

**Appendix D**  
**2008 Rare Plant Survey/Sage-grouse Lek Survey**

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DAVID EVANS  
AND ASSOCIATES INC.

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## TECHNICAL MEMORANDUM

**DATE:** July 23, 2008  
**TO:** Scott Williams, Puget Sound Energy  
**FROM:** Gray Rand, Senior Biologist  
**SUBJECT:** **Rare Plant Survey for Expansion of Wild Horse Wind Facility**  
**PROJECT:** Wild Horse Expansion  
**PROJECT NO:** PSEN00000134  
**COPIES** Ron Bockelman, Jennifer Diaz

This memorandum documents the results of a rare plant survey conducted on portions of the proposed expansion at the Wild Horse Wind Power Facility (WHWPF). The Expansion would add 1,280 acres to the 8,600 acres of the original site for a total of 9,880 acres and add 26 new turbines to the 127 turbines currently operating for a total of 153 turbines at the WHWPF. The expansion area is located immediately north of the existing WHWPF on approximately 1,280 acres within Sections 8, 9, and 17 of Township 18N, Range 21 East. The site is located approximately 13 miles east of Ellensburg near the headwaters of Skookumchuck Creek.

The intent of this memorandum is to document the results of a rare plant survey conducted in new areas identified for the expansion not covered by a previous survey conducted by WEST, Inc. in 2006.

### Methods

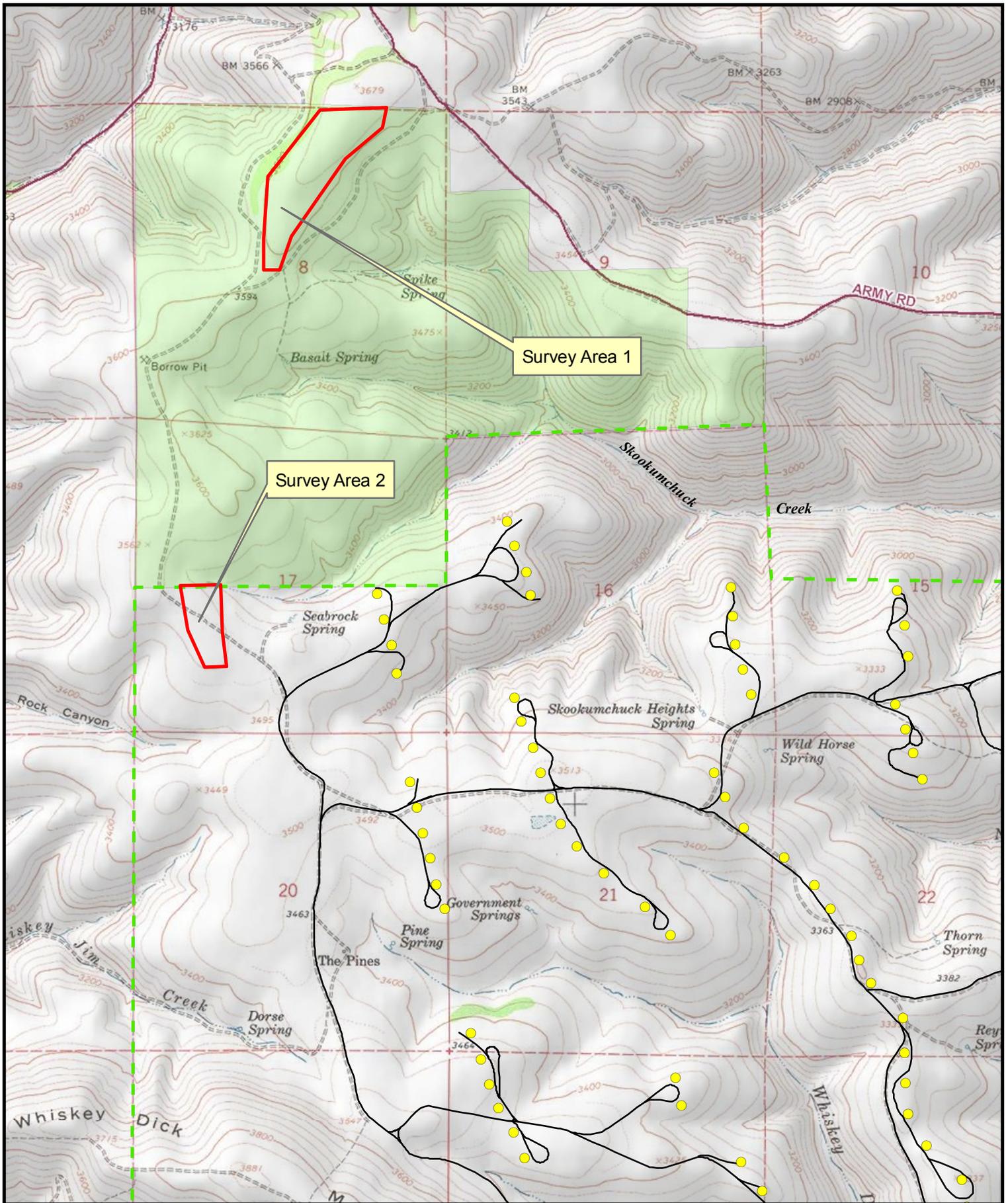
Surveys were conducted by trained botanists during peak flowering and/or fruiting periods when target species are best identified. Meandering transects were walked in two separate areas (Figure 1): Survey Area 1 is the small mesa where the proposed S-string is located, and Survey Area 2 is the area surrounding the additional proposed R-11 through R-13 turbines. These areas were completely inventoried for rare plants on May 27 and June 15, 2008.

### Results

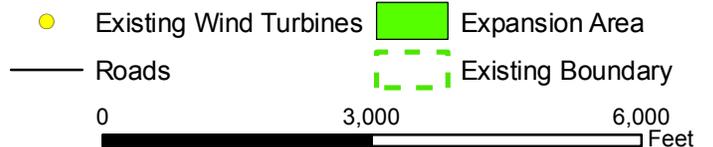
**Exhibit 1** lists all plant species found during site visits by the botanists. Habitat in the two surveyed areas was characterized by plants adapted to shallow lithosol soils, including biscuitroot, stiff sagebrush, false dandelion, a variety of lomatium species, Sandberg's bluegrass, thyme desert buckwheat, alumroot, bitter root, and sagebrush violet. Other species, including a variety of shrubs and different grasses were found on the fringes of these survey areas. No federal or state endangered, threatened, proposed or candidate plant species were encountered during the field surveys. One plant species on the Washington State "Review" plant list—hedgehog cactus—was observed, primarily along the exposed rocky edges of Survey Area 1. This species has been widely observed on the existing WHWPF as well as other nearby wind farms.

**Exhibit 1. Species Observed During Rare Plant Surveys on Wild Horse Expansion Area**

Family	Scientific Name	Common Name	Survey Area Where Observed
Apiaceae	<i>Lomatium gormanii</i>	salt and pepper	1,2
Apiaceae	<i>Lomatium grayi</i>	Gray's desert lomatium	1,2
Apiaceae	<i>Lomatium macrocarpum</i>	large-fruited lomatium	1,2
Apiaceae	<i>Lomatium sp.</i>		1
Apiaceae	<i>Lomatium triternatum</i>	nineleaf biscuitroot	1
Asteraceae	<i>Achillea millefolium</i>	common yarrow	1,2
Asteraceae	<i>Antennaria lanata</i>	pussytoes	1
Asteraceae	<i>Artemisia rigida</i>	stiff sagebrush	1,2
Asteraceae	<i>Artemisia tridentata</i>	big sagebrush	1,2
Asteraceae	<i>Balsamorhiza hookeri</i>	Hooker's balsamroot	1,2
Asteraceae	<i>Chaenactis douglasii</i>	dusty maidens	1
Asteraceae	<i>Chrysothamnus nauseosus</i>	gray rabbitbrush	1,2
Asteraceae	<i>Crepis modocensis</i>	low hawkbeard	1
Asteraceae	<i>Erigeron linearis</i>	Linear-leaf daisy	1,2
Asteraceae	<i>Erigeron pumilus????</i>	shaggy fleabane	1
Asteraceae	<i>Nestotus stenophyllus</i>	narrowleaf goldenweed	1,2
Asteraceae	<i>Nothocalais troximoides</i>	sagebrush false dandelion	1,2
Asteraceae	<i>Senecio canus (Packera cana)</i>	woolly groundsel	1
Asteraceae	<i>Senecio integerrimus</i>	western groundsel	1,2
Asteraceae	<i>Taraxicum officinale</i>	common dandelion	2
Asteraceae	<i>Tragopogon dubius</i>	yellow salsify	1,2
Berberidaceae	<i>Mahonia sp.</i>	Oregon grape	1
Boraginaceae	<i>Cryptantha affinis???</i>	quill cryptantha	1
Brassicaceae	<i>Arabis divaricarpa</i>	spreading rockcress	1
Brassicaceae	<i>Arabis sp.</i>	rockcress	1
Brassicaceae	<i>Clorospora tenella</i>	blue mustard	2
Brassicaceae	<i>Descurainia pinnata</i>	western tansymustard	1
Brassicaceae	<i>Drabis sp.</i>		1
Brassicaceae	<i>Phoeniculus cheiranthoides</i>	dagger-pod	1
Brassicaceae	<i>Sisymbrium altissimum</i>	tumble mustard	1
Cactaceae	<i>Pediocactus simpsonii</i>	hedgehog cactus	1
Cyprofoliaceae	<i>Symphoricarpos oreophilus</i>	mountain snowberry	1
Crassulaceae	<i>Sedum sp.</i>		1
Crassulaceae	<i>Sedum stenopetalum?</i>	wormleaf stonecrop	1
Fabaceae	<i>Lupinus aridus</i>	dry-ground lupine	1
Fabaceae	<i>Lupinus sulphureus</i>	sulphur lupine	1,2
Fabaceae	<i>Trifolium macrocephalum</i>	big-headed clover	1,2
Grossulariaceae	<i>Ribes cereum</i>	squaw current	1,2
Hydrophyllaceae	<i>Holidiscus sp.</i>	oceanspray	1
Hydrophyllaceae	<i>Hydrophyllum capitatum</i>	ballhead waterleaf	1
Hydrophyllaceae	<i>Phacelia linearis</i>	threadleaf phacelia	1
Liliaceae	<i>Allium acuminatum</i>	tapertip onion	1
Liliaceae	<i>Calicortus sp.</i>	mariposa	1
Liliaceae	<i>Triteleia grandiflora var. howellii (Brodiaea howellii)</i>	Howell's triteleia	2
Liliaceae	<i>Zigodenus venenosus</i>	death camas	1
Onagraceae	<i>Camissonia andina</i>	obscure evening primrose	1,2
Pinaceae	<i>Pinus ponderosa</i>	ponderosa pine	1
Poaceae	<i>Bromus tectorum</i>	cheatgrass	1,2
Poaceae	<i>Elymus elymoides (Sitanion hystrix)</i>	squirreltail	1,2
Poaceae	<i>Festuca idahoensis</i>	Idaho fescue	1,2
Poaceae	<i>Poa bulbosa</i>	bulbous bluegrass	1
Poaceae	<i>Poa secunda</i>	Sandberg's bluegrass	1,2
Poaceae	<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	1,2
Polemoniaceae	<i>Collomia grandiflora</i>	large-flowered collomia	1
Polemoniaceae	<i>Gilia sp.</i>		1
Polemoniaceae	<i>Leptodactylon pungens</i>	granite prickly phlox	1
Polemoniaceae	<i>Phlox gracilis</i>	midget phlox	1
Polemoniaceae	<i>Phlox hoodii</i>	Hood's phlox	1,2
Polemoniaceae	<i>Phlox longifolia</i>	long-leaf phlox	2
Polygonaceae	<i>Eriogonum thymoides</i>	thyme desert buckwheat	1,2
Polygonaceae	<i>Eriogonum caespitosum</i>	cushion desert buckwheat	1,2
Polygonaceae	<i>Eriogonum compositum</i>	arrowleaf buckwheat	1
Polygonaceae	<i>Eriogonum heracleoides</i>	parsley desert buckwheat	1,2
Polygonaceae	<i>Eriogonum strictum</i>	strict desert buckwheat	1,2
Portulacaceae	<i>Claytonia sp.</i>	spring beauty	1
Portulacaceae	<i>Lewisia rediviva</i>	bitter root	1,2
Portulacaceae	<i>Montia linearis</i>	narrowleafed montia	1
Portulacaceae	<i>Montia sp.</i>	montia	1
Ranunculaceae	<i>Delphinium sp.</i>	larkspur	1,2
Ranunculaceae	<i>Ranunculus glaberrimus</i>	sagebrush buttercup	1
Ranunculaceae	<i>Ranunculus testiculatus</i>	bur buttercup	1
Rhamnaceae	<i>Ceanothus velutinus</i>	snowbrush ceanothus	1
Rosaceae	<i>Amelanchier alnifolia</i>	serviceberry	1,2
Rosaceae	<i>Purshia tridentata</i>	bitterbrush	1,2
Rosaceae	<i>Rosa woodsii</i>	wood's rose	1
Rubiaceae	<i>Galium aparine</i>	cleavers	1
Saxifragaceae	<i>Heuchera cylindrica</i>	alumroot	1
Saxifragaceae	<i>Lithophragma bulberas</i>	prairie woodland star	1,2
Scrophulariaceae	<i>Castilleja thompsonii</i>	paintbrush	1,2
Scrophulariaceae	<i>Collinsia parviflora</i>	maiden blue eyed Mary	1,2
Scrophulariaceae	<i>Penstemon gairdneri</i>	Rock penstemon	1
Scrophulariaceae	<i>Verbascum thapsus</i>	mullien	1
Violaceae	<i>Viola trinervata</i>	sagebrush violet	1,2



**Figure 1 - Additional Rare Plant Survey Areas Proposed Wild Horse Expansion Area**





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## TECHNICAL MEMORANDUM

**DATE:** July 23, 2008  
**TO:** Scott Williams, Puget Sound Energy  
**FROM:** Gray Rand, Senior Biologist  
**SUBJECT:** Sage Grouse Surveys for Expansion of Wild Horse Wind Facility  
**PROJECT:** Wild Horse Expansion  
**PROJECT NO:** PSEN00000134  
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This memorandum documents the results of surveys conducted by DEA personnel in spring 2008 looking for active leks being used by greater sage grouse (*Centrocercus urophasianus*) in the vicinity of Puget Sound Energy's (PSE) Wild Horse Wind Power Facility (WHWPF) outside of Ellensburg, Washington. The Expansion Area is located immediately north of the existing WHWPF on approximately 1,280 acres within Sections 8, 9 and 17 of Township 18N, Range 21 East. The site is located approximately 13 miles east of Ellensburg near the headwaters of Skookumchuck Creek. These surveys were voluntarily conducted by PSE due to the discovery of an active sage grouse nest on the existing WHWPF during 2007.

### Methods

A total of six vehicle-based surveys were conducted by a DEA biologist in the expansion area between March and April 2008. Table 1 below lists the survey dates and conditions during each survey. The surveyor stopped at approximately ¼ mile intervals along existing roads on the site, got out of the car, and looked and listened for evidence of sage grouse leks, including vocalizations and visual observations of adult birds. The entire expansion area was covered by visual and auditory observation.

### Results

No sage grouse leks were found during the surveys in the expansion area. Similarly, lek surveys conducted simultaneously by PSE biologists on the existing WHWPF did not encounter leks. Given that sage grouse are nesting on the WHWPF, it is likely that a lek exists somewhere north of I-90, but this lek could be in the lower elevation areas away from the facility that are dominated by big sagebrush.

**Table 1. Survey Dates, Times, and Conditions**

Survey Date	Surveyor	Time Begin	Time End	Wind Speed Begin (mph)	Wind Speed End (mph)	Temp Begin (°F)	Temp End (°F)	Comments/Observations
March 26, 2008	G. Rand	6:15 am	10:15 am	30	30			150 elk in 3 herds
April 3, 2008	G. Rand	6:00 am	9:15 am	5	10	28	37	Horned larks, loggerhead shrike, red-tailed hawk, northern harrier, 10 deer, 3 elk
April 9, 2008	G. Rand	5:33 am	9:15 am	10	15	25	25	Great horned owl, mountain bluebirds, northern flicker, juncos, spotted towhee, kestrel nest, Clark's nutcracker, 1 bull elk
April 17, 2008	G. Rand	5:32 am	8:25 am	15	25	35	35	Vesper sparrow, kestrel, robin, mountain bluebird, northern flicker, Clark's nutcracker, 25+ deer; 180+ elk
April 24, 2008	G. Rand	5:21 am	8:20 am	25	25	30	30	Horned lark, red-tailed hawk nest, Townsend's chipmunk, kestrel, 9 elk
April 28, 2008	G. Rand	5:06 am	9:00 am	<5	10	45	45	Horned lark, Brewer's sparrow, Gray partridge, California quail, kestrel, vesper sparrow, white-crowned sparrows, sage thrasher, 17 deer, 100+ elk