

**Visual Observations and Demographic Monitoring Results for
Northern Wormwood (*Artemisia borealis* var. *wormskioldii*)
Summary Report - 2010**

Developed By:

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December 31, 2010

Summary

Visual observations and demographic monitoring results of the northern wormwood population near Beverly, WA indicate a recent decline over the past few years. A decrease in the number of flowering adults within the monitoring plots has been documented, while conversely, the seedling counts have shown a significant increase. As a result of the annual census of the main population in 2010, Grant PUD biological staff observed an estimated 401 flowering northern wormwood adults. For the years 2007-2010, the population estimates were 1,620, 1,053, 763, and 401, respectively. In 2010, Grant PUD recorded finding 1,016 seedlings in the monitoring plots, which was less than the 2009 seedling count of 2,659, but remains higher than years past. Prior year's seedlings counts were much lower with a total of 44 seedlings observed in 2008 and 91 seedlings observed in 2007.

Grant PUD biologists also counted 21 flowering northern wormwood adults on the northern peninsula upriver of the main population and five more flowering plants east of the population on another peninsula. These populations have varied over the past few years but have remained relatively stable.

Recent experiments include the seed collection and propagation efforts by Oregon State University (OSU) researchers and Grant PUD biologists in 2006 where 25 adult northern wormwood were out-planted outside the Beverly monitoring population. Of these outplantings, 5 of the 25 remain alive with 3 flowering in 2010. Their status will continue to be tracked as part of the annual demographic monitoring efforts.

Some assumptions for the recent decline in adults are:

- colder and extended previous winter might have played factor in growth of adult plants;
- competition amongst other native vegetation throughout the Beverly population;
- higher flows in 2008 deposited debris along the population's west shorelines where plants were persisting in the past; and
- potential for herbivores such as Canada geese utilizing the islands and peninsulas in the vicinity.

The following table shows additional information over the past 11 years on and around this site.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Seedlings*	NA	6	563	1,610	211	139	555	91	44	2,659	1,016
Population via census*	1,260	NA	NA	NA	NA	1,623-1,710	NA	1,585-1,656	1022-1084	763-764	401-405
NWW Adults flowering in plots*	NA	225	200	198	109	92	104	73	66	54	23
Hawk pole population	NA	NA	NA	NA	NA	44	NA	52	NA	5	5
Northern Peninsula population	NA	NA	NA	NA	NA	111	NA	100	NA	33	21

* These are part of the main population where demographic monitoring occurs annually

Grant PUD is continuing efforts to conduct demographic monitoring of the population annually. In addition to the demographic monitoring, Grant PUD continues to perform annual census surveys, weed control efforts, and maintain a fence excluding the population from vehicle use. Grant PUD is also continuing to collect and provide seeds to Kelly Amsberry, Native Plant Conservation Program, Oregon Department of Agriculture. They have been using the seeds collected at the Beverly population to propagate surrogate *Wormskioldii*'s northern wormwood populations downriver near The Dalles, OR. Grant PUD is also continuing a seedling recruitment study for the population.