaluations for sensitive species are prepared by direction of the Forest Service Manual (FSM 2670).

This assessment supplements existing Snake River spring/summer chinook salmon, Snake River fall chinook salmon, Snake River sockeye salmon, Snake River steelhead and Upper Columbia River Bull trout Biological Assessments for Section 7 Watersheds within the identified project area, including a Weed Control EIS and Biological Assessment for the Frank Church-River of No Return Wilderness (USDA-FS, 1999a; 1999b). Some of the descriptive information in Sections I and II of this BA has been referenced to avoid repetition.

Analysis in this BA is driven by the Section 7 Consultation Provision of the Endangered Species Act (ESA)(1973). The act requires all Federal agencies to ensure that actions authorized, funded, or carried out by those agencies are not likely to jeopardize the continued existence of any Threatened, Endangered, or Proposed (TES) species, or result in the destruction or adverse modification of their critical habitat.

I. Description of the Project Area

This Biological Assessment covers lands within the Frank Church-River of No Return Wilderness administered by the USDA Forest Service. The project area lies within the Columbia River and Snake River basins, and encompasses portions of the Salmon-Challis, Boise, Payette, Nez Perce and Bitterroot National Forests. The proposed Federal action encompasses portions of nine ESA watersheds previously delineated for Section 7 consultation (Table 1). Watershed-specific descriptions of natural physical characteristics, human-caused physical characteristics, cumulative watershed effects, specific stream and river characteristics, and habitat condition, trend and limiting factors can be found within these existing BAs.

The 2.4 million acre Frank Church-River of No Return Wilderness is located in central Idaho, encompassing portions of the Salmon River and Selway River drainages. Elevations range from less than 2,000 feet in the hot and dry river canyon bottoms, to over 10,000 feet in the high alpine mountains. Topography is primarily steep mountainous terrain with some broad valleys along the Middle Fork and Main Salmon Rivers and some major tributaries. However, most valleys are narrow and confined. Stream gradients are generally steep and confined with significant bedrock and boulder rubble control. Lower gradients are primarily found in meadow or lower canyon areas.

The vegetation of the area is primarily sagebrush, grass and forb dominated meadows with timbered uplands comprised mainly of lodgepole pine, Douglas-fir, ponderosa pine, and some mixed pine stands. Most timber stands are at or near what is termed old growth with little understory vegetation. Small stands of aspen are widely dispersed over the project area.

Generally, riparian vegetation is in excellent condition, with most in high seral stage. Most riparian areas are comprised of a sedge/willow complex, with some areas of cottonwood, dogwood, and other riparian species. Headwater streams are normally dominated by conifer or a mixed conifer/riparian vegetation in the riparian areas.

Table 1. - ESA Section 7 Watersheds and Associated Watershed Level Biological Assessments for Lands Within the Frank Church-River of No Return Wilderness.

Watershed	ESA Listed Species Addressed
Upper Selway River	Steelhead; Bull Trout
(Bitterroot National Forest)	
Middle Salmon	Spring/Summer and Fall Chinook Salmon; Sockeye Salmon;
(Nez Perce National Forest)	Steelhead, Bull Trout
Main Salmon Southeast	Spring/Summer Chinook Salmon; Steelhead; Bull Trout
(Payette National Forest)	
Main Salmon Southwest	Spring/Summer Chinook Salmon; Steelhead; Bull Trout
(Payette National Forest)	
Middle Fork Tributaries	Spring/Summer Chinook Salmon; Steelhead; Bull Trout
(Payette National Forest)	
South Fork Salmon	Spring/Summer and Fall Chinook Salmon; Steelhead;
(Payette National Forest)	Bull Trout
Camas Creek	Spring/Summer Chinook Salmon
(Salmon-Challis National	

Watershed	ESA Listed Species Addressed
Forest)	
Lower Mainstem Salmon River	Spring/Summer Chinook Salmon; Sockeye Salmon;
(Salmon-Challis National Forest)	Steelhead; Bull Trout
Middle Fork	Spring/Summer Chinook Salmon; Sockeye Salmon;
(Salmon-Challis National Forest)	Steelhead; Bull Trout

II. Description of Species, Biology, and Status

LISTED SPECIES, CRITICAL HABITAT, AND SENSITIVE SPECIES: The US Fish and Wildlife Service's Biannual Forest-wide Species List SP#1-4-00-SP-462,dated March 1, 2002, identifies the geographic distribution of Federally listed or proposed listed fish species. Listed or proposed species occurring within the administrative boundaries of the Frank Church-River of No Return Wilderness include Snake River spring/summer chinook, Snake River fall chinook salmon, Snake River sockeye salmon, Upper Snake River steelhead, and the Upper Columbia River population segment of bull trout (Table 2).

Table 2. - Threatened, Endangered, Proposed and Sensitive Fish Species Occurring within the Frank Church-River of No Return Wilderness

Common Name	Scientific Name	Status	Critical Habitat Designated
Snake River Sockeye Salmon	*Oncorhynchus nerka*	Endangered	Yes
Snake River Spring/Summer Chinook Salmon (Salmon River Drainage)	*Oncorhynchus tshawytscha*	Threatened	Yes
Snake River Spring/Summer Chinook Salmon (Selway River Drainage)	*Oncorhynchus tshawytscha*	USDA R1 Sensitive	No
Snake River Fall Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened	Yes 1/

Common Name	Scientific Name	Status	Critical Habitat Designated
Snake River Steelhead	*Oncorhynchus mykiss*	Threatened	No 2/
Upper Columbia River Bull Trout	*Salvelinus confluentus*	Threatened	Proposed
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisi*	USDA R1/R4 Sensitive	No

1/ While the mapped distribution of this Ecologically Significant Unit encompasses large portions of the Clearwater River drainage and the lower reaches of the Salmon River drainage, designated critical habitat areas do not extend to waters of project area.

2/ Critical habitat was previously designated for this ESU, but is currently remanded pending legal challenge.

The Snake River sockeye salmon was listed as endangered on November 20, 1991 (Federal Register, Vol. 56, No. 224). The Snake River spring/summer chinook salmon, and Snake River fall chinook salmon were designated as threatened on April 22, 1992 (Federal Register, Vol. 57, No. 78). The Snake River Basin steelhead was listed as threatened on August 18, 1997 (Federal Register, Vol. 62, No. 159). The Columbia River population segment of bull trout was listed as threatened on June 10, 1998 (Federal Register, Vol. 63, Number 111).

The National Marine Fisheries Service (NMFS)(now NOAA Fisheries) designated critical habitat for the Snake River sockeye salmon and Snake River spring/summer and fall chinook salmon on December 28, 1993 (Federal Register, Vol. 58, No. 247). The agency further designated critical habitat for 19 evolutionary significant units (ESUs) of Salmon and Steelhead, including Snake River Basin Steelhead, on February 16, 2000 (Federal Register, Vol 65, No. 32). This designation was later remanded, however, in response to legal challenge, and critical habitat for this species is currently being reviewed. The designation of critical habitat provides explicit notice to Federal agencies and the public that these areas and features are vital to the conservation of the species. In addition, the designation assists Federal agencies in carrying out their responsibility to ensure that agency actions will not result in destruction or adverse modification of critical habitat. The entire Salmon River and its tributaries are included in this designation as critical habitat for the Snake River spring/summer chinook salmon. Only the mainstem Salmon River, several lakes within the Stanley Basin and their outlet streams are considered to be critical habitat for Snake River sockeye salmon. While the Snake River fall chinook salmon Ecologically Significant Unit (ESU) encompasses large portions of the Clearwater River drainage and portions of the lower Salmon River drainage, designated critical habitat for this species does not extend into any portion of the project area.

The US Fish and Wildlife Service (USFWS) proposed designated critical habitat for the Columbia River population segment of bull trout on November 29, 2002 (Federal Register, Vol 67, No. 230). A number of proposed Critical Habitat Subunits (CHSUs) within the Salmon and Clearwater River Basins, including the Middle Salmon-Chamberlain, Middle Salmon-Panther, South Fork Salmon, Middle Fork Salmon, and Selway River CHSUs, encompass waters within the FC-RONRW.

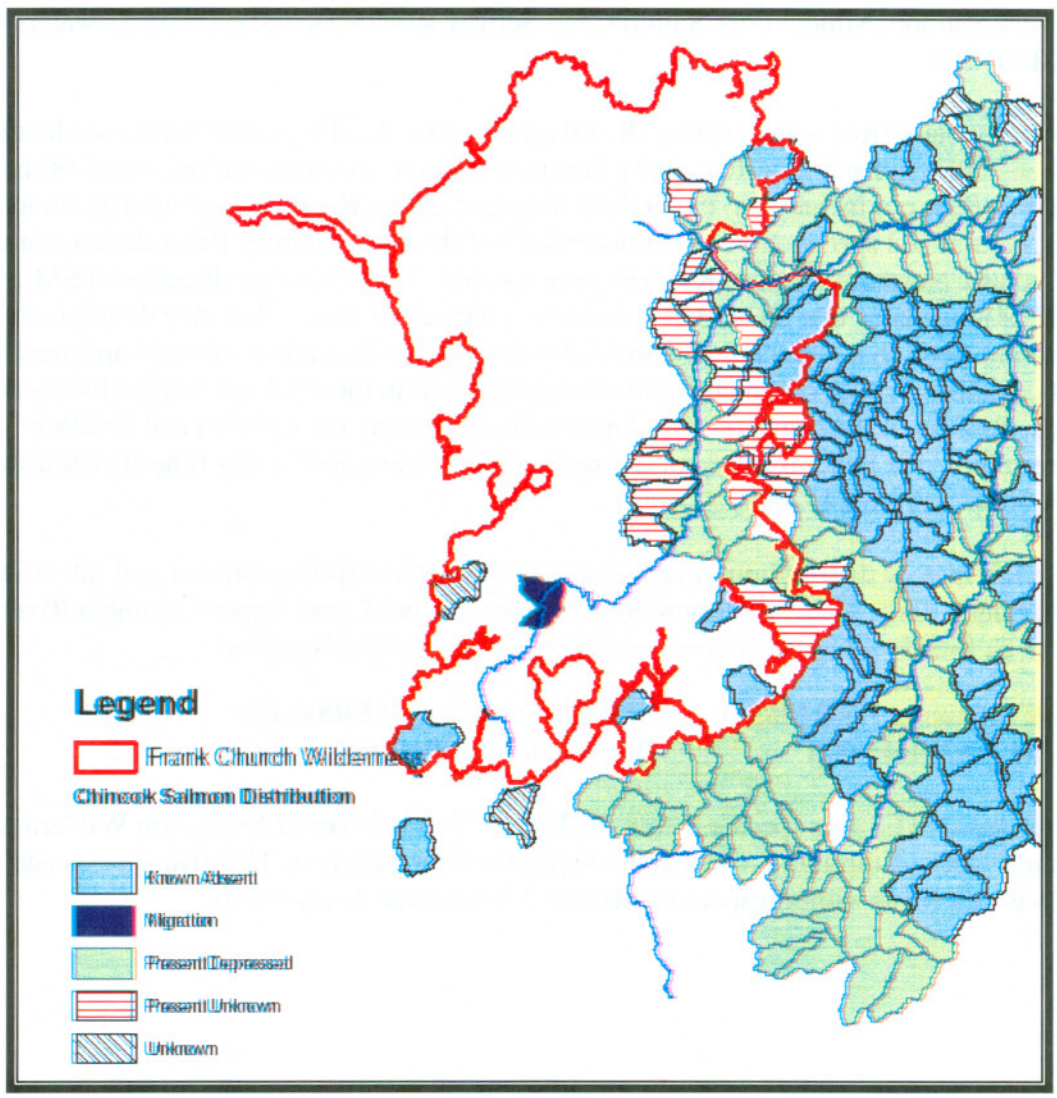
The Intermountain (R4) and Northern (R1) Regions of the US Forest Service have identified the westslope cutthroat trout as a Regionally Sensitive species occurring within waters of the FC-RONRW. While not included in the Federal listing of Snake River spring/summer chinook salmon, naturalized spring chinook salmon stocks of the upper Selway River drainage are identified as a Northern Region (R1) Sensitive species. Forest Service direction (FSM 2672.1 and 2672.4) mandates that all activities must be reviewed to ensure that they do not contribute to a downward trend in numbers or densities of sensitive species, and/or a downward trend in habitat capability, either of which could ultimately result in the need for Federal listing of that species. Review of the status of westslope cutthroat trout by the US Fish and Wildlife Service has determined that Federal listing of the species is not warranted at this time (Federal Register, Vol.65, No. 73, April 14, 2000).

Specific life history distribution information on Snake River spring/summer and fall chinook salmon, Snake River sockeye salmon, Snake River steelhead, and Upper Columbia River bull trout can be found within the following sections of the Federal Register:

Chinook salmon - **(57FR14653)** Sockeye Salmon - **(56FR58619)**
Steelhead - **(62FR43937)** Bull Trout - **(63FR31647)**

Distributions of TES fish species within the Frank Church-River of No Return Wilderness are shown in Figures 1 through 6. Watershed-specific information on TES fish species and aquatic habitats is described within respective Section 7 Biological Assessments.

Figure 1 – Distribution of Snake River Spring/Summer Chinook Salmon within Watersheds of the Frank Church-River of No Return Wilderness



Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The species "stream type chinook" refers to Snake River spring/summer chinook salmon.
- The coverage is clipped to the wilderness boundary. The displayed status of the listed species is for an entire Hydrologic Unit, irrespective of its land ownership status.

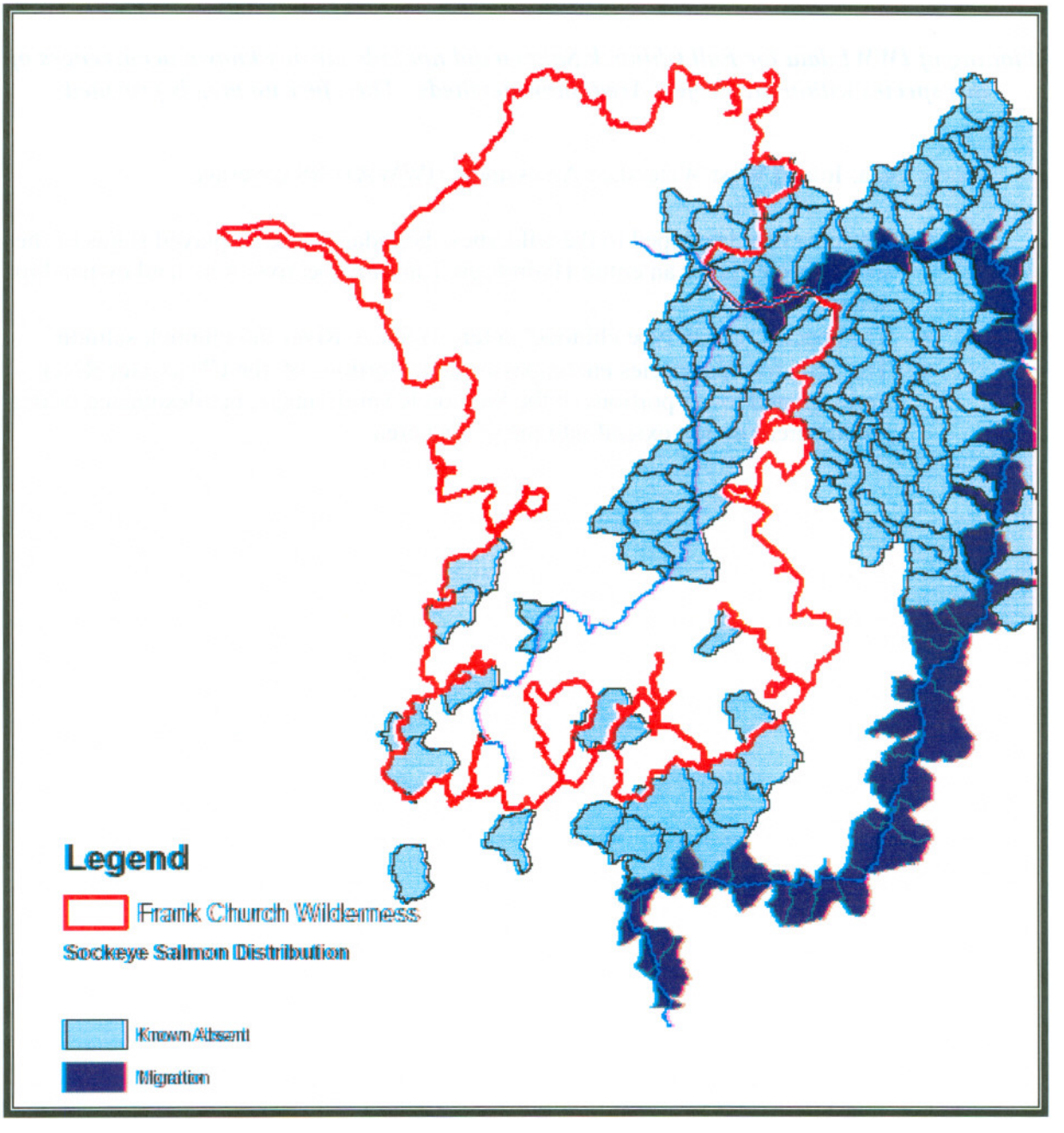
Figure 2 – Distribution of Snake River Fall Chinook Salmon within Watersheds of the Frank Church-River of No Return Wilderness

Plotting of IWWI data for Fall Chinook Salmon did not indicate any known occurrences of this species within the Project Area Subwatersheds. Therefore no map is provided.

Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The coverage is clipped to the wilderness boundary. The displayed status of the listed species is for an entire Hydrologic Unit, irrespective of its land ownership status.
- The species "ocean type chinook" refers to Snake River fall chinook salmon
- The ESU for this species encompasses large portions of the Clearwater River drainage and lower portions of the Salmon River drainage, but designated critical habitat areas do not extend into the project area.

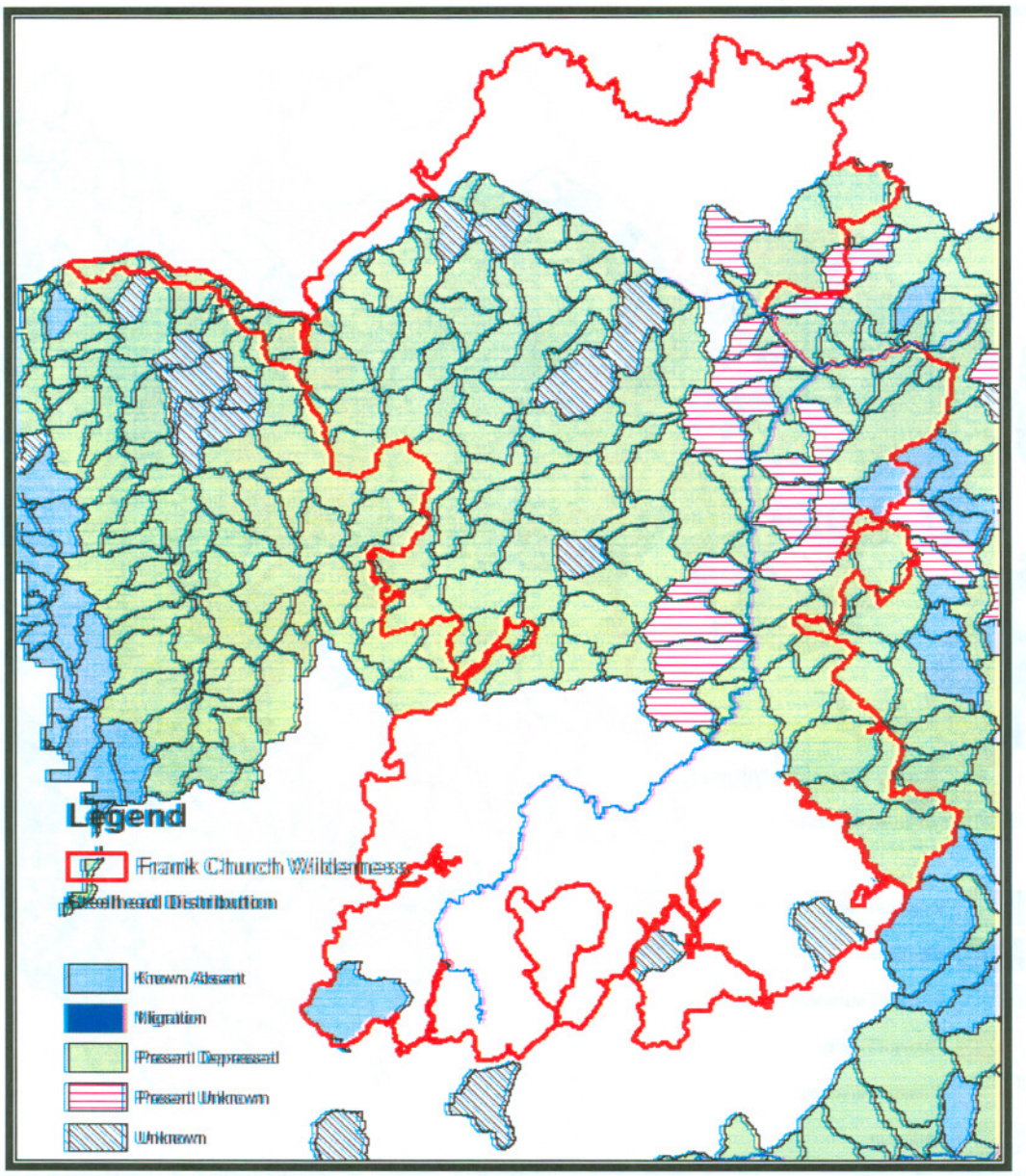
Figure 3 – Distribution of Snake River Sockeye Salmon within Watersheds of the Frank Church-River of No Return Wilderness



Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The coverage is clipped to the wilderness boundary.

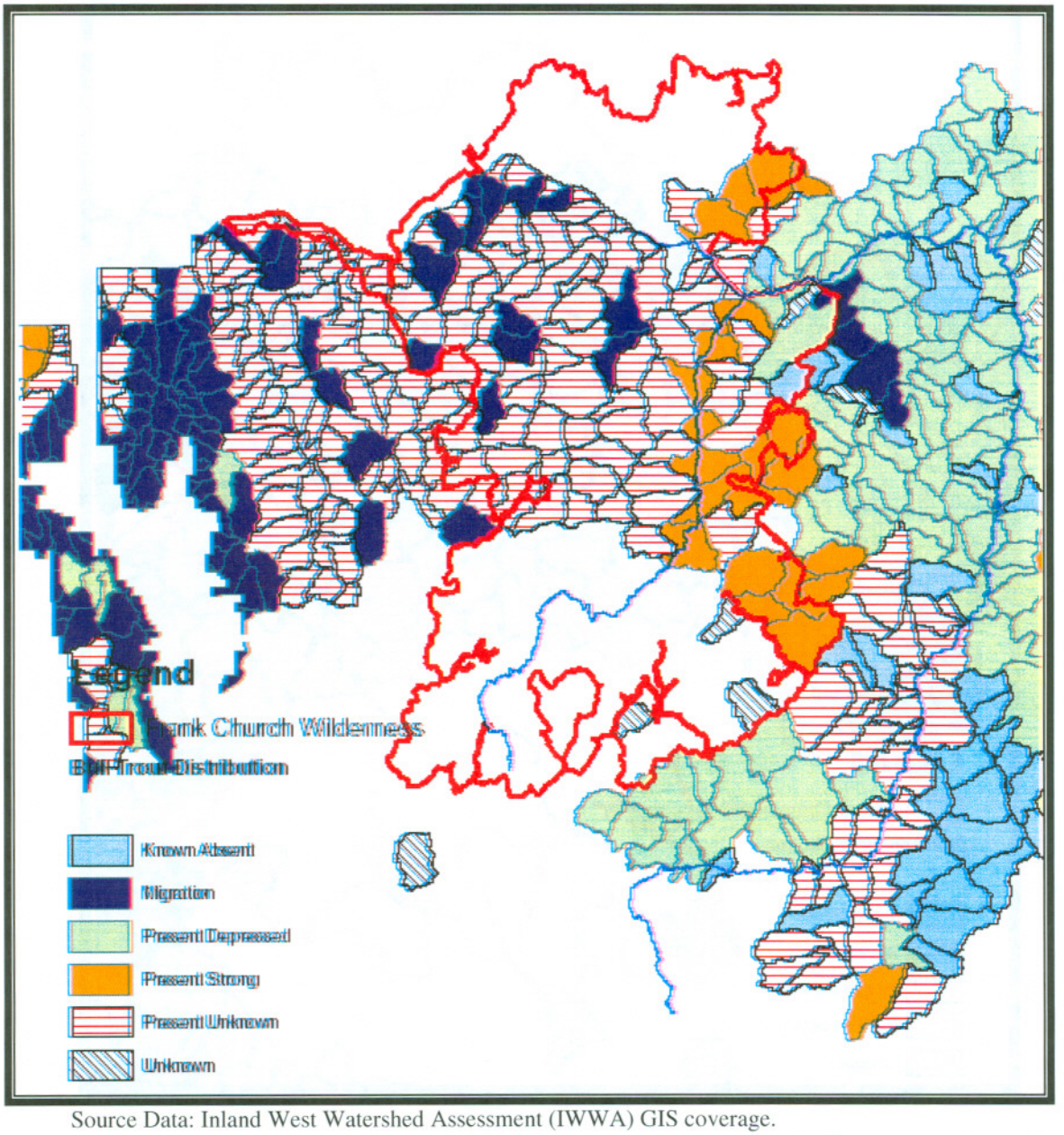
Figure 4 – Distribution of Snake River Steelhead within Watersheds of the Frank Church-River of No Return Wilderness



Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The coverage is clipped to the wilderness boundary.
- The displayed status of the listed species is for an entire Hydrologic Unit, irrespective of its land ownership status.

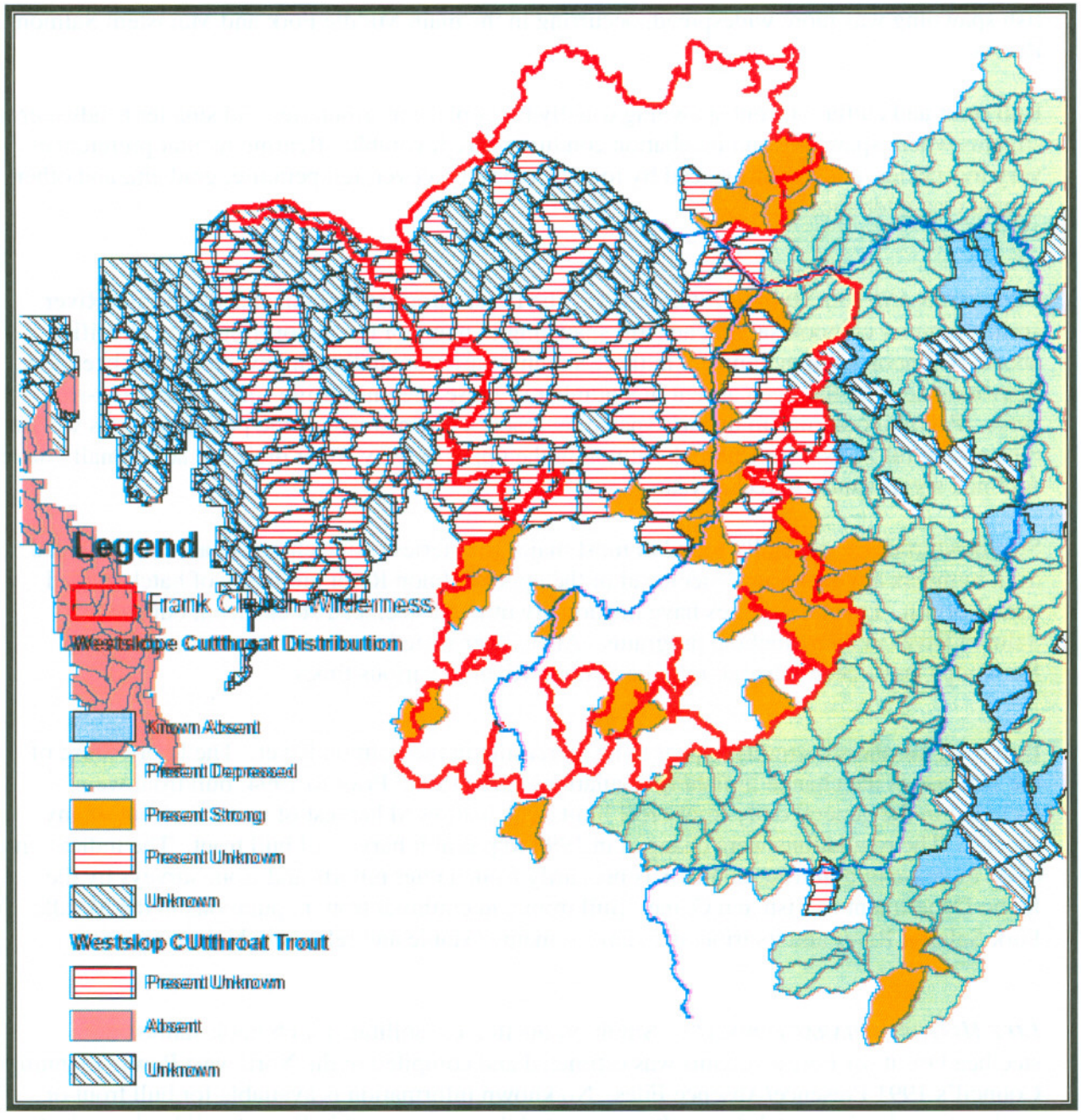
Figure 5 – Distribution of Bull Trout within Watersheds of the Frank Church-River of No Return Wilderness



Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The coverage is clipped to the Forest boundary.
- The displayed status of the listed species is for an entire Hydrologic Unit, irrespective of its status.

Figure 6 – Distribution of Westslope Cutthroat Trout within Watersheds of the Frank Church-River of No Return Wilderness



Source Data: Inland West Watershed Assessment (IWWA) GIS coverage.

- The coverage is clipped to the Forest boundary.
- The displayed status of the listed species is for an entire Hydrologic Unit, irrespective of its status.

LOCATION OF IMPORTANT SPAWNING AND REARING AREAS: The locations of spawning and rearing areas are discussed in the individual consultation watershed Biological Assessments identified in Table 1. In general, anadromous fish spawning is presently occurring in many of the major tributaries of the Middle Fork and Mainstem Salmon Rivers. Most notable among these are the South Fork Salmon River, Marsh Creek, Rapid River, Bear Valley Creek, Big Creek, Loon Creek, Indian Creek, Sulphur Creek, and Camas Creek. Historically, anadromous

fish spawning was more widespread, occurring in the main Middle Fork and Mainstem Salmon Rivers.

Bull trout and cutthroat trout spawning usually takes place in tributaries and smaller headwater streams where spawning and incubation conditions are favorable. Rearing habitat preferences vary by species, and are influenced by food availability, cover, temperature, gradient, and other stream characteristics.

CONDITION AND TREND OF POPULATIONS: The latest information indicates that Snake River spring/summer chinook salmon are still spawning in many of the major tributaries identified above. Chinook salmon numbers in these streams varies annually but have generally been low. Spawning activity has been absent in a number of these streams during some recent low-run years. Fall chinook runs to historic spawning reaches downstream of the project area, as well as runs of naturalized spring Chinook salmon in the upper Selway River drainage additionally have declined significantly in recent years.

Steelhead trout are generally found in most major tributaries. Like chinook salmon, steelhead trout numbers are declining. Steelhead of the upper Salmon River are likely of hatchery and mixed origin. Local hatcheries have historically utilized steelhead stocks from outside the Salmon River in their stocking programs. Also, other varieties of rainbow trout, such as Kamloops, have been released into the Salmon River at various times.

Bull trout numbers currently appear to be increasing in the Salmon River. The likely cause of the increase is the change in fishing regulations since 1994. Prior to 1994, bull trout were included in the general daily trout creel limit, which allowed harvest of up to six trout of any species. The regulations were changed in 1994 to prohibit harvest of bull trout. The indication of an increase in bull trout numbers is primarily from angler reports and from surveys by the Idaho Department of Fish and Game. Bull trout and cutthroat trout populations in the Middle Fork Salmon River and its tributaries have remained stable and relatively high in numbers.

LIFE HISTORY CHARACTERISTICS: Smolt production capabilities for chinook salmon and steelhead trout for Forest streams was estimated and compiled in the Northwest Power Planning Council's 1991 Presence/Absence Files. No known information is available for bull trout or cutthroat production capabilities. It is suspected that recovery of bull trout will be dependent upon the successful recovery of chinook salmon and steelhead trout, whose young comprise a large part of the bull trout's prey base.

DESCRIPTION OF HABITAT CONDITION AND TREND: Habitat condition and trend and limiting factors are discussed in detail in respective Section 7 Consultation Watershed Biological Assessments. In general, fish habitat conditions within the project area are good to excellent. Available habitat for chinook salmon and steelhead are currently underutilized due to the low number of returning adults.

III. Program Description

PURPOSE AND NEED: The proposed action is associated with the development of a Management Plan for the Frank Church-River of No Return Wilderness. The noxious weed management component of the Plan is designed to address an identified need to control, contain or eliminate noxious weed invasions and infestations, and maintain vegetative communities and the species dependent on them, within the administrative boundaries of the FC-RONRW. Direction for noxious weed management is found in Forest Service Manual (2080) (Appendix A) and R4 Supplement #2000-00-1 (Appendix B), and the USDA Forest Service Noxious Weed Strategy (USDA, 1996). Noxious weed management and control has been recognized through national policy, forest plan development, broad scale assessments, and site-specific NEPA decisions. Laws that require management of noxious weeds include:

- Federal Noxious Weed Act of 1974, as amended.
- The Forest and Rangeland Renewable Resource Planning Act of 1974.
- The Public Rangelands Improvement Act of 1978.
- The Carlson-Foley Act of 1968.

In addition, Executive Order 13112, signed by the President of the United States in February 1999, directs Federal agencies to conduct activities that will reduce noxious weed populations. The Idaho
Noxious Weed Law (Title 22, Chapter 24, Idaho Code) additionally requires landowners to eradicate noxious weeds on their lands, except within special management zones. This requires prevention of their above-ground parts for at least two years. The Forests cooperate with the state, but are not bound by most state laws.

Noxious weeds are those plant species that have been designated "noxious" by the Secretary of Agriculture or by the responsible State Official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic and pose a threat to agriculture, rangelands and/or wildlands. The spread of noxious weeds and invasive exotic plants may be both a symptom and a cause of ecological degradation. Noxious weeds severely impact the beauty and biodiversity of natural areas and cause widespread economic losses on agricultural lands and rangelands. Noxious weeds and invasive exotics can:

- Degrade wildlife habitat;
- Encroach on and invade riparian areas, wetlands, and streams;
- Compete with and replace beneficial native plants;
- Create fire hazards in our forests and ranges;
- Poison and injure livestock and humans; and,
- Reduce recreational use and values.

The Noxious Weed Program is based on a set of weed management objectives and priorities that are influenced by weed invasiveness and site susceptibility. Elements of the FC-RONRW's Integrated Noxious Weed Management Program include prevention, inventory, education, coordination, and treatment practices. To assist in integrating weed management activities and coordinating yearly treatments, the weed projects identified in annual treatment tables are tagged

with an objective-priority code. Each weed is given a code that relates to the planned management outcome and the relative importance of the treatment and is based on the objectives and general priorities of the cooperative weed management area strategic plans. This coding system provides guidance during the year to field crews on where to place resources to obtain the most effective long-term results. These criteria provide focus and direction to the program and allows for site specific and adaptive decision making. Table 3 displays the objective and priority system used in addressing noxious weed treatments within the Frank Church-River of No Return Wilderness.

Table 3. Weed Treatment Objectives and Priorities

Operational Objectives:	*Operational Priorities:*
1. ***Eradicate***: The weed is treated to the extent that no viable seed is produced over the entire infestation and all plants (above ground portions) have been eliminated during the current field season. 2. ***Control***: Portions of the infestation or outbreak are treated to the extent that overall infestation area diminishes because no viable seed is produced and/or plants have been eliminated. 3. ***Contain***: Portions of the infestations are treated to the extent that the weed is not expanding beyond the established treatment zones. The main body of the infestations may be left untreated. 4. ***Reduce***: The infestation is treated to the extent that densities and/or rate of spread are reduced to an acceptable level.	1. ***Critical***: Urgent actions due to a combination of outside funds and/or invasive weeds found in susceptible and relatively intact habitats. 2. ***High***: Important actions associated with outbreaks of invasive weeds along key spread-vectors and/or linked to a combination of treatment strategies. 3. ***Moderate***: Moderately important actions associated with invasive weeds in somewhat susceptible but disturbed habitats. 4. ***Low***: Actions associated with non-invasive weeds or in areas of low susceptibility where rapid spread is unlikely. May not need immediate (current year) attention.

Noxious weeds and other weedy species that may require control measures within the analysis area include, but are not limited to:

- Spotted Knapweed *Centaurea maculosa*
- Sulfur Cinquefoil *Potentilla recta*
- Rush Skeletonweed *Chondrilla juncea*
- Scotch Thistle *Onopordum acanthium*
- Dalmation Toadflax *Linaria genistifolia*
- Field Bindweed *Convolvulus arvensis*
- Dyer's Woad *Isastis tinctoria*
- Goat Weed *Hypericum perforatum*
- Common Mullien *Verbascum Thapsus*
- Perennial Peavine *Lathyrus latifolius*
- Bull Thistle *Cirsium vulgare*
- Oxeye Daisy *Chrysanthemum leucanthemum*
- Houndstongue *Cynoglossum officianale*
- Common Tansy *Tanacetum vulare*
- Hoary Alyssum *Berteroa incana*

Treatment objectives and priorities by weed species are displayed in Table 4. These treatment priorities will help guide decisions related to sites and species selected for initial treatment, and the method of treatment to be incorporated. District Rangers may modify future treatment priorities at the recommendation of the Steering Committee for the FC-RONRW Cooperative Weed Management Area. In addition, new noxious/invasive weed species, and their relative priority, will be reviewed by the local District Ranger and identified for treatment at the recommendation of the Steering Committee.

Table 4. Weed Treatment Objectives and Priorities for the Frank Church-River of No Return Wilderness by Species.

WEED SPECIES	Infestation <5 Acres	Infestations 5-25 Acres	Infestations 26-50 Acres	Infestations > 50 Acres
Potential Invaders	Eradicate			
New Invaders				
Dyers woad	Eradicate			
Dalmation toadflax	Eradicate			
Perennial pea vine	Eradicate			
Thistle, Scotch	Eradicate	Eradicate/Control	Control	Contain
Established Invaders				
Cinquefoil, Sulfur	Eradicate	Control	Control	Contain/Custodial
Knapweed, Spotted	Eradicate	Control	Control	Contain
Common Tansy	Eradicate	Control	Contain	Contain/Custodial
Skeletonweed, Rush	Eradicate	Eradicate	Control	Control/Contain
Thistle, Canada	Control	Control	Contain	Contain/Custodial
Thistle, Bull	Control	Contain	Contain/Custodial	Contain/Custodial
Common mullien	Eradicate	Control	Contain	Contain/Custodial
Goatweed	Custodial	Custodial	Custodial	Custodial
Field Bindweed	Control	Control	Contain	Contain/Custodial
Oxeye Daisy	Control	Control	Contain	Contain/Custodial
Houndstongue	Control	Control	Contain	Contain/Custodial

- Treatment objectives and priorities are for current infestation acreages. When potential and new invaders exceed five acres, reclassification of objectives may be necessary.

LOCATIONS: The proposed activity would occur throughout lands within the administrative boundaries of the Frank Church-River of No Return Wilderness. General maps of known noxious weed locations within the FC-RONRW, and specific information on proposed weed management operations are identified within Section IV (Program Activity Level) of this document.

TREATMENT METHODS: Noxious weed treatment will incorporate the concept of using the "minimum tool". When planning necessary actions, managers would utilize the minimum necessary measures to accomplish management objectives. Parameters considered when selecting minimum tool include species biology, infestation size, proximity to water and recreation sites, and extent of susceptible habitats adjacent to infestations. Control and management of noxious weeds includes use of the following methods: herbicide, manual, biological, prescribed burning, and seeding.

The effectiveness of treatment methods will vary by weed species (Table 5). A combination of several treatment measures may be required to accomplish objectives. All vegetation treatments conducted for control of noxious weeds are conducted in accordance with established Forest Service policy, regulations, and product label requirements. Forest Service policy requires the use of specific design features when in close proximity to sensitive areas to insure vegetation treatments do not have an adverse impact on non-target plants or animals.

Table 5. Effectiveness of Various Control Methods on Several Common Species of Noxious weeds Found Within the Frank Church-River of No Return Wilderness.

WEED SPECIES	TREATMENT			
	HAND PULL	BURN	BIOCONTROL	EFFECTIVE HERBICIDES
SPOTTED KNAPWEED	Effective for new or small infestations; moist or sandy soils; 6-10 years of treatment	Weeds can actually increase	Many species; fair to excellent	2,4-D, Picloram, Clopyralid, Dicamba, Glyphosate,
RUSH SKELETONWEED	Generally not effective. Small infestations, 2-3 times per year for 6-10 years	Weeds can re-sprout, flower and seed the same year as burn. Competitive advantage	Three varieties of rush skeleton weed may occur. Biocontrol may be effective on one variety, but poor on another	2,4-D, Picloram, Clopyralid,
SULFUR CINQUEFOIL	Effective when upper portion of root system is removed	Ineffective	No biocontrol agents at the present time	2,4-D, Picloram, Dicamba, Glyphosate, Clopyralid is not effective
CANADA THISTLE	Rhyzomatous; Ineffective	Ineffective	Ineffective	2,4-D, Picloram, Clopyralid, Dicamba, Glyphosate,
SCOTCH THISTLE	Effective	Ineffective	Very limited	2,4-D, Picloram, Clopyralid, Dicamba, Glyphosate
YELLOW TOADFLAX	Rhyzomatous; Generally not effective. Small sites; several years	Ineffective; may increase density	Fair	2,4-D, Picloram, Dicamba,
DYERS WOAD	May be effective	Uncertain	Poor at present	2,4-D, Dicamba
LEAFY SPURGE	Ineffective	Ineffective	Inconsistent	2,4-D, Picloram, Dicamba, Glyphosate, Imazapic

Sources: Idaho Noxious Weed Quick Reference Table and PNW Weed Control Handbook

Herbicide Control: The use of herbicides and associated herbicide additives, including surfactants and dyes, are an important aspect of Integrated Weed Management, particularly when control or eradication is the management objective. In many situations herbicides may afford the only effective control, and thus constitute the minimum tool. Herbicide treatments are conducted in accordance with Forest Service procedures for Pesticide-Use Management (Forest Service Handbook 2109, Appendix C). Herbicides can be applied by many different methods, and the selected technique depends on a number of variables. Some of these are (1) the treatment objective (contain vs eradicate); (2) the accessibility, topography, and size of the treatment area; (3) the characteristics of the target plant and the desired vegetation; (4) the location of sensitive areas in the immediate vicinity; (5) the anticipated costs and equipment limitations; and (6) the meteorological and vegetative conditions at the time of treatment.

Herbicide applications are scheduled and designed to minimize potential impacts to non-target plants and animals, while remaining consistent with the objectives of the vegetation treatment program. The rates of application depend on the target species, the presence and condition of non-target vegetation, soil type, depth to the water table, presence of open water sources, riparian areas, special status plants, and the requirements of the herbicide label.

A Risk Assessment for Herbicide Use in Forest Service Regions 1, 2, 3, 4, and 10 and on Bonneville Power Administration Sites (Anonymous, 1992) has been prepared to address applicable risks of herbicides to human health and non-target species including aquatic species. The FC-RONRW Noxious Weed program incorporates the information found in the risk assessment into herbicide treatment actions.

Herbicides

Table 6 identifies herbicides potentially utilized by the USDA Forest Service for noxious weed control activities within the FC-RONRW. All listed herbicides except Imazapic ("Plateau") have been previously identified for use in the 1999 FC-RONRW Noxious Weed Treatment Biological Assessment.
Table 7 illustrates how preferred herbicides and application rates can be influenced by both weed species and site characteristics.

General information regarding characteristics and applications of these herbicides is identified in the text section immediately following the tables.

Table 6. Herbicides Potentially Utilized within the Frank Church-River of No Return Wilderness

Common Name	Trade Name	Typical Application Rates (a.i./ac)	Maximum Label Application Rate (a.i./ac)	General Application
Clopyralid	Transline	0.1-0.375 lb/ac	0.5 lb/ac	Generally Upland
2,4-D	Weedar 64, Amine 4	0.5-1.5 lb/ac	4.0 lb/ac	Upland and Riparian
Glyphosate	Rodeo	0.5-2.0 lb/ac	3.75 lb/ac	Upland and Riparian
Metsulfuron Methyl	Escort	0.25-0.75 oz/ac	2.0 oz/ac	Upland and Riparian
Picloram	Tordon 22K	0.125-0.50 lb/ac	1 lb/ac	Upland
Dicamba	Banvel,	0.25-1.0 lb/ac	4.0 lb/ac	Upland
Imazapic	Plateau	0.06-0.2 lb/ac	0.75 lb/ac	Upland
Scythe 1/	Scythe	8 gal/ac	-	Campgrounds
WOW 1/	WOW	430 lbs/ac	-	Campgrounds

1/ Not proposed for use until Human Health and Ecological Risk Assessment Final Reports are completed for these compounds.

Source: Pesticide labels, and correspondence with herbicide manufacturer's representatives.

Table 7. Preferred Herbicides and Associated Application Rates by Weed Species and Site Characteristics

TARGET WEED	HERBICIDE	APPLICATION RATE	SITE CHARACTERISTICS
RUSH SKELETONWEED	Tordon 22K	2 pints /acre (Fall application is most effective)	Upland sites, pre-bud or after full flower
	Tordon 22K and 2,4-D amine	2 pints /acre 2 pints / acre	Upland sites, after bud and before full flower
	Transline	1 pint /ac (Fall application is most effective)	Upland sites with course, porous soils or around conifers and shrubs
	Weedar 64	2 – 4 pints /acre	Riparian buffers, up to waters edge
SPOTTED KNAPWEED	Tordon 22K	1 – 1.5 pints / acre	Upland sites, pre-bud or after full flower
	Tordon 22K and 2,4-D amine	1 – 1.5 pints / acre 2 pints / acre	Upland sites, after bud and before full flower
	Transline	0.5 – 1 pint / acre	Upland sites with course, porous soils or around conifers and shrubs
	Weedar 64	2 – 4 pints /acre	Riparian buffers, up to waters edge
SULFUR CINQUEFOIL	Tordon 22K	1 pts / ac	Upland sites, pre-bud or after full flower
	Tordon 22K and 2,4-D amine	1 pts / ac 2 pts / ac	Upland sites, after bud and before full flower
	Transline	Not effective	
	Weedar 64	2 – 4 pts /ac	Riparian buffers, up to waters edge

Source: Pesticide labels, and correspondence with herbicide manufacturer's representatives

Clopyralid *(Transline)*

Clopyralid is a relatively new and very selective herbicide. It is toxic to some members of only three plant families: the composites (Compositae), the legumes (Fabaceae), and the buckwheats (Polygonaceae). Clopyralid is very effective against knapweeds, hawkweeds and Canada thistle at applications rates of one-quarter to one-half pound per acre (USFS, 2001a). Its selectivity makes it an attractive alternate chemical on sites with non-target species that are sensitive to other herbicides.

2,4-D (Weedar 64, Amine 4)

2,4-D amine is the most commonly used and most widely studied herbicide in the United States. It is labeled for a wide range of uses and is an active ingredient in many products offered for home use. 2,4-D acts as a growth-regulating hormone on broad leaf plants, being absorbed by leaves, stems and roots, and accumulating in a plant's growing tips. 2,4-D exhibits good control of knapweed at application rates of one to two pounds per acre with repeat applications, and moderate control of houndstongue, silver cinquefoil, Canada thistle, St. Johnswort and goatweed (USFS, 2001a). The Weedar 64 formulation is registered for use near water.

Glyphosate (Rodeo)

Glyphosate is a non-selective, broad spectrum herbicide that is labeled for a wide variety of uses, including home use. It is readily absorbed by leaves and translocated throughout the plant, and disrupts the photosynthetic process. The herbicide affects a wide variety of plants, including grasses and many broadleaf species, and has the potential to eliminate desirable as well as undesirable vegetation. Some plant selectivity can be achieved by using a wick applicator to directly apply glysophate to the target plant, thereby avoiding desirable vegetation (USFS 2000). The Rodeo and Accord formulations (without the surfactant included in Roundup) are labeled for use adjacent to water.

Metsulfuron Methyl (Escort)

Metsulfuron methyl is used to control annual and perennial broadleaf weeds. Typical control areas include rights of way along roadsides and powerline corridors. Metsulfuron methyl can be mixed with other chemicals to provide more effective weed control.

Picloram *(Tordon 22K)*

Picloram is a restricted-use pesticide labeled for non-cropland forestry, rangeland, right-of-way and roadside weed control. The herbicide acts as a growth inhibitor and is used to control a variety of broadleaf weed species. It is absorbed through the leaves and roots, is easily translocated through the plant, and accumulates in new growth causing leaves to cup and curl. Picloram is generally applied at rates of one-quarter to one-half pound per acre for non-rhizomatous weeds (USFS, 2001a).

Picloram is water soluble, mobile in sandy soils low in organic matter, and may affect desirable plants that have roots growing in treated areas. Degradation by soil microorganisms is slow, and primary breakdown is by ultraviolet light. Picloram is relatively persistent, although its persistence varies with soil type and weather. Soil mobility is substantially less in forest soils than in agricultural soils due to the higher organic matter and lower pH found in most forest soils (Norris et al. 1991). Picloram's mobility and persistence has generated concerns over possible groundwater contamination or runoff to surface water if applied contrary to label instructions.

Because of this concern, picloram is unsuitable for use on areas with shallow water tables or in riparian areas, and is restricted from use near surface water or groundwater.

Dicamba *(Banvel)*

Dicamba is the active ingredient in the marketed product Banvel. It is a broadleaf herbicide that is readily absorbed by leaves and roots and is concentrated in the metabolically active areas of the plants. Dicamba is effective against a similar range of weed species applied when applied at similar rates as 2,4-D. However, dicamba is somewhat more persistent in the environment than 2,4-D, and, therefore, provides somewhat longer control of susceptible weed species.

Imazapic (Plateau)

Imazapic is a selective herbicide that would potentially be used in a limited number of situations. It can be applied during the fall at a rate of 8 to 12 ounces per acre to control leafy spurge and cheatgrass. Imazapic's half-life is from 7 to 150 days, depending upon soil type and climate conditions.

Pelargonic Acid (Scythe)

Sycthe is a contact, nonselective, broad spectrum foliar applied herbicide. Its active ingredient is pelargonic acid, a naturally-occurring fatty acid. This product will only control actively growing emerged green vegetation. It provides burn-down of both annual and perennial broadleaf and grass vegetation. The longevity of control is less when the plants are inactive or mature. This product is not translocated. It will burn only those plants which are coated with the spray solution. Intended use of this product within the wilderness would be on noxious weed infestations situated under desirable trees or shrubs such as within orchards. Precautions include avoiding open water and actively-growing non-target vegetation.

Although it is considered non-toxic, and the 1999 Noxious Weed Treatment EIS authorized the use of Scythe, this product will not be used until a Human Health and Ecological Risk Assessment Final Report has been completed

Gluten Corn Meal (WOW)

With Out Weeds is a pre-emergent, non-selective product for use in controlling various grasses and broadleafs in a garden setting. WOW controls plants at the time of germination. Weeds which have germinated before application will not be killed. WOW is a non-hazardous material manufactured by Gardens Alive! Its active ingredient is corn meal. It is intended to be used as a pre-emergent garden product and has very limited applicability in effectively controlling wildland weeds in the FCRONR Wilderness. Possible applications include use within the understory of orchards or within campsites following treatments of mature plants by other methods.

Although the 1999 Noxious Weed Treatment EIS authorized the use of WOW, this product will not be used until a Human Health and Ecological Risk Assessment Final Report has been completed.

Additional Herbicides

Additional herbicides may be considered for use within the FC-RONRW in the future. Only EPA registered herbicides having a completed Human Health and Ecological Risk Assessment Final Report will be considered for use.

Herbicide Mixes

Combinations of herbicides may be the most appropriate treatment where several species of noxious weeds occur together, or where the herbicides affect weeds differently. For example, a mixture of picloram and 2,4-D, which are both broadleaf-selective herbicides, is used for many broadleaf weed species. 2,4-D generally has a shorter half-life compared to the more persistent picloram, and when used with picloram may provide more effective weed control than either chemical used alone. By itself, picloram is generally the most persistent of the herbicides described above and therefore requires fewer repeat applications, is more effective against many weed species, and when applied according to label specifications is not likely to affect non-target plants. By comparison, 2,4-D formulations labeled for use near water might be the only or most appropriate chemicals allowed in the treatment of common tansy, which occurs largely in moist habitats or near water. In contrast, picloram may be used more often to treat yellow starthistle, which typically occurs in dry sites. Chemical treatment can also be used in conjunction with, or preceding, non-chemical weed control treatments, depending on weed species composition, infestation level, and environmental setting.

Carriers

Carriers are gases, solids, or liquids used to dilute or suspend herbicides during application and allow for proper placement of the herbicide, whether it be to the soil or on foliage. Gas carriers are used for fumigation or soil sterilization, and are not used for noxious weed management within the project area. Liquid carriers include water, liquid fertilizers, and other similar low-viscosity oils. Water is by far the most widely used carrier because it is available, cheap, and the herbicides proposed for use within the project area are formulated to be effectively applied with water.

Spray Adjuvants and Dyes

Spray adjuvants are spray solution additives that are mixed with a herbicide solution to improve performance of the spray mixture. Adjuvants can either enhance activity of a herbicide's active ingredient or offset any problems associated with spray application such as adverse water quality or wind. Adjuvants include surfactants, antifoaming agents, crop oil or crop oil concentrates,

drift retardants, compatibility agents and pH buffers. Spray adjuvants utilized in the project area include Activator 90, Spread 90, L1700, Sylatac, R11, and MSO. Dyes used in conjunction with herbicide applications include Bullseye, Insight and Hilight.

Application Methods

Herbicide applications are scheduled and designed to minimize potential impacts to non-target plants and animals, while remaining consistent with the objectives of the vegetation treatment program. The rates of application (i.e., pounds of active ingredient per acre) depend on the target species, the presence and condition of non-target vegetation, soil type, depth to the water table, presence of other water sources, riparian areas, special status plants, and the requirements of the herbicide label.

All ongoing and proposed treatments within the FC-RONRW are ground-based actions. Aerial application has not been authorized nor proposed. Application methods include spraying with backpack pumps, pumps mounted on pack and saddle stock, pumps mounted in jet boats, All application methods may be used for each herbicide and herbicide combinations. All of the herbicides that may be used are liquid formulations that are applied onto the foliage of the target vegetation, although soils also may be a major receptor for these chemicals.

All label information and restrictions will be strictly adhered to for any herbicide and additive being applied. The rate of application of approved herbicides and associated adjuvants, including surfactants and dyes, may fully incorporate, but never exceed, label recommendations. District Rangers or Forest Supervisors will authorize, through approved Pesticide Use Proposals, selected herbicides, application rates, and environmental precautions.

Precautionary measures associated with application of herbicides are described in Section V of this document.

Calibration

Calibration is the sequential assessment of the factors potentially influencing the rate of herbicide application. Calibration insures both equipment and personnel are synchronized to provide the desired amount of herbicide on a specified area of treated ground. Various factors can significantly influence the actual rate of herbicide application, including; the amount of herbicide mixed with each gal of water, the volume of herbicide/water mix delivered in a specified time (i.e. gallons per minute), nozzle size, pump pressure, the speed and technique of the applicator, and the amount of gaps and over-laps resulting from inconsistent application. The importance of calibration will be emphasized by herbicide applicators within the FC-RONRW. Documented calibration is a required component of herbicide treatment projects. Calibration should be evaluated and documented when site conditions change significantly, or when new or different applicators or equipment are used.

***Manual Control*:** Manual and mechanical methods of treatment physically destroy noxious weeds or interfere with their reproduction. Hand-operated tools are used in manual vegetation treatment to cut, clear, mow, or prune herbaceous and woody species. In manual treatments, workers would cut plants above ground level; pull, grub, or dig out plant root systems to prevent subsequent sprouting and growth; scalp at ground level or remove competing plants around desired vegetation; or place mulch around desired vegetation to limit the growth of competing vegetation.

Hand tools such as the handsaw, axe, shovel, rake, machete, grubbing hoe, mattock (combination of axe and grubbing hoe), brush hook, and hand clippers are used in manual treatments. Axes, shovels, grubbing hoes, and mattocks can dig up and cut below the surface to remove the main root of plants that have roots that can quickly sprout in response to surface cutting or clearing.

The manual method of vegetation treatment is labor intensive and costly when compared to herbicide application. However, it can be extremely species-selective and can be used in areas of sensitive habitats. To be effective, this method must take place before seed production. Plants having flowers or seed present should be removed from the site and destroyed. Manual control may occur in a variety of areas and is often used in sensitive areas to avoid adverse effects to non-target species or water quality.

***Biological Control*:** Biological control involves the introduction of an exotic weed's natural predator insect or pathogen to an established site. Since most noxious weeds are exotic to this continent, they are able to grow and flourish in a setting absent of the natural influences that would normally keep their growth in balance with their environment. This facet of integrated weed management strives to reduce and stabilize weed populations by re-creating the natural predator / prey relationship of the target plant. The objective of biocontrol is generally to suppress host weed populations, but not eradicate them. Biocontrol can be most effective on extensive weed populations or in remote areas where detection of new sites may be difficult (if the biocontrol agent is mobile). Biocontrol agents (insect or pathogen) are closely scrutinized for host specificity prior to approval for release. The USDA Animal and Plant Health Inspection Service (APHIS) screens new biological agents for impacts on agricultural and rare plants. APHIS also prepares environmental assessments on the possible impacts of releasing those agents.

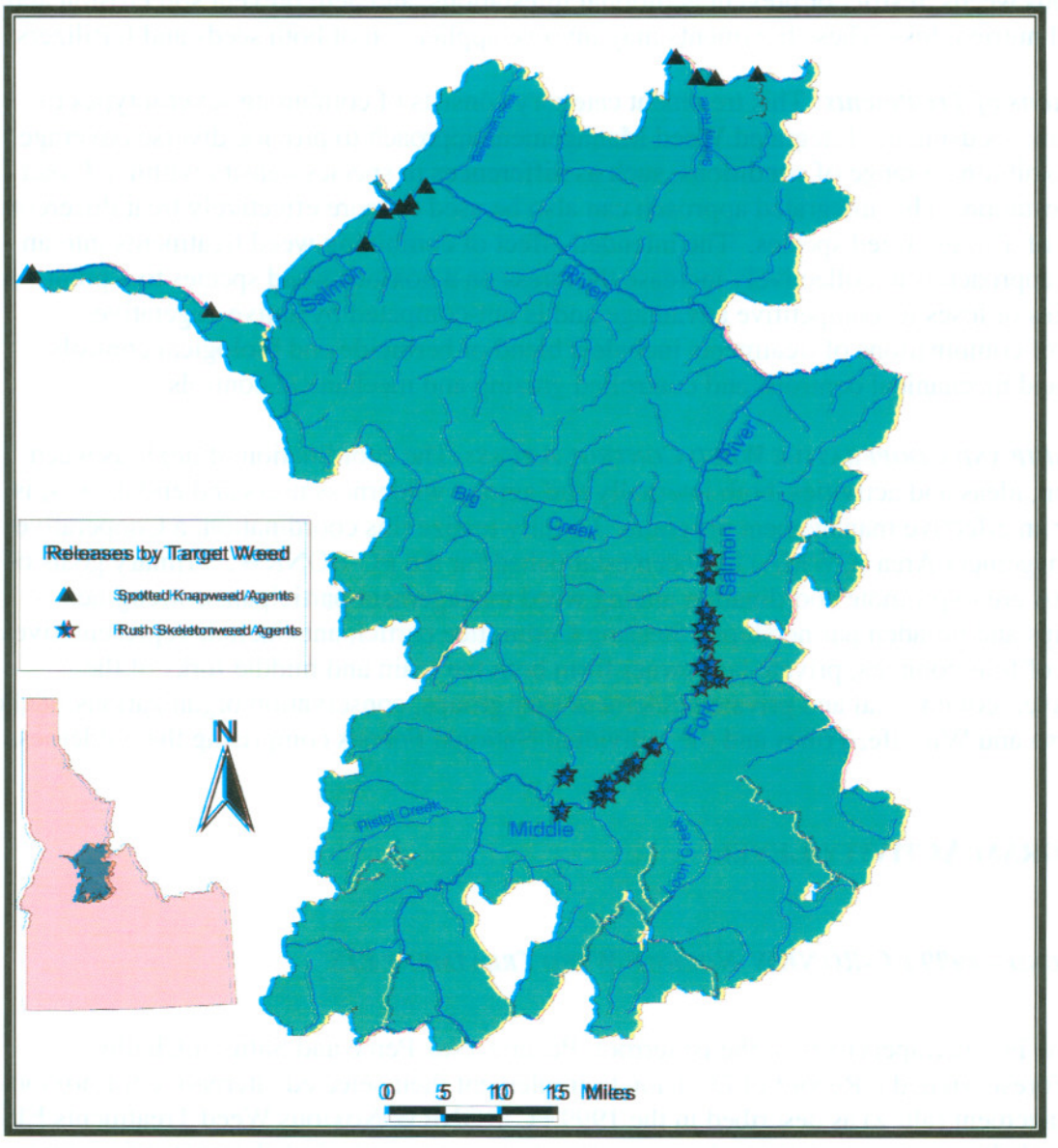
Implementation of Integrated Weed Management will utilize biocontrol strategically in combination with other control measures. Biocontrol is not necessarily exclusive of other management options, but rather one tool to be used when and where it is considered appropriate. Recommended alternatives for the strategic use of biocontrol in the FC-RONRW will be developed in conjunction with the Cooperative Weed Management Area. A strategic biocontrol recommendation may include:

- The prioritization of sites for biocontrol establishment. Established sites would offer treatment of the local infestation, a source of spread to adjoining infestations, and nursery sites for collection and re-establishment to other areas.

- Identifying the level of investment in biocontrol relative to other treatment methods.
- Suggestions for the use, or avoidance, of other treatments in association with biocontrol. For instance, whether a site selected for release of biocontrol agents should also be treated with herbicides.

At the present time, biocontrol agents, approved by *APHIS*, have been distributed in many areas of the FC-RONRW. Figure 7 displays the location of past biocontrol releases within the FC-RONRW.

Figure 7 – Locations of Biocontrol Releases within the Frank Church – River of No Return Wilderness



***Rehabilitation, Seeding, and Planting*:** Noxious weeds commonly invade areas that have vegetation that can't compete with aggressive invader species. Consequently, after weeds are controlled on a site it is beneficial to establish desirable native vegetation that would compete with noxious weeds, restrict or prevent additional infestations, and help prevent soil erosion and further soil nutrient loss. These treatments may involve application of both seeds and fertilizers.

***Combinations of Treatments*:** This treatment category consists of combining several types of weed treatments using the Integrated Weed Management approach to provide diverse coverage for a site exhibiting a range of conditions, such as differences in species density within a broad area of infestation. This integrated approach can also be used to more effectively treat different life cycles of a single weed species. The intended effect of combining weed treatments into an integrated approach is to collectively increase the stress on a noxious weed species to a point where it dies or loses its competitive advantage and is out-competed by native vegetative. Examples of combinations of treatments include a blend of herbicide and biological controls, herbicide and mechanical controls, and controlled grazing and mechanical controls.

PARTNERSHIP AND COOPERATIVE WEED CONTROL AREAS: The coordination of noxious weed information, ideas and activities, both internally and among wilderness users and enthusiasts, is critical for an effective management program. To fully realize this coordination, a Cooperative Weed Management Area (CWMA) has been established for the FC-RONRW. Primary goals of this CWMA are to promote coordination among weed management participants, strengthen relationships and broaden partnerships. Steering Committee participants include representatives from each of four counties, private landowner from both the main and middle forks of the Salmon River, commercial and private wilderness user groups, conservation organizations, Idaho Dept of Fish and Wildlife, Tribes and the individual National Forests comprising the wilderness.

IV. PROGRAM ACTIVITY LEVEL

BACKGROUND – 1999 FC-RONRW NOXIOUS WEED TREATMENT EIS

In 1999, the Forest Supervisors of the Bitterroot, Payette, Nez Perce and Salmon-Challis National Forests signed a Record of Decision to implement their selected alternative for noxious weed management (alt. 2) as described in the 1999 FC-RONRW Noxious Weed Treatments EIS. This selected alternative for integrated noxious weed management included aspects of inventory, prevention, treatment, monitoring and restoration and specifically analyzed these practices. The 1999 EIS included analysis of specific known noxious weed sites, and also described adaptive management allowing for future analysis and treatment of sites not yet inventoried. This ROD specified noxious weed treatment would take place on 300 sites with treatment beginning in 1999 and continuing until the FC-RONRW comprehensive Wilderness EIS is implemented. The analysis did not specifically address how, where or when non-treatment noxious weed management practices would occur. Integrated weed management, including prevention, education, inventory, restoration and monitoring, was to be addressed in the Frank Church-River of No Return FEIS.

The 1999 Noxious Weed Treatment FEIS and associated Record of Decision are incorporated by reference into the Frank Church – River of No Return Wilderness Management FEIS. Changed conditions and deviations from the original decision are described and analyzed within that document and summarized below.

CHANGED CONDITION – PROPOSED ACTIVITY LEVEL

The 1999 FC-RONRW Noxious Weed Treatment EIS, identified 1,775 acres of known noxious weed infestations within approximately 293 inventoried sites. Since this time, the number of acres and inventoried weed sites has increased due to an increase in susceptible habitat, more extensive inventory and more consistent description of weed sites. Field surveys conducted over the past several years have revealed roughly 650 noxious weed infestations occupying approximately 5,204acres within the Frank Church Wilderness. In addition, at least 875 acres of private lands within the wilderness are infested, primarily by spotted knapweed. Individual infestations range in size from one one-thousandth of an acre to 837 acres. Overall, the cover class of weeds present on a site is less than one percent.

Field surveys have not occurred throughout the entire wilderness, but rather have focused on high use areas such as river corridors, dispersed campsites, administrative facilities, airstrips and along primary trail routes. Consequently, identified infestations reflect only a portion of what actually occurs. However, it is felt that large undetected infestations do not occur. The exception may be with sulfur cinquefoil. This species is relatively inconspicuous and recent reconnaissance indicates this species to be much more widespread than previously thought.

Idaho listed noxious weeds known to occur within the FC-RONRW at this time include rush skeletonweed, spotted knapweed, Scotch thistle, Canada thistle, dalmation toadflax, dyers woad and field bindweed. Noxious weeds known to be a threat in close proximity to the wilderness include yellow starthistle, leafy spurge, and diffuse knapweed. Other exotic weeds are known to be highly aggressive, and are able to invade native habitats and displace native vegetation. These species pose a threat to the natural biotic processes of the wilderness. Sulfur cinquefoil is an exotic weed well established in many parts of the FC-RONRW, which is highly invasive and poses an ecological threat to the wilderness resources. Other exotic weeds of concern within the FC-RONRW have varying degrees of invasive tendencies and include goat weed, oxeye daisy, houndstongue, common tansey, perennial peavine, berteroa, bull thistle and common mullien.

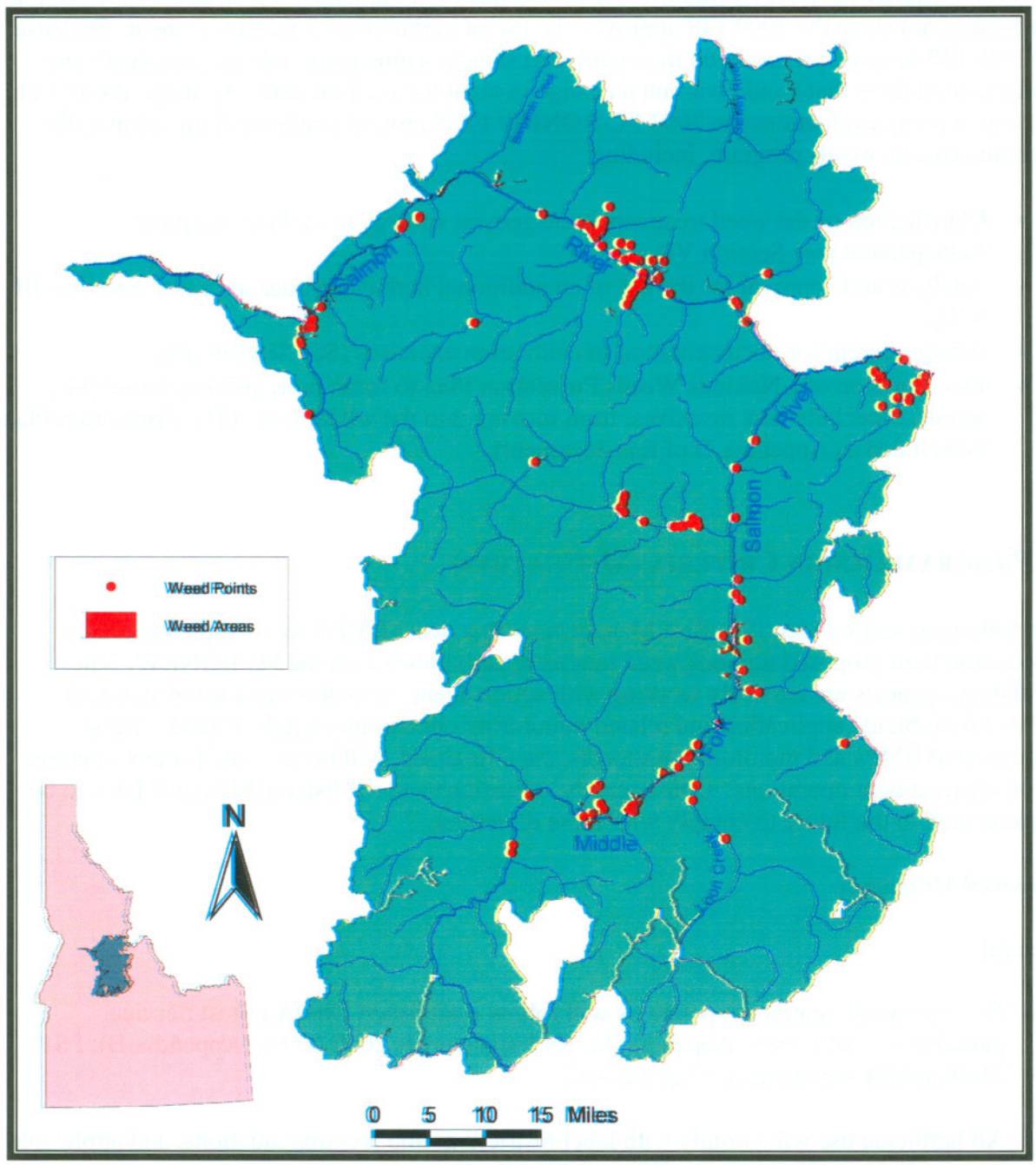
Susceptible habitat for noxious weeds within the FC-RONRW has increased rapidly due in part to recent large wildfires. In the year 2000 alone, over 435,000 wilderness acres were charred by wildfires. Large wildfires also burned in the wilderness in 2001. Many of these sites were considered by managers to have been high intensity burns. The potential for noxious weed invasion increases following wildfire, especially those areas that burned with high intensity. Weed managers within the FC-RONRW have observed more rapid spread of noxious weeds into burned areas, especially those areas adjacent to or in close proximity to existing weed sites.

The 1999 Noxious Weeds Treatment EIS concluded, "If all known weed infestations and potential infestations up to 130 percent of existing infestations were chemically treated, approximately 0.09 percent of the wilderness would be affected. The proposed alternative

outlines using herbicide on only 800 acres which constitute 0.03 percent of the Wilderness. Conversely, if all of the habitats at risk were to become occupied by noxious weeds, approximately 15 percent of the wilderness would be affected by an unnatural phenomenon". This analysis concluded that aggressive management of noxious weeds is the most effective way to preserve natural conditions. This effective management strategy will not be limited to130 percent of existing infestations. Applying adaptive weed management as described in this alternative to weed infestations as they are detected provides the greatest assurance that exotic plants populations will be effectively controlled.

Known noxious weed locations that are mapped into GIS, where management and/or control actions could occur, are shown in Figure 8. This map is continually being updated as known locations are verified.

Figure 8 – Locations of Known Noxious Weed Infestations within the Frank Church-River of No Return Wilderness



SUMMARY OF PROPOSED CHANGES FROM THE 1999 EIS

The Frank Church-River of No Return Wilderness has been implementing an aggressive noxious weeds program since the 1999 EIS approved the use of herbicides for weed treatment. Because the 1999 EIS focused primarily on treatment, that same document committed to evaluate any changed conditions that would warrant a change in noxious weed treatment strategy. As a result of those ongoing evaluations the 2003 FC-RONRW FEIS provides additional direction to the ongoing noxious weeds program, including:

- Clarification of the weed treatment management strategy to include Adaptive Management (see Section VI),
- Analysis and approval for the use of an additional herbicide (Imazapic) (see Sections III, VII),
- A requirement for documentation of calibration exercises (See Section III),
- Incorporation of a Noxious Weeds Prevention Plan to focus more priority on keeping weeds, especially new invasives, from moving into the wilderness. (The Prevention Plan is included as Appendix D of this document)

V. PROGRAM DESIGN CRITERIA (MITIGATION)

The following section identifies Best Management Practices (BMPs) to be implemented in association with proposed noxious weed treatment activities within the FC-RONRW. The regulatory agencies are currently working with action agencies to develop a set of standard BMPs for herbicide application and related monitoring operations on federal lands. These standardized BMPs and monitoring protocols, once finalized, will be required for any ongoing herbicide treatment operations. Consequently, adjustments to the listed BMPs may have to be implemented in the future to comply with these directives.

Required Mitigation

General

- Noxious weed treatment operations will follow established USDA Forest Service guidelines ((FSM 2080 (Appendix A); R4 Supplements 2000-00-01 (Appendix B); FSH 2109 and R4 Supplements (Appendix C)).

- All herbicide use will comply with label restrictions and recommendations, and applicable laws, policies and guidelines. Where Forest Service-approved application rates are less than EPA maximum application rates the more conservative FS direction will be followed.

- Herbicide applications will treat the minimum area necessary for the control of noxious weeds

- The Weed Coordinator and respective District Fishery Biologists will identify buffers, methods of application, and herbicide restrictions that may be required within riparian locations.

- Adjacent landowners will be notified prior to treatment of noxious weeds on FC-RONRW lands.

- Treatment areas will be signed prior to and following herbicide applications within areas of special concern. In addition, information on where and when spraying and other treatments would occur will be available to the public at local Ranger District offices.

- A certified herbicide applicator will oversee all spray projects.

- Appropriate safety and application information will be reviewed with all personnel involved in the handling of herbicides.

Mixing and Transportation

- Procedures for mixing, loading, and disposal of herbicides will be conducted in accordance with state and Agency guidelines.

- All personal protective equipment required or suggested on the herbicide label and associated Job Hazard Analysis will be used as appropriate.

- Equipment used for transportation, storage, or application of chemicals will be maintained in a leak-proof condition.

- Drafting equipment used for filling herbicide spray tanks will be equipped with appropriate back-siphoning prevention devices.

- No carrier other than water would be used.

- Spray adjuvants, including surfactants and dyes, will be used according to label directions.

- No herbicide storage, mixing or post-application cleaning would be authorized within 100 feet of any live or seasonal waterways. Mixing and loading operations must take place in an area where an accidental spill would not contaminate a stream or body of water before it could be contained.

- All empty herbicide containers shall be triple-rinsed and the residue returned to the tank to be sprayed on weeds. All empty and rinsed herbicide containers shall be properly stored until disposed of at an appropriate time.

- Herbicides transported by boat will be triple-wrapped in plastic and stored in an appropriate compartment, such as a designed waterproof storage box or a secured plastic cooler. Storage boxes and coolers shall be securely fastened to the boat during transport.

- Mixing will be allowed within the confines of a jet boat when a boat-mounted sprayer has been authorized for use and containment devices are in place, including a containment compartment for the pump and a bilge pump fitted to pump wastewater into a separate container and not back into the river.

Spill Response

- A spill contingency plan will be developed prior to all herbicide applications. Individuals involved in herbicide handling or application will be instructed on the spill contingency plan and spill control, containment and cleanup procedures. A Spill Plan for the Salmon-Challis National Forest is included as Appendix E

- A spill cleanup kit will be assessable on site when within one-quarter mile of the main, middle and south forks of the Salmon River and at all sites when more than five gallons of chemical concentrate is being used or stored. The spill cleanup kit will include at least the following: shovel, box of large plastic bags, safety goggles, ten pounds of absorbent material, rubber gloves, and protective overalls.

Calibration

- Proper maintenance and calibration of spay equipment will occur often enough to ensure proper application rates. Calibrations should be conducted when changing to a different spray apparatus, changing nozzle size or setting, when the prescribed amount of chemical changes due to different site conditions or target species, when encountering different terrain or a change in speed of application, and by new applicators.

- A dye solution will be used in the herbicide mix to visually detect uniform coverage of spray areas.

Formulation Constraints

- No use of 2,4-D ester formulations would be authorized.

Buffer Constraints

- The Weed Coordinators and Fishery Biologists will identify, on a site specific basis, the appropriate aquatic-approved herbicide for use within 50 feet of live waters or within riparian buffer zones.

- Only herbicides approved for use adjacent to water bodies will be used within a 50 foot streamside buffer and/or within riparian areas.

- If appropriately labeled herbicides are to be applied within a 50 foot riparian buffer, only hand spraying will be allowed.

- No spray adjuvants other than dyes will be used within 15 feet of live waters

Environmental Constraints

- Weather conditions will be monitored at spray sites during application.
- No spraying of any herbicide would occur when wind speeds exceed eight miles per hour.
- No spraying of Picloram would occur within 100 feet of live waters when wind velocity exceeds five miles per hour.
- No spraying of any herbicide would occur within 50 feet of live water or within riparian buffers when wind velocity exceeds five miles per hour.
- Beufort Wind Scale Information Summaries will be distributed to field applicators to assist in assessing ambient wind conditions.
- No spraying would occur if air turbulence were sufficient to affect the normal spray pattern.
- Herbicides will be applied only when no significant precipitations is expected within three hours (light rain is acceptable with the use of Tordon 22K). Herbicides are most effective when air temperatures are below eighty-five degrees. No highly volatile herbicides are approved for use within the FCRONRW.
- No spraying would occur if snow or ice covers the target foliage.

Use of jet boat-mounted spray equipment

The following safety practices and containment components are required for the use of jet boat mounted spray equipment:

Safety Practices

- Jet boat operator must be well qualified to operate the particular boat being used for herbicide treatment. Operator must be very familiar with navigating the sections of river being traveled at the water levels to be encountered during the use period.
- A qualified person will be tending the pump at all times while in operation.
- Actual spraying of herbicide will take place only while applicator is on land, and all appropriate riparian buffer strips will be adhered to.
- Excess water in the hull of the boat will be pumped out prior to spray operations in order to lessen the volume of wastewater in the case of a spill within the hull of the boat.

- The spray tank will be empty while traveling to and from the treatment area and the launch site, and prior to navigating any class III or higher rapids in the vicinity of the treatment area.

- Jet boat and spray equipment will be maintained in good running order. Spray hoses and gaskets will be replaced prior to reaching their expected operating life.

- If a spill should occur within the boat, spray operations will cease until the boat is returned to the launch site or other suitable location for thorough cleaning.

Containment components

- The boat will be equipped with a manual bilge pump fitted to optionally pump contaminated wastewater in the boats hull back into the spray tank or into a separate container, and not back into the river.

- The boat will be equipped with a separate durable containment compartment for the pump and tank, capable of holding a volume in excess of the capacity of the spray tank.

- Empty collapsible containers sufficient to hold the capacity of the spray tank will be on board in case of a leak in the spray tank.

- An emergency spill containment kit will be on board.

- A watertight compartment or securely fastened watertight storage container will be used for transporting chemical concentrate, which will be triple wrapped/sealed within the compartment.

Miscellaneous

- Hand-pulled weeds which are susceptible to wind dispersal will be bagged and disposed of.

- Ground disturbances resulting from weed management activities will be evaluated to determine any site revegetation needs. When and where site revegetation is required treatment areas will be revegetated with an appropriate, certified noxious-weed-free native seed mix and fertilized as necessary.

VI. PROGRAM REPORTING, MONITORING AND EVALUATION

REPORTING: The following process will be implemented to document the yearly program for noxious weed management within the FC-RONRW:

- Project proposals (with methods, objectives of treatment, location, map of treatment area, acreage, proposed dates to be started and completed, sensitive areas, and special mitigation) for noxious weed control activities involving herbicides would be prepared annually by FC-RONRW Weed Coordinators and submitted by April 30, for review by FC-RONRW biologists. Project proposals would be reviewed for compliance with this BA. FC-RONRW biologists would provide a list of project descriptions and maps annually (or as identified) for informal review and approval by NOAA Fisheries and US Fish and Wildlife Service Level 1 team members before the projects are implemented. All projects would be reviewed and approved by NOAA Fisheries and USFWS before herbicide application occurs.

- Site-specific treatment records, along with maps of treatment sites, will be maintained by the treatment supervisor. The database shall be updated on a periodic basis over the course of the treatment season.

- Selected treatment areas would be monitored to determine the effectiveness of the treatment, level of infestation of the weed, and to determine the need for additional treatment. The evaluation for each treatment site will be documented on the appropriate monitoring form.

- Annually, a treatment summary will be prepared for weed treatments that took place over the past year. The report will document treatments that took place, methods used, acreage, evaluation of achievement of objectives, brief summary of unexpected effects, and evaluation of compliance with programmatic BA. This summary report will be completed by December 31.

MONITORING: Monitoring of the effectiveness of the noxious weed control program would be conducted at the landscape level as well as the site-specific treatment level.

Site-specific treatment level monitoring would involve assessing the effectiveness of the treatment agent or control method on a specific patch of noxious weeds. Follow-up treatments would occur as staffing and funding allow. Monitoring may involve multiple years to determine effectiveness. Monitoring of physical, cultural, and chemical control methods would be conducted on randomly selected sites within one to two months of treatment through visual observation of target species' relative abundance/site dominance compared to pre-treatment conditions. Sequential monitoring of these sites would occur in subsequent years.

Landscape level inventory and detection is expected to reveal new populations of noxious weeds, which would be mapped and evaluated for control or eradication. Management of these newly-discovered sites would occur under the guidelines as described in the preceding proposed action,

which would include assessment of impacts to listed and proposed species and critical habitat as required under the ESA.

EVALUATION (ADAPTIVE MANAGEMENT): The noxious weed control program is a long-term endeavor to control weeds when and where practicable. However, because there are areas of scientific and management uncertainty, management actions may need to be refined over time to meet the basic objective of noxious weed control program. The Integrated Weed Management program being implemented in the FC-RONRW includes an adaptive management component. This Adaptive Management Strategy provides for evaluation and treatment of new weed invasions and expansion of existing infestations. As additional infestations are discovered, each site would be evaluated to determine the appropriate management objective for the site, minimum tool treatment options, and treatment constraints to ensure safe and effective implementation and protection of natural resources. New sites evaluated in this manner would then be prioritized with existing sites for treatment.

Most new weed sites to be evaluated under the Adaptive Management Strategy will be distinct from existing inventoried sites. However some new infestations may be considered actual extensions of existing sites. Generally, for infestations to be considered an extension of an existing inventoried site the following conditions will exist;

- The new infestation will involve the same weed species as the existing inventoried site.
- The new infestation will be in the same plant habitat type as the existing inventoried site.
- The new infestation will generally be within 1,000 feet of the existing inventoried site.
- The new infestation will be within the same slope position or topographic feature, i.e. beach, riparian terrace, bench, toe slope, mid slope, etc.

Annual site-specific monitoring would assess the effectiveness of specific control measures on weed species relative to treatment, application rate and area. Management actions may require refinement or change over time as data from specific effectiveness monitoring is analyzed. Based on annual treatment evaluations and with the likely development of new control methods and technology, changes in existing or use of new noxious weed treatments may be authorized and warranted. Any changes to the proposed action, as described in the BA, would be analyzed for impacts to listed/proposed species and critical habitat, and consultation would be reinitiated as appropriate.

VII. ANALYSIS OF POTENTIAL EFFECTS

A. HERBICIDE TREATMENT OF NOXIOUS WEEDS

DIRECT AND INDIRECT EFFECTS

As part of the aquatic analysis for herbicide application, a risk quotient was developed for each herbicide product that may be used to treat noxious weeds within the FC-RONRW (Tables 8-11). The risk quotient was calculated from a no adverse effect level, or safety factor, derived from

known toxicity values for rainbow trout (Table 9) divided by an "Expected Environmental Concentration" (EEC). The EEC, expressed in parts per million (ppm), was derived from a direct application of the active ingredient to an acre pond (one-foot deep) using the maximum rate specified on the label (Urban and Cook, 1986). The EEC is an extreme level that is unlikely to occur during implementation and should be viewed as a worst-case situation. The risk quotient (Table 10) provides a reference from which a possible worst-case situation can be viewed. If the risk quotient is greater than 10, the level of concern is categorized as "Low". If the risk quotient is between one and 10, the level of concern is Moderate. If the risk quotient is less than one, the level of concern is High. Levels of Concern were used to develop mitigative prescriptions for stream buffers identified in Table 11.

Table 8 - Worksheet for Assessing Risk Quotient Values and Levels of Concern for Aaquatic Species Associated with Herbicide Applications.

Methodology for Determining Level of Concern	***Example using 2,4-D***
Maximum application rate (known constant based on label rates)	3 lb a.i./ac (pounds active ingredient per acre)
EEC - Estimated Environmental Concentration (from Urban and Cook [1986] table based on direct application to a pond 1 acre-foot in volume) measured in ppb (parts per billion), and converted to ppm (parts per million)	at 3 lb a.i./ac, in 1 acre-foot water,the EEC = 1103 ppb or 1.103 ppm
Toxicity - the 96-hour LC50 (a standard test) for a specific aquatic species. The LC50 is the concentration of a toxicant that causes mortality in 50% of the test organisms under a specific set of conditions.	LC50 = 250 mg/L (milligrams per liter), or = 250 ppm (testing conducted with rainbow trout)
Safety Factor - A divisor applied to the toxicity value to establish a concentration below which risk is acceptable (as determined by EPA). For endangered aquatic species, EPA uses 1/20 of the LC50 value.	1/20 of the LC50 = 12.5 ppm (250 ppm x 1/20 = 12.5 ppm)
The EPA has determined that there is a presumption of unacceptable risk to endangered aquatic species if the EEC > 1/20 LC50. Conversely, if the EEC < 1/20 LC50, the application rate used to calculate the EEC should not result in an unacceptable risk to endangered aquatic species.	For the 2,4-D amine, where: EEC = 1.103 ppm at3 lb a.i./ac maximum application rate 1/20 the LC50 = 12.5 ppm EEC is < 1/20 of the LC50
Because of some of the concerns associated with this level of concern (risk) analysis (see Table 4 in the text) and because the EPA does not define a magnitude of risk of endangered species, especially when the EEC < 1/20 LC50, a gradual "level of concern" scale was developed based on how close the EEC value is to the 1/20 LC50. The 1/20 LC50 value is divided by the EEC value and the quotient represents the level of concern for a given herbicide. The level of concern scale is as follows: If the 1/20 LC50 ÷ EEC is a quotient of >10, the level of concern is low. If the 1/20 LC50 ÷ EEC is a quotient of >1 but <10, the level of concern is moderate. If the 1/20 LC50 ÷ EEC is a quotient of <1, the level of concern is high.	For 2,4-D amine: 1/20 the LC50 = 12.5 ppm EEC = 1.103 ppm 12.5 ppm ÷1.103 ppm = 11 Since the quotient is >10, the level of concern is low.
The level of concern (risk) analysis is based upon direct application of the active ingredient of a chemical product to a 1 acre-foot pond. This reflects an extreme case, only remotely likely to occur during implemetation of the proposed action. The risk of a direct application is mitigated by selecting the appropriate application techniques and applying buffers adjacent to water, taking into account such factors as chemical volatility, wind speed and direction, temperature, precipitation and ground slope.	

Table 9 - Toxicology Profile of Herbicides Used Within the Frank Church-River of No Return Wilderness

Toxicology	*Transline*[1]	*Weedar 64*[2]	*Rodeo*[3]	*Escort*[4]	*Tordon 22K*[5]	*Banvel*[6]	*Imazapic*[7]
	Clopyralid	*2,4-D*	*Glyphosate*	*Metsulfuron Methyl*	*Picloram*	*Dicamba*	*Plateau*
Rainbow Trout (96 hr LC50) (mg/L)	103	250	>1000	>150	5.5-19.3	>1000	>100
Daphnia (96 hr LC50) (mg/L)	232	184	930	>12.5 (48 hr)	68.3	>100	>100
Bio-accumulates	No	No	No	No	No	No	No
Persistence in soil[8]	40 Days (Moderate)	10 Days (Low)	47 Days (Moderate)	30 Days (1-4 Wks) (Low)	90 Days (20-300) (Mod-High)	7-42 Days Low-Mod	7-150 Days (Low-High)
Mobile in soil	No	Yes, but degrades quickly	No	No	Yes	Yes	No

1 USFS, 1999a. Clopyralid Risk Assessment – Final Report.

2 USFS, 1999b. 2,4-Dichlorophenoxyacetic Acid Formulations Risk Assessment – Final Report.

3 USFS, 1999c. Glysophate Risk Assessment.

4 USFS, 1999d. Herbicide Handbook, Seventh Edition.

5 USFS, 1999e. Picloram Risk Assessment – Final Report.

6 USFS, 1995. Dicamba Pesticide Fact Sheet.

7 USFS, 2000b. Imazapic Risk Assessment – Final Report.

8 Soil half-life values for herbicides are from Herbicide Handbook (Ahrens, 1994) Pesticides that are considered non-persistent are those with a half-life of less than 30 days; moderately persistent herbicides are those with a half-life of 30 to 100 days; pesticides with a half-life of more than 100 days are considered persistent.

Table 10. Aquatic Level of Concern Assessment for Herbicides used within the Frank Church-River of No Return Wilderness

Active Ingredient	Product Name	Typical Application Rate lb a.i./ac [1]	Max Label Application Rate Lb a.i./ac [1]	EEC (ppm) [3]	Toxicity 96-hour LC50 (mg/L) [4]	Safety Factor 1/20 LC50 (mg/L)	Species Tested	Risk Quotient and Level of Concern [5]
Clopyralid	Transline	0.1-0.375	0.5	0.184	103	5.2	Rainbow Trout	28 Low
2,4-D amine	Amine 4, Weedar 64	0.5-1.5	3.0	1.103	250	12.5	Rainbow Trout	11 Low
Glyphosate	Rodeo	0.5-2.0	3.75	1.379	1000	50	Rainbow Trout	36 Low
Metsulfuron-methyl	Escort	0.25-0.75	2.0 oz	0.046	150	7.5	Rainbow Trout	163 Low
Picloram	Tordon 22K	0.125-0.5	1.0 [2]	0.368	19.3	0.965	Rainbow Trout	2 Moderate
Dicamba	Banvel	0.25-4.0	4.0	1.47	1000	50	Rainbow Trout	34 Low
Imazapic	Plateau	0.06-0.2	0.75	0.276	100	5.0	Rainbow Trout	18 Low

[1] Application rates are based upon typical and maximum label rates unless otherwise noted.
[2] Maximum application rate for plicoram is 1 lb per acre; Rates may be higher for smaller portions of the acre, but the total use on the acre cannot exceed 1 lb a.i./ac/yr.
[3] Hazard Evaluation Division, Standard Evaluation Procedure – Ecological Risk Assessment (Urban and Cook, 1986). Concentrations derived from Table 2 (Page16) based upon application rate (lbs a.i./ac) and one foot water depth.
[4] Rainbow Trout LC50 values from Herbicide Handbook, Seventh Edition (Ahrens,1994) and individual USFS Pesticide Fact Sheets and Risk Assessments (see Table 9 footnotes).
[5] The Risk Quotient and Level of Concern for a mixture of herbicides would reflect the values associated with the mixture's most toxic component. For example, the Level of Concern for a mixture of 2,4-D amine and Picloram would be Moderate, reflecting calculations based upon the higher toxicity of Picloram.
[6] Risk Quotient values for Picloram reflect the range of LC50 toxicity value of 5.5 to 19.3 mg/L identified by various observers. Level of Concern would be Moderate for LC50 values above 7.3 mg/L, including the midpoint value of 12.4 mg/L. Level of Concern would be high based upon LC50 values from 5.5 to 7.3 mg/L.

Table 11 - Buffers, maximum wind speed, application methods, and herbicide restriction associated with aquatic habitats, riparian areas, and wetland resources within the Frank Church-River of No Return Wilderness.

Buffer	*Maximum Wind Speed* [1]	*Herbicide Application Method*	*Herbicides Authorized (Aquatic Level of Concern-see Tables above)*
>100 feet from open water	8 mph	All ground/broadcast spraying	Low[2], Moderate[3]
<100 feet from open water, but >50 feet from open water	8 mph 5 mph Picloram	Spot spraying, wicking, dipping, painting, and injecting	Low[2], Moderate[3]
<50 feet from open water, but >15 feet from open water	5 mph	Spot spraying, wicking, dipping, painting, and injecting.	Aquatic approved herbicides only[4]
<15 feet fom open water	5 mph	Spot spraying, wicking, dipping, painting, and injecting	Low, but aquatic approved herbicides only[4] No spray adjuvants except dye

[1] *Beufort Wind Scale Information Summaries will be distributed to field applicators to assist in assessing ambient wind conditions.*
[2] *Low Level of Concern for Aquatic Species: Transline, Weedar 64, Amine 4, Rodeo, Escort, Banvel, Plateau*
[3] *Moderate Level of Concern for Aquatic Species: Tordon 22K*
[4] *Aquatic approved herbicides: Rodeo, Weedar 64*

Effects of chemical control were evaluated using indicators from a Matrix of Effects Indicators. This matrix is used to identify effects of actions upon a variety of subpopulation characteristics and habitat elements relevant to listed aquatic species. While environmental baseline data within most existing watershed level BAs is not catalogued in this format, the indicator parameters identified within the matrix are highly relevant to the described baseline data and can be utilized to assess effects to relevant species and habitat parameters. A copy of the Salmon-Challis National Forest Matrix of Pathways and Indicators Worksheet is included for informational purposes as Appendix F.

Effects to Fish Harassment and Take Indicators

Take and harassment indicators include subpopulation size, growth and survival, life history diversity and isolation, and persistence and genetic integrity.

No effect from harassment is expected to occur to Federally-listed or sensitive fish from herbicide treatment. Herbicide treatment operations are designed to have no adverse toxic effect on fish.

Restrictions on the use of herbicides and associated adjuvants in close proximity to water (Table 11) would reduce risks associated with these chemicals moving into surface waters or leaching into ground water. Chemical-specific buffers should ensure that spray drift or herbicide runoff does not adversely affect listed aquatic species, their prey, and non-target riparian vegetation. Herbicide volatilization and drift are the primary mechanisms of off-target movement. Volatilization will be minimized with the use of nonvolatile herbicide formulations (2,4-D amine is much less volatile than 2,4-D ester, for example), avoiding application of herbicides during hot days, and using ground-based equipment. Ground application minimizes drift because spray nozzles can be in close proximity to target species and ground.

Fuel and herbicide transportation, storage, and emergency spill plans will be developed and implemented to reduce the risk of an accidental spill. A catastrophic spill of herbicides reaching waters with listed species may have potential for adverse effects, however, a low probability is expected for such to occur.
Risks were evaluated for an accidental direct spraying of a pond (Tables 9 and 10). According to risk calculations for realistic (typical) exposures, risks to aquatic species are low to moderate for all herbicides proposed for use (Table 10). Use of appropriate buffer strips along bodies of water and avoidance of spraying on windy days minimizes risk. No adverse effects are expected on the aquatic ecosystem as a whole. Risks from accidental direct spraying of a water body of a herbicide mixture into a water body exist, but the probability of either event occurring is low.

General findings from a series of USFS Ecological Risk Assessment Reports, Pesticide Fact Sheets, and herbicide labels are as follows for herbicides, adjuvants and dyes potentially used by the FC-RONRW:

Transline *(Clopyralid)*

Clopyralid appears to be relatively non-toxic to aquatic animals. The potential for substantial effects on non-target species appears to be remote. Clopyralid does not bind tightly to soil, and leaching and subsequent contamination of ground water is likely to be minimal (USFS, 1999a). Clopyralid is more persistent than 2,4-D but less persistent than picloram. (USFS, 2001a).

Weedar 64, Amine 4 *(2,4-D amine)*

Overall, ester formulations of 2,4-D (not proposed for use by the FC-RONRW) are more toxic to fish than amine formulations. 2,4-D amine forms (which are proposed for use on the FC-RONRW) are generally non-toxic to fish. Several formulations, including Weedar 64, are registered for use near water. Despite this certification, however, label information indicates that Weedar 64 is toxic to aquatic invertebrates. 2,4-D is unlikely to be a groundwater contaminant due to rapid degradation in most soils and rapid uptake by plants (USFS 1999b and USFS 2,4-D Pesticide Fact Sheet).

Rodeo (Glyphosate)

Glyphosate is relatively non-toxic to fish (USFS, 1999c). Several formulations of the herbicide, including Rodeo, which do not contain the surfactant included in Roundup) are labeled for use adjacent to water. Glyphosate readily binds to organic matter in soil and is easily broken down

by microorganisms. This herbicide is especially appropriate where low soil mobility and short-term persistence are desired to alleviate environmental concerns (USFS, 2001a). At the proposed application rates, no adverse effects would be anticipated from the application of Rodeo on fish, aquatic macrophytes, or aquatic invertebrates.

Escort (Metsulfuron methyl)

Metsulfuron methyl has a low order of toxicity to fish. Similarly, aquatic invertebrates do not appear to be sensitive to the product (USFS, 1999d). The herbicide is broken down in the soil by the action of microorganisms and by the chemical action of water.

Tordon 22K (Picloram)

Picloram is moderately to slightly toxic to freshwater fish, and slightly toxic to aquatic invertebrate animals. It does not bioaccumulate in fish. Picloram can leach into groundwater in soils, which have low organic content and where the water table is very shallow (USFS, 1999e; USFS Imazapic Pesticide Fact Sheet). Picloram (Tordon 22K formulation) is the only herbicide proposed for use by the FCRONRW which displays a "Moderate" Level of Concern (Table 10).

Banvel (Dicamba)

Dicamba is slightly toxic to fish and amphibians and is practically non-toxic to aquatic invertebrates. Dicamba does not accumulate or build up in aquatic animals. Dicamba is moderately persistent in soils and is slightly soluble in water (USFS, 1995).

Plateau (Imazapic)

Aquatic animals appear to be relatively insensitive to imazapic exposure, relative to both direct toxicity and reproductive effects (USFS, 2001a; USFS Imazapic Pesticide Fact Sheet).

Scythe (Pelargonic Acid)

Pelargonic acid is a naturally-occurring fatty acid which can be found naturally in low concentrations in soil. Although it is considered non-toxic, and the 1999 Noxious Weed Treatment EIS authorized the use of Scythe, this product will not be used until a Human Health and Ecological Risk Assessment Final Report has been completed.

WOW (Gluten Corn Meal)

With Out Weeds is a non-hazardous organic material whose active ingredient is corn meal. Corn gluten is used as an animal feed for cattle, poultry, other livestock, fish and in some dog foods. Although the 1999 Noxious Weed Treatment EIS authorized the use of WOW, this product will not be used until a Human Health and Ecological Risk Assessment Final Report has been completed

Adjuvants and Dyes

Information on proprietary adjuvants and dyes utilized in herbicide spraying programs is extremely limited. Potential individual, additive, synergistic or cumulative effects are largely unknown. Due to these uncertainties about potential effects, additional mitigations have been specified restricting use of spray adjuvants in close proximity to live waters (Table 11).

Effects to Watershed Condition Indicators

Watershed Condition Indicators include road density and location, watershed disturbance regime and history, and riparian conservation.

Noxious weed control actions are not expected to alter the hydrologic regime or adversely impact riparian or wetland habitats. Herbicide treatment is expected to result in no measurable effect in peak/base flow, water yield, or sediment yield. No large-scale changes in land cover conversions or stand structure (e.g. timber to grass, shrubs to grass) will result from the ground-based application of herbicides. Selective ground-based spraying or manual control of noxious weeds will prevent and control infestations in riparian areas, floodplains, and wetlands.

Removal of solid stands of weeds by chemical treatment may result in short-term, insignificant increases in surface erosion that would diminish as vegetation reoccupies the treated site. The speed of site revegetation and the plant composition of the new vegetation would depend on the persistence and selectivity of the herbicide used and the plant composition of the site.

Long-term beneficial effects from reduction of noxious weeds and increase in desirable vegetation (e.g. native species) will result in improved watershed conditions. Beneficial effects are expected from the reduction of noxious weeds encroaching on and invading riparian areas, wetlands, and streams.

Effects to Channel Condition, Water Quality, and Habitat Condition Indicators

Channel Condition Indicators include wetted width-to-depth ratios, streambank condition and floodplain connectivity. Water Quality Indicators include water temperature, instream sediment, chemical contaminants and nutrients. Habitat Condition Indicators include substrate embeddedness, large woody in-channel debris, pool quality and frequency, off-channel habitat, and refugia.

Herbicide treatment would result in a decrease of noxious weeds in treatment areas. Only target-specific ground-based application of herbicides would be authorized within riparian areas. Adverse effects to non-target species from ground-based application is expected to be minimal. No spraying of picloram will be authorized within 50 feet of live waters, and no broadcast spraying of picloram will be conducted within 100 feet of live waters. This will reduce risks associated with residual herbicides that persist in the soil and continue to affect newly emerging plants or sprouting perennial shoots. Restrictions on the use of non-persistent herbicides in close proximity to water will reduce risks associated with herbicides moving into surface waters or leaching into ground water. Only aquatic labeled herbicides will be authorized within 15 feet of live waters. Ground-based herbicide application would result in reduction of noxious weeds within riparian areas and along streambanks. No adverse impacts to streambank stability is expected. A reduction of noxious weeds in riparian areas and along streambanks will benefit native plant species, resulting in improved streambank stability and riparian condition. Negligible and unmeasurable effects attributed to herbicide treatment is expected to occur to water temperature, suspended sediment, and deposited sediment. Herbicide treatment is expected to have low risk for water contamination with the use of special guidelines for ground-based herbicide use within riparian areas and along live waters. Implementation of hazardous materials (fuel and herbicide) transportation, storage, and emergency spill plans will result in low risk for contamination (fuels and herbicides) of ground water and surface water.

B. Manual Control of Noxious Weeds

Direct and Indirect Effects

This component of the noxious weed control program includes the use of hand-operated tools that are used in the manual control of noxious weeds. In manual treatments workers primarily would cut plants off above ground level; pull, grub, or dig out plant root systems. The scope of this is very low for the amount of acreage treated annually. However, noxious weed control benefits are very high for treating sensitive areas (i.e. riparian areas, special status plant populations, developed recreation sites), dispersed recreation sites, remote areas, and spot control of individual plants and small patches.

Effects to Watershed Condition Indicators

Minor soil and vegetation disturbance will occur from the small amount of manual noxious weed control conducted annually. This will result in no effect or negligible sediment effects. This method is very target specific and will have no effect or negligible effect on riparian habitats. Beneficial effects will be expected from the reduction of noxious weeds encroaching on and invading riparian areas, wetlands, and streams.

Effects to Channel Condition, Water Quality, and Habitat Condition Indicators

Minor soil and vegetation disturbance will occur within riparian areas and along stream banks from manual noxious weed control. No adverse impacts to streambank stability are expected. A reduction of noxious weeds in riparian areas and along streambanks will benefit native plant

species and improve streambank stability and riparian condition. No adverse effects attributed to manual control are expected to occur to water temperature, suspended sediment, deposited sediment, or from water contamination.

Effects to Harassment and Take Indicators

No effect from harassment or take is expected to occur to Federally listed or sensitive fish from manual noxious weed control activities.

Effects to Watershed Ecological Condition (Habitat Quality)

Noxious weed infestations are a threat to overall watershed ecological condition. Manual noxious weed control will allow for more species-specific weed control and will benefit native species and habitat quality. Manual noxious weed control will provide for combined beneficial effects to occupied and potential habitat. Manual noxious weed control is often used in conjunction with chemical control and biological control activities. Manual control often allows for treatment of isolated target plant(s) in riparian/aquatic habitats and in controlling undesirable vegetation in special status plant populations.

Manual noxious weed control will not alter the hydrologic regime or stand structure. It will allow for improved control of noxious weeds and prevent infestations in riparian areas, floodplains, and wetlands.

C. Biological Control of Noxious Weeds

Direct and Indirect Effects

Biological methods of vegetation treatment use living organisms to selectively suppress, inhibit, or control herbaceous and woody vegetation. This method is viewed as one of the more natural processes because it requires the proper management of plant-eating organisms and precludes the use of mechanical devices, chemical treatments, or burning of undesired vegetation. Biological weed control activities include the release of insect agents that are parasitic to target noxious weeds. This activity includes the collection of beetles/insects, development of colonies for collection, transplanting parasitic beetles/insects, and supplemental stocking of populations. Development of biological control insect colonies (nursery sites) for collection purposes will often not have active weed control, because these sites will be managed for propagation of insects. Controlling the host noxious weed species would reduce the insects food supply and cause a decline in the numbers of these beneficial insects that would be available for transplanting efforts.

Effects to Watershed Condition Indicators

This method is very target specific and would have no effect on riparian species. The reduction of noxious weeds encroaching on and invading riparian areas, wetlands, and streams will benefit these areas.

Effects to Channel Condition, Water Quality, and Habitat Condition Indicators

A reduction of noxious weeds in riparian areas and along streambanks will benefit native plant species and improve riparian condition. No effects attributed to biological control are expected to occur to water temperature, suspended sediment, deposited sediment, or from water contamination.

Effects to Harassment and Take Indicators

No effect from harassment or take is expected to occur to Federally-listed or sensitive fish from biological control activities.

Effects to Watershed Ecological Condition (Habitat Quality)

Noxious weed infestations are a threat to overall watershed ecological condition. Biological control of noxious weeds will allow for improved integrated weed control, which will benefit native species and habitat quality. Biological control will provide for improved noxious weed control for occupied and potential habitat. Biological control of noxious weeds is often used in conjunction with chemical and manual control activities except near biological control insect nursery sites.

Biological control of noxious weed control will have no effect on the hydrologic regime or stand structure or potential habitat. It will allow for improved control of noxious weeds and help to prevent infestations in riparian areas, floodplains, and wetlands.

D. Rehabilitation, Seedlings, Plantings – Mechanical Control

Direct and Indirect Effects

Noxious weeds commonly invade areas that have vegetation than can't compete with these aggressive invader species. Consequently, after weeds are controlled on a site it is beneficial to establish desirable vegetation that will compete with noxious weeds and restrict or prevent additional infestations. These treatments may involve application of both seeds and fertilizers. Mechanical control activities are generally associated with restoration. These may include a combination of chemical weed control for seedbed treatment. Sites where the use of mechanical restoration takes place are estimated to be minimal within the entire area.

Effects to Watershed Condition Indicators

Broadcast seeding (aerial or ground) will result in no short-term adverse effects to watershed condition indicators. Long-term benefits will occur from establishment of desirable vegetation that will reduce adverse erosion and sediment. Localized soil and vegetation disturbance will occur from the use of mechanical control measures (i.e. plows, harrows, etc.). No disturbance of

riparian areas will occur. The areas that will be treated with mechanical equipment generally occur on moderate sloped areas, and involve burned areas or areas of concentrated human disturbance. The reduction of noxious weeds and establishment of desirable vegetation will benefit watershed health. Mechanical control measures are generally associated with moderate sloped areas, benches, terraces, and toeslopes. Use of mechanical equipment will result in no potential for erosion/sediment reaching live waters. Use of mechanical equipment will not result in disturbance to riparian vegetation.

Effects to Channel Condition, Water Quality, and Habitat Condition Indicators

A reduction of noxious weeds and establishment of desirable vegetation will reduce potential for future noxious weed encroachment into riparian areas. No effects attributed to rehabilitation and/or use of mechanical equipment will occur to water temperature, suspended sediment, deposited sediment, or from water contamination. There is no potential for increased erosion/sediment from these activities. Long-term benefits from reduced erosion/sediment will occur from establishment of desirable vegetation.

Effects to Harassment and Take Indicators

No effect from harassment or take is expected to occur to Federally-listed or sensitive fish from rehabilitation measures and use of mechanical equipment. No disturbance to riparian areas or aquatic habitats will occur.

Effects to Watershed Ecological Condition (Habitat Quality)

Noxious weed infestations are a threat to overall watershed ecological condition. Actions to reduce noxious weed infestations will benefit native species and habitat quality.

VIII. Interdependent and Interrelated Actions

Noxious weed control activities within the Frank Church-River of No Return Wilderness are not interdependent with non-Federal noxious weed control activities. Private and State noxious weed actions could take place independently of each other. However, it is recognized that for effective noxious weed control in mixed ownership watersheds that a coordinated effort is often required.

IX. Cumulative Effects

CUMULATIVE EFFECTS - STATE, COUNTY AND PRIVATE: Cumulative effects are defined in 50 CFR 402.02 as those effects of " future State or private actions not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation". Cumulative effects risks analyses have been developed for each of the respective FC-RONRW watershed-level BAs utilizing "Determining the Risk of Cumulative Watershed

Effects Resulting from Multiple Activities, prepared by the United States Department of Agriculture, Forest Service (1993). The BAs identify watershed-scale cumulative effects risks ranging from Low to High.

It is reasonably certain that ongoing herbicide application programs implemented by state, county or private land managers/owners that have been conducted within the proposed action area are likely to continue. At this time it is difficult to determine the amount of total herbicide use by Federal, state, and county agencies and private landowners within a particular watershed. Although private inholdings within the comprise less than one-tenth of one percent of the total land area FC_RONR Wilderness boundary, the levels of types of activities that take place on private lands and their impact to the wilderness's ability for long-term noxious weed control is unknown.

Since the location, type, extent or amount of noxious weed treatment activities are not predictable beyond the short-term, it cannot be stated with any certainty what additional cumulative effects would occur as a result of this proposal. It is expected, however, that as a result of implementing this proposal that a significant reduction of the potential ecological effects that would be caused by unchecked noxious weed expansion will be realized, thus maintaining the natural vegetative character of the Wilderness and other species dependent on these native plant communities.

The potential cumulative effects associated with the use of Imazapic are within the range of potential effects analyzed in the 1999 Noxious Weed Treatment EIS. No additional cumulative effects are anticipated.

COMBINED EFFECTS, INCLUDING IRREVERSIBLE AND IRRETRIEVABLE FEDERAL ACTIONS: Other land management activities which are reasonably certain to continue into the future, and which may affect implementation of the proposed action at some level include livestock grazing, agriculture, timber harvest, road and other facilities maintenance, recreation, prescribed fire, emergency fire rehabilitation, and other surface-disturbing activities. These actions, which take place on other Federal, State and private lands within the proposed action area, may actually contribute to the need to maintain or increase current levels of noxious weed treatment for many years into the future. The USFS (and presumably other Federal and State agencies) manage lands with goals to maintain and enhance natural resources, which would include mitigating actions that should be conducive to preventing or reducing weed infestations. As such, implementation of this proposed action in addition to other land management activities is not expected to contribute significantly to a continuing need to treat noxious weeds at site-specific locations into the future. Proper implementation and monitoring of all land management activities is expected to have a beneficial effect to the long-term treatment of noxious weeds.

X. Determinations

Table 12. – Determinations of Effects of Proposed Noxious Weed Control Measures on Listed Aquatic Species and Habitats

	Previous Consultation		Current Determinations									
			Snake River Spring/Summer Chinook Salmon		Snake River Fall Chinook Salmon		Snake River Sockeye Salmon		Snake River Steelhead	Bull Trout		Westslope Cutthroat Trout
Programmatic Action	NOAA	FWS	Species	Critical Habitat	Species	Critical Habitat 1/	Species	Critical Habitat	Species	Species	Critical Habitat	Species
Noxious Weed Management (Herbicide Treatment) (With Weedar 64)	1999	1999	LAA 2/ NLLL 3/	LAA	NE	NE	LAA	LAA	LAA	LAA	LAA	NLLL
Noxious Weed Management (Herbicide Treatment) (W/O Weedar 64)	1999	1999	NLAA 2/ NLLL 3/	NLAA	NE	NE	NLAA	NLAA	NLAA	NLAA	NLAA	NLLL
Noxious Weed Management (Non Chemical Based) 1/	1999	1999	NE 2/ NE 3/	NE	NE	NE	NE	NE	NE	NE	NE	NE

1/ Critical habitat for this species does not extend into the project area. Listed determinations are for effects to downstream critical habitats within the Clearwater and lower Salmon Rivers.
2/ Determination for Federally listed stocks of spring/summer chinook salmon within the Salmon River drainage portions of the project area.
3/ Determination for R1 Sensitive stocks of spring chinook salmon within the Selway River drainage portion of the project area.

Based upon the full scope of proposed project design, the considered action **May Affect**, and is **Likely to Adversely Affect (LAA)** Snake River spring/summer chinook salmon and its designated critical habitat, Snake River sockeye salmon and its designated critical habitat, Snake River steelhead, and the Upper Columbia River population segment of bull trout and its proposed critical habitat. This determination is based upon identified toxicity to macroinvertebrates and unknown and unmitigatable sub-lethal effects concerns associated with proposed application of the Weedar 64 formulation of 2,4-D within riparian zones, as discussed below. The project design will have **No Effect** on Snake River fall chinook salmon in downstream reaches of the Salmon and Clearwater River drainages.

With the exception of application of Weedar 64 herbicide within riparian zones, all other herbicide-based components of the proposed noxious weed treatment program **May Affect**, but are **Not Likely to Adversely Affect (NLAA)** Snake River spring/summer chinook salmon or its designated critical habitat, Snake River sockeye salmon or its designated critical habitat, Snake River steelhead, and the Upper Columbia River population segment of bull trout or its proposed critical habitat.

Non herbicide-based components of the noxious weed treatment program, including manual control measures, biological control measures, rehabilitation, seeding and planting, have been determined to have **No Effect (NE)** on Snake River spring/summer chinook salmon or its designated critical habitat, Snake River fall chinook salmon and its designated critical habitat outside the project area, Snake River Sockeye Salmon or its designated critical habitat, Snake River Steelhead, and the Upper Columbia River population segment of bull trout or its proposed critical habitat.

The herbicide-based component of the proposed noxious weed treatment program may affect individuals or habitat, but is **Not Likely to Lead to Listing (NLLL)** of Westslope cutthroat trout or R4 Sensitive naturalilized stocks of spring chinook salmon within the upper Selway River drainage, or cause a loss of viability to these populations. Non herbicide-based components of the proposed program will have **No Effect (NE)** on Westslope cutthroat trout or naturalized Selway River spring chinook salmon individuals or habitat.

It has additionally been determined that the herbicide-based component of the proposed noxious weed treatment program is **Not Likely to Adversely Affect (NLLA)** Essential Fish Habitat for Snake River spring/summer chinook salmon and will have **No Effect (NE)** on Essential Fish Habitat for Snake River fall chinook salmon in downstream reaches of the Salmon and Clearwater drainages. All non herbicide-based components of the proposed program will have **No Effect (NE)** on Essential Fish Habitat for Snake River spring/summer chinook salmon, and Essential Snake River fall chinook salmon habitat in downstream reaches of the Salmon and Clearwater River drainages.

RATIONALE

Listed and Sensitive Aquatic Species

Nearstream Use of Weedar 64

While substantial mitigation has been incorporated into project design, the proposed herbicide treatment component of Frank Church-River of No Return noxious weed treatment program has been determined Likely to Adversely Affect listed fish species. Primary supporting rationale for this determination is based on the following concerns:

The use of the Weedar 64 formulation of 2,4-D is an integral component of the FC-RONRW's herbicide-based noxious weed treatment program. 2,4-D has been identified as having a "Low" Level of Concern within the risk analysis displayed in Section VII, and is considered to be an "aquatic labeled" herbicide authorized for use near or on water. Project design allows the use of only " Low Level of Concern", aquatic-approved herbicides within 15 feet of live waters. Weedar 64 and Rodeo are the only chemicals proposed for use in the FC-RONRW which are certified for aquatic use. When compared to the non-selective action of alternative aquatic-certified chemicals, such as Rodeo, Weedar 64 is the preferred chemical for near-stream applications, particularly when near-stream and streambank vegetation includes non-target species.

Although certified for aquatic application, label information identifies Weedar 64 as being toxic to aquatic invertebrates. While project mitigations identify that the Weed Coordinator and the Fishery Biologist shall jointly determine the appropriate choice of chemical to be used within the 0-15 foot zone on a site-by-site basis, current project design does not preclude application of Weedar 64 within this zone. The lack of a suitable non-selective alternative to the use of Weedar 64, which would not additionally kill non-target vegetation, necessitates retaining the use of this chemical as a near-stream treatment option. While restrictions on application methods greatly reduces the potential for direct spray or drift onto live waters, the lack of significant buffer distance from live waters precludes reasonable assurance that Weedar 64 would not reach live waters in during near-stream application. In the absence of sufficient mitigation to reduce the potential for direct overspray or drift to acceptable levels, the identified toxicity concerns associated with this chemical, as well as the inability to mitigate for unknown sub-lethal effects in near-stream spraying applications, necessitate a Likely to Adversely Affect determination relative to its proposed use adjacent to live waters. This determination is considered acceptable as it retains the capability for target-selective near-stream treatment of weeds not afforded by non-selective aquatic-approved alternatives. While applicable in areas of dense weed infestation or areas of limited ground cover, exclusive use of non-selective alternatives would severely limit the Forest's ability to fully and effectively address the full scope of near-stream noxious weed infestations. In many cases, when dealing with weeds such as leafy spurge with its extensive root system and toxic sap,

mechanical treatment is useless. Without the ability to use Weedar 64, the Forest would be faced with using a non-selective herbicide which may potentially result in detrimental effects to non-target vegetation, or choosing not to address weed infestations in near-stream areas.

Notwithstanding the issues identified above which necessitate a LAA determination, project design has been directed toward addressing all critical species subpopulation and habitat parameters included within the Matrix of Effects Indicators. Identified mitigation measures were developed to minimize or eliminate potential direct or indirect impacts to species and/or habitats.

The 1999 Noxious Weed Treatment EIS analyzed the potential effects of weed management in the Frank Church-River of No Return Wilderness on fish populations and fish habitat. Most of the modifications currently being proposed to the noxious weed management decision of 1999 clearly fall within the spectrum of the earlier analysis. Updating the current inventories, describing the details of noxious weed prevention and education, and expanding adaptive management to allow for review and revision of priorities and management strategies with involvement by the new Coordinated Weed Management Area's Steering Committee will have no additional effects on fish or fish habitat.

The current proposal clarifies the approved use of spray equipment from jet boats. The use of herbicide spray equipment mounted in jet boats was intended by some to be included in the term "ground-based" application, in the sense that aerial application of herbicides was not being analyzed in the 1999 EIS. Since boat mounted sprayers were not specifically mentioned, interested persons may be concerned this type of application was not adequately analyzed. The transportation of herbicides by boat was included in the analysis, and considered the possibility of accidental spills. By strictly adhering to all mitigation measures, including those for spill containment associated with boat-mounted application techniques, potential adverse effects from the use of herbicides within the FC-RONRW remain minimal and within the breadth of the 1999 EIS. Results of analysis based upon incorporation of these measures is summarized as follows:

No adverse effects would be expected on the aquatic ecosystem as a whole as a result of implementation of the proposed noxious weed treatment program. The proposed project would be in accord with PACFISH and INFISH direction and would not adversely affect Riparian Management Objectives. Most of the project areas are "infiltration dominated" sites, where no run off is expected.
No measurable adverse effects to peak/base flow, water yield, or sediment yield would occur from implementation of noxious weed control and rehabilitation measures. Removal of solid stands of vegetation by chemical treatment may result in short-term, negligible increases in surface erosion that would diminish as vegetation reoccupies the treated site. Only ground-based, single-nozzle spot spraying would be authorized within riparian areas. This would significantly reduce risks associated with spraying of non-target riparian vegetation. Noxious weed control measures

would reduce weed competition with native riparian species and other upland species. Precluding the use of picloram within 50 feet of live waters would reduce risks associated with soil persistence and residual effects on newly emerging plants or sprouting perennial shoots. Restrictions on the use of non-persistent herbicides and adjuvants in close proximity to water would reduce risks associated with these chemicals moving into surface waters or leaching into ground water. Only aquatic-approved herbicides would be authorized for use within 50 feet of live waters or within riparian buffers. According to risk calculations for realistic (typical) exposures, risks to aquatic species are low for all herbicides proposed for use. No use of surfactants will be authorized within 15 feet of live waters or shallow water tables. Transportation, storage, and emergency spill plans would be used to reduce risks associated with the use of herbicides. A spill cleanup kit would be available whenever herbicides are transported or stored. A catastrophic spill of herbicide concentrate may result in localized significant adverse effects to listed fish. However, the probability of such occurring is considered extremely low.

Application of herbicides according to EPA label directions and identified project Best Management Practices (BMPs) is not expected to result in direct mortality to fish. However, there is some uncertainty about the effectiveness of these BMPs and the amount of chemical expected to reach live waters. Despite application of substantial mitigation measures, it cannot be concluded with certainty that herbicides would not reach streams with listed fish species. Limited or no information is available on the sub-lethal effects of some of the chemicals proposed for use in the FC-RONRW's noxious weed treatment program. Project design has addressed these unknown effects by applying differential buffer zone widths which are commensurate with the known risks of the individual chemicals as identified within Tables 9 and 10 of this document.

Implementation of the proposed action has the potential to impact various resources that may affect listed/proposed species and their designated critical habitat or critical habitat niches. However, specific noxious weed control standards and stipulations that have been incorporated into the proposed action have been designed to minimize (to the greatest extent possible), or eliminate, potential for adverse impacts. Where successful, implementation of the proposed action should result in long-term benefits to all species and their essential and/or critical habitats. For all treatment methods, both short- and long-term beneficial effects for non-target plant species and their habitats are anticipated depending on the pretreatment availability of resources (water, minerals, light) used by noxious weeds. Also, the goal is to stabilize sites with desirable vegetation, which would in turn provide long-term protection of soils from water and wind erosion, aiding in improved water quality for fish species and other aquatic organisms. When compared to the risk of degradation and/or loss of habitats and species populations which could result if noxious weed populations are left untreated, any potential for short-term localized impacts are expected to be outweighed by the long-term conservation gains to listed and proposed species and their designated critical habitats.

Rationale for Determination of Picloram Buffer Strip Widths

Results of the Risk Analyses prepared for use by Forests and BPA (Anonymous,1992, Table 9) have identified varying "Levels of Concern" among the herbicides proposed for use in control of noxious weeds. In response, mitigation measures, including the development of buffer zones, have been identified as an integral component of project design to ameliorate these differential risk factors to acceptable levels. Buffer design is reflective of the differential risk classes (expressed as "Levels of Concern") identified within the risk assessment, with broader setback distances being applied to higher risk herbicides. Identified buffers have been conservatively designed, and incorporate significant "safety factors".

Picloram, a commonly-used and highly effective herbicide for control of a wide variety of noxious weeds, has been identified as the herbicide of greatest concern with respect to toxicity risks to listed fish, and has therefore been the primary focus of mitigation development in this as well as other BAs addressing forest weed control programs. This effectiveness has made picloram one of the primary chemicals of choice in herbicide-based weed treatments.

Because of the importance of picloram in forest weed control efforts, additional emphasis is currently being directed toward better defining appropriate picloram-specific buffer zones which would both strive to maximize the effectiveness of weed control measures while minimizing risks to aquatic environments and organisms. The Nez Perce National Forest, for example, is currently utilizing GLEAMS (Groundwater Loading Effects of Agricultural Management Systems)(Leonard, et al, 1994) modeling information (Memo from Leonard Lake, Nez Perce National Forest, Appendix G) identified within the Picloram Aquatic Risk Assessment (Appendix H) to support refinement of Picloram-specific buffers from earlier Nez Perce National Forest delineations derived solely from the 1992 FS/Bonneville Risk Analysis. Results of the GLEAMS-modeled Risk Assessment, which, like the FS/Bonneville Power Risk Analysis, utilizes a "worst case scenario" (ie block spraying, maximum application rates, very high rainfall rates, sandy soils, static water), provide the basis for rationale supporting the use of picloram at distances significantly less than the 100 feet identified in previous Forest Weed BAs.

As referenced in Section III, this document acknowledges the need for an aggressive noxious weed control program which effectively addresses both current and potential future infestations on Forest lands. Such a program must make, to the extent practical, full utilization of a comprehensive range of treatment alternatives, including herbicide-based control. Concurrent with this direction, the FC-RONRW Forests must additionally ensure, with a reasonable level of confidence, that this program will not adversely impact other important resources, including aquatic habitats and listed or sensitive fish species. While the overwhelming majority of weed control efforts are targeted to upland areas well removed from live waters, project design (ie mitigation measures) must ensure that weed treatments in areas near or adjacent to water

adequately protect aquatic resources by ameliorating risks associated with herbicide usage to acceptable levels.

The FC-RONRW's proposed picloram guidelines follow those developed by the Salmon-Challis National Forest in its 2002 Noxious Weed Treatment Biological Assessment. This approach toward development of appropriate guidelines for picloram application acknowledges the analysis and conclusions of GLEAMS modeling, yet retains key elements of the conservative approach advanced in existing Payette and Nez Perce National Forest weed BAs, which addresses uncertainties related to herbicide risks by maintaining an additional safety factor in design and application of buffer zones. Recognition of the suggestions of GLEAMS modeling that 100 foot picloram-specific buffers may in many cases be unnecessarily over-restrictive provides rationale for continued use of picloram, in single application treatments, in areas which might otherwise require repeated application of less effective chemicals. In this scenario, risks associated with single application use of a moderate risk herbicide are weighed against the risks associated with the required repeated applications of less effective low-risk herbicides. The FC-RONRW noxious weed treatment program incorporates these considerations into its proposed project design by including in its buffer guidelines a category guiding picloram application between 100 and 50 feet of live water. Additional mitigations related to allowable application methods and weather conditions are specified within this zone to further reduce risks of potential impact to aquatic environments. The additional 50-100 foot buffer zone identified within this document is consistent with the rationale of differentially-applied project mitigation in response to identified herbicide risk levels central to this and other existing BA documents, and provides a mechanism for more effective control of weed infestations with a minimal number of herbicide applications, while maintaining a conservative margin of safety, relative to the conclusions of GLEAMS modeling to address uncertainty and unknown sub-lethal effects factors.

XI. References

Previous Biological Assessments

USDA Forest Service. 1999b. Frank Church-River of No Return Wilderness Noxious Weed Treatment Environmental Impact Statement. Bitterroot, Nez Perce, Payette and Salmon-Challis National Forests.

USDA Forest Service, Bitterroot National Forest. 2000. Upper Selway River Biological Assessment for Section 7 Consultation. Steelhead and Bull Trout. USDA, Northern Region, Bitterroot National Forest. Hamilton, Montana.

USDA Forest Service, Challis National Forest. 1994. Biological Assessment for Chinook Salmon in the Middle Fork Salmon River Section 7 Watershed. USDA, Intermountain Region, Challis National Forest. Challis, Idaho.

USDA Forest Service, Nez Perce National Forest. 1999. Biological Assessment of Forest Service Activities on Threatened, Endangered and Forest Service Sensitive Species in the Main Salmon River Subbasin. USDA, Northern Region, Nez Perce National Forest. Grangeville, Idaho.

USDA Forest Service, Payette National Forest. 2001a. Biological Assessment for the Potential Effects of Managing the Payette National Forest in the Main Salmon SW Section 7 Watershed on Snake River Spring/Summer Chinook Salmon, Snake River Steelhead, and Columbia River Bull Trout, and Biological Evaluation for Westslope Cutthroat Trout. Vol. 15: Ongoing and New Actions. USDA, Intermountain Region, Payette National Forest. McCall, Idaho.

USDA Forest Service, Payette National Forest. 2001b. Biological Assessment for the Potential Effects of Managing the Payette National Forest in the Middle Fork Salmon River Tributaries NW and Main Salmon Tributaries SE Section 7 Watersheds on Snake River Spring/Summer and Fall Chinook Salmon, Snake River Steelhead, and Columbia River Bull Trout, and Biological Evaluation for Westslope Cutthroat Trout. Vol. 7: Ongoing and New Actions. USDA, Intermountain Region, Payette National Forest. McCall, Idaho.

USDA Forest Service, Payette National Forest. 2001c. Biological Assessment for the Potential Effects of Managing the Payette National Forest in the South Fork Salmon River Section 7 Watershed on Snake River Spring/Summer Chinook Salmon, Snake River Steelhead, and Columbia River Bull Trout, and Biological Evaluation for Westslope Cutthroat Trout. Vol. 24: Ongoing and New Actions. USDA, Intermountain Region, Payette National Forest. McCall, Idaho.

USDA Forest Service, Salmon National Forest. 1993a. Section 7 Consultation, On-going and Proposed Activities, Camas Creek Watershed. U.S.D.A, Intermountain Region, Salmon National Forest. Salmon, Idaho.

USDA Forest Service, Salmon National Forest. 1993b. Section 7 Consultation, On-going and Proposed Activities, Lower Mainstem Salmon River Watershed. USDA, Intermountain Region, Salmon National Forest. Salmon, Idaho.

USDA Forest Service, Salmon-Challis National Forest. 1998. Section 7 Steelhead

Biological Assessment for the Lower Mainstem Salmon River Watershed. USDA, Intermountain Region, Salmon-Challis National Forest. Salmon, Idaho.

USDA Forest Service, Salmon-Challis National Forest. 1999a. Section 7 Steelhead Biological Assessment for the Middle Fork Salmon River Watershed. USDA, Intermountain Region, Salmon-Challis National Forest. Salmon, Idaho.

USDA Forest Service, Salmon-Challis National Forest. 1999b. Section 7 Bull Trout Biological Assessment for the Middle Fork Salmon River Watershed. USDA, Intermountain Region, Salmon-Challis National Forest. Salmon, Idaho.

USDA Forest Service, Salmon-Challis National Forest. 2000. Section 7 Bull Trout Biological Assessment for the Lower Mainstem Salmon River Watershed. USDA, Intermountain Region, Salmon-Challis National Forest. Salmon, Idaho.

OTHER REFERENCES

Ahrens, W.H. 1994. Herbicide Handbook, Seventh Edition. Weed Science Society of America, publisher. ISBN #10-911733-18-3.

Anonymous, 1992. Risk Assessment for Herbicide Use in Forest Service Regions 1,2,3,4, and 10, and On Bonneville Power Administration Sites; Prepared for the USDA Forest Service under contract number 53-3187-9-30; September 1992.

Lake, Leonard (Forest TES Plants Coordinator, Nez Perce NF). September 13, 2002. Phone conversation concerning habitat for *Silene spaldingii* in the FCRONR.

Leonard, R.A., W.G. Kinsel and D.A. Still. 1987. GLEAMS. Groundwater Loading Effects of Agricultural Management Systems. Trans. Amer. Soc. Of Agric. Engrs. 30: 1403-1418

Norris, L. A., H. W. Lorz, and S. V. Gregory. 1991. Forest chemicals. Chapter 7 in W.R. Meehan, editor, Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19:207-296.

Office of the Federal Register. Vol 56, No. 224. Wednesday, November 20, 1991. Endangered and Threatened Species. Endangered Status for Snake River Sockeye Salmon. 50 CFR, Pt 222.

Office of the Federal Register. Vol 57, No. 78. Wednesday, April 22, 1992. Endangered and Threatened Species. Threatened Status for Snake River Spring/Summer Chinook Salmon. Threatened Status for Snake River Spring/Summer Chinook Salmon. 50 CFR, Pt 227.

Office of the Federal Register. Vol 58, No. 247. Tuesday, December 28, 1993.

Designated Critical Habitat. Snake River Sockeye Salmon, Snake River Spring/Summer Chinook Salmon, and Snake River Fall Chinook Salmon. 50 CFR, Pt 226.

Office of the Federal Register. Vol 62, No. 159. Monday, August 18, 1997. Endangered and Threatened Species. Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead. 50 CFR, Pts 222 and 227.

Office of the Federal Register. Vol 63, No. 111. Wednesday, June 10, 1998. Endangered and Threatened Wildlife and Plants. Determination of Threatened Status for the Klamath River Population Segment of Bull Trout as an Endangered Species and Columbia River Population Segment of Bull Trout as a Threatened Species. 50 CFR, Pt 17.

Office of the Federal Register. Vol 65, No. 32. Wednesday, February 16, 2000. Designated Critical Habitat. Critical Habitat for 19 Evolutionary Significant Units of Salmon and Steelhead in Washington, Oregon, Idaho and California. 50 CFR, Pt 226.

Office of the Federal Register. Vol 65, No. 73. Friday, April 14, 2000. Endangered and Threatened Wildlife and Plants. Twelve Month Finding for an Amended Petition to List the Westslope Cutthroat Trout as Threatened Throughout its Range. 50 CFR, Pt 17.

Office of the Federal Register. Vol 67, No. 230. Friday, November 29, 2002. Proposed Designation of Critical Habitat for the Klamath River and Columbia River Distinct Population Segments of Bull Trout. 50 CFR, Pt 17.

Urban, D. J., and J. N. Cook. 1986. Ecological Risk Assessment. Hazard Evaluation Division Standard Procedure. Washington, D.C. Office of Pesticide Programs, US EPA, EPA-54019-83-001.

USDA Forest Service. 1996. Forest Service Noxious Weed Strategy; March 6, 1996.

USDA Forest Service. 1999a. Frank Church River of No Return Wilderness, Noxious Weed Treatment Environmental Impact Statement; USDA Forest Service Intermountain and Northern Regions, Bitterroot, Nez Perce, Payette, and Salmon-Challis National Forests; August 1999.

USFS. 1995. Dicamba (Banvel) Pesticide Fact Sheet. Prepared for the U.S. Department of Agriculture, Forest Service by Information Ventures, Inc.

USFS. 1999a. Clopyralid (Transline) Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

USFS. 1999b. 2,4-Dichlorophenoxyacetic Acid Formulations – Human Health and Ecological Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

USFS. 1999c. Glyphosate (Rodeo) Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

USFS. 1999d. Metsulfuron-methyl (Escort) Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

USFS. 1999e. Picloram (Tordon) Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

USFS. 2000. Flathead National Forest Noxious and Invasive Weed Control Environmental Impact Statement.

USFS. 2001a. Sandpoint Noxious Weeds Control Final Environmental Impact Statement. Sandpoint Ranger District. Idaho Panhandle National Forests

USFS. 2001b. Imazapic (Plateau) Risk Assessment-Final Report. Contract #53-3187-5-12, submitted by Syracuse Environmental Research Associates.

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BIOLOGICAL ASSESSMENT AND EVALUATION

FOR

THREATENED, ENDANGERED, PROPOSED AND SENSITIVE

WILDLIFE SPECIES

FOR

THE FRANK CHURCH RIVER OF NO RETURN WILDERNESS

NOXIOUS WEED TREATMENT SEIS

2004

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Date: August 8, 2004

I. GENERAL DESCRIPTION OF PROPOSED TREATMENT AREA

This biological assessment/evaluation is designed to address a programmatic activity that could potentially occur in any or all vegetative communities within the Frank Church River of No Return Wilderness. The activity is noxious weed treatment and is described in detail in the Description of Ongoing or Proposed Action. This biological assessment (BA) and biological evaluation (BE) describes the potential impacts to ESA listed or proposed species, or Forest Service sensitive species by treating noxious weeds in the Wilderness. The primary purpose of this proposal is to control or eliminate noxious weed infestations within the Wilderness to maintain native vegetative communities and the species dependent on them.

A. Listed, Proposed and Sensitive Species

Three species currently occupy the Wilderness and are listed under the Endangered Species Act of 1973 (ESA). They include the gray wolf *(Canis lupis),* bald eagle *(Haliaeetus leucocephalus),* and Canada lynx *(Lynx canadensis).* Gray wolves south of Canada, excluding Minnesota, are presently listed as endangered. However, in 1994, wolves in central Idaho, including the Wilderness, were declared to be an "experimental, nonessential population" under Section l0G) of the ESA (59 FR 60252). Bald eagles, originally listed as endangered, were reclassified to threatened in 1995 (60 FR 3600). The Canada Lynx Conservation Assessment and Strategy was developed by an interagency team of biologists during the period the Canada Lynx (*Lynx canadensis*) was proposed for listing as threatened under the Endangered Species Act, 1973 as amended (Federal Register, Volume 63, No. 130) on July 8, 1998 and the actual listing on April 24, 2000.

Sixteen terrestrial vertebrate species that occur within the Wilderness are currently listed as Forest Service sensitive species. The mammalian portion of this list includes the spotted bat *(Euderma maculatum),* Townsend's big-eared bat *(Corynorhimis townsendii),* fisher *(Martes pennanti),* wolverine *(Gulo gulo).* Bird species on the list include American peregrine falcon *(Falco peregrinus anatum),* northern goshawk *(Accipiter gentillis),* boreal owl *(Aegolius funereus*), common loon *(Gavia immer),* harlequin duck *(Histrionicus histrlonicus),* mountain quail *(Oerotyx pictus),* flammulated owl *(Otus flammeolus),* white-headed woodpecker *(Picoides albolarvatus),* three-toed woodpecker *(Picoides trldactylus),* black-backed woodpecker *(Picoides arctious)* and great gray owl *(Strix nebulosa).* The only amphibian on the list is the spotted frog *(Rana pretiosa).*

Of these species, the Canada lynx, wolverine, fisher, boreal owl, common loon, harlequin duck, woodpeckers, great gray owl and spotted frogs occur in habitats that are not considered vulnerable to noxious weed invasion or else have habitat requirements that would not be affected by the presence of noxious weeds.

Scope

This document includes a discussion of the proposed activity, treating noxious weeds using a variety of methods, and associated activities such as the transportation and handling of herbicides and their potential effects on listed terrestrial vertebrates and their habitats. This proposal will replace any previous direction for treatment of noxious weeds within the Wilderness.

Location

Location of proposed activities are known noxious weed infestations within the Wilderness. This area includes portions of the Salmon-Challis, Payette, Nez Perce, and Bitterroot National Forests. The area includes all federal lands within the boundaries of the Frank Church River of No Return Wilderness, located in central Idaho. Total area involved is over two million acres.

B. Natural Physical Characteristics

The Wilderness is characterized by very rugged topography and steep mountainous terrain with some broad valleys along the Middle Fork, Salmon River and some major tributaries. However, most valleys are narrow with steep, confined stream gradients with much bedrock and boulder/rubble. Lower gradients are primarily found in meadow or lower canyon areas.

The lowest point in the Wilderness is less than 2000 feet in elevation and the highest peaks are over 10,000 feet. Small, glaciated lakes are scattered through out the higher elevations. More detailed descriptions of habitat features and conditions are contained within the individual assessments and project description in this document, and in the 1999 FEIS.

C. Human Caused Physical Characteristics

The primary human physical characteristics addressed in the proposal and in this biological assessment are the potential risk factors to TEP and S species from the treatment of noxious weeds and activities associated with such treatments. Direction for this action is found in the Wilderness Act (P.L. 88-577) which mandates that wilderness be managed so that its community of life is untrammeled by man, its primeval character is retained, and its natural conditions are preserved. Forest Service policy is to control and eliminate exotic vegetation and to maintain designated wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces (FSM 2320.2).

The Federal Weed Act of 1974 (P.L. 93-629) provides direction for weed treatment on public lands. In February 1999, the President issued Executive Order # 13112 to prevent the introduction of invasive species, provide for their control and minimize the economic, ecological, and human health impacts that invasive species cause.

The State of Idaho states; It is unlawful to allow noxious weeds to propagate or go to seed without an approved noxious weed plan. Further, in February 1999, The State of Idaho published a Strategic Plan for Managing Noxious Weeds to heighten public awareness about the effects of noxious weeds and to develop a statewide coordination effort to halt the spread of noxious weeds.

D. Vegetation Characteristics

Vegetation ranges from open sagebrush, mountain mahogany and ponderosa pine-bunchgrass communities on the lower and southerly slopes to more heavily timbered Douglas-fir stands on northerly aspects. Englemann spruce and subalpine fir dominate higher elevations. Mid to upper slopes commonly exhibit less variation in relief and are forested with lodgepole pine. Most of the vegetation types or communities within the Wilderness have evolved with fire. Many forest stands are at or near what is termed old growth with little understory vegetation. Small stands of aspen are widely dispersed over the Wilderness.

Generally, riparian vegetation is in excellent condition, and most is in high seral stage. Most riparian areas are comprised of a sedge/willow complex, with some areas of cottonwood, dogwood, and other riparian species. Headwater streams are normally dominated by conifer, or mixed confer/alder riparian vegetation

In 1999 FC-RONRW Noxious Weed Treatment EIS identified 1,775 acres of known noxious/invasive weed infestations within approximately 293 inventoried sites. Since 1999 wildfires have created conditions favorable to weed expansion. Improved inventory of weed sites plus actual fire-induced weed expansion has allowed us to identify 4222 acres of noxious weeds within the FC-RONRW. Because of the sheer size of this wilderness and the difficulty of conducting inventories managers believe there are even more undetected weed infested sites within the wilderness.

Favorable conditions for noxious/invasive weeds within the FC-RONRW continue to increase rapidly due in part to large wildfires. In the year 2000 alone, over 435,000 wilderness acres were charred by wildfires. Many of these sites were considered by managers to be high intensity burns. Following wildfire, especially areas burned with high intensity, the potential for noxious/invasive weed invasion increases. Weed managers within the FC-RONR have observed significant spread of noxious/invasive weeds into burned areas, especially in areas adjacent to existing weed sites.

E. Distribution Of Species

1. Location of Important Habitats

Habitats most at risk to noxious weed invasions include the low to mid-elevation bunchgrass, sagebrush/bunchgrass and conifer-bunchgrass savannah communities. These habitats provide
key big game winter ranges for elk, mule deer and bighorn sheep, primary prey species for the gray wolf. Such habitats generally occur below 6,500 feet in elevation and are most common along the Middle Fork and main stem of the Salmon River, and along major tributaries such as Camas Creek, Big Creek and the South Fork of the Salmon. These same areas provide important wintering areas for bald eagle and foraging habitats for peregrine falcon, spotted bats, Townsend's big-eared bats, northern goshawk, and flammulated owls.

2. Condition and Trend of Populations

Since the reintroduction releases in 1994 and 1995 within the Wilderness, gray wolves have rapidly increased in numbers. Packs now occupy essentially the entire area and the

total number of individuals utilizing portions of the area as all or part of their territories exceeds 100, excluding pups whelped in 2004 (http://westerngraywolf.fws.gov/annualrpt03/). Canada lynx are known to occur within the Wilderness but apparently do so in very low numbers and density. Status of the lynx population is unknown at this time but numbers are thought to fluctuate widely, dependent upon populations of primary prey species such as snowshoe hare and red (pine) squirrels.

Bald eagles are not known to nest within the Wilderness. However, this species is a common migrant visitor and winter resident. Monitoring of the wintering population via the annual midwinter bald eagle count, conducted since 1984, shows the numbers to be stable to slightly increasing. This species is doing well throughout its range.

Peregrine falcons are not known to nest within the Wilderness but the remoteness and abundance of suitable nesting cliffs make survey efforts very difficult, at best. As a minimum, peregrines are utilizing the area during migrations, as evidenced by reported observations. Both spotted bats and Western big-eared bats are known to occur within the Wilderness. Some surveys have been conducted for this species but population status and trends are unknown.

Although the northern goshawk is a commonly observed year-long resident of the Wilderness population estimates are very grossly based upon acres of suitable habitat and trend is unknown. Flammulated owls are known to commonly occur in the ponderosa pine and Douglas fir habitats but numbers and trend are not known.

3. Condition and Trend of Habitats

Within the Wilderness, habitat conditions for gray wolves, peregrine falcons, both bats, goshawks and flammulated owls are considered good to excellent. Native plant communities these species depend upon for their habitat needs are, for the most part, in good to excellent condition with stable to increasing trends. However, the presence of noxious weeds places all such habitats at great risk to alteration or elimination. Prey bases for all these species depend upon the health of the native plant communities. As noxious weeds invade these communities, vegetative diversity and production decrease rapidly and dependent fauna suffers.

Bald eagle winter habitat, though not directly affected by noxious weed invasion, is indirectly affected in that healthy native plant communities supply forage to support wintering populations of big game such as deer and elk, important sources of carrion.

Canada lynx are the least affected of all listed species by noxious weed invasion. They commonly occur in habitats found at elevations above those considered at risk. However, anything that decreases the inherent vegetative diversity of habitats would be detrimental to essentially all species, lynx included. This is due to indirect effects such as alteration of habitats utilized by alternate prey such as grouse or rodents.

II. DESCRIPTION OF THE PROPOSED ACTION

Introduction

The Salmon-Challis, Bitterroot, Payette and Nez Perce National Forests propose to continue authorization of Integrated Weed Management (IGM) components described in the 1999 Record of Decision for Noxious Weed Treatment in the FC-RONR Wilderness. For the most part, IGM program being proposed is very similar to the decision of 1999 presently being implemented. The goals and objectives for aggressive integrated noxious/invasive weed management throughout the wilderness continue to drive this strategy. The following table displays the potential new inventory of weed sites and acreages likely to receive treatment during the following years. The following paragraphs summarize the techniques and tools to be utilized to curtail noxious weed spread within the wilderness.

Table 1. Inventory of Major Noxious/invasive Weeds Within the FC-RONRW

Noxious/invasive Weed Species	1999 Inventory Sites	1999 Inventory Acres	Current Inventory 2002 Sites *(As of Sept 1, 2002)*	Current Inventory 2002 Acres *(As of Sept 1, 2002)*
Spotted knapweed	21 6	510	276	**1311**
Rush skeletonweed	79	170	140	**2,865**
Sulfur cinquefoil**	38	800	**	**

** Sulfur cinquefoil, though not officially designated as a "Noxious" weed in the State of Idaho, has become established on hundreds of acres within the FC-RONRW. It has become widespread within the FC-RONRW and formal inventory records have not consistently been kept.

A. Minimum Tool

Noxious weed management will incorporate the concept of using the "minimum tool." This means that when planning necessary actions, managers will utilize the minimum necessary methods to accomplish the management objectives. For example, methods may include manual control, biological control, or chemical control. If all of these methods were equally effective in controlling a particular species or infestation, the least impact method (manual) would be employed. Hand pulling or grubbing is effective for some species but not for others such as deeply rooted species. Effective biological control agents are not available for many exotic species and bio-controls are not effective on small isolated infestations. In many situations herbicide use may be the only effective control, and thus the minimum tool.

B. Weed Treatment Objectives

Weed management objectives include containment, control, and eradication. Under containment, weed infestations are not allowed to increase in size; the spread of the weed beyond the existing infestation perimeter is prevented. The control objective reduces the infestation through time. Some level of infestation may be tolerated. Under eradication,

total elimination of the weed is attempted.

C. Treatment Priorities

Treatments need to be focused where they have the greatest effect on preventing or minimizing weed impacts on wilderness resources. Weed species to be managed include state listed noxious weeds and non-state listed species. The delineation of plants with respect to treatment priorities is determined by (1) a weed species ability to invade and displace native plant communities, (2) the potential rate of expansion, (3) the physical structure of the weed (a tall thorny species verses a small and unobtrusive species), and (4) the extent and proximity of susceptible native plant communities. As financial and other resources become available for weed management, higher priority items should be addressed prior to addressing lower priority items. The following list gives the general priority for weed treatments in this analysis.

Treatment priorities are:

(1) eradicate new populations of aggressive weed species. *

(2) control established aggressive weed species.

(3) containment of established aggressive species.

(4) monitoring.

(5) restoration.

(6) eradicate new populations of less aggressive species such as Canada thistle.

(7) control less aggressive species.

(8) contain less aggressive species.

**Aggressive weeds are defined as species which rapidly expand into native habitats and within a relatively short period of time can displace native vegetation. Species include Rush skeletonweed, spotted knapweed, yellow starthistle. New populations include potential invaders (species not yet found in the Wilderness but occur nearby with high potential to spread into the wilderness), new invaders (species recently found in the in the Wilderness with limited distribution and density to make eradication feasible) and new starts from established weed populations.*

D. Adaptive Strategy

The proposed action includes an adaptive strategy for future treatment of new weed invasions and expansion of existing infestations. As additional infestations are discovered, each would be evaluated to determine if it fits within the scope of the 2004 Supplemental EIS relative to the issues analyzed and then prioritized for treatment. The original 1999 FEIS anticipated additional infestations would be discovered and evaluated herbicide effects on wildlife for acreages greater than presently occurred within the Wilderness. All mitigation measures would apply to treatments occurring on new infestations.

E. Coordination

This entails working with local, state, and federal government agencies charged with managing noxious weeds, interested publics and user groups, private landowners within and adjacent to the Wilderness, universities and private industries involved with controlling noxious weeds.

F. Information and Education

Programs that develop public understanding of the resource impacts of invasive weeds, tools used to manage the weeds, and the role humans play in the dispersal and establishment of invasive weeds. Education also includes the training of agency personnel in weed identification, management techniques, monitoring protocols, and other skills needed for the management of noxious and other invasive weeds.

G. Prevention

Prevention measures are management practices that reduce the potential for the introduction, establishment, and/or spread of weeds. Prevention is the first priority in the management of noxious weeds. In the long-term, it is more cost effective to prevent weeds from establishing than to begin treatment after establishment. Preventive measures include such things as requiring certified weed free hay and requesting that grooming of horses be done prior to entering the wilderness to ensure that the animals are free of weed seeds.

H. Inventory and Early Detection

An inventory is the collection, documentation, and storage of information on the extent and location of invasive weeds within the wilderness. Inventory provides necessary information for developing management objectives and prioritizing treatment actions. Early detection is the process of locating invasive weeds in the early stages of establishment and is a critical element of integrated management of weeds. When detected early, infestations can be eradicated with less effort and minimum impacts to the environment.

Summary of Weed Treatment Actions

- Practices would be implemented wilderness wide.
- Eradicate all new starts (=< 5 acres) of aggressive weeds* within 3 years.
- Reduce 5-25 acre infestations of aggressive weeds by 100% within 5 years.
- Reduce 26-50 acre infestations of aggressive weeds by 50% within 5 years
- Contain, if technologically feasible, all aggressive weed infestations greater than 50 acres through mechanical, chemical, or biological methods
- Following treatments, implement restoration practices that reduces or eliminates subsequent reinvasion of weeds.
- Evaluate effects of various treatments on noxious weed populations, non-target resources, and determine the trends of noxious weed populations such as expansion rates and habitat susceptibility.

- Eradicate new starts of less aggressive weeds within 3 years.
- Reduce >5 acre infestations of less aggressive weeds by 50% within 6 years.
- Manual and mechanical methods will be favored over herbicide application when each are equal in meeting the management objectives.
- When manual methods are not as effective because of growth habits, soil compaction, species risk of spread, time of year etc., utilize appropriate herbicides where necessary.
- All herbicides would be applied with ground-based sprayers.
- Biological control agents would obtained, released, and managed *for* species when other methods are inappropriate or ineffective on sulphur cinquefoil, goatweed and others.

Application Rate; All pesticide label information and restrictions will be strictly adhered to for any herbicide and additive being applied. The rate of application of approved herbicides and associated herbicide additives, including surfactants and dye, may fully incorporate, but never exceed, label recommendations. Forests will develop annual Pesticide Use Proposals to authorize the specific herbicides, application rates and project specific environmental precautions. Pesticide Use Proposals will be reviewed by the NOAA Fisheries Service and US Fish and Wildlife Service to ensure compliance with agreed upon environmental safeguards.

Table 3. Chemical Application Rates (active ingredient)

CHEMICAL	gal/ac	Lbs./gallon	Lbs/acre	Fluid oz./acre
Picloram	0.13	2.00	0.25	
Clopyralid	0.17	3.00	0.50	
2,4-D	0.25	4.00	1.00	
Glyphosate (Rodeo)	0.075	5.40	4.05	
Metsulfuron methyl				0.5
Plateau			.0624	

Application Methods; Herbicides will be applied only when wind speeds are less than 8 miles per hour and when no significant precipitation is expected within 3 hours (light rain is acceptable with the use of Tordon 22K). Herbicides are most effective when applied when temperatures are below 85 degrees. No highly volatile herbicides are approved for use within the FC-RONRW.

A dye solution will be used in the herbicide mix to visually detect uniform coverage of spray area. A dilute amount of dye, or no dye, may be preferred in visually sensitive areas.

Calibration will be conducted often enough to ensure proper amount of herbicide is being applied. Calibration should be conducted when changing to a different spray apparatus, changing nozzle size or setting, when the prescribed amount of chemical changes due to different site conditions or target species, when encountering different terrain or a change in speed of application, and by new

Herbicide will be applied within riparian buffers only when wind speeds are less than 5 miles per hour.

Precautions will be taken to insure no detectible herbicide residue enters a stream or water body during mixing operations. Mixing must take place in an area where accidental spill will not contaminate a stream or body of water before it can be contained and removed. Mixing of herbicides will normally take place at a distance greater than 100 feet of streams, rivers or lakes.

Additional details and procedures can be found in the Frank Church Noxious Weeds FEIS Appendix E (http://www.fs.fed.us/r4/sc/recreation/fcronr/weed/appendixe.pdf).

Adaptive Management; As technology advances, more effective and less toxic herbicides are being developed for specific uses. Additional herbicides may be considered for use within the FC-RONRW in the future. Only herbicides having a completed Human Health and Ecological Risk Assessment Final Report will be considered for use. Any proposed use of a new herbicide will be evaluated for its potential site-specific environmental effects and will be reviewed by the federal regulatory agencies (NOAA Fisheries Service and US Fish Wildlife Service) to insure no potential detrimental effects to threatened or endangered species.

III. ANALYSIS OF POTENTIAL EFFECTS OF THE ONGOING OR PROPOSED ACTION ON LISTED, PROPOSED AND SENSITIVE TERRESTRIAL VERTEBRATES

A. Direct and Indirect Effects of Noxious Weed Expansion

Maintaining quality big game habitats capable of supporting high populations of large ungulate prey species such as elk, deer and bighorn sheep is the primary consideration *for* gray wolf recovery. Avoiding human disturbance to den and rendezvous sites is also important *for* successful reproduction by this species. As previously stated, expansion of noxious weeds has the potential to alter native grass/forb plant communities to the point

where productivity is reduced by over 90% (Lacey 1983), especially on bunchgrass winter range sites. As a consequence, populations of preferred prey species could decline to the point where wolf numbers were greatly reduced or wolves would no longer be able to occupy the wilderness. Expansion of noxious weeds would not, however, affect den or rendezvous sites.

Protection and maintenance of roost sites, hunting perches and food resources are the primary considerations *for* bald eagle winter habitat. Expansion of noxious weed infestations would not affect roost sites (i.e. large trees), hunting perches or the fish portion of the prey base. However, *effects* of weed expansion on large ungulate populations, as previously discussed, would decrease the available carrion on winter ranges along the lower elevation drainages, including the main river.

Canada lynx generally occupies mid to high elevation forested habitats where snowshoe hares and red squirrels, their primary prey species, are found. Noxious weed expansion would have little if any effect on this species or populations of its preferred prey.

Protecting peregrine falcon eyeries from disturbance and maintaining quality habitats for small game and non-game birds, primary prey species, are the focal considerations for recovery of this species. Noxious weed expansion would have no effect on falcon eyeries. However, loss or alteration of native plant communities necessary to sustain prey populations could greatly affect the quality of peregrine falcon habitat within the wilderness.

Structural components of spotted bat and Townsend's big-eared bat habitats such as cliffs, talus, boulders and natural rock crevices that provide various roost requirements would not be affected by the presence of noxious weeds. However, the insect prey base these bats exploit are dependent upon the native plant communities. Loss or alteration of such plant communities would have deleterious effects upon the prey base and foraging efficiency of these species. Since bat species are subject to strict energy requirements during hibernation, lactation etc., any effects on foraging efficiency would likely be very consequential.

Structural components of northern goshawk and flammulated owl habitats, including nest sites, perches and roost trees, would not be affected by noxious weeds. However, like the bats, the prey bases for these two species are dependent upon healthy native plant communities. Any alteration of these communities would precipitate changes in species abundance or richness in the bird and small mammal populations required by goshawks as well as the insect populations utilized by flammulated owls.

Effects of Herbicides and Noxious Weed Treatment

Eating contaminated food is the main way that animals could receive doses of herbicides, either through direct consumption of herbicide-treated vegetation (such as an elk eating grass immediately after herbicide application) or by indirect consumption (such as a coyote eating a rabbit or a wolf eating an elk that has consumed herbicide-treated grass). Other methods of exposure such as dermal absorption after walking through treated vegetation would result in insignificant dose levels, so they are not included in this analysis.

There is abundant research on the effects of herbicides on domestic animals. Unfortunately, there is little information on the effects of herbicides on wild animals. As a means of resolving this data gap, data on selected domestic animals was assumed to be representative for similar wild species. These species group relationships are illustrated in Table 2.

Acute oral toxicity of a herbicide or pesticide is often expressed as the LD50, or the lethal dose needed to kill 50% of the population of a given species. Sensitivity of species varies greatly depending upon the actual chemical used or even the form of the particular chemical (i.e. acid or butyl ester forms of 2,4-D). Table 4 lists the LD50's for the four herbicides under consideration in this proposal. As a means of showing a worst-case scenario, figures given represent the most toxic form. Smaller LD50 numbers indicate higher toxicity than larger numbers.

Since the lowest LD50 values are for 2,4-D, a worst-case toxicity risk assessment can be calculated for that herbicide, and risks from the other chemicals can be assumed to be somewhat less.

Table 2. Domestic Animals Representing Wild Species Groups

Domestic animals studied for herbicide toxicity	Comparable Wild Species Group
mouse	all small wild rodents
dog	coyotes, red foxes, wolves
cat	lions, bobcats
pigeon	seed eating songbirds, chuckar and grouse
rabbit	varying hare, western cottontail
cow	all wild ungulates including elk, deer, sheep, goats,and moose

Table 4. LD50's for domestic animals

Species	Picloram	2,4-D	Clopyralid	Glyphosate	Metsulfuron methyl	Imazapic (Plateau)
Mouse	2,000-4,000	368	na	na	>2000	na
Rat	8,200	375	2675	4,320	>2000	>5000
Dog	na	100	na	na	>2000	na
Cat	na	820	na	na	na	na
Chicken	6,000	541	na	15,000 (no effect)	na	na
Mallard	>2,000	1000	na	>2,000	2510	na
Pigeon	na	668	na	na	>2000 (quail)	2150
Rabbit	2,000	424	na	3,800	>2000	na
Cow	540	100	na	na	na	na
Mule deer	na	400-800	na	na	na	na

*na – not available

Two species groups appear to be most sensitive to 2,4-D. This includes the dog (representing wild canids) with an LD50 of 100 milligrams per kilogram of body weight, and the cow (representing wild ungulates) with an LD50 of 100. According to a study done by Hoerger and Kenaga (l972), as cited in the FEIS for noxious weed management on the Lolo National Forest (USDA Forest Service 1991), an application rate of one pound per acre results in a herbicide concentration on range grass of 125 mg/Kg. Assume that at two pounds per acre application rates, the concentration would be 250 mg/g and that the animals feed immediately after spraying and on nothing but sprayed vegetation.

The worst-case dose calculations for cattle and elk is as follows:

Cattle. Assuming that a steer eats 75 pounds of green forage/day (35 Kg/day) and weighs 1000 lbs. (450 Kg), the dosage is 250 mg/Kg x 35 Kg/steer x steer/450Kg = 19 mg/Kg This figure is only 19 percent of the LD50, so 2,4D at prescribed rates can thus be considered to be fairly non-toxic to cattle.

Elk. Assuming that an elk eats 36 pounds of green forage/day (16.4 Kg/day) and weighs 500 lbs. (230 Kg), the dosage is 250 mg/Kg x 16.4 Kg/elk x elk/230 Kg = 18 mg/Kg. This figure is only 18 percent of the LD50, so assuming that elk have an LD50 comparable to cattle, 2,4-D at prescribed rates can be considered fairly non-toxic to elk.

Another concern with herbicide toxicity is long-term exposure. According to Monnig (1988), these herbicides are excreted rather rapidly from tested animals, generally through the kidneys. Animals fed extremely high concentrations in laboratory conditions had either very low or undetectable concentrations in internal organs. Thus, it appears that warm-blooded animals retain very little ingested herbicide.

Impacts on canine predators, represented by the dog, from secondary herbicide consumption can be calculated by the following process:

Canine Predators. Monnig (1988) stated that the maximum muscle/organ concentrations of these herbicides is 0.1 mg/Kg. Therefore, if a 50 lb. (23 Kg) coyote consumes 12 1bs. (5.5 Kg) of road-kill elk in a given day, the dosage is calculated as 0.1 mg/Kg x 5.5 Kg/coyote x coyote/23 Kg = 0.02 mg/Kg. This represents less than 1/400th of the. LD50.

According to the Sassman et al. (1984), 2,4-D breaks down very rapidly and seldom persists longer than a month. When ingested, it is not soluble in fats or lipids. In addition, the scientific evidence reviewed in the Human Health Risk Assessment indicates the herbicides are quickly excreted by exposed animals. Thus, effects on predators such as wolves or on raptors such as bald eagles or peregrine falcons are not reasonably expected. Because these herbicides do not bioaccumulate, the cumulative impacts of spraying sites inside and outside the wilderness would be insignificant.

A herbicide spill could result in concentrations hundreds of times greater than that occurring in treated areas. Potentially, if an animal were to feed exclusively within a spill area for an extended period of time, the LD50 could be exceeded. It's assumed, however,

that spills of concentrated herbicide will be immediately treated as a toxic waste spill, that the area impacted will be small, and that animals will be largely excluded due to human activity in the area. Consequently, spills do not comprise a significant risk to wildlife populations. Additionally, the number of animals affected by such an event would be small due to the local nature of such events.

Detailed ecological risk assessments for all herbicides mentioned above can be found at;
http://www.fs.fed.us/foresthealth/pesticide/risk.htm
http://extoxnet.orst.edu/pips/ghindex.html.

Some summary information from these sites is presented below for 2,4-D, the most toxic of the herbicides proposed for use in the Frank Church Wilderness Noxious Weed program.

- **Fate in humans and animals:** The absorption of 2,4-D is almost complete in mammals after ingestion and nearly all of the dose is excreted in the urine. The compound is readily absorbed through the skin and lungs. The half-life is between 10 and 20 hours in living organisms. There is no evidence that 2,4-D accumulates to significant level in mammals or in other organisms [20]. Between 6 and 8 hours after doses of 1 mg/kg, peak concentrations of 2,4-D were found in the blood, liver, kidney, lungs, and spleen of rats. There were lower levels in muscle and brain. After 24 hours, there were no detectable tissue residues.
- **Effects on birds:** 2,4-D is slightly toxic to wildfowl and slightly to moderately toxic to birds. The LD50 is 1000 mg/kg in mallards, 272 mg/kg in pheasants, and 668 mg/kg in quail and pigeons [5-7].
- **Chronic toxicity:** Rats given high amounts, 50 mg/kg/day, of 2,4-D in the diet for 2 years showed no adverse effects. Dogs fed lower amounts in their food for 2 years died, probably because dogs do not excrete organic acids efficiently.

Effects of non-chemical control

The no-chemical control practices such as pulling and chopping would have no direct impact on threatened, endangered, propose or sensitive species or wildlife in general. Weed crews, particularly during the spring months, may temporarily disturb individual animals of species ranging from big game to non-game birds. This disturbance however should be of short duration and very low impact.

C. Interrelated and Interdependent Actions

Interrelated and/or interdependent actions include additional noxious weed treatment that may occur on state, private and other federal lands adjacent to the Wilderness.

D. Cumulative Effects

"Cumulative effects" are defined in 50 CPR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. " Cumulative effects analysis has been developed for each of the watershed BAs and BEs for the Forests.

Since the location, extent, type or amount of noxious weed treatment activities are not predictable beyond the short-term, it cannot be stated with any certainty what additional cumulative effects would occur as a result of this proposal. It is expected, however, that as a result of implementing the proposal that a significant reduction of the total potential ecological effects that would be caused by unchecked noxious weed expansion will be realized. Thus maintaining the natural vegetative character of the Wilderness and other species dependent on these native plant communities.

IV. MITIGATION MEASURES

❖ Ground disturbances resulting from weed management activities would be revegetated with an appropriate, certified noxious weed-free native seed mix and fertilized as necessary.

❖ Provisions would be specified as needed for the prevention and control of weeds when new and existing special use permits (e.g. outfitter/Guides) are issued/reissued.

❖ Weeds which are wind dispersed will be bagged and disposed of if they are hand-pulling during the flowering to seed set stage.

❖ Adjacent landowners would be notified prior to treatment of noxious weeds on National Forest lands.

❖ All weed treatment would be coordinated with Forest botanists. Site-specific treatment guidelines, approved by the Forest Botanist, would be developed for infestations within or adjacent to known sensitive plant populations. All treatment sites would be evaluated for sensitive plant habitat suitability; suitable habitat would be surveyed as necessary prior to treatment.

❖ Treatment areas would be signed prior to and following herbicide applications within areas of special concern. In addition, information on where and when spraying and other treatments. would occur would be available to the public at the local Ranger District office.

❖ Application of any herbicides to treat noxious weeds would be performed by or directly supervised by a State licensed applicator.

❖ Procedures for mixing, loading, application and disposal of herbicides will be strictly in accordance with label directions and all applicable state or agency guidelines.

❖ EPA would be consulted annually for new information about herbicides proposed for use. Recommendations will be followed to ensure the most safe and effective use.

❖ If new herbicides are developed likely to be more effective at weed control, their use will be evaluated for impacts to resources analyzed in the FEIS.

❖ All herbicide use will comply with applicable laws and guidelines.

V. MONITORING AND EVALUATION

Monitoring associated with Integrated Weed Management within the FC-RONRW will continue to focus upon (1) trends in infestation number, size and density (2) the effect of noxious/invasive weed infestations on native vegetation and other wilderness resources (3) the effect of treatments on target weeds and desirable vegetation and (4) effectiveness of treatments as implemented. A detailed description including forms and anticipated timeline for monitoring can be found in Appendix H of the FEIS (http://www.fs.fed.us/r4/sc/recreation/fcronr/weed/appendixh.pdf).

Data gathered through monitoring will determine if management strategies are retained or adjusted. If adjustments are necessary, they will be implemented as quickly as possible. Monitoring information will be disseminated to the public as effectively as possible utilizing such methods as mailings and the Internet. The Forest Service will work with researchers and interested partners in developing and implementing monitoring protocols (1999 ROD, page 12).

VI. DETERMINATION

Noxious weed treatment within the Frank Church River of No Return Wilderness has and will continue to take place as described in the 2004 Noxious Weeds Supplemental Environmental Impact Statement. This in turn with minor modifications will implement weed control with techniques and strategies as outlined in the 1999 Frank Church River of No Return Noxious Weeds FEIS.

While this proposal prescribes the minimum tool for effective treatment of target weed species it also provides measures which allow for the appropriate method to contain and eradicate those more aggressive weeds and weed stands which have reached the size where traditional approved weed treatment methods are no longer effective.

The determination of effects for listed and sensitive species remains the same as that noted in the original 1999 Biological Assessment. The addition of a new herbicide does not change the determination because the toxicity of this herbicide is lower than the herbicides analyzed in 1999. Although species status may have changed since 1999 no new species have been added to the TES list since 1999.

Determinations of effects, by species, for the preferred alternative, Alternative 2, to treat noxious weeds within the Frank Church River of No Return Wilderness are as follows:

Listed and Proposed Species

Gray wolf-Not likely to jeopardize the continued existence of the species
Bald eagle-May affect, not likely to adversely affect
Canada lynx-May affect, not likely to adversely affect
Grizzly bear – may effect, not likely to adversely affect

Forest Service Sensitive Species

American peregrine falcon, Spotted bat, Townsend's big-eared bat, northern goshawk and flammulated owl - May impact individuals but not likely to cause a trend towards federal listing or loss of viability.

Rationale

The noxious weed treatment being proposed recommends the use of the "minimum tool" treatment to address the current and future noxious weed infestations within the Wilderness. The minimum tool method provides the flexibility to treat noxious weeds with the appropriate response while minimizing effects to other wilderness resource values. The results of implementing this proposal will meet the intent of wilderness law and policy while providing a net benefit to the maintenance of biological diversity, native plant communities and the fauna dependent on these communities. The highest potential risk to terrestrial vertebrates is from a spill or delivery of herbicide to habitats where species are present. The potential risk is based on the type of herbicide, its persistence and toxicity, the amount spilled or delivered, the size of the affected area, and other factors. In the worst-case analysis of commonly used herbicides, available information indicates that any potential effects would be limited and of short duration.

Noxious weed treatments similar to those being proposed in the Wilderness have been conducted for many years in non-wilderness areas, including areas immediately adjacent to the Wilderness, with no apparent adverse effects on these species or their habitats. The success of the forest noxious weed program outside of wilderness (with no or minimal effects to other resources) provides sufficient evidence that a similar program can be conducted within the Wilderness with the same results. In addition, all herbicides proposed for use have been extensively tested, carry specific and detailed label instructions for application and pose little or no threat of impact on any of the listed species under consideration. Specific characteristics and properties of herbicides, as well as buffers, maximum wind speed and application methods to be used near riparian and wetland resources can be found in Appendix J of the Salmon-Challis Forest Noxious Weed Management Program FEIS (http://www.fs.fed.us/r4/sc/projects/weeds/feis/AppJ.pdf).

VII. REFERENCES

Asher, Dewy, Olivarez, 2001; Reducing the Spread of Invasive Exotic Plants Following Fire in Western Forests, Deserts and Grasslands, Pages 102–103 *in* K.E.M. Galley and T.P. Wilson (eds.). Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species. Fire Conference 2000: the First National Congress on Fire Ecology, Prevention, and Management. Miscellaneous Publication No. 11, Tall Timbers Research Station, Tallahassee, FL.

Federal Noxious Weed Act. 1974. Public Law 93-629.

Lacey, J.R. 1983. The knapweed takeover. Knapweed Update 1:3. Plant and Soil Science Dept., Montana State Univ., Bozeman, Montana.

Hoerger F; Kenaga EE. 1972. Pesticide residues on plants: Correlation of representative data as a basis for estimation of their magnitude in the environment. In: Environmental Quality and Safety, Volume I: Global Aspects of Toxicology and Technology as Applied to the Environment. F. Coulston and F. Kerte (eds.). Academic Press, New York, NY. pp. 9-28.

Monnig, E. 1988. Human health risk assessment of herbicide applications to control noxious weeds and poisonous plants in the Northern Region. USDA Forest Service, Northern Region, Missoula, MT. Rpt. 88-9, 218pp.

Oregon State University (OSU). 1994. Extension Toxicology Network, Pesticide Information Profiles. Accessed at http://extoxnet.orst.edu/pips/ghindex.html.

Sassman, J.F., R. Pienta, M. Jacobs and J. Cioffi. 1984. Pesticide background statements, Vol.1. Herbicides. Agric. Handbook, 633. Washington, D.C.: U.S. Dep. Agric., For. Service 1~75pp.

USDA Forest Service. Pesticide Management and Coordination. http://www.fs.fed.us/foresthealth/pesticide/risk.htm

USDA Forest Service. 2003. Salmon-Challis National Forest Noxious Weed Management Program Final Environmental Impact Statement. Salmon, Idaho

USDA Forest Service. 1991. Noxious weed management, Final Environmental Impact Statement

USDA Forest Service. 1990. Forest Service Manual Title 2300, Chapter 2320, Wilderness Mgmt., USFS, Washington, D.C.

USDA Forest Service. 2003. Bitterroot National Forest. Noxious Weed Treatment Project. Final Environmental Impact Statement. Hamilton, MT.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants;

establishment of a nonessential experimental population of gray wolf in central Idaho; final rule. Federal Register 59: 60252.

(The) Wilderness Act. 1964. Public Law 88-577.

BIOLOGICAL EVALUATION FOR THREATENED, ENDANGERED AND SENSITIVE PLANTS

Frank Church River of No Return Wilderness (FC-RONRW) Noxious Weed Treatment Supplemental EIS

Bitterroot, Nez Perce, Payette, and Salmon-Challis National Forests

- The proposed action should not affect any threatened, endangered, proposed or candidate plant species. No populations or habitat of any threatened, endangered, proposed or candidate plants are currently known to occur in the FC-RONRW.
- The proposed action may impact individual sensitive plants but will not affect long-term viability or result in the federal listing of any sensitive plant in FC-RONRW.
- All weed treatments will be coordinated with Forest Botanists. All treatment areas will be evaluated for potential threatened endangered, proposed, candidate and sensitive plant habitat and surveyed as needed.

Prepared by: /s/ *Alma M. Hanson* Date: 8/13/04

Alma M. Hanson, Forest Botanist, Payette National Forest

Table of Contents

I. Introduction

This document reviews the possible effects of the preferred alternative of the Frank Church-River of No Return Wilderness (FC-RONRW) Noxious Weed Treatment Supplemental EIS on threatened, endangered, proposed, candidate, and sensitive (TEPCS) plants on the Bitterroot, Nez Perce, Payette and the Salmon-Challis National Forests. According to the U.S. Fish and Wildlife Service (USFWS) species list updates (USFWS, 2004) the FC-RONRW has no known occurrences of any threatened, endangered, proposed or candidate (TEPC) plant species. Currently, the USFWS requires no consultation or project analysis for any TEPC plant species but asks that botanical surveys done for project analysis continue to survey habitats for Ute ladies tresses (*Spiranthes diluvialis),* Macfarlane's four-o'clock (*Mirabilis macfarlanei)*, Spalding's catchfly *(Silene spaldingii*) and the candidate species Skinny moonwort (*Botrychium lineare*) because suitable habitat may occur in the FC-RONRW.
Eight sensitive or proposed sensitive plants or their habitat occur in the noxious weed control treatment area: Payson's milkvetch (*Astragalus paysonii*), Giant helleborine (*Epipactis gigantea*), Puzzling halimolobos (*Halimolobos perplexa var. perlexa)*, Davis stickseed (*Hackelia davisii)*, pored lungwort (*Lobaria scrobiculata)*, Bank monkeyflower (*Mimulus clivicola)*, Lemhi penstemon (*Penstemon lemhiensis*), and Borsch's stonecrop (*Sedum borschii)*. Herbicide treatment could affect some individual plants listed above but mitigation should prevent the loss of population viability and federal listing. Noxious weed control in sensitive plant habitat could help increase the overall quality of the habitat and assure long-term viability.

II. Current Management Direction

The Forest Service Manual (FSM 2670) directs the Forest Service to avoid all adverse impacts on threatened and endangered species and their habitats except when possible to compensate through alternatives identified in a biological opinion rendered by the USWFS (FSM 2670.31). Forest Service also manages for sensitive plants. Manual 2670.5 defines sensitive species as "those plant and animal species identified by a Regional forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers, density, or habitat capability that reduce a species existing distribution".

III. Description of the Proposed Action

The FC-RONRW covers over 2 million acres in central Idaho and includes parts of Custer, Idaho, Lemhi, and Valley counties. The Bitterroot, Nez Perce, Payette, and Salmon-Challis National Forests share administration and management of the FC-RONRW. The area is dissected by two major river systems: the Middle Fork of the Salmon River and portions of the Main Salmon River. The lower South Fork of the Salmon River and the upper Selway River also drain parts of the FC-RONRW. A number of vegetation types occur in the FC-RONRW. The

warm, dry canyons and adjacent river breaks support grasslands, Ponderosa pine and Douglas fir habitats. The wetter and cooler higher elevations support grand fir, subalpine fir, lodgepole pine, and whitebark pine communities.

Pest Management Directions

In 1999, the Forest Supervisors of the Bitterroot, Payette, Nez Perce and Salmon-Challis National Forests signed a Record of Decision to implement the selected alternative to manage noxious weeds in the FC-RONRW (USDA, 1999a). This document mitigates possible effects to TEPCS plants by requiring surveys in areas with potential habitat. Since 1999, large wildfires burned over 435,000 acres of wilderness and increased the spread of noxious and invasive plants. Studies in 1999 identified 1,775 acres of known noxious and invasive seed infestations in the FC-RONRW. In 2003, over 5200 acres of noxious and invasive weeds was identified in the FC-RONRW. The 2004 Supplemental Weed Management Plan addresses these ecological changes and proposes continuation of the 1999 weed plan with specific modifications. This Biological Assessment and Evaluation addresses the effects of the proposed actions in the Supplemental EIS (USDA, 2004) on TEPCS plants.

Proposed Actions

The 2004 noxious weed Supplemental Environmental Impact Statement (SEIS) will continue implementation of the 1999 FC-RONW Noxious Weed Treatments Final Environmental Impact Statement (USDA, 1999a) and:

- Continue to use existing general priorities to guide decisions on weed treatment. Rangers may modify priorities and will consider recommendations of the Cooperative Weed Management Area Steering Committee.
- Clarify that the matrix "Treatments Incorporating Minimum Tool Approach" will guide selection of treatment methods.
- Utilize biocontrol strategically in combination with other control measures. Biocontrol is not necessarily exclusive of other management options, but rather one tool to be used when and where appropriate.
- Clarify that applications using pumps and apparatus properly mounted on jet boats, with spray nozzles operated by applicators on land are considered ground-based.
- Apply herbicides at rates not to exceed label recommended rates.
- Calibrate applicators and equipment at the initiation of the herbicide application project and periodically during herbicide application.
- Continue to consider herbicides previously approved for use in the FC-RONRW.
- Utilize Plateau to aid in future restoration projects by treating and eliminating annual exotic grass species. Any future restoration projects, including the use of Plateau, will be analyzed for its potential site-specific environmental effects
- Utilize the noxious/invasive weed prevention plan that incorporates various State laws, Forest Service regulations and policies, and general practices appropriate for the FC-RONRW.

- Continue the weed management coordination that is currently taking place, including the establishment of a Cooperative Weed Management Area.
- Continue the education of wilderness users regarding noxious and invasive weeds.
- Continue inventory and detection of noxious/invasive weeds in a coordinated manner.

Mitigation

Mitigation would take place as described in the 1999 Weed EIS and the preferred alternative in the 2004 SEIS. The 2004 analysis concluded that proposed treatments would not likely adversely affect any TEPCS plant species if appropriate mitigation measures were followed during implementation of the proposed actions. Mitigation measures that would specifically prevent impacts to TEPCS plant include the following:

- Surveys will be conducted in potential habitat before any herbicide is applied.
- Existing populations of Payson's milkvetch, giant helleborine, pored lungwort lichen, Davis' stickseed, Borsch's stonecrop and Lemhi penstemon will be protected and avoided. The appropriate herbicide will be used depending on weed species to be eradicated and sensitive species present.
- Surveys will be conducted in potential suitable habitat before any herbicide is applied. If any new populations are found, the forest botanist will be notified, and the herbicide treatment plan will be modified as necessary. Prior to and following treatment, known populations will be monitored to determine treatment effects, so that future treatments could be adjusted as necessary.
- All weed treatment will be coordinated with forest botanists. Site-specific treatment guidelines, approved by the forest botanist, would be developed for infestations within or adjacent to known sensitive plant populations. All treatment sites would be evaluated for sensitive plant habitat suitability.

These mitigation measures were designed to protect and maintain population viability and habitat of TEPCS plant species, and were incorporated into the 2004 Record of Decision for treatments using herbicides.

IV. Existing Environment

Threatened/Endangered Species - Occupied and Unoccupied Habitat
No known historical populations of any TEPC plants occur in the FC-RONRW. Because potential habitat for TEPC plants was thought to occur on the National Forest lands, the USFWS from 1995 to 2002 added four threatened, and one candidate plant species to the 90-Day Species List on different Forests within the FC-RONRW. During that time, the botanists identified possible suitable habitat and analyzed projects effects to the threatened species *Spiranthes*

diluvialis, Howellia aquatilis, *Mirabilis macfarlanei*, *Silene spaldingii* and the candidate species *Botrychium lineare* until surveys were completed. Table 1 lists the threatened, endangered and candidate plants consulted on in the past and describes their global and state rarity ratings as well as their global distribution.

Today the USFWS no longer identifies any listed or candidate plant species in the 90-Day Species List Update (USFWS, 2004) that should be addressed in a biological assessment. However, the USFWS maintains distribution information for the above species and asks that the Forests continue to watch for suitable habitat and plants during project surveys.

Past botanical surveys in the FC-RONRW found no occupied habitat but large areas of the FC-RONRW remain unsurveyed and may contain potential habitat for the TEPC plant species listed above. This biological assessment recognizes that there is a chance that these species could be found in the FC-RONRW and briefly describes their habitat and evaluates their probability of occurring in the FC-RONRW.

Potential habitat for the threatened species, Ute ladies tresses (*Spiranthes diluvialis)* may occur on all Forests in mesic meadows and floodplains in low gradient valley bottoms. No populations of this plant were found during past surveys and probability of this plant occurring in the proposed action area is low because treatment areas contain few mesic meadows or low gradient floodplains. The closest population in Idaho occurs over 200 miles away on the South Fork Snake River in Bonneville County.

No potential habitat for threatened species water howellia (*Howellia aquatilis)* occurs in the proposed action area. This regional endemic grows in seasonal pools, ponds and old river oxbows. The closest population occurs about 200 miles away in northern Idaho and western Montana.

Potential habitat for the threatened species Macfarlane's four-o'clock (*Mirabilis macfarlanei*) may occur within the proposed action area in the grassland habitats in the vicinity of Mackey Bar upstream to Rhett Creek on the Nez Perce and Payette National Forest. This species is a local endemic found on terraces and slopes supporting bluebunch wheatgrass. Past surveys within the possible potential habitat of the proposed treatment areas have found no plant populations. The closest population of *Mirabilis macfarlanei* occurs about 60 air miles west of the project area.

Potential habitat for the threatened species, Spalding's catchfly (*Silene spaldingii)* may occur within the proposed action area in the grassland and shrub habitats on both the Nez Perce and Payette National Forests. This species grows on the Palouse prairie in bunchgrass/ shrub communities. No populations of this plant were found during past surveys in the FC-RONRW. The probability of this plant occurring in the proposed action area is low because the plant typically prefers the loess soils of the prairie. The closest known population occurs about 35 miles away in another drainage of the lower Salmon River.

Potential habitat for the candidate species, *Botrychium lineare*, may occur within the proposed action area in montane forest or meadow habitats on all Forests. The closest population occurs

about 60 miles away on the Sawtooth National Forest. This species usually occurs at higher elevations were weed treatment would not occur (Pierson, 2003).

Table 1. Federally Listed Threatened and Candidate Plants previously addressed in the FC-RONRW .

Species Name	Common Name	Global[1]	State[2]	USFWS	Global District
Botrychium lineare	Slender moonwort	C –G1	SH	Candidate for federal listing	sd
Howellia aquatilis	Water howellia	T- G2	S1	Fed. listed	sd
Mirabilis macfarlanei	MacFarlane's four-o-clock	T - G2	S2	Fed. listed	le
Silene spaldingii	Spalding's silene	T - G2	S1	Fed. listed	re
Spiranthes diluvialis	Ute Ladies' tresses	T - G2	S1	Fed. listed	Sd

[1]**Global** - Global ranking as assigned by Natural Heritage Program and Idaho Native Plant Society. **T** = Threatened, **C** = Candidate. **G1** = Globally Critically Imperiled, **G2** = Globally Imperiled [2]**State** - Idaho State Ranking. **SH** = State Historical Occurrence, **S1** = State Critically Imperiled, **S2** = State Imperiled **Global Distribution** - **d** =disjunct, **le** = local endemic (< 100 square miles), **re** = regional endemic (distribution 100-10,000), **sd** = sparsely distributed (isolated populations), **p** = peripheral, **w** = widespread, **cb** = circumboreal, circumpolar.

Sensitive Plant Species - Occupied and Unoccupied Habitat

The Regional Forester through direction outlined in FSM 2670 compiles the sensitive plant lists for the Salmon-Challis, Nez Perce, Payette, and Bitterroot National Forests. The current sensitive plant lists established by the Regional Foresters in 1999 includes 16 sensitive plant species on the Payette National Forest, 17 species on the Salmon-Challis, 25 on the Nez Perce, and 6 on the Bitterroot in Idaho (USDA, 1999b; USDA, 2003b). The Regional list of sensitive plants is updated periodically but these dynamic lists do change as new scientific information on species distributions becomes available to Forest botanists. The Payette's new Forest Plan (USDA, 2003a) currently protects 28 sensitive or proposed sensitive plants and recommends changes in the Regional list to more closely reflect the State of Idaho's rare plant list. These proposed species were considered in the effects analysis of this document.

Table 2 lists the sensitive species and proposed sensitive plants that currently have known populations or potential habitat in the FC-RONRW. The table also displays the habitat requirements for these species and the probability of their occurrence within the proposed project area. The Idaho Conservation Data Center (ICDC) maintains records and references of documented locations for sensitive plant species on the PNF. The pre-field analysis consults these records and references to determine if known or suspected sensitive species or their habitats occur in the analysis area. Eight of these species have known or potential habitat in the herbicide treatment area: Payson's milkvetch (*Astragalus paysonii*), Giant helleborine (*Epipactis gigantea*), Puzzling halimolobos (*Halimolobos perplexa var. perlexa)*, Davis stickseed (*Hackelia davisii)*, pored lungwort (*Lobaria scrobiculata)*, Bank monkeyflower (*Mimulus clivicola)*, Lemhi penstemon (*Penstemon lemhiensis*), and Borsch's stonecrop (*Sedum borschii).*

Table 2. Threatened, Endangered, Sensitive and Proposed Sensitive Plant Species in the FCRONR Wilderness

THREATENED, ENDANGERED, AND CANDIDATE PLANT SPECIES

Species Name (known to occur or with potential habitat in FCRONR)	Habitat or Plants *in Proposed Treatment/ Action Areas*	Geographic Distribution	Habitat or Community Type	Elevation Range (ft)	Successional Stage	Phenology
1. Botrychium lineare slender moonwort	No	Sparsely Distributed	Grassy slopes, streamside edges, and forest stands.	Sea level to 10,000	Early-mid	Fronds mature in August
2. Howellia aquatilis water howellia	No	Regional Endemic	Seasonal pools, ponds, and old river oxbows.	Sea level to 4,500	Early	Flowers July-August
3. Mirabilis macfarlanei MacFarlane's four-o-clock	Yes (Habitat only on Nez Perce)	Local Endemic	Terraces/toe slopes of dry bunchgrass grasslands.	1,000-3,000	Mid-late	Flowers May-June
4Silene spaldingii Spalding's silene	No	Local Endemic	Mesic grasslands of the Palouse Prairie.	2,800-4,200 in Idaho	Mid-late	Flowers late June to July
5. Spiranthes diluvialis Ute-ladies' tresses	No	Sparsely Distributed	Grass/forb mesic meadows and floodplains in low gradient valley bottoms.	3,000-7,000	Early-Mid	Leaves August - September

SENSITIVE PLANT SPECIES

Species Name (known to occur or with potential habitat in FCRONR)	Habitat or Plants *in Proposed Treatment/ Action Areas*	Geographic Distribution	Habitat or Community Type	Elevation Range (ft)	Successional Stage	Phenology
1. Allium validum Tall swamp onion	No	Sparsely Distributed	Swampy meadows, seeps and along stream edges in subalpine habitats.	Above 4,500	late	Flowers July-August
2. Allotropa virgata Candystick	No	Coastal Disjunct	Lodgepole pine, beargrass. Well drained, infertile soils.	4,000-7,000	mid to late	Flowers June-July
3. Astragalus paysonii Payson's milkvetch	Yes (plants and habitat Nez Perce and Payette)	Regional Endemic	Openings/gaps in mixed conifer forests.	4,000-7,000	early-mid	Flowers June-August
4.Astragalus vexilliflexus var. *vexilliflexus* Bent flowered milkvetch	No	Disjunct	Openings in subalpine forests.	7,000-9,000 in Idaho	Early-mid	Flowers late June to August
5. Botrychium lanceolatum var. lanceolatum Lance-leaved moonwort	No	Sparsely Distributed	Shaded moist sites under various conifers; dry to moist meadows.	1,500-6,000	mid - late	Leaves June-August
6. Botrychium pinnatum Northern moonwort	No	Sparsely Distributed	Shaded, moist sites under various conifers; dry to moist meadows.	1,500-6,000	mid - late	Leaves June-August
7. Botrychium simplex Least Moonwort	No	Circumboreal	Shaded moist sites under various conifers; dry to moist meadows.	1,500-6,000	mid-late	Leaves June - August
8. Bryum calobryoides	No	Rare in western	Cool moist microsites on cliff faces and on soil at high	3,000-6,000	mid-late	N/A

Species Name (known to occur or with potential habitat in FCRONR)	Habitat or Plants *in Proposed Treatment/ Action Areas*	Geographic Distribution	Habitat or Community Type	Elevation Range (ft)	Successional Stage	Phenology
Beautiful bryum		United States	elevations.			
9. Buxbaumia aphylla Leafless bug-on-a-stick	No	Sparsely Distributed	Moist acidic soil in upper montane to alpine zones	Above 4,500	mid-late	Sporophyte July-September
10. Buxbaumia viridis Green bug-on-a-stick	No	Sparsely Distributed	Openings in moist grand fir forest on large decayed logs and ash soils	1,500-5,000	late	Sporophyte June-September
11. Calamagrostis tweedyi Cascade reedgrass	No	Regional Endemic	Opening/meadows in subalpine fir/beargrass	7,000-8,000	early-mid	Flowers June-July
12. Carex buxbaumii Buxbaum's sedge	No	Circumboreal, but uncommon	Peat bogs and wet meadows	2,000-6,500	early-mid	Flowers August
13. Carex hendersonii Henderson's sedge	No	Coastal Disjunct	Shaded understory of western red cedar. Shaded toe slopes of valley bottom.	2,000-4,000	mid-late	Flowers May-June
14. Cetraria subalpina Subalpine cetraria	No	Coastal Disjunct	Subalpine zone on ericaceous shrubs, at edges of rocky openings	Above 6,000	late	Surveys July-October
15. Cypripedium fasciculatum Clustered ladyslipper	No	Sparsely Distributed	Partial shade of moist cedar, grand fir, or Douglas-fir	1,600-4,800	mid-late	Flowers May-June
16. Douglasia idahoensis Idaho douglasia	No	Local Endemic	Open, broad, subalpine ridges; unstable granite substrate.	7,000-8,000	late	Flowers July
17. Epipactis gigantea Giant helleborine	Yes	Sparsely Distributed	Minerotrophic seeps and springs; thermal waters	1,800-5,000	mid-late	Flowers June-July
18. Hackelia davisii Davis stickseed	Yes	Local endemic	Shady cool rock and cliffs in river canyons	1,000-2,000	Early-mid	Flowers April - June
19. Halimolobos perplexa vars. *perplexa* and *lemhiensis* Puzzling halimolobos	Yes, (habitat only, Nez Perce, Payette, Bitterroot)	Local Endemic	Ponderosa pine-grassland zone adjacent to rock outcrops, in shallow soils	3,000-7,300	early-late	Flowers May-June
20. Helodium blandowii Blandow's helodium moss	No	Circumboreal	Wetlands and riparian area.	4,000-7,300	Late	NA
21. Lewisia kelloggii Kellogg's bitterroot	No	Regional Endemic	Rock outcrops and decomposed granites.	4,000-8,000	Early-mid	April - July
22. Lobaria scrobiculata Pored lungwort	Yes	Circumboreal	Forest understory on rocks and moss in moist areas	600-1750	mid-late	NA
23. Mimulus clivicola Bank monkeyflower	Yes, (habitat only, Payette)	Regional Endemic	Pockets of exposed soil in grassland and open ponderosa pine.	2,000-4,000	early	Flowers May-June
24.. Penstemon lemhiensis Lemhi penstemon	Yes (plants and habitat, Bitterroot and S-C NF)	Local Endemic	Grasslands and open ponderosa pine stands.	3,200-8,100	early-mid	Flowers June
25.Ribes wolfii Wolf's currant	No	Disjunct	Forest understory in moist area	3,000-7,000	mid-late	Flowers May-July
26. Sedum borschii Borsch's stonecrop	Yes	Sparsely distributed	Rock talus and scree	2,000-5,000	mid-late	Flowers April-July
27. Sphagnum mendocinum Mendocino sphagnum	No	Coastal Disjunct	Spaghnum wetlands in montane-subalpine zone.	Above 5,500	late	Surveys July-October

Species Name (known to occur or with potential habitat in FCRONR)	Habitat or Plants *in Proposed Treatment/ Action Areas*	Geographic Distribution	Habitat or Community Type	Elevation Range (ft)	Successional Stage	Phenology
Idaho barren strawberry			cedar			July

Originally compiled by Alexia Cochran, BLM, detailed to Salmon-Challis NF's, Idaho, September 2003. Revised by Alma Hanson, Forest Botanist, Payette National Forest, January 2004.
***NOTE**: Some species are designated Sensitive on the Bitterroot NF in Montana, but are more common in Idaho and/or have no special status in Idaho NFs.

Table 3. Federal and State Status, Current and Proposed Forest Service Status, of the TEPCS Plant Species considered in the FC-RONRW.

Species Name	Common Name	Global	State	Forest Service Status			
			ID/MT	Bitter-root	Nez Perce	Payette	Salmon/ Challis
Allium validum	Tall swamp onion	G4	S3/NR	-	-	S	-
Allotropa virgata	Candystick	G4	S3/S3	S	S	S	-
Astragalus paysonii	Payson's milkvetch	G3	S3/NR	-	S	S	-
Astragalus vexilliflexus var. *vexilliflexus*	Bent flowered milkvetch	G4	S1/SR	-	-	S	-
1) Botrychium lanceolatum	Lance-leaved moonwort	G5T4	S3/SR	-	S	-	-
2) Botrychium lineare	Slender moonwort	C-G1	SH/S1	-	-	-	-
3) Botrychium pinnatum	Northern moonwort	G4?	S2/SR	-	S	-	-
4) Botrychium simplex	Least moonwort	G5	S2/SU	-	-	S	-
Bryum calobryoides	Beautiful bryum	G3	SH/SH	-	-	-	-
Buxbaumia aphylla	Leafless bug-on-a-stick	G4G5	S1/NR	-	S	-	-
Buxbaumia viridis	Green bug moss	G4	S2/S?	-	S	S	-
Calamagrostis tweedyi	Cascade reedgrass	G3	S2/S3	-	-	S	-
Carex buxbaumii	Buxbaum's sedge	G5	S3/SR	-	S	S	-
Carex hendersonii	Henderson's sedge	G5	S3/NR	-	S	-	-
Cetraria subalpina	Subalpine cetraria	G4	S2/NR	-	S	-	-
Cypripedium fasciculatum	Clustered ladyslipper	G4	S3/S2	-	S	-	-
Douglasia idahoensis	Idaho Douglasia	G2	S2/NR	S	S	S	-
Epipactis gigantea	Giant helleborine orchid	G3G4	S3/S2	S	S	S	-
Hackelia davisii	Davis' stickseed	G3	S3/NR	-	-	S	-
Halimolobos perplexa var. perplexa	Puzzling halimolobos	G4/T3	S3/NR	-	S	S	-
Helodium blandowii	Blandow's helodium	G5/?	S2/NR	-	-	S	-
Howellia aquatilis	Water howellia	T-G2	S1/S2	-	-	-	-
Lewisia kelloggii	Kellogg's bitterroot	G4	S2/NR	-	-	S	-
Lobaria scrobiculata	Pored lungwort	G3/G4	S1/NR	-	-	S	-
Mimulus clivicola	Bank Monkeyflower	G4	S3/NR	-	-	S	-
Mirabilis macfarlanei	MacFarlane's four-o-clock	T-G2	S2/NR	-	-	-	-
Penstemon lemhiensis	Lemhi penstemon	G3	S3/S2	S	-	-	-
Ribes wolfii	Wolf's current	G4	S2/NR	-	-	S	-
Sedum borschii	Borch's stonecrop	G3	S2/S3	-	-	S	-
Silene spaldingii	Spalding's silene	T-G2	S1/S1	-	-	-	-
Spiranthes diluvialis	Ute Ladies' tresses	T-G2	S1/S2	-	-	-	-
Sphagnum mendocinum	Mendocino sphagnum	G4	SH/NR	-	-	-	-
Waldsteinia idahoensis	Idaho barren strawberry	G3	S3/S1	-	-	-	-

Global - Global ranking as assigned by Natural Heritage Program, **G1 –** Globally critically imperiled, **G2 –** Globally imperiled, **G3 –** Globally rare or uncommon but not imperiled. **T=** Threatened, **C** = Candidate. **State** - Idaho State ranking, **SH =** State Historical Occurrence, **S1 =** State critically imperiled, **S2** = State Imperiled, **S3** = not or uncommon but not Imperiled. **NR** = Not Ranked

Forest Service Status - **S** = Region 4 Sensitive.

Table 3 lists the status of the TEPCS species with known or suspected habitat in the FC-RONRW. Only those species with known habitat or identified potential habitat within the treatment areas were considered in the affects analysis. All other sensitive species were not considered because they have a very low probability of occurring within the elevation and climatic ranges of the treatment area.

Payson's milkvetch (*Astragalus paysonii*)

Payson's milkvetch (*Astragalus paysonii*), a perennial herb of Pea family (Fabaceae), forms a taproot or short caudex. The numerous ascending stems reach heights of 2-4.5 dm. Compound odd-pinnately leaves are 4-9 cm long with the number of leaflets ranging from 7-15. The numerous auxiliary racemes bear small, white to purplish, pea-like flowers. The glabrous to white-hairy, fruit pods are 10-17 mm long and narrowly crescent shaped (Spahr et al, 1991).

This regional endemic from central Idaho and Wyoming is primarily found in areas disturbed by natural and human processes at elevations between 4,000- 5,800 feet. Known as an early succession species, it occurs where road cuts, trails, and fires have exposed mineral soil. Fire suppression, which contributes to plant succession and canopy closure, may be decreasing the potential habitat for this species (Lorain, 1990). Associated species included *Pinus contorta, Pseudotsuga menziesii, Pinus ponderosa, Thermopsis montanum, Calamagrostis rubescens, Xerophyllum tenax, Arctostaphyllos uva-ursi, Vaccinium scoparium, and Fragaria vesca.* A number of populations occur within the FC-RONRW.

Giant helleborine *(Epipactis gigantea)*

Giant helleborine *(Epipactis gigantea),* a leafy, glabrous, perennial herb of the orchid family (Orchidaceae) grows up to 1.5 m tall, with 1 to several stems from a creeping rhizome. Leaves are numerous, alternate, sessile, and 5-20 cm long. Flowers appear from April to August and are rather showy and borne singly in a long, narrow, open, mostly one-sided, leafy-bracted inflorescence at the top of the stem. Sepals and upper petals are 1.3-1.7 cm long, greenish-yellow or brownish in color with purple vein (Spahr et al, 1991).

Giant helleborine grows in moist areas along stream banks, lake margins, cool and thermal springs, between 1,800 and 5,000 feet in elevation often on rocky ledges. Associated species in Idaho include a scant overstory of Ponderosa pine with understories of willow, grasses and disturbance weed species such as thistle and nightshade. In the planning area giant helleborine occurs with alder, poison ivy, and sedges.

Giant helleborine is a widely distributed species and occurs from Canada to California. A number of populations are known to occur at thermal and cold springs on the main Salmon River within the FC-RONRW. Populations have been impacted throughout their range by grazing, construction and heavy recreation use of thermal hot springs (Spahr et al, 1991).

Puzzling halimolobos, *(Halimolobos perplexa var. perlexa)*

Puzzling halimolobos (*Halimolobos perlexa var. perplexa)*), a short-lived perennial or biennial herb member of the mustard family (Brassicaceae), supports stellate leaves with grayish 3-7 rayed bristles. The 1-5 cm long, deeply serrate-denate to shallowly pinnatifid leaves often forms basal rosettes. Stems branch from near the base and reach 1-3.5 dm tall. The white, to pinkish flowers are 3-8 mm long. Siliques are strongly tortulose and nearly terete (Spahr et al, 1991).

Two varieties of puzzling halimilobos occur in the study area. Variety *perplexa* occurs only in the Salmon River watershed in west-central Idaho, while *lemhiensis* occurs in east-central Idaho and western Montana.

Regional endemic species, they grow in unstable, gravelly or sandy slopes, road cuts, and dredge tailings composed of both quartzite and granites substrates. The elevation range of the plant extends from 3,000-5,000 feet. Sties with known populations vary from open to ones with a dense conifer canopy. Associated species included *Agropyron spicatum, Balsamorhiza sagittata, Pinus ponderosa, Festuca idahoensis, Artemisia tridentata,* and *Eriogonum umbellatum.* No populations are known to occur in the FC-RONRW but the open grasslands provide possible potential habitat.

Davis stickseed *(Hackelia davisii)*

Davis stickseed *(Hackelia davisii)* a slender perennial of the borage family (Boraginaceae) grows on lax, curved stems 2-3 dm tall. The often-sparse 10-12 mm flowers are blue with a yellow eye. The fruits are nutlets with marginal prickles. The clasping stem leaves help identify this species from other borage or wild forget-me-not.

Davis stickseed, a local endemic, is confined to the main Salmon River and Middle Fork Salmon River and drainages of theses rivers. The plant typically grows on north facing outcrops or partly shaded cliffs between 1,000and 2,000 feet in elevation. Sites with known populations occur on variable substrates of limestone, volcanic, and granite. A number of populations occur along the Middle Fork of the Salmon River. Associated species included *Pinus ponderosa, Pseudotsuga menziesii, Cystopteris fragilis, Heuchera cylindrica, and Poa secunda* (Moseley, 1989).

Pored lungwort lichen *(Lobaria scrobiculata)*

Pored lungwort lichen *(Lobaria scrobiculata)* is a foliose thallus lichen of the Lobariaceae family. The thallus is yellowish green to pale green to gray often with brown margins. Lobes are 10-20 mm across with depressions and ridges (scrobiculate). Typical habitat for the species is the costal areas of western Canada and northern California. The species grows on tree bases and mossy rocks and soils in mesic habitats along the Salmon River in the FC-RONRW (Brodo et al, 2001).

Bank monkeyflower (*Mimulus clivicola*)

Bank monkeyflower *(Mimulus clivicola)*, a small single-stemmed spring annual, is a member of the Scrophulariaceae (Figwort) family. Plants grow to 2-25 cm tall with strong glandular pubescence. Flowers are pink to pale purple with yellow spots in the throat.

Bank monkeyflower, a regional endemic of the interior Pacific Northwest, occurs throughout Idaho, Washington, and Oregon. Populations within the project area typically grow on exposed mineral soils with spring moisture on steep southern slopes between 2,500 to 5,400 feet in elevation. Associated species include *Pinus ponderosa, Pseudotsuga menziesii, Physocarpus malvaceous, Artemisia rigida, Poa secunda,* and *Spiraea betulifolia*. Threats to the species include road and trail construction and maintenance, invasion of exotic weeds and chemical spraying. No populations are known to occur in the FC-RONRW but potential habitat exists within the project area (Spahr et al, 1991).

Lemhi penstemon (*Penstemon lemhiensis)*

Lemhi penstemon *(Penstemon lemhiensis)*, a member of the Scrophulariaceae (Figwort) family, grows from a branched woody stalk to 4-8 dm in height. The blue to purple flowers appear from June to early July. A regional endemic, Lemhi penstemon, grows in southwestern Montana and adjacent Idaho at elevations ranging from 3,200-8,100 feet. The plant typically grows on varying parent material on steep gentle slopes in the open sagebrush and conifer communities. Associated species include *Pinus ponderosa, Pseudotsuga menziesii, Stipa comata,* and *Agropyron spicatum*. Grazing and livestock trampling, plus road construction, invasion of exotic weeds and chemical spraying along roadsides were identified as threats to this species (Spahr, et al, 1991). One population is known to occur at the eastern edge of the FC-RONRW.

Borsch's stonecrop, *(Sedum borschii)*

Borsch's stonecrop (*Sedum borschii*), a perennial herb of the Stonecrop family (Crassulaceae), grows in the mid to higher elevation mountains of the northern half of the Idaho Batholith. The yellow sessile to short-pedicellate flowers occur on terminal cymes mostly two or three parted. The floral bracts are similar to the leaves of the flowering stems but smaller. The alternate, sessile, elliptical green leaves with finely papillose margins form rosettes ranging from 4.8-7.5 cm in length. The leaves of the flowering stems are elliptic-oblong or oblanceolate, obtuse, papillose and pale green to red. Plants flower in May, June and July. *Sedum leibergii* appears most closely related to *S. borschii* (Clausen, 1975).

Borch's sedum, a disjunct species, occurs in the northern half of the Idaho Batholith, western Montana, Seven Devils Mountains, and the eastern edge of the Columbia Plateau. Clausen (1975) noted that the plants occupy a variety of rock types on cliffs and slopes. Sites with known populations vary from open to those with a canopy of large conifers. Associated species

included moss, lichens, *Sedum stenopetalum*, *Poa secunda* and *Pseudotsuga menziesii*. Numerous populations occur within the FC-RONRW.

V. Analysis of Effects

Threatened, Endangered, Proposed or Candidate Plant Species

No known occurrences of any threatened, endangered, proposed, or candidate plant species occur in the FC-RONR. There should be no direct, indirect or cumulative effects to any TEPC plant species.

Sensitive Plant Species

Potential habitat and known occurrences of sensitive plants has been identified in the FC-RONR. Direct, indirect and cumulative effects could occur to Payson's milkvetch (*Astragalus paysonii*), Giant helleborine (*Epipactis gigantea*), Puzzling halimolobos (*Halimolobos perplexa var. perlexa)*, Davis stickseed (*Hackelia davisii)*, pored lungwort (*Lobaria scrobiculata)*, Bank monkeyflower (*Mimulus clivicola)*, Lemhi penstemon (*Penstemon lemhiensis*), and Borsch's stonecrop (*Sedum borschii)*. Herbicide treatment could affect some individual plants listed above but mitigation should prevent loss of population viability and federal listing. Noxious weed control in habitat for these plants could help increase the overall quality of sensitive plant habitat and assure long-term viability. Mitigation would take place as described in the 1999 Weed EIS and the proposed action section of this biological assessment and evaluation.

Direct, Indirect, and Cumulative Effects

As stated in the 1999 Weed EIS, potential habitat for sensitive plants would be treated for noxious weeds as necessary. Effects for the weed treatments analyzed in the 2004 Weed SEIS would be the same (USDA-FS 1999a, pages 78-79). Implementation of the 1999 adaptive weed management strategy has resulted in successful treatment of noxious/invasive weeds from 2000 – 2003. Quantitative and qualitative monitoring reveals that the environmental effects of prescribed use of herbicides as a component of Integrated Weed Management are within the thresholds analyzed by this assessment and the 1999 EIS. Most herbicide treatments resulted in significant reduction in target weeds while non-target plant mortality was limited to forbs and some shrubs within the treatment area. In the few situations in which observed effects to non-target plants exceeded expectations, causal factors were evaluated and herbicide treatment practices were modified immediately.

The 2004 EIS (USDA, 2004) will authorize the use of an additional herbicide, Imazapic, trade name, Plateau. Plateau acts on many species of broadleaf plants and grasses as a growth inhibitor. Many native forbs and grass species, including lupine, bluebunch wheatgrass and Idaho Fescue, can tolerate Plateau, while other species such as, cheatgrass, downey brome, thistle and toadflax are susceptible. This makes the product useful for restoration projects in grassland communities.

Successful restoration of native plant communities is a goal of Integrated Noxious Weed Management. Eight plants have habitat or potential habitat within the treatment area that could be enhanced by control of noxious weeds: Payson's milkvetch (*Astragalus paysonii*), Giant helleborine (*Epipactis gigantea*), Puzzling halimolobos (*Halimolobos perplexa var. perlexa)*, Davis stickseed *Hackelia davisii*, pored lungwort (*Lobaria scrobiculata)*, Bank monkeyflower (*Mimulus clivicola)*, Lemhi penstemon (*Penstemon lemhiensis*), and Borsch's stonecrop (*Sedum borschii).*

Direct Herbicide Effects

The biggest risk to the sensitive plants in the proposed project area is from herbicide application. Impacts from possible herbicide application effects of Picloram, Clopyralid, 2,4-D, Glyphosate, Dicamba, Metsulfuron methyl, Scythe, and WOW (With out Weeds) was analyzed in the 1999 EIS. Effects for these chemicals on TEPCS plants would remain the same for the 2004 SEIS. The 2004 SEIS proposes adding the herbicide Plateau to the list of herbicides already approved for use in the FC-RONRW. The possible effects of Plateau on sensitive plants with habitat or potential habitat within the treatment area are discussed below:

Payson's milkvetch.
This species is in the Pea family (Fabaceae). The native plant species lupine (*Lupinus*), which is also in the Pea family, is tolerant to Plateau both pre and post emergence in mixed grass and forb stands (BASF Corporation, 2002). It is possible that Plateau herbicide, applied at the label rate of 2 to 4 ounces per acre, would not necessarily harm individual plants of Payson's milkvetch if any were present. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Giant helleborine
This species is in the Orchid family (Orchidaceae). Effects to this plant family are not specified for the herbicides analyzed in the 1999 Weed EIS, or for Plateau herbicide. These herbicides could adversely affect individual plants, if any were found to be present in the treatment areas. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Puzzling halimolobos
This species is in the Mustard family (Brassicaceae). According to the label for Plateau (BASF Corporation, 2002), the herbicide can be used to control species of mustards (*Brassica).* Therefore, Plateau, applied at the label rate of 2 to 4 ounces per acre, could possibly adversely affect individual plants of puzzling halimolobos, if any were present. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Davis stickweed
This species is in the borage family (Boraginaceae). Effects to this plant family are not specified for the herbicides analyzed in the 1999 Weed EIS, or for Plateau herbicide. These herbicides could adversely affect individual plants, if any were found to be present in the treatment areas.

However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Pored lungwort lichen
This lichen is in the Lobariaceae family. Effects to this plant family are not specified for the herbicides analyzed in the 1999 Weed EIS, or for Plateau herbicide. These herbicides could adversely affect individual plants, if any were found to be present in the treatment areas. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Lemhi penstemon and bank monkeyflower
These species are both in the Figwort family (Scrophulariaceae). Effects to this plant family are not specified for the herbicides analyzed in the 1999 Weed EIS, or for Plateau herbicide. These herbicides could adversely affect individual plants, if any were found to be present in the treatment areas. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Borsch's stonecrop
This plant is a member of the Stonecrop family (Crassulaceae). Plateau herbicide, applied at the label rate of 2 to 4 ounces per acre, could adversely affect individual plants of these species, if any were present. However, pre-treatment surveys as required by mitigation would preclude negative effects to individuals and populations.

Population Viability and Native Plant Community Diversity

For all the species above, the consequence of no weed control is a possible loss of the native plant communities. This in turn could affect the population viability of rare species, especially the species that are actually known to occur in the FC-RONR. For each of these species, noxious weed invasion is the greatest threat to habitat integrity and population viability (refer to Biological Assessment and Evaluation for TES Plants, 1999 Weed EIS, Appendix L). The modifications to current noxious weed management proposed by this alternative will pose no additional negative effects to native plant community diversity, including sensitive plant species. Previously identified mitigation measures will continue to be implemented.

Cumulative Effects

Continued implementation of the existing Integrated Weed Management Program (Alternative 1) and implementation of the proposed action (Alternative 2) will not result in any significant influences on the scope or magnitude of cumulative effects beyond those described in the 1999 EIS for the current program. No additional cumulative effects would be anticipated through application of Adaptive Management program strategies or implementation of the Noxious Weed Prevention Plan.

Monitoring

Monitoring for weed treatment effectiveness and effects to any TES plant species would take place as described in the preferred alternative and the 1999 Weed EIS (Appendix J).

VI. Determination

No known populations of any threatened, endangered, proposed, or candidate plant species occur in the project analysis area. **No effects should occur to any threatened, endangered, proposed or candidate plant species from the proposed action.**

Habitat for the sensitive plants Payson's milkvetch (*Astragalus paysonii*), Giant helleborine (*Epipactis gigantea*), Puzzling halimolobos (*Halimolobos perplexa var. perlexa)*, Davis stickseed *Hackelia davisii*, pored lungwort (*Lobaria scrobiculata)*, Bank monkeyflower (*Mimulus clivicola)*, Lemhi penstemon (*Penstemon lemhiensis*), and Borsch's stonecrop (*Sedum borschii)* does occur within the FC-RONRW.
This proposed action **may impact sensitive plant but is not likely to cause a trend to federal listing or a loss of viability.**

VII. Rationale

Ground surveys and reviews of current records within the project found no occupied habitat for any threatened, endangered, proposed or candidate plant species. Botanical surveys continue to look for these species.

Records and ground surveys have found populations and potential habitat for sensitive plants within the project area. Mitigation proposed for sensitive plant species requires botanical surveys of potential habitat in the project area. This mitigation should prevent effects to most sensitive plants. However, surveyor error and yearly climatic fluctuation could cause some sensitive plants to be over looked and lead to impacts to individuals or populations.

VIII. Mitigation Measures

Mitigation measures designed to protect and maintain population viability and habitat for TEPCS plant species were incorporated into the 1999 Record of Decision for treatments using herbicides. these measures will continue to be incorporated into future treatment practices.

IX. References

BASF Corporation. 2002. Plateau product label. Available at http://www.cdms.net/ldat/ld2LP004.pdf

Brodo, I.M., S.D. Sharnoff and S. Sharnoff. 2001. Lichens of North America. Yale University Press, London.

Clausen R. 1975. Sedum of North America. Idaho Conservation Data Center. 2004. Special Status Plants. Idaho Department of Fish and Game, Boise. Available at http://www.state.id.us/fishgame/info/cdc/cdc.htm

Lorain, C.C. 1990. Field investigations of *Astragalus paysonii* (Payson's milk-vetch), a Region 1 Sensitive Species on the Nez Perce National Forest. Idaho Department of Fish and Game, Conservation Data Center, Boise. 11 pp. plus appendices. Available at http://www2.state.id.us/fishgame/info/cdc/cdc_pdf/lorac90d.pdf

Moseley, R.K. 1989. Field investigations of *Erigeron salmonensis* and *Hackelia davisii* on the Salmon National Forest, with notes on *Epipactis gigantea*, *Halimolobos perplexa* var *lemhiensis*, and *Ribes velutinum* var *novum*. Idaho Department of Fish and Game, Conservation Data Center, Boise. 14 pp. plus appendices. Available at http://www2.state.id.us/fishgame/info/cdc/plant_pubs.htm

Pierson, K. 2003. Personal communications on *Botrychium lineare* sites on the Sawtooth National Forest.

Spahr, R., L. Armstrong, D. Atwood, and M. Rath. 1991. Threatened, Endangered, and Sensitive Species of the Intermountain Region. U.S. Department of Agriculture, Forest Service, Intermountain Region, Ogden, Utah.

U. S. Department of Agriculture, Forest Service. 1999a. Frank Church-River of No Return Wilderness Noxious Weed Treatments. Environmental Impact Statement. Salmon-Challis National, Salmon ID. 184 pages plus appendices.

U. S. Department of Agriculture, Forest Service. 1999b. Unpublished List. 1/99 Update – Proposed, Endangered, Threatened, and Sensitive Species List, R4. Intermountain Region, Ogden, UT. 22 pages

U. S. Department of Agriculture, Forest Service. 2003a. Payette National Forest Land and Resource Management Plan. Payette National forest, McCall, ID. 363 pages plus appendices.

U. S. Department of Agriculture, Forest Service. 2003b. Threatened, and Sensitive Plant Species U.S.D.A. Forest Service Northern Region- Montana, March 1999. Available at http://www.fs.fed.us/r1/mt_plant_list.pdf

U. S. Department of Agriculture, Forest Service. 2004. Frank Church-River of No Return Wilderness Noxious Weed Treatments. Draft Supplemental Environmental Impact Statement. Salmon-Challis National Forest, Salmon, ID.

U.S. Department of Interior, Fish and Wildlife Service. 2004. 90-Day Species List Update (June). File #113.0000 1-4-04-SP-424. United States Department of the Interior, Fish and

Wildlife Service, Snake River Basin Office, Columbia River Basin Ecoregion, Boise, ID. 2 pages.