

Vegetation Treatments Using Herbicides on BLM Lands in Oregon Draft Environmental Impact Statement October 2009

Draft EIS and Proposed Action

The Bureau of Land Management (BLM) currently uses herbicides selectively and conservatively in combination with other treatment methods, such as mechanical or manual removal of vegetation and biological control, to control and manage the spread of noxious weeds.

The BLM has prepared a Draft Environmental Impact Statement (EIS) that analyzes a proposal to make additional herbicides available to BLM Districts in Oregon for:

- control of noxious and other invasive weeds;
- control of native vegetation encroaching on rights-of-way, administrative sites, and recreation sites;
- control of native vegetation when needed to control pests in state-identified pest quarantine areas, and;
- implementing wildlife habitat improvement projects to benefit BLM sensitive and Federally-listed wildlife species.

Under the Proposed Action (Alternative Number 4) in the Draft EIS, the BLM anticipates annually treating approximately 28,100 acres of invasive plants using non-herbicide methods (mechanical, manual and biocontrol) and 30,300 acres of invasive plants using herbicides.

The BLM also anticipates treating 15,100 acres of native plants using herbicides in such areas as rights-of-way, recreation sites and administrative sites and to meet habitat objectives for listed wildlife species.

The BLM currently treats approximately 2,500 acres of noxious weeds using mechanical methods, 2,000 acres using manual removal, 1,500 acres using biocontrol methods, and 12,000 acres using herbicides.

Need for the Proposed Action

As a result of 1984 and 1987 U.S. District Court orders, the BLM in Oregon only utilizes four of the 18 herbicides currently utilized by the rest of the Bureau in other western states and only uses those herbicides in the treatment of noxious weeds.

Although the BLM has an aggressive noxious weed control program that includes prevention measures as well as manual, mechanical and herbicide treatments, noxious weeds are spreading on BLM lands in Oregon at an estimated 12 percent per year, or 144,000 acres per year.

The use of the additional herbicides would allow for more effective treatment of noxious and invasive vegetation. Currently there are 12 listed noxious weed species (such as medusahead rye) that cannot be effectively treated using existing manual, mechanical or herbicide treatment methods nor are there effective controls for the



invasive species such as cheatgrass which, like medusahead, is an annual grass. These weeds are overtaking native sagebrush ecosystems, infesting habitat of Federally-listed plant and animal species, and increasing the risk of wildfire.

The herbicides being analyzed in the Draft EIS are being considered for use because of their effectiveness and because they can be used in smaller doses, are more target-specific, and are less likely to adversely affect people and other non-target organisms such as fish and wildlife than the four herbicides currently available to the BLM in Oregon.

While it isn't possible under any alternative in this EIS to eliminate noxious and invasive weeds, the proposed action is expected to slow the noxious weed spread rate from its current 12 percent per year to 6 percent per year.

Proposed Action - Additional Details

In addition to treating approximately 30,300 acres of invasive plants using herbicides, the Proposed Action would also make herbicides available for the treatment of native vegetation in rights-of-way, administrative sites, and recreation sites. The use of herbicides in combination or as a replacement of current manual and mechanical treatment methods is estimated to save the BLM approximately \$1 million per year. This type of treatment would occur on approximately 15,100 acres per year.

The proposed action also proposes to use herbicides to treat native vegetation in those instances where it will benefit BLM sensitive and Federally-listed wildlife species. These types of projects would total approximately 5,000 acres per year. An example would be the use of herbicides to improve habitat conditions for Sage-grouse by treating juniper trees that are encroaching on sagebrush habitat in eastern Oregon.

Vegetation types and the occurrence of invasive species differ across the state. Therefore, the proposed action would make 12 herbicides available to Districts west of the Cascades and 16 herbicides available to Districts east of the Cascades (See [Table 3-1](#) for a description of the herbicides).

The Proposed Action would prohibit aerial application of herbicides west of the Cascades.

The BLM manages approximately 26 percent of the lands in Oregon and the proposed use of herbicides on 30,300 acres is very small in comparison to statewide herbicide use. In an effort to put BLM's proposed herbicide use in context, following is a table that displays use of the 18 herbicides analyzed in the Draft EIS and the use of those herbicides across Oregon in 2008 (See [Table 4-1](#) below). The Oregon-wide use figures are from the State of Oregon Department of Agriculture's annual Oregon Pesticide Use Reporting System and do not include household use.

Definitions

Invasive plants (or weeds) are non-native aggressive plants with the potential to cause significant damage to native ecosystems and/ or cause significant economic losses.

Noxious weeds are a subset of invasive plants that are county, state, or Federally-listed as injurious to public health, agriculture, recreation, wildlife, or any public or private property.



Vegetation includes noxious weeds, invasive weeds, and introduced and native plants.

Native vegetation includes native and desirable non-native plants.

Biological control – The use of non-native agents including invertebrate parasites and predators (usually insects, mites, and nematodes), and plant pathogens to reduce populations of invasive plants.

Please See Tables 3-1 and 4-1 on the Following Pages



TABLE 3-1. HERBICIDE INFORMATION

Herbicide Representative Trade Names ¹	Common Targets	Selective to Plant Types	Pre/post Emergent Point of Application	Types of BLM Lands Where Use is Permitted ²	Application Rate (lbs/acre)		Available under Alternative ⁴				Aerial Spray ⁵ Allowed	K _{oc} ⁶	Solubility ⁷ (mg/l)	SPISP II Rating ⁸ (Leaching Potential)		
					Typical	Max ³	2	3	4	5				PLP ⁹ Leaching	PSRP ¹⁰ Solution Runoff	PARP ¹¹ Adsorbed Particle Runoff
2, 4-D Many, including Amine, Hardball, Unison, Saber, Salvo, Aqua-Kleen, and Platoon	Annual and biennial broadleaf weeds. <i>Kochia</i> , <i>white top</i> , <i>perennial</i> <i>pepperweed</i> , <i>Russian thistle</i> <i>and knapweed</i> , <i>sagebrush</i> , <i>rabbitbrush</i> .	broadleaf	Post Foliar	Rng For RAq OGM ROW R&C	1	1.9	√	√	√	√		20-100	33,900	Inter- mediate	Inter- mediate	Low
Bromacil Hyvar	Annual grasses and broadleaf weeds. <i>Cheatgrass</i> , <i>puncturevine</i> , <i>ragweed</i> , <i>wild</i> <i>oat</i> , <i>dandelion</i> , <i>quackgrass</i> , <i>wild carrot</i> .	no	Pre and post Soil	OGM ROW R&C	4	12			E	√	avoid	32	700	High	High	Inter- mediate
Chlorsulfuron Telar	<i>Thistles</i> , <i>wild carrot</i> , <i>giant</i> <i>horsetail</i> , <i>poison hemlock</i> , <i>Russian knapweed</i> , <i>marestalk</i> , <i>perennial pepperweed</i> , <i>puncturevine</i> , <i>tansy ragwort</i> , <i>common tansy</i> , <i>common</i> <i>teasel</i> , <i>dalmation toadflax</i> , <i>yellow toadflax</i> , <i>whitetop</i> , <i>dyers woad</i>	broadleaf	Pre and early post Soil or foliar	Rng OGM ROW R&C	0.047	0.141		E	E	√		40	7,000	High	High	Inter- mediate
Clopyralid Transline, Stinger, Spur	<i>Thistles</i> , <i>common burdock</i> , <i>knapweeds</i> , <i>yellow</i> <i>starthistle</i> , <i>oxeye daisy</i> , <i>hawkweeds</i> , <i>prickly lettuce</i> , <i>dandelion</i> , <i>cutleaf teasel</i> , <i>kudzu</i> , <i>buffalobur</i>	broadleaf	Post Foliar	Rng For OGM ROW R&C	0.35	1		√	√	√		2	1,000	High	Inter- mediate	Low
Dicamba Vanquish, Banvel, Diablo, Vision, Clarity	<i>Knapweeds</i> , <i>kochia</i> , <i>and</i> <i>thistles</i> .	broadleaf, woody plants	Pre and post Foliar	Rng OGMROW R&C	0.25	2	√	√	√	√	no	2	400,000	High	Inter- mediate	Low
Diflufenzopyr + Dicamba Overdrive, Distinct	<i>Knapweeds</i> , <i>kochia</i> , <i>and</i> <i>thistles</i> .	broadleaf	Post Foliar	Rng OGM ROW R&C	0.2625	0.35				√	no					
Diflufenzopyr			no	Post Aquatic	RAq	1	4				√	no	1,000,000	718,000	Very Low	Low
Diuron Direx, Karmex	Annual grasses (including <i>bluegrass</i>) and broadleaf weeds. <i>Lambsquarters</i> , <i>kochia</i> and <i>Russian thistle</i> .	annual weeds, some perennials	Pre Soil	OGM ROW R&C	6	20			√	√	avoid	480	42	Inter- mediate	High	Inter- mediate
Fluridone Avast!, Sonar	<i>Hydrilla</i> and <i>watermilfoils</i>	submersed plants	Post Aquatic	RAq	0.15	1.3		√	√	√		1,000	10	Low	Inter- mediate	Inter- mediate
Glyphosate Many, including Rodeo, Mirage, Roundup Pro, and Honcho	Grasses (including <i>Italian</i> <i>ryegrass</i>), sedges, broadleaf weeds, and woody shrubs.	no	Post Soil or foliar	Rng For RAq OGM ROW R&C	2	7	√	√	√	√		24,000	900,000	Very Low	High	High

Herbicide Representative Trade Names ¹	Common Targets	Selective to Plant Types	Pre/post Emergent Point of Application	Types of BLM Lands Where Use is Permitted ²	Application Rate (lbs/acre)		Available under Alternative ⁴					Aerial Spray ⁵ Allowed	K _{oc} ⁶	Solubility ⁷ (mg/l)	SPISP II Rating ⁸ (Leaching Potential)		
					Typical	Max ³	2	3	4	5	PLP ⁹ Leaching				PSRP ¹⁰ Solution Runoff	PARP ¹¹ Adsorbed Particle Runoff	
Hexazinone Velpar	Annual and perennial grasses and broadleaf weeds, brush, and trees.	grasses, broadleaf, woody plants	Pre and post Soil or foliar	Rng For OGM ROW R&C	1	8		√	√	√		54	33,000	High	High	Inter- mediate	
Imazapic Plateau, Panoramic	<i>Cheatgrass, leafy spurge, medusahead, white top, dalmation toadflax and Russian knapweed.</i>	some broadleaf and grasses	Pre and post Soil	Rng For OGM ROW R&C	0.0313	0.1875		√	√	√		137	2,200	High	High	Inter- mediate	
Imazapyr Arsenal, Stalker, Habitat, Polaris	Annual and perennial broadleaf weeds, brush, trees. <i>Saltcedar, Russian olive, tanoak</i>	no	Pre and post Soil or foliar	Rng For RAq OGM ROW R&C	0.45	1.5		√	√	√		100	>11,000	High	High	Inter- mediate	
Metsulfuron methyl Escort, Patriot, PureStand	<i>Whiteweed, perennial pepperweed and other mustards and biennial thistles.</i>	broadleaf, woody plants	Post Soil or foliar	Rng For OGM ROW R&C	0.03	0.15		√	√	√		35	9,500	High	High	Inter- mediate	
Picloram Triumph, OutPost, Tordon	Perennial and woody species. <i>Knapweeds, starthistle, thistle, bindweed, leafy spurge, rabbitbrush, rush skeletonweed, and poison oak.</i>	broadleaf, woody plants	Pre and post Foliar	Rng For OGM ROW R&C	0.4	1	√	√	√	√		16	200,000	High	High	Inter- mediate	
Sulfometuron methyl Oust, Spider	<i>Downy brome, annual and perennial mustards, and medusahead.</i>	no	Pre and post Soil or foliar	For OGM ROW R&C	0.14	0.38		E	E	√	no	78	70	Inter- mediate	High	Low	
Tebuthiuron Spike	<i>Creosotebush and sagebrush (thinning).</i>	broadleaf, woody plants	Pre and post Soil	Rng OGM ROW R&C	0.5	4			E	√		80	2,500	High	High	Inter- mediate	
Triclopyr Garlon, Renovate, Element	<i>Saltcedar, purple loosestrife, Canada thistle, tanoak, Himalayan blackberry</i>	broadleaf, woody plants	Post Foliar	Rng For RAq OGM ROW R&C	1	10		√	√	√		20 (salt) 780 (ester)	435	High	High	Inter- mediate	

¹See Appendix 9 (Herbicides) for the full list of herbicide trade names allowed for use on BLM Lands in Oregon, including formulations with 2 or more active ingredients.

²Rng = Rangeland For = Forest Land RAq = Riparian or Aquatic

OGM = Oils, Gas, and Mineral Sites ROW = Rights-of-Way R&C = Recreation and Cultural Sites

³Shading denotes herbicides that are limited, by PEIS Mitigation Measures, to typical application rates, where feasible. The maximum application rate for these herbicides is shown for informational purposes.

⁴√ indicates herbicides that would be available statewide; E indicates herbicides that would be available only to districts east of the Cascades.

⁵Aerial spray not allowed for any districts west of the Cascades under Alternatives 3 and 4.

⁶K_{oc}: Soil organic carbon sorption coefficient of an active ingredient in mL/g. For a given chemical, the greater the K_{oc} value, the less soluble the chemical is in water and the higher affinity the chemical has for soil organic carbon. For most chemicals, a higher affinity for soil organic carbon (greater K_{oc}) results in less mobility in soil.

⁷Solubility indirectly relates to runoff potential, if solubility number is low runoff potential is high

⁸SPISP II = Soil Pesticide Interaction Screening Procedure version II, which is a NRCS model that calculates leaching potential from basic soil properties (USDA 1994b).

⁹PLP - Pesticide Leaching Potential indicates the tendency of a pesticide to move in solution with water and leach below the root zone. A low rating indicates minimal movement and no need for mitigation. PLP is calculated according to a WIN-PST algorithm, and then the resulting rating is adjusted for type of spraying being conducted.

¹⁰PSRP - Pesticide Solution Runoff Potential indicates the tendency of a pesticide to move in surface runoff in the solution phase. A rating as calculated according to a WIN-PST algorithm indicates the potential for pesticide loss in solution runoff. Ratings are adjusted according to type of spraying being conducted.

¹¹PARP - Pesticide Adsorbed Runoff Potential indicates the tendency of a pesticide to move in surface runoff attached to soil particles. A rating as calculated according to a WIN-PST algorithm indicates potential for pesticide movement adsorbed to sediment. Ratings are adjusted according to type of spraying being conducted.

Data source: USDA 2006b

TABLE 4-1. 2008 OREGON-WIDE USE OF THE 18 HERBICIDES ANALYZED IN THIS EIS AND COMPARISON WITH BLM PROPOSED ACTION (ALTERNATIVE 4)

Herbicide and rank ¹	Lbs Reported by ODA	Assumed Acres Statewide ²	Est. Acres under Alt 4 on BLM Lands	% of OR acres that BLM Proposed Usage Would Represent
2. Glyphosate	1,914,144	957,072	4,200	0.44%
7. 2,4-D	778,878	778,878	5,700	0.73%
13. Diuron	385,174	64,196	800	1.25%
25. Triclopyr	125,542	125,542	3,900	3.11%
31. Hexazinone	105,284	105,284	400	0.38%
34. Dicamba	96,964	387,856	1,700	0.44%
50. Clopyralid	48,592	138,833	2,300	1.66%
59. Imazapyr	29,859	66,354	2,500	3.77%
83. Sulfometuron methyl	16,866	120,470	1,200	1.00%
99. Bromacil	11,189	2,797	700	25.02%
Picloram	5,891	14,727	3,400	23.09%
Metsulfuron-methyl	5,252	175,059	3,300	1.89%
Diquat	2,334	2,334	0	0%
Chlorsulfuron	2,006	42,685	4,100	9.61%
Tebuthiuron	720	1,441	100	6.94%
Imazapic	314	10,023	14,100	140.68%
Fluridone	22	143	300	209.20%
Diffuzenzopyr + Dicamba	No data	No Data	0	0%

¹ Rank is only known for the herbicides included in ODA's list of 100 most used Pesticides

² Reported pounds divided by the BLM typical application rate.