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Final Environmental Impact Statement

Site-Specific Invasive Plant Treatments for Mt. Hood National Forest and Columbia River Gorge National Scenic Area in Oregon, including Forest Plan Amendment #16

Mt. Hood National Forest and Columbia River Gorge National Scenic Area

Clackamas, Hood River, Multnomah, and Wasco Counties

Guiding Principles for Invasive Plant Treatment

Preamble

Invasive plants currently infest up to 13,000 acres of land on the Mt. Hood National Forest and the Columbia River Gorge National Scenic Area. These aggressive plants are spreading at the rate of 8 to 12 percent each year, and have the capacity to overwhelm and even wipe out native plant species.

The USDA Forest Service proposes to control, contain, or eradicate these invasive plants using a variety of treatment methods. We have developed the following Guiding Principles to provide an overall framework for applying these treatments.

Invasive plants are threatening healthy, native communities and function. Treatment of existing invasive plants and restoration of native plant communities are needed to meet the Forest and Scenic Area's land management goals and objectives. We will effectively treat invasive plants while minimizing adverse effects of treatment.

Guiding Principles

- In treating invasive plants, our highest priority will be to minimize risks to human health; drinking water; and botanical, wildlife or aquatic species.
- Herbicide treatments will be used when necessary and in combination with non-herbicide methods to increase treatment and cost effectiveness.
- We will notify the public prior to using herbicides through announcements in local newspapers and by posting treatment areas at all access points.
- This decision does not authorize aerial application of herbicides.
- Only herbicides analyzed in this environmental impact statement (EIS) will be used.
- We will employ rapid response to new invaders using treatment methods and guidelines established within this EIS.
- Site restoration will be considered in invasive plant treatment prescriptions.

Site-Specific Invasive Plant Treatments for Mt. Hood National Forest and Columbia River Gorge National Scenic Area in Oregon, Including Forest Plan Amendment #16

Final Environmental Impact Statement
Clackamas, Hood River, Multnomah and Wasco Counties

Lead Agency: USDA Forest Service

Responsible Official: **Gary L. Larsen, Forest Supervisor**
Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055

Daniel T. Harkenrider, Area Manager
Columbia River Gorge National Scenic Area
902 Wasco Avenue
Suite 200
Hood River, OR 97031

For Information and Comments: **Jennie O'Connor, Invasive Plant EIS**
Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055
(503) 668-1645 (phone)
(503) 668-1413 (fax)
jmoconnor@fs.fed.us

Abstract

The Mt. Hood National Forest (Forest) and Columbia River Gorge National Scenic Area in Oregon (Scenic Area) are proposing invasive plant treatments on 208 sites (approximately 13,000 acres). The purpose of this project is to eradicate, contain and control invasive plant infestations, to reverse the negative impacts caused by invasive plants, and to restore healthy, native plant communities and functions at the impacted sites in a cost-effective manner that meets current management direction. The establishment and spread of invasive plants can be slowed, with timely action. The EIS tiers to the *Pacific Northwest Region Invasive Plant Program – Preventing and Managing Invasive Plants* Record of Decision (USDA Forest Service, 2005b) and Final Environmental Impact Statement (USDA Forest Service, 2005a).

Three alternatives are considered:

- No Action Alternative (Alternative 1),
- Proposed Action (Alternative 2), and
- Restricted Herbicide Use Alternative (Alternative 3).

The No Action Alternative would continue current invasive plant management occurring under existing NEPA documents on the Forest and Scenic Area. The Proposed Action would utilize integrated weed management treatments. The treatments include: 30 acres of herbicide only treatment; 50 acres of manual and mechanical treatments; 310 acres of herbicide plus mechanical treatments; 327 acres of herbicide plus manual treatments; 1510 acres of herbicide plus manual, mechanical, and cultural; 10,736 acres of herbicide plus manual and mechanical treatments. Additional acres would be added through an early detection / rapid response strategy (EDRR). All sites have an associated restoration strategy. The Restricted Herbicide Use Alternative reduces the amount of herbicide treatments, but retains manual, mechanical and cultural treatments on all 13,000 acres.

Implementation of the two action alternatives is expected to reduce the rate of spread of existing and future infestations of invasive plants on the Forest and Scenic Area. All of the action alternatives would increase the cost and effectiveness of invasive plant management. All of the action alternatives protect human health and the environment.

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ACRONYM LIST	
A-1	General Management Area Large Scale Agriculture (Scenic Area Designation)
ACHP	Advisory Council on Historic Preservation
Ag	Special Management Area Agriculture (Scenic Area Designation)
AIZ	Aquatic Influence Zone
APHIS	Agricultural Plant Health and Insect Service
AQ	Aquatic
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	All Terrain Vehicle
AWA	Administratively Withdrawn Areas
BA	Biological Assessment
BCF	Bioconcentration Factor
BE	Biological Evaluation
BEE	Butoxyethyl Ester
BIA	U.S. Department of Interior, Bureau of Indian Affairs
BLM	U.S. Department of Interior, Bureau of Land Management
BMP	Best Management Practices
BO	Biological Opinion
BPA	Bonneville Power Administration
C	Candidate Wildlife Species
CAS	Chemical Abstract Service
CBI	Confidential Business Information
CE	Cumulative Effects
CFR	Code of Federal Regulations
CHU	Critical Habitat Unit
CRGNSA	Columbia River Gorge National Scenic Area
CTWS	Confederated Tribes of Warm Springs
CW	Coniferous Woodland (Scenic Area Designation)
CWA	Clean Water Act
DEQ	Department of Environmental Quality
DO	Dissolved Oxygen
DPS	Distinct Population Segment
E	Endangered Wildlife Species
EA	Environmental Assessment
EDRR	Early Detection / Rapid Response Strategy
EEC	Estimated Environmental Concentration
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
F	Special Management Area Forest (Scenic Area Designation)
FDA	U.S. Food and Drug Administration
FEIS	Final Environmental Impact Statement
FEMAT	Forest Ecosystem Management Assessment Team
FHP	Forest Health Protect

ACRONYM LIST	
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FR	Federal Register
FSH	USDA Forest Service Handbook
FSM	USDA Forest Service Manual
FWS	U.S. Department of Interior, Fish & Wildlife Services
FY	Fiscal Year
G	Grasslands (Scenic Area Designation)
GeoBOB	Geographic Biotic Observations Geodatabase
GIS	Geographic Information System
GLEAMS	Groundwater Loading Effects of Agricultural Management Systems
GMA	General Management Area (Scenic Area Designation)
GW	Gorge walls, Canyon Lands and Wildlands (Scenic Area Designation)
h	Herbicide treatment
HQ	Hazard Quotient
HRCH	Historic Columbia River Highway
ICBEMP	Interior Columbia Basin Ecosystem Management Project
IDT	Interdisciplinary Team
ISMS	Interagency Species Management System
IWM	Integrated Weed Management
KVA	Key Viewing Area
LAA	May Affect, Likely to Adversely Affect
LFL	Likely to Cause a Trend to Federal Listing or Loss of Viability
LMS	Larch Mountain Salamander
LOAEL	Lowest Observed Adverse Effect Level
LOC	Level of Concern
LRMP	Land & Resource Management Plan
LS	Landscape Setting (Scenic Area Designation)
LSR	Late-Successional Reserves
LUD	Land Use Designation
MIIH	May Impact Individuals or Habitat, but Will Not Likely Contribute towards Federal Listing or Lost of Viability to the Population or Species
MIS	Management Indicator Species
mm	Manual and mechanical treatments
mmh	Manual, mechanical and herbicide treatments
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSDS	Material Safety Data Sheet
MTH	Mt. Hood National Forest
N/A (or NA)	Not Available
NAA	Not Adversely Affected
NE	No Effect
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NHPA	National Historic Preservation Act
NI	No Impact
NIS	Non-Ionic Surfactants
NLAA	May Affect, Not Likely to Adversely Affect
NLFL	May Impact Individual, but Not Likely to Cause a Trend to Federal Listing or Loss of Viability

ACRONYM LIST	
NMFS	National Marine Fisheries Service
NOAA	U.S. Department of Commerce, National Oceanic & Atmospheric Administration.
NOAEL	No Observed Adverse Effect Level
NOEC	No Observable Effects Concentration
NOEL	No-Observed-Effect-Level
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPE	Nonylphenol Polyethoxylate
NRC	National Research Council
NRF	Nesting, Roosting and Foraging Habitat
NRIS	Natural Resource Information Systems
NTV	No Toxicity Value
NVE	Not Visually Evident (Retention)
NVUM	National Visitor Use Monitoring
NWFP	Northwest Forest Plan
NWPS	National Wilderness Preservation System
ODA	Oregon Department of Agriculture
OHD	Oregon Health Division
OHV	Off-Highway Vehicles
OPP	Office of Pesticide Programs
OR	Oregon
ORV	Outstandingly Remarkable Values
OS	Special Management Area – Open Space (Scenic Area Designation)
OS GMA	General Management Area – Open Space (Scenic Area Designation)
OSHA	Occupational Health and Safety Administration
OSS	Oregon Slender Salamander
OSU	Oregon State University
OW	Oak Woodlands (Scenic Area Designation)
P	Pastoral (Scenic Area Designation)
PAYCO	Payments to Counties
PCE	Primary Constituent Elements
PDC	Project Design Criteria
PETS	Proposed, Endangered, and Threatened Species
PIF	Partners in Flight
POEA	Polyethoxylated Tallow Amine
PPE	Personal Protective Equipment
PR	Public Recreation (Scenic Area Designation)
PVT	Potential Vegetation Type
R	General Management Area – Residential (Scenic Area Designation)
R6	USDA Forest Service, Pacific Northwest Region (Oregon and Washington)
RB	River Bottomlands (Scenic Area Designation)
RfD	Reference Dose
ROD	Record of Decision
RR	Riparian Reserve
RR in P	General Management Area – Rural Residential in Pastoral (Scenic Area Designation)
RTU	Ready to Use

ACRONYM LIST	
SC	Sensitive-Critical Wildlife Species
SERA	Syracuse Environmental Research Associates, Inc.
SHPO	State Historic Preservation Office
SMA	Special Management Area (Scenic Area Designation)
SMS	Scenery Management System
SOLI	Species of Local Interest
SRD	Sandy River Delta
SRI	Soil Resource Inventory
ssp	Species
SU	Sensitive-Undetermined Wildlife Species
SV	Sensitive-Vulnerable Wildlife Species
SWCD	Soil and Water Conservation District
SWDA	Safe Drinking Water Act
T	Threatened Wildlife Species
T,E,S&P	Threatened, Endangered, Sensitive, and Proposed Species
TCP	3,5,6-Trichloro-2-Pyridinol
TEA	Triethylamine
TES	Threatened, Endangered, or Sensitive
TMDL	Total Maximum Daily Loads
UA	Urban Area (Scenic Area Designation)
USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
VQO	Visual Quality Objectives
VS	Visual Subordinance (Partial Retention)
WA	Washington
WQRP	Water Quality Restoration Plan

MEASUREMENT ABBREVIATIONS	
a.i.	Active Ingredient
ac	Acre
cfs	Cubic Feet per Second
cm	Centimeter
dB	Decibels
dbh	Diameter at Breast Height
g	Gram
kg	Kilogram
$K_{o/c}$	Organic Carbon Partition Coefficient
L	Litter
lb ai	Pounds of Active Ingredient
LC_{50}	Lethal Concentration, 50% Mortality
LD_{50}	Lethal Dose, 50% Mortality
LD_{95}	Lethal Dose, 95% Mortality
m	Meter
mg	Milligram
mg/kg/day	Milligrams of Agent per Kilogram of Body Weight per Day
mg/L	Milligrams per Liter
mi/mi^2	Miles per Square Mile
mL	Milliliter
mm	Millimeter
ppm	Parts per Million
RfD	Reference Dose

COMMON UNIT CONVERSIONS		
To convert . . .	**Into . . .**	**Multiply by . . .**
Acres (ac)	Hectares (ha)	0.4047
Acres (ac)	Square meters (m^2)	4,047
Atmospheres	Millimeters of Mercury	760
Centigrade (C^o)	Fahrenheit (F^o)	1.8C°+32
Centimeters (cm)	Inches (in)	0.3937
Cubic Meters (m^3)	liters (L)	1,000
Fahrenheit (F^o)	Centigrade (C^o)	0.556F°-17.8
Feet per Second (ft/sec)	Miles/Hour (mi/hr)	0.6818
Gallons (gal)	Liters (L)	3.785
Gallons per Acre (gal/acre)	Liters per Hectare (L/ha)	9.34
Grams (g)	Ounces (oz)	0.03527
Grams (g)	Pounds (oz)	0.002205
Hectares (ha)	Acres (ac)	2.471
Hectares (ha)	Square Meters (m^2)	10,000
Inches (in)	Centimeters (cm)	2.540
Kilograms (kg)	Ounces, (oz)	35.274
Kilograms (kg)	Pounds (lb)	2.2046
Kilograms per Hectare (hg/ha)	Pounds per Acre (lb/acre)	0.892
Kilometers (km)	Miles (mi)	0.6214
Liters (L)	Cubic Centimeters (cm^3)	1,000
Liters (L)	Gallons (gal)	0.2642
Liters (L)	Ounces, fluid (oz)	33.814
Meters (m)	Feet (ft)	3.281
Miles (mi)	Kilometers (km)	1.609
Miles per Hour (mi/hr)	Centimeter per Second (cm/sec)	44.70
Milligrams (mg)	Ounces (oz)	0.000035
Ounces (oz)	Grams (g)	28.3495
Ounces Fluid (oz)	Cubic Centimeters (cm^3)	29.5735
Ounces per Acre (oz/acre)	Grams per Hectare (g/ha)	70.1
Ounces per Acre (oz/acre)	Kilograms per Hectare (kg/ha)	0.0701
Pounds (lb)	Grams (g)	453.6
Pounds (lb)	Kilograms (kg)	0.4536
Pounds per Acre (lb/acre)	Kilograms per Hectare (kg/ha)	1.121
Pounds per Acre (lb/acre)	Milligrams per Square Meter (mg/m^2)	112.1
Pounds per Acre (lb/acre)	Grams per Square Centimeter (g/cm^2)	11.21
Pounds per Gallon (lb/gal)	Grams per Liter (g/L)	119.8
Square Centimeters (cm^2)	Square Inches (in^2)	0.155
Square Centimeters (cm^2)	Square Meters (m^2)	0.0001
Square Meters (m^2)	Square Centimeters (cm^2)	10,000
Yards (yds)	Meters (m)	0.9144

Note: All references to pounds and ounces refer to avoirdupois weights unless otherwise specified.

Source: Table taken from SERA Risk Assessments (1997a, 1997b, 1999a, 1999b, 2001a, 2001c, 2003a, 2003b, 2003c, 2003d, 2003e, 2003f).