

**Visual Observations and Demographic Monitoring Results for
Northern Wormwood (*Artemisia borealis* var. *wormskioldii*)
Summary Report - 2011**

Developed By:

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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 2011, Grant PUD biological staff observed an estimated 352 flowering northern wormwood adults. For the years 2007-2011, the population estimates were 1,620, 1,053, 763, 401 and 352, 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.

In 2011, Grant PUD biologists were only able to monitor 14 of the 31 plots prior to high water inundating the remaining plots. Grant PUD staff returned to the Beverly population after flows receded (August 9-12) and surveyed for presence/absence of known plants previously noted in prior surveys. Biologists counted 1,041 *Artemisia borealis* (includes both *wormskioldii* and *scouleriana*) plants in 14 plots surveyed May, 2011. Grant PUD resurveyed those 14 plots in August and found 1,006 plants remaining (96.64% survival) after flows decreased to elevations lower than the population.

Noxious weed control efforts continued in 2011 with hand removal of approximately 1,000 diffuse knapweed plants from the population. Grant PUD staff treated approximately 250 Dalmatian toadflax plants individually with glyphosate via a chemical injection gun. Grant PUD believes that Dalmatian toadflax will be eradicated and diffuse knapweed to be significantly reduced from the site over the next 2 years due to its significant and aggressive weed control efforts.

Table 1. Additional information over the past 11 years on and around this site.

	Seedlings*	Population via census*	NWW Adults flowering in plots*	Hawk pole population	Northern Peninsula population
2000	NA	1,260	NA	NA	NA
2001	6	NA	225	NA	NA
2002	563	NA	200	NA	NA
2003	1,610	NA	198	NA	NA
2004	211	NA	109	NA	NA
2005	139	1,623-1,710	92	44	111
2006	555	NA	104	NA	NA
2007	91	1,585-1,656	73	52	100
2008	44	1022-1084	66	NA	NA
2009	2,659	763-764	54	5	33
2010	1,016	401-405	23	5	21
2011	NA	350-352	NA	NA	NA

* 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 will continue to perform annual census surveys, weed control efforts, and maintain the access fence excluding the population from vehicle access. 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.