

**RARE NATIVE VASCULAR PLANTS
OF THE SOUTHERN OKANAGAN GRASSLANDS
PROTECTED AREA**

FIELD REPORT



Douglas Ecological Consultants 2004

by

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OVERVIEW

The Southern Okanagan Grasslands Protected Area was established in 2001 and encompasses about 4,481 ha of native grasslands in the southern Okanagan and southern Similkameen valleys of British Columbia. In the summer of 2004, The Nature Trust, through the Brink/McLean Grassland Conservation Fund, provided Douglas Ecological Consultants Ltd. with funds to conduct a two-day inventory in the protected area for rare native vascular plants. The rare plants searched for during the inventory are those appearing on the British Columbia Conservation Data Centre's (BC CDC) Red/Blue lists (Douglas *et al.* 2002). The study area has not been well inventoried and current knowledge, with respect to vascular plants, is minimal.

METHODS

Due to the brief inventory period, only a small part of the Southern Okanagan Grasslands Protected Area was examined. The study area consisted of a corridor about five km long and about 200 m wide through the Protected Area (Figure 1). This corridor followed the main, east-west dirt tract through the area, thus minimizing travel time and maximizing search time. The two-day search methodology consisted of examining various micro-habitats along the corridor likely to contain different species of rare plants. Once a rare plant population was located, a number of population attributes were recorded. These attributes included: GPS location, elevation, slope, aspect, habitat, plant associates in habitat, size of habitat, quality of the habitat, number of rare plant(s) present and quality of the element plant occurrence¹.

RESULTS

The inventory, conducted on June 26th and 27th, resulted in the discovery of 10 rare vascular plant element occurrences for four species in the protected area (Table 1). Two other, previously known, element occurrences were resurveyed. The four species of rare plants include northern linanthus (*Linanthus septentrionalis*²), Grand Coulee owl-clover (*Orthocarpus barbatus*), Columbian goldenweed (*Pyrrocoma carthemoides*) and Regel's rush (*Juncus regelii*). The latter species occurred on a private ranch, between two protected area units, along the study corridor. In addition, two hour's search on June 29th, on crown land near Osoyoos and east of the protected area, resulted in the discovery of a large population of *Orthocarpus barbatus*.

¹ These attributes (fields) are included, for all element occurrences documented in this study, in an excel table accompanying this report. The excel table has been constructed according to requirements of the BC CDC and all information will be entered in their database.

²Nomenclature and English names follow Douglas *et al.* 2002).

**South Okanagan Grasslands
Protected Area**

**Rare Vascular Plant
Element Occurrences
Survey - June 2004**

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- Element Occurrences
- ▨ Search Area
- ▨ South Okanagan Grasslands Protected Area

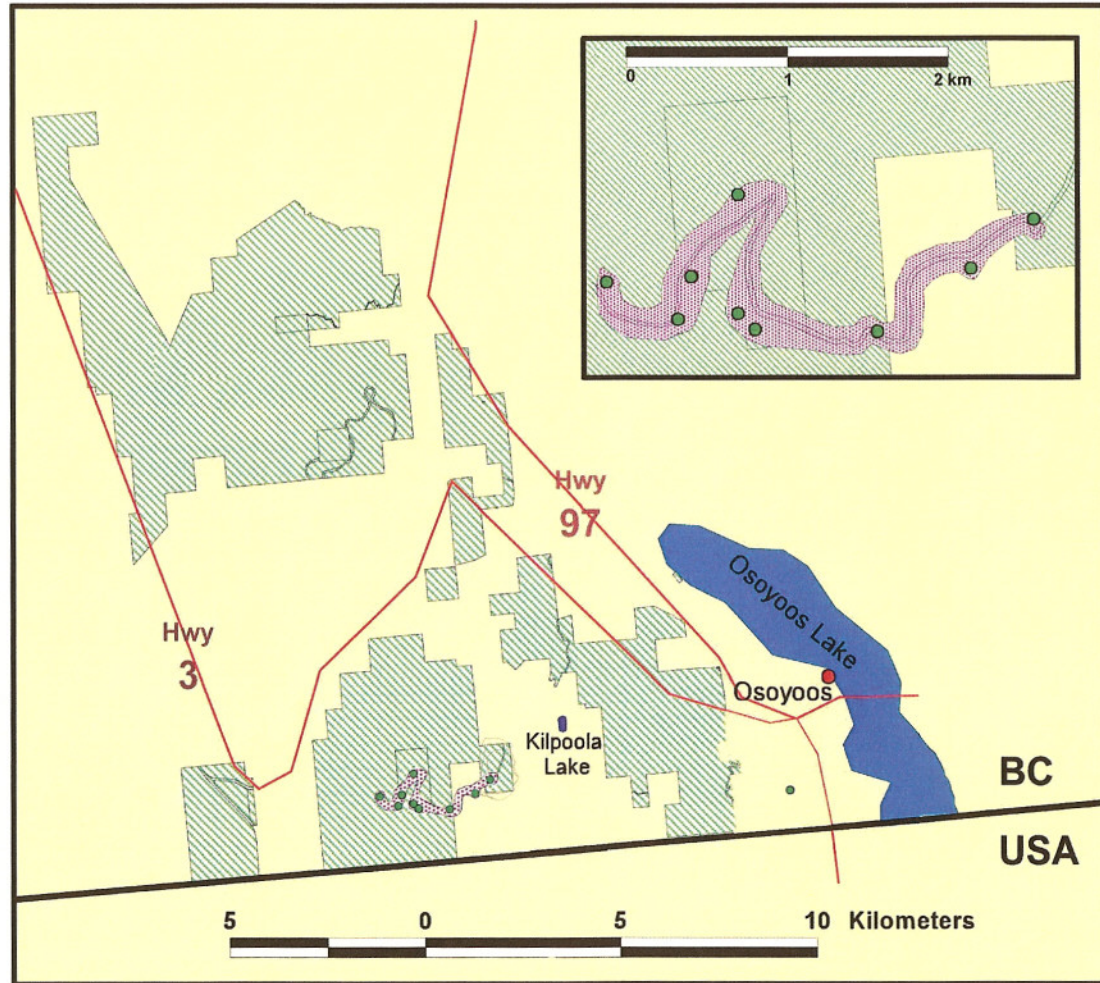


TABLE 1. Element occurrence population data for four plant species inventoried in the South Okanagan Grasslands Protected Area in 2004.

SPECIES	ELEMENT OCCURRENCE NUMBER	NUMBER OF PLANTS	AREA COVERED
<i>Linanthus septentrionalis</i>	EO # 1 - Subpopulation 1	200	16 m ²
	EO # 1 - Subpopulation 2	1000	80 m ²
	EO # 2	3000-5000	2000 m ²
	EO # 3	ca. 224,000	64 m ²
	EO # 4	6000-8000	49 m ²
	EO # 5	200	55 m ²
<i>Juncus regelii</i>	EO # 1	100-200	320 m ²
<i>Orthocarpus barbatus</i>	EO # 1 ³ - Subpopulation 1	150	16 m ²
	EO # 1 - Subpopulation 2	72	6 m ²
	EO #1 - Subpopulation 3	3000-3500	245 m ²
	EO # 2 - Subpopulation 1	75	2 m ²
	EO # 2 - Subpopulation 2	110	55 m ²
	EO # 3	300	484 m ²
	EO # 4 ⁴	5000-8000	2000 m ²
<i>Pyrrocoma carthemoides</i>	EO # 1	91	3600 m ²
	EO # 2	50	200 m ²
	EO # 3	50	200 m ²

³ This *Orthocarpus barbatus* element occurrence was previously recorded by the authors in 2003. During the 2004 study, two new subpopulations (#2 & #3) were discovered. These subpopulations were likely overlooked in 2003.

⁴ This *Orthocarpus barbatus* element occurrence was also previously recorded by the authors in 2003. A resurvey of the EO in 2004 revealed that the population had increased in both size and numbers by about 100%. This would indicate that year-to-year population fluctuations can be dramatic, depending on the success of seed germination and seedling survival.

Linanthes septentrionalis

This species belongs to the Phlox (Polemoniaceae) Family. It is a diminutive plant, standing only 5 to 25 cm tall (Figure 2). The palmate leaves are cleft into 3 to 7 linear stalks and appear as whorls on the lower stems and branches. The tiny white, lavender or pale blue flowers are solitary and only about 3 mm across.



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Figure 2. *Linanthes septentrionalis*, a diminutive plant only 5 to 25 cm tall. This inconspicuous species was found, in seed, at four different sites during the Nature Trust study.

Linanthus septentrionalis ranges from south-central and south-eastern British Columbia south to Wyoming, Colorado and California in the western United States. It occurs in dry grasslands and shrublands throughout its range (Figure 3). In British Columbia, it was known from about 20 sites and is included on the BC CDC Blue List (Douglas *et al.* 2002). The inventory work conducted during this study adds four new element occurrences, to bring the total number of known sites to 24.



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Figure 3. *Linanthus septentrionalis* habitat in the Southern Okanagan Grasslands Protected Area. Big sagebrush (*Artemisia tridentata*) and common rabbitbrush (*Ericameria nauseosus*) are prominent shrubs in this habitat.

Juncus regelii

This species is a member of the Rush (Juncaceae) Family. The wiry stems are 10 to 40 cm tall with a few linear leaves appearing along the stem (Figure 4). The terminal inflorescence consists of 1 to 4 hemispheric heads. The 4 to 6 cm long flower (perianth) segments are chestnut-brown with lighter midribs.

This species ranges from south-central and south-eastern British Columbia south to Wyoming, Utah, Nevada and California. It occurs in wet streambanks and marshes or moist, seasonally moist meadows in dry grasslands and shrublands throughout its range (Figure 5). In British Columbia, it was known from about 22 sites and is included on the BC CDC Blue List (Douglas *et al.* 2002). The inventory work conducted during this study adds one new element occurrence for this species.



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Figure 4. *Juncus regelii*, a Blue-listed plant in British Columbia, is a member of the Rush Family. A single population was found during this study.



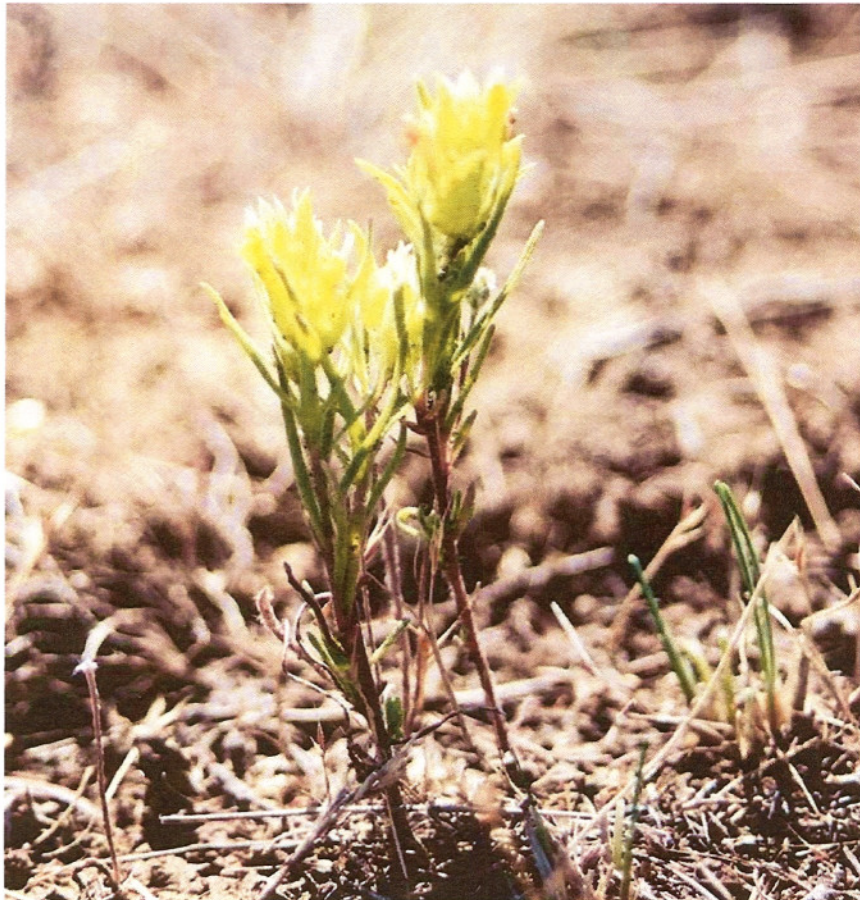
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Figure 5. *Juncus regelii* is an infrequent plant in this moist gully in the grasslands.

Orthocarpus barbatus

This small plant is a member of the Figwort (Scrophulariaceae) Family. It has a simple or sometimes branched, narrow stalk that is 8 to 25 cm tall (Figure 6). The leaves are linear, 2 to 4 cm long and green to yellow-green. The upper bracts have 3 to 5 long, narrow lobes and the inconspicuous flowers are yellow.

This species ranges from south-central British Columbia south to central Washington. It was first discovered in British Columbia in 1994 by the senior author (Douglas *et al.* 1998) and prior to the present study was known from only four sites. It occurs in dry grasslands and shrublands throughout its range (Figure 7). It has been included on the BC CDC Red List (Douglas *et al.* 2002). Recently, a Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status report has been prepared for this species (Douglas and Smith 2004). Based on the status report, COSEWIC will almost certainly assess this species endangered in Canada in November, 2004. The inventory work conducted during this study has added two new element occurrences and increased our knowledge of two previous sites (Table 1).



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Figure 6. *Orthocarpus barbatus*, one of the rarest native vascular plants in British Columbia, is known only from the southern Okanagan/Similkameen drainages. All populations are within 2.5 km of the U.S. border.



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Figure 7. Typical *Orthocarpus barbatus* habitat consists of open sagebrush with woolly plantain (*Plantago patagonica*) and six-weeks fescue (*Vulpia octoflora*) as constant companions.

Pyrrocoma carthamoides

This plant is a member of the Aster (Asteraceae) Family. It has an erect, simple or sometimes branched stem that is 10 to 60 cm tall (Figure 8). The 5 to 40 cm long, stalked leaves are long-stalked and spiny-toothed to entire. The single, stout heads are 1 to 3 cm tall with thin, papery involucre. The numerous, yellow disk flowers are conspicuous while the ray flowers, if any, are inconspicuous.

This species ranges from extreme south-central British Columbia south to Montana, Wyoming and northern California. It occurs on rocky ridges and rock outcrops in dry grasslands and shrublands throughout its range (Figure 9). In British Columbia, it is known from about 22 sites and is included on the BC CDC Red List (Douglas *et al.* 2002). The inventory work conducted during this study adds three new element occurrences.



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Figure 8. *Pyrracoma carthamoides*, a Red-listed species in British Columbia, is a member of the Aster Family. It was found at three sites in the Grasslands Protected Area during the Nature Trust study.



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Figure 9. Rocky ridges with shallow soils are often populated with *Pyrrocoma carthemoides*. This habitat has a sparse, but rich, array of herbs and grasses.

LITERATURE CITED

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