Interagency Conservation Agreement for *Eucephalus vialis* (wayside aster)

Bureau of Land Management, Eugene District,
Bureau of Land Management Roseburg District,
Bureau of Land Management, Medford District,
U.S. Forest Service, Rogue River-Siskiyou National Forest, and
U.S. Fish and Wildlife Service, Roseburg Field Office

Photo courtesy of Tom Kaye, Institute of Applied Ecology

December 1, 2006

Interagency Conservation Agreement
for
Eucephalus vialis (= Aster vialis)
(wayside aster)
Medford BLM; Eugene BLM; Roseburg BLM; Rogue River-Siskiyou National Forest; Roseburg Field Office, US Fish and Wildlife Service

EXECUTIVE SUMMARY

This Conservation Agreement (CA) is directed at providing for the conservation of wayside aster (*Eucephalus vialis*) and its habitat on lands managed by the Medford, Eugene and Roseburg Districts of the Bureau of Land Management (BLM) and U.S. Forest Service Rogue River-Siskiyou National Forest (USFS). *Eucephalus vialis* is a Federal species of concern and is on the 2001 Survey and Manage Species list and the subsequent 2003 Annual Species Review List under the Northwest Forest Plan, Record of Decision (USDA 1994). The species is considered threatened with extinction throughout the species' entire range (List 1) by the Oregon Natural Heritage Information Center (2004), and listed as a State Threatened species (OAR 603 - Division 73) by the Oregon Department of Agriculture. *Eucephalus vialis* is also classified as Bureau Sensitive in Oregon under BLM Special Status Plant Policy and is on the USFS R5 and R6 Regional Forester Sensitive Species List. The species is on the California Native Plant Society List 1B which means it is considered rare, threatened, or endangered in California.

Eucephalus vialis is a 20 to 60 cm (7.8 to 23.6 in.) tall herbaceous perennial rising from a thickened woody stem (caudex) and forming rhizomes. The plant has sessile, lanceolate leaves with irregular teeth. The inflorescence is composed of yellow disk flowers and lacks ray flowers. Flowering usually occurs from mid-July to September. Seedling recruitment appears limited to nonexistent within certain populations. Vegetative reproduction is common within populations making it often difficult to differentiate between individuals.

All of the known occurrences of the species are in Douglas, Jackson, Josephine, Lane and Linn counties of Oregon and Del Norte and Humboldt counties in California. The occurrence record from Humboldt county in California was collected in 1919 and has uncertain locality information (See Appendix B)(D. Imper, pers. comm. 2006). *Eucephalus vialis* inhabits coniferous forests at elevations of approximately 152 m (500 ft.) to 2,006 m (6,600 ft.). The species typically occurs on dry upland sites dominated by *Pseudotsuga menziesii* (Douglas-fir), and is usually accompanied by hardwoods of drier forests such as *Arbutus menziesii* (Pacific madrone), *Chrysolepsis chrysophylla* (golden chinquapin), and *Quercus garryana* (Oregon white oak) (Alverson and Kuykendall 1989). It is often found in open forest, forest edge, or small openings and on both serpentine and non-serpentine parent material.

While current populations of *Eucephalus vialis* occur in sites representative of all stages of succession from recent clear-cuts to mature forest, the species' preferred habitat is thought to have been historically sustained by frequent fire return intervals that create open forest conditions with widely spaced conifers. Particularly important to *Eucephalus vialis* are gaps in the canopy where high light levels allow *Eucephalus vialis* to flower (Alverson and Kuykendall 1989).

The major goal of this CA is to facilitate interagency cooperation in better defining the distribution, abundance, and taxonomic relationships of this species and closely related species on BLM and USFS managed lands. This CA will help agencies identify conservation concerns (if any) and potential future management for the species.

I. SPECIES INVOLVED

Eucephalus vialis (Bradshaw) Blake (wayside aster)

II. INVOLVED PARTIES

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III. AUTHORITY, GOAL, AND OBJECTIVES

A. The authority for the U.S. Fish and Wildlife Service (USFWS) to enter into this voluntary CA derives from the Endangered Species Act of 1973 (ESA), as amended; the Fish and Wildlife Act of 1956, as amended; and the Fish and Wildlife Coordination Act, as amended. The BLM has authority to enter into this CA from the ESA and the Federal Lands Policy and Management Act of 1976 as amended. The USFS has authority from the ESA and the National Forests Management Act of 1976 as amended. Each of the three agencies also has individual manual policies that provide for the conservation of rare plant species. The signatories understand that implementation of this CA is intended to conserve the species.

B. The goal of this CA is to provide a mechanism for the conservation of *Eucephalus vialis*.

C. The objectives of this CA are:

- To formally document the intent of the parties involved to coordinate conservation efforts
- To coordinate future research to understand the ecology of *Eucephalus vialis*, including habitat and taxonomic relationship to other rayless asters in the planning areas
- To implement inventory and analysis to clarify the range of this species

IV. STATUS AND DISTRIBUTION OF THE SPECIES

Eucephalus vialis is a Federal species of concern and is on the 2001 Survey and Manage Species list and the subsequent 2003 Annual Species Review List under the Northwest Forest Plan Record of Decision. *Eucephalus vialis* is also classified as Bureau Sensitive in Oregon under a BLM Special Status Plant Policy and is on the USFS R5 and R6 Regional Forester Sensitive Species List. The species is considered threatened with extinction throughout the species entire range (List 1) by the Oregon Natural Heritage Information Center (2004), and is listed as an Oregon State Threatened species (OAR 603 - Division 73). The species is on the California Native Plant Society List 1B which means it is considered rare, threatened, or endangered in California.

Eucephalus vialis is restricted to Douglas, Jackson, Josephine, Lane and Linn counties of Oregon and Del Norte and Humboldt counties in California, USA. In these counties the species is found primarily in the Willamette Valley Physiographic Province (and adjacent portions of the Coast Range and Cascade Physiographic Provinces) and Klamath Mountains Physiographic Province as described by Franklin and Dryness (1973) (see Range Map for *Eucephalus vialis,* Appendix A).

Until occurrences were located in Del Norte, Douglas, Humboldt, Jackson, and Josephine counties, *Eucephalus vialis* was generally considered a Willamette Valley endemic (Gamon 1986). The majority of the known populations in the Willamette Valley Physiographic Province occur in coniferous forests (normally dominated by Douglas-fir), especially in dry sites, at elevations of 152 m (500 ft.) to 457.2 m (1,500 ft.) (Alverson and Kuykendall 1989).

In the Klamath Physiographic Province *Eucephalus vialis* is found in open, dry sites with *Pseudotsuga menziesii* (Douglas-fir), *Pinus ponderosa* (Ponderosa pine), *Arbutus menziesii* (Pacific madrone) and *Quercus garryana* (Oregon white oak). In Josephine and Del Norte Counties, *Eucephalus vialis* populations occur above 2,006 m (6600 ft.) in elevation and are usually found in open forest, forest edge or small openings, on both serpentine and non-serpentine parent material.

The species is found on lands owned or managed by the City of Eugene, Lane County, Federal, and private lands. On Federal lands *Eucephalus vialis* is located on BLM lands on the Medford, Eugene and Roseburg Districts, and USFS lands on the Rogue River-Siskiyou National Forest, and one site located on U.S. Army Corps of Engineers lands/Cottage Grove Reservoir. Potential habitat for this species exists on adjacent Umpqua and Six Rivers National Forest lands (BLM 1994; D. Imper, pers. comm. 2006).

Appendix B, Table 1, lists the known occurrences of *Eucephalus vialis* as of May 2006. The contractor who found the Rogue River-Siskiyou National Forest sites from the Chrome Ridge and Flat Top vicinity described them as “intermediate between *E. vialis* and the old *Aster siskiyouensis*” (Brock 2003) (see Appendix B). A tentative identification of an aster collection from Rogue River-Siskiyou National Forest’s Lake Mountain vicinity as “*Aster vialis* (approaching

"*A. siskiyouensis*")" (Chambers 2000) complicated the decision to report Lake Mountain occurrences as *Eucephalus vialis* rather than a different aster. *Aster siskiyouensis* is an older name for some rayless asters commonly found in the Siskiyou Mountains of Jackson, eastern Josephine, and Siskiyou (CA) Counties. These are more often now called *Aster brickellioides* and even possibly *Aster breweri*. These instances suggest unclear distinctions between *Eucephalus vialis* and related taxa in the southern part of the range.

V. PROBLEMS FACING THE SPECIES

1. Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range.

Threats and problems have been well-documented throughout the species' range with the exception of the Rogue River-Siskiyou National Forest and south where additional information is needed to adequately assess population conditions and any potential threats to the species.

Succession and Fire Exclusion. Fire suppression threatens this species by altering habitat, leading to excessive understory brush competition, canopy closure, and reduction in suitable light levels. While current populations of *Eucephalus vialis* occur in sites representative of all stages of succession from recent clear-cuts to mature forest, the species' preferred habitat is thought to have been historically sustained by frequent fire return intervals that create open forest conditions with widely spaced conifers. Particularly important to *Eucephalus vialis* are gaps in the canopy where high light levels allow *Eucephalus vialis* to flower (Alverson and Kuykendall 1989).

Eucephalus vialis occurs in areas with historically moderate - high fire frequency due to hot, dry summers and lightning. Also, it is possible that native people prior to Euro-American settlement used fire to maintain open land and control wildlife and vegetation. Regular burning created less canopy cover and reduced competition, hypothesized to benefit species like *Eucephalus vialis*. Fire exclusion, since pioneer settlement, has altered much of the habitat of *Eucephalus vialis*. Throughout the species' range, many of the sites for this species occur on south-facing slopes in conifer woodlands, which have become closed-canopy forests over the last 100 years. Prior to fire exclusion efforts, this habitat was most likely open woodland with many forest gaps and higher light levels available on the forest floor (Alverson and Kuykendall 1989; Cole 1977; Kaye 1993). At this time, however, fire exclusion has resulted in increased tree density and reduced light within the habitat of *Eucephalus vialis*.

Studies indicate that *Eucephalus vialis* size and reproduction are negatively correlated with canopy closure (Kaye 1993), and thus fire exclusion can be detrimental to the viability of *Eucephalus vialis* populations. Some populations of the species that occur in closed-canopy forest stands contain no flowering individuals and/or very low levels of new plant establishment, presumably because of limited light availability. Reintroduction of natural or prescribed fires into the habitat of *Eucephalus vialis* is one tool for managing the species, although burning is likely to be difficult at populations adjacent to residential areas and private forest land. However, without some reintroduction of fire, or other adequate habitat management tools, the largest populations of this species on public lands may continue to decline or may disappear over time.

Gap formation and small forest openings not related to fire processes are also important habitat for *Eucephalus vialis*. Other gap forming agents include wind-throw from storms and tree root pathogens. These types of openings are also undergoing forest succession resulting in canopy closure.

Logging. Logging is both a threat and a potential habitat management tool for this species. Timber harvest activities can directly impact plants or result in extensive soil disturbance. Successional development of dense tree plantations into closed canopy forest can result in increased levels of competition for limited resources resulting in stem exclusion. Logging in the form of selective thinning, density management and targeted tree removal can be used as a positive management tool. Some populations of *Eucephalus vialis* have responded positively to logging in the first 3-6 years after harvest, but may show signs of decline shortly thereafter due to competition from fast-growing and aggressive weedy species, such as Himalayan blackberry (*Rubus discolor*) and Scot's broom (*Cytisus scoparius*) (Alverson and Kuykendall 1989).

Exotic Weed Invasion. Several populations of *Eucephalus vialis* have a notable presence of invasive weeds either adjacent to or within them. Populations along roadsides and in disturbed areas, such as skid roads and clearcuts, are especially prone to invasion by weedy species, including Himalayan blackberry (*Rubus discolor*, *R. laciniatus*), Scot's broom (*Cytisus scoparius*), slender false-brome (*Brachypodium sylvaticum*), yellow starthistle (*Centaurea solstitialis*), Canadian thistle (*Cirsium arvense*) and smaller amounts of orchard grass (*Dactylus glomerata*) and Klamath weed (*Hypericum perforatum*). These weeds and others have the potential to dominate the vegetation of nearly all populations of *Eucephalus vialis*, and they may impede efforts to successfully restore habitat of the species. Control of weedy species can substantially improve the viability of *Eucephalus vialis*.

Inbreeding Depression. The non-contiguous pattern of existing *Eucephalus vialis* habitat isolates the populations from one another, thus limiting the frequency of genetic exchange between them. *Eucephalus vialis* requires insects (mainly bumblebees) for pollination (Kuykendall 1991; Kaye *et al.* 1991), so populations must be within the flight-range of a pollinator for genetic exchange to occur. This gene-flow is important for *Eucephalus vialis* conservation because isolated populations and small populations are vulnerable to inbreeding depression resulting in reduced production of viable seeds (Kuykendall 1991; Kaye *et al.* 1991).

Livestock grazing. Grazing of livestock within populations of *Eucephalus vialis* may damage the species indirectly through habitat degradation (including soil disturbance, introduction of invasive weeds) and directly (through herbivory and trampling of individual *Eucephalus vialis* plants). Site evaluations have suggested that livestock grazing may be detrimental to some populations (Kaye and Rebischke 1995). Livestock could potentially be used as a tool to keep habitats more open and to reduce competition, if the timing, duration and intensity of the grazing are regulated.

Residential development. Federal management will be crucial for the long-term survival of this species due to the rural and urban housing developments and residential use of timbered areas in the forests surrounding urban areas in habitat of *Eucephalus vialis*. In some cases, *Eucephalus vialis* populations were probably damaged or destroyed when developments were established, but there are few records of the occurrence of the species on these lands, primarily because of private ownership. Residential development results in the destruction of habitat from the construction of homes and out buildings and impacts habitat on adjacent public land from increased recreation. In addition, the presence of private homes in the vicinity of public lands limits the suitability of certain management tools and landscape-level processes, such as prescribed burning, for improving the habitat of *Eucephalus vialis*. The species has no legal protection on private lands.

Roadside maintenance, road use, and recreation. Potential and historical impacts from various roadside maintenance activities are of concern, including mowing, spraying, brushing, ditching, grading and snow plowing. Frequent dusting of roadside populations

from traffic traveling unsurfaced roads adjacent to plant populations during critical pollination times may impact reproductive capability. Recreational activities in *Eucephalus vialis* habitat that have been observed include: trail bikes traveling in and adjacent to populations; equestrian use in and adjacent to populations; and trail use through *Eucephalus vialis* populations to fishing areas. These activities can threaten populations by direct impact and by bringing in weeds. Sometimes road corridors provide the openings in which *Eucephalus vialis* can flower or at least persist when the surrounding habitat becomes too shady through forest succession.

2. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.

   Not significant.

3. Disease or Predation.

   Wildlife Forage. Native wildlife, primarily *Odocoileus hemionus columbianus* (black-tailed deer), browse populations of *Eucephalus vialis* regularly. Browsing intensity differs from site to site and year to year, but is frequently intense, often affecting the majority of reproductive individuals. Deer browsing normally results in the removal of the flowering heads, thus reducing or eliminating the reproductive potential of browsed stems (Kaye 1993).

   Predispersal seed predation. Gall-forming insects and seed predation have been observed on *Eucephalus vialis*. While some studies have been implemented on seed predation (Kaye *et al.* 1991), additional studies are needed to more clearly understand how predation is affecting the reproductive capacity/viability of this species.

4. Other natural or manmade factors affecting the species continued existence.

   None known.

5. Inadequacy of existing Federal regulations.

   Neither the state nor Federal acts provide protection for the species on private land. *Eucephalus vialis* was a former Federal Candidate 2 species under the ESA. It is currently a Special Status Species for BLM and listed as USFS R5 and R6 Regional Forest Sensitive Species and as such is the focus of agency conservation efforts. State-listed status requires protection on state-owned or managed properties by the responsible agency, unless such agency justifies a conflicting land action with the Oregon Department of Agriculture and the California Department of Fish and Game.

VI. CONSERVATION ACTIONS THAT WILL BE CARRIED OUT

Management Objectives

The objectives of this CA are to:

- Clarify the distribution, abundance, habitat requirements, and taxonomic relationships of *Eucephalus vialis* across its entire range.

- Clearly articulate threats to the species (if any) where information is currently lacking and identify if and where conservation actions are needed.

Management Actions

The BLM and USFS agree to work together to address the following as funding and staffing allow:

- Initiate interagency studies on the taxonomy of *Eucephalus vialis* and closely-related southern Oregon and northern California taxa, through morphological comparisons and, if necessary, genetic studies of different morphological types.

- Conduct office and field reviews of site locations:

    1. To verify identification of *Eucephalus vialis* or closely allied taxa in the southern part of the species' range
    2. To quantify population sizes consistently throughout the species' range
    3. To consistently delineate and count the number of populations across the species' range
    4. To more fully describe habitat characteristics, threats and conservation concerns (if any) in the southern part of the species' range

- Continue to conduct field reconnaissance of potential habitat for undiscovered populations.

- Initiate and or continue interagency studies of populations of *Eucephalus vialis* on how the species responds to fire, grazing, mechanical disturbance, and changes in canopy coverage.

- Continue to implement habitat enhancement to selected populations in the northern portion of the species' range with respect to results from the above information.

- Provide information gathered from the above activities during periodic reviews of the status of *Eucephalus vialis* by Oregon Natural Heritage Information Center (2004), Survey and Manage annual species reviews, and FS, BLM, and USFWS status reviews.

- After clarifying the above information, determine if an Interagency Conservation Strategy is needed throughout the species' range that outlines additional management actions to conserve this species.

- Share information among all parties in this CA about the species to better define its conservation needs and status.

The U.S. Fish and Wildlife Service agrees to address the following as funding and staffing allow:

- Provide the BLM and USFS with technical assistance to manage *Eucephalus vialis* populations and habitats and to protect their significant biological and ecological values consistent with current law, regulations, policies, and existing management plans at each of the administrative units as needed.

- Cooperate in cost-sharing conservation activities identified in this CA as funding permits.

- Meet biennially or as needed with BLM and USFS to discuss the species' status and management needs.

- Forward all new information on *Eucephalus vialis* to BLM District Managers, BLM Field Managers, USFS Forest Supervisors and USFS Rangers as needed to inform managers on the status of this CA and the conservation needs and conditions of *Eucephalus vialis*.

- Review monitoring data and conservation activities in cooperation with the BLM and USFS administrative units, as needed, and recommend changes to the status of *Eucephalus vialis*, as appropriate.

VII. DURATION OF AGREEMENT

This CA shall become effective with the signature of the last approving agency official. It can be terminated in writing any time by the Rogue River-Siskiyou National Forest, the Medford District of the BLM, the Roseburg District of the BLM, the Eugene District of the BLM and the Roseburg Field Office of the U. S. Fish and Wildlife Service, if it is determined the CA is no longer necessary with a 30-day notice to all parties.

VIII. SIGNATURES

10/30/06

District Manager, BLM Eugene District Office — Date

11/1/06

District Manager, BLM Roseburg District Office — Date

for 11/3/2006

District Manager, BLM Medford District Office — Date

11/28/06

Forest Supervisor, Rogue River-Siskiyou National Forest — Date

11/1/06

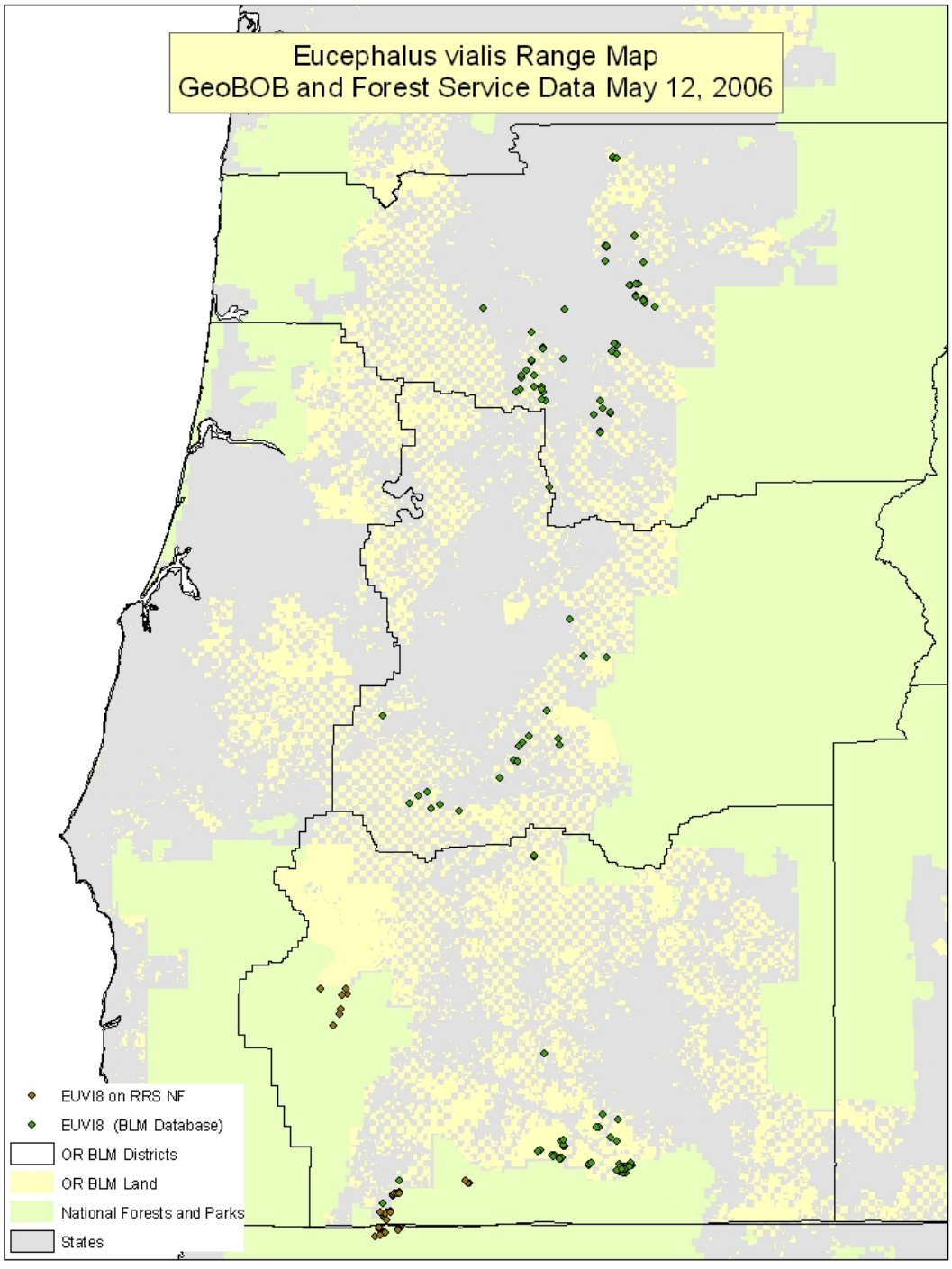
Field Supervisor, U.S. Fish and Wildlife Service, Roseburg Field Office — Date

IX. ATTACHMENTS

APPENDIX A Range Map for *Eucephalus vialis*
APPENDIX B *Eucephalus vialis* Rangewide Known Occurrences as of May 2006
APPENDIX C References

APPENDIX A

Range Map for *Eucephalus vialis*



APPENDIX B

Table 1: ***Eucephalus vialis*** **Rangewide Known Occurrences as of May 2006**

ADMINISTRATIVE UNIT	SITE IDENTIFICATION NUMBER	SITE NAME	NUMBER OF PLANTS	ACRES	DATE OBSERVED
Army Corps of Engineers	1 site only	1 site only		1.14	
Eugene District	416				9/8/1992
Eugene District	67		20		9/16/1992
Eugene District	209		80		10/15/1997
Eugene District	210		194		10/15/1997
Eugene District	63	BLM ROAD 20-4-15	300	11.67	9/6/1988
Eugene District	666		2		9/21/2000
Eugene District	71	Gowdyville Road BLM	500	0.48	8/18/1992
Eugene District	64		20		9/16/1992
Eugene District	66		12		9/16/1992
Eugene District	59	Scattered Tracts South	47	1.86	8/9/1989
Eugene District	900		75		6/1/2001
Eugene District	901		75		6/1/2001
Eugene District	444	Norris Head	2		8/13/1997
Eugene District	52		3		5/28/1992
Eugene District	57	Scattered Tracts North	189	4.76	8/2/1989
Eugene District	69		13		8/10/1989
Eugene District	FROM TAE			1.00	
Eugene District	FROM TAE			2.34	
Eugene District	NORRIS DIVIDE ASVI4		75	0.85	
Eugene District	18S 1W 21 ASVI 1	Hills Creek Road ASVI 1	14	0.61	8/4/1989
Eugene District	23S 2W 1 ASVI 1	Hobart Butte	3		7/28/1999
Eugene District	21S 2W 19 ASVI 1	Past Perkins Site 1	25		6/14/1996
Eugene District	19S 2W 27 ASVI 1	Bearly There	1		6/25/1990
Eugene District	20S 2W 7 ASVI 1	Mosby Creek	400	8.07	9/1/1999
Eugene District	18S 1W 17 ASVI 4 & 6	Cedar Creek (Oak Hills)	17	1.73	6/1/1999
Eugene District	21S 2W 5 ASVI 1	Low Down Mosby (Garrote Road)	90	2.08	4/24/1992
Eugene District	18S 2W 1 ASVI 1	Lower 79th St	166	2.32	6/13/1996
Eugene District	19S 2W 21 ASVI 1	Bear Creek	75	3.01	7/13/1992
Eugene District	21S 2W 9 ASVI 1	Chapman Road	136	0.99	5/23/2000
Eugene District	17S 1W 31 ASVI 1	Upper 79th, End of the Road	50	2.52	9/9/1997

Eugene District	21S 2W 9 ASVI 2 SPUR 9.1	Chapman Road Spur 9.1	7		5/23/2000
Eugene District	20S 2W 31 ASVI 1	Row River	214	1.50	8/20/1992
Eugene District	17S 2W 5 ASVI B	Spores Creek	2	0.20	5/20/1997
Eugene District	16S 2W 25 ASVI 1	Lalone Road	100*	3.17	6/3/1999
Eugene District	17S 2W 5 ASVI A	Spores Creek	60	2.18	7/13/1992
Eugene District	17S 2W 5 ASVI C	Spores Creek	5	0.22	8/5/2003
Eugene District	14S 2W 28 ASVI CALAPOOYA	Calapooya	27	2.47	8/8/2001
Eugene District	18S 1W 17 ASVI 1	Cedar Creek (Oak Hills)	32	2.65	5/31/1999
Eugene District	18S 1W 17 ASVI 2	Cedar Creek (Oak Hills)	100	1.48	6/1/1999
Eugene District	18S 1W 17 ASVI 3	Cedar Creek (Oak Hills)	10	1.03	5/28/1999
Eugene District	21S 3S 19 FROM TAE ASVI	21S 3W 19 ASVI mystery site		1.00	
Eugene District	18S 1W 7 ASVI 3	Wallace Creek	5	0.58	6/10/1997
Eugene District	17S 1W 17 ASVI 1	Rowdy Camp Section 17	500	9.83	
Eugene District	14S 2W 28 ASVI RFI#9	RFI #9	4	10.66	9/15/1997
Eugene District	18S 1W 7 ASVI 1	Wallace Creek	91	3.38	5/30/1997
Eugene District	18S 1W 7 ASVI 2	Wallace Creek	15	0.75	6/10/1997
Eugene District	19S 2W 15 ASVI 3	Papenfus Road ASVI 3	31	0.25	7/16/1992
Eugene District	19S 2W 15 ASVI 2	Papenfus Road ASVI 2	40	0.38	7/16/1992
Eugene District	19S 2W 15 ASVI 1	Papenfus Road ASVI 1	30	1.56	8/19/1997
Eugene District	19S 2W 15 ASVI 4	Papenfus Road ASVI 4	1	0.11	7/11/1995
Eugene District	19S 2W 15 ASVI 5	Papenfus Road ASVI 5	41	1.17	8/19/1997
Eugene District	17S 1W 31 ASVI 2	Upper 79th Roadside ASVI	5	0.25	6/23/1995
Eugene District	18S 2W 1 ASVI 2	lower 79TH ST Meadow	100	7.46	3/13/1998
Eugene District	21S 2W 19 ASVI 2	Past Perkins Site 2	125	1.09	6/14/1996
Eugene District	18S 1W 17 ASVI 5	Cedar Creek (Oak Hills)	11	2.11	6/1/1999
Medford District	3115		30	0.60	11/14/2002
Medford District	3555		19	0.59	8/17/2004
Medford District	1517		10	0.06	4/15/2002
Medford District	3551		41	0.34	8/17/2004
Medford District	3554		103	6.61	6/25/2004
Medford District	3550		22	1.87	7/23/2002
Medford District	3113		321	10.86	8/16/2004
Medford District	3558		75	0.79	7/7/2004

Medford District	3556		50	0.27	6/25/2004
Medford District	7694		5		8/23/1999
Medford District	3548		48	0.58	7/18/2004
Medford District	3549		500	4.19	7/17/2004
Medford District	7697		12		8/6/2000
Medford District	2581		3		12/12/2002
Medford District	3547		200	1.03	7/16/2004
Medford District	3552		8		7/26/2002
Medford District	3553		6	0.46	7/28/2002
Medford District	3560		4	0.36	7/7/2004
Medford District	3561		4		7/7/2004
Medford District	7698		25	0.60	8/6/2000
Medford District	4599		4		8/26/2003
Medford District	3559		750	3.88	7/7/2004
Medford District	4611		10		9/2/2003
Medford District	3557		28		7/7/2004
Medford District	2224		9	0.38	11/10/2002
Medford District	7696		1200	0.84	8/6/2000
Medford District	3562		10	1.22	7/7/2004
Medford District	10351		7	0.10	8/3/2004
Medford District	9475		1		8/16/2004
Medford District	9474		28	0.71	8/16/2004
Medford District	9460		150		7/17/2004
Medford District	9592				
Medford District	9593				
Medford District	9594			1.42	
Medford District	9591			0.35	
Medford District	10289		10	0.11	9/1/2004
Medford District	10293		7	0.36	5/27/2004
Medford District	9978		10		8/27/2005
Medford District	9472		10	0.31	6/25/2004
Medford District	9587				
Medford District	9588			0.66	
Medford District	9599			0.44	
Medford District	10280		109	6.43	8/29/2004
Medford District	10281		20	0.81	9/1/2004
Medford District	10292		7	0.06	5/25/2004
Medford District	10294		50	3.47	5/27/2004
Medford District	10295		30	0.85	5/27/2004
Medford District	7695		80		8/6/2000
Medford District	7099		27		8/2/1999
Medford District	4599		5		7/30/2004
Medford District	10353		60	0.37	7/8/2004
Medford District	10449		1		7/7/2004
Medford District	9624			1.40	
Medford District	10473		50	0.08	8/10/2005
Medford District	10472		300	0.25	8/10/2005
Medford District	7691		20	1.26	8/30/2001
Medford District	10778		5		8/1/2005

Private	OR100_1755		8		6/4/2002
Private	OR100_1756		20		5/28/2002
Private	OR100_2015		30		3/27/2003
Private	FROM TAE	Gowdyville Road Private		3.72	8/18/1992
Rogue River-Siskiyou NF		Quartz Fire Area			0/0/2002
Rogue River-Siskiyou NF		Chrome Ridge Fmz	125	1.00	8/28/2003
Rogue River-Siskiyou NF		Chrome Ridge Proposed Biscuit Timber Sale	500	20.00	9/17/2003
Rogue River-Siskiyou NF		Chrome Ridge Proposed Biscuit Timber Sale	500	15.00	9/17/2003
Rogue River-Siskiyou NF		Chrome Ridge Proposed Biscuit Timber Sale	500	20.00	9/17/2003
Rogue River-Siskiyou NF		Chrome Ridge Proposed Biscuit Timber Sale	1800	82.50	0/0/2003
Rogue River-Siskiyou NF		Chrome Ridge Proposed Biscuit Timber Sale	320	38.25	0/0/2003
Rogue River-Siskiyou NF		Flat Top Proposed Biscuit Timber Sale	600	5.00	0/0/2003
Rogue River-Siskiyou NF	6527	Dunn Creek Kingfish #5	18	0.50	8/5/1999
Rogue River-Siskiyou NF	6527	Dunn Creek Kingfish #5	18	0.50	8/5/1999
Rogue River-Siskiyou NF	6804	Kingfish Unit 5	2000	6.00	8/5/1999
Rogue River-Siskiyou NF	6804	Kingfish Unit 5	2000	6.00	8/5/1999
Rogue River-Siskiyou NF	6804	Kingfish Unit 5	2000	6.00	8/5/1999
Rogue River-Siskiyou NF	6365	North Fork Dunn Creek	5	0.02	8/6/1999
Rogue River-Siskiyou NF	6928	Lake Mountain	60	0.05	8/17/2000
Rogue River-Siskiyou NF	6929	Lake Mountain	2000*	20.00	8/17/2000
Rogue River-Siskiyou NF	6930	Lake Mountain	5000*	55.00	8/18/2000
Rogue River-Siskiyou NF	11840	Upper Illinois Unit 12a	5	0.50	6/25/2001
Rogue River-Siskiyou NF	11838	Upper Illinois Unit 2	3	0.10	6/29/2001

Rogue River-Siskiyou NF	11845	Elder Creek	13	0.10	7/23/2001
Rogue River-Siskiyou NF	11839	Upper Illinois Unit 12a	8	0.25	7/24/2001
Rogue River-Siskiyou NF	11836	Upper Illinois Unit 4	20	0.50	7/24/2001
Rogue River-Siskiyou NF	11837	Upper Illinois Unit 4	7	0.10	7/24/2001
Rogue River-Siskiyou NF	11841	Upper Illinois Unit 12a	2	0.10	7/25/2001
Rogue River-Siskiyou NF	11853	Elder Mountain	4	1.00	8/20/2001
Rogue River-Siskiyou NF	11852	Elder Mountain	2	1.00	8/20/2001
Rogue River-Siskiyou NF	11846	Elder Mountain	200	4.00	8/20/2001
Rogue River-Siskiyou NF	11895	Elder Creek	1	0.01	8/23/2001
Rogue River-Siskiyou NF	11894	Elder Creek	7	0.10	8/23/2001
Rogue River-Siskiyou NF	11907	Elder Creek	1	0.01	8/23/2001
Rogue River-Siskiyou NF	11896	Elder Creek	7	0.10	8/23/2001
Rogue River-Siskiyou NF	11906	Elder Creek	3	0.01	8/23/2001
Rogue River-Siskiyou NF	11903	Elder Creek	6	0.01	8/23/2001
Rogue River-Siskiyou NF	11835	Upper Illinois	100	13.00	9/3/2001
Rogue River-Siskiyou NF	11833	Upper Illinois	250	100.00	9/3/2001
Rogue River-Siskiyou NF	11834	Upper Illinois	12	1.00	9/3/2001
Rogue River-Siskiyou NF	13099	Upper Illinois/Dunn	16	4.00	8/26/2004
Rogue River-Siskiyou NF	13100	Upper Illinois/Dunn	2	0.10	9/6/2004
Rogue River-Siskiyou NF	13096	Upper Illinois Dunn	1	0.30	9/9/2004
Roseburg District	OR100_1573		4		6/21/2000
Roseburg District	OR100_1754		12		5/28/2002
Roseburg District	OR100_0598		1		8/4/1998
Roseburg District	OR100_0279				8/4/1997
Roseburg District	OR100_1201		4		7/1/1999
Roseburg District	OR100_1509				6/2/1999
Roseburg District	OR100_0175				8/9/1991
Roseburg District	OR100_0194				6/24/1992
Roseburg District	OR100_0195				7/9/1992
Roseburg District	OR100_0200				8/24/1992

Roseburg District	OR100_0245				6/19/1997
Roseburg District	OR100_0329				6/2/1999
Roseburg District	OR100_0334				6/21/1900
Roseburg District	OR100_0598				8/4/1998
Roseburg District	OR100_1754				5/28/2002
Roseburg District	OR100_1755				6/4/2002
Roseburg District	OR100_1756				5/28/2002
Roseburg District	OR100_2015				3/27/2003
Roseburg District	OR100_2021				5/4/2004
Roseburg District	OR100_2022				7/1/1999
Roseburg District	OR100_0597		5		5/4/1998
Roseburg District	OR100_0210				8/23/1993
Roseburg District	OR100_0244				8/7/1997
Roseburg District	OR100_0597				5/4/1998
Unknown agency-perhaps private	1919 Joseph Tracy collection	West of Willow Creek, CA			9/27/1919

* Estimate based on number of “stems” or plants reported on site form.

APPENDIX C

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