

***Rorippa columbiana* Census on Chiloquin Ranger District and Klamath Falls Resource Area**

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INTRODUCTION: This report summarizes a portion of the field survey work requested in submitted proposal “Survey and Conservation Assessment Development for Columbia yellow cress (*Rorippa columbiana*).” Partial funding was available to complete some field survey during the 2014 season.

OBJECTIVE: Revisit six of the known populations on the Lakeview District BLM and Fremont-Winema NF and determine current status and condition. Census data is available for several of these sites and will be used to provide an accurate evaluation of population trends at those sites.

The revisit surveys were conducted on approximately 525 acres of during June-July 2014. See attached map.

BACKGROUND: Columbia yellow cress occurs in three disjunct regions, along the Columbia River in Washington and Oregon, in southeastern Oregon and on the Modoc Plateau in California. Although this species has a fairly large range, populations are sparsely distributed and are confined to the edges of drying rivers, streams or lakes where the low-growing rhizomatous perennial receives annual inundation for at least part of the year. Many populations contain only a few individuals. Monitoring in Washington between the 1980’s and 2003 documented a precipitous decline in populations within Department of Energy’s Hanford Reach on the Columbia River. Although Oregon populations along Malheur Lake and in the Sprague River valley were stable through the 1990’s, no current information on trends in these areas is available. Plant numbers at Lakeview BLM’s Foley Lake ACEC/RNA (Oregon’s largest population, with over 10,000 plants observed in 1994) have plummeted, with only 89 plants recorded in 2007, the last year a census was completed. No plants were observed by ODA staff at Foley Lake in 2009 and 2010. USFS botanists report large declines in populations under their jurisdiction, although censuses have not been completed on most sites since the early 1990’s.

This species has received relatively little conservation attention in Oregon in the last decade. Hydrological changes have negatively impacted sites in Washington and insufficient information on Oregon sites is available to accurately evaluate the current status of the species. There is consensus among the state and federal agencies that the species is in decline across much of its range. Accurate documentation of the status of Columbia yellow cress and revision of information to produce a Conservation Assessment and determination of the need for a revised Conservation Strategy will promote proactive conservation planning for the species.

TARGET SPECIES LIST AND RANKS:

Rorippa columbiana (Columbia yellow cress) G3, N3, S3, ORBIC List 1,
WA-S1S2, CA-S1.1, Sensitive

Project Design and Methods: A census of six populations on Fremont-Winema NF and Lakeview BLM (Klamath Falls Resource Area) was completed by Sarah Malaby under purchase order to provide preliminary data. Element Occurrence forms were filled out and populations GPSed.

Results: Six sites and adjacent ground were surveyed, covering about 525 acres.

Table 1. Summary of *Rorippa columbiana* (ROCO3) Sites

ROCO3 EO	name of site	year of visit	# plants
060212EO00100	Seput Land exchange	1993	348
		2014	6
060212EO00056	Sprague River	1994	650
		2003	1040
		2014	2620
KFRA08111983ROCO3-1	BLM Stukel Mtn	2001	144
		2014	43
060212EO00082	Buck Creek	1993	24
		1997	0
		2014	0
060212EO00083	Buck Creek tributary	1994	150
		1999	309
		2003	54
		2014	11
060212EO00085	Rock Creek	1993	2279
		1997	2772
		2014	246
Total plants in 2014			2,926

In summary there were six sites of Columbia yellow cress surveyed. Five sites are on Chiloquin Ranger District and one, Stukel Mt., is on Klamath Falls RA. One site, Buck Creek, appears to be extirpated. A total of 2,926 plants were counted in 2014. The sum using the highest plant count from each site prior to 2003 equals 4,637 plants.

Discussion: Overall the trend appears to be declining. The number of plants tallied in the 2014 census decreased between 30-100% as compared to 1990's counts in 5 of the 6 sites. One site, Sprague River, did show an increased number of plants. Three of the larger sites (Sprague River, Rock Creek and Buck Creek Tributary) have plant counts from revisits in 1997-2003, which all show an increase in the number of plants present compared to the original count in 1993 or 1994.

Plant counts over 20 years show variability in the populations, as would be expected given other observations of this species. However, the level of decline seems to be the result of more than variability in population size in response to precipitation amounts or another single environmental factor. There is also considerable variability in the conditions at each site; see Table 2, below.

Table 2. Summary of site conditions

Site location	Non-natives	Grazing	Other disturbance	Competition	Soil moisture	Habitat type	# of plants	% change
Buck Creek	Yes - Ciar4, Canu4	Yes with substantial soil disturbance	No	50-75% cover of graminoids	wet-dry	Intermittent stream with water present	0	-100%
Buck Tributary	Yes - non-native grasses	Yes, but not utilized so far this year	OHV use in stream channel	50-75% cover of graminoids	dry	Intermittent stream channel - no water	11	-93%
Sprague River	Yes - Ciar4, Canu4, Onac, Trpe21, Phar3 and non-native grasses	No	No	75-95% cover of graminoids	moist-dry	Broad flood plain of the Sprague River	2,620	+403%
Seput	Yes - Ciar4, Lida, Phar3 and non-native grasses	Not in the past 2 years, heavy use prior to that	No	5-25% cover of graminoids	dry	Riverbank - 3-4' above the Sprague River	6	-98%
Rock Creek	Yes - Ciar4, Canu4 and non-native grasses	Moderate use for the past several years, heavy use in the past	Insect damage	5-25% cover of graminoids	moist-dry	In stream channel with water present and along bank.	246	-89%
Stukel 1	Not significant	Yes - heavily utilized along edge of reservoir	OHV use	25-50% cover of graminoids	moist-dry	Edge of seasonal reservoir	14	-30%
Stukel 2	Yes - Ciar4	Yes - substantial ground disturbance	minor OHV activity	25-50% cover of forbs	dry	Dried reservoir bottom	29	-77%

*USDA NRCS PLANTS Database codes: Canu4 = *Carduus nutans* (nodding plumeless thistle); Ciar4 = *Cirsium arvense* (Canada thistle); Lida = *Linaria dalmatica* (Dalmatian toadflax); Onac = *Onopordum acanthium* (Scotch cottonthistle); Phar3 = *Phalaris arundinacea* (reed canarygrass); Trpe21 = *Tripleurospermum perforatum* (scentless false mayweed)

The Sprague River site was the only site that showed an increase in the number of plants tallied. This site is probably closest in its current disturbance regime to what historic conditions were: the site is in a broad floodplain of one of the major rivers in the area; it does not experience other forms of disturbance, including grazing, to any great degree; and although non-native vegetation and a high cover of graminoids are present, plants persist.

All of the other sites visited are associated with smaller streams or seasonal ponds that likely do not experience the water flow events and seasonal inundation needed to maintain habitat. Southern Oregon has also been experiencing drought from 2012 through 2014. While this may be the main factor in decline of *Rorippa columbiae* at these sites, plants also contend with other factors such as grazing, OHV use and/or noxious weed infestation. Grazing impacts were noted to cause substantial ground disturbance at several sites. OHV use was mentioned as causing minor impacts to the soil. Noxious weeds were often present, but not indicated as impacting *Rorippa columbiae* populations at this point in time. But in combination with lower seasonal water flows at these sites, these other factors could be having a fairly large impact. Although we have no control over seasonal water flow, the other factors potentially affecting sites could be mitigated.

Comments recorded at some sites: plants appear to be in remnant patches of what was a continuous population 20 years ago, and plants are no longer present along intermittent stream downstream of the reservoir, offer a fair summation of the trend observed.



Fig. 1 Sprague River *Rorippa columbiae* site

Status of other Final Products:

- 1) NRM/NRIS TESP survey and site forms and data entry – complete.
- 2) Share report with SO, RO, Lakeview BLM and compile additional information.
- 3) Determine next steps: another year of survey, survey of additional areas, etc.

