

CAMPBELL-BROWN (KALAMALKA LAKE)**ER #77****ORIGINAL PURPOSE** To preserve ecosystems transitional between Ponderosa Pine and Interior Douglas-fir, and a rattlesnake den**OVERVIEW**

Date established:	9 June 1977	Location:	5 km N of Oyama, W side of Kalamalka Lake
Date amended (powerline deletion):	19 March 1986	Latitude:	50°09'N
ORC #:	3077	Longitude:	119°22'W
Map number:	82 L/3		

Total Area:	104 ha	Elevation:	425-775 m
Land:	104 ha		

Access:	Accessible via Highway 97
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Biogeoclimatic Zones:	Interior Douglas-Fir (IDF)
Biogeoclimatic Variants:	IDF Okanagan Very Dry Hot (xh1)
Ecosection:	Northern Okanagan Basin
Region:	Okanagan
Management Area:	North Okanagan

COMPOSITION

Physical: The reserve is situated on the relatively steep eastern slope of Ellison Ridge, facing Kalamalka Lake. Bedrock outcrops, small cliffs and talus slopes are scattered through the area. Soils vary from Chernozems in grassy openings to Regosols on colluvial sites. There are no streams, but at least one spring is present. Climate is expected to be similar to that at Vernon where mean annual precipitation is about 40 cm.

Biological: The most extensive plant community is dominated by ponderosa pine, the grasses blue-bunch wheatgrass and Idaho fescue, and the moss *Tortula ruralis*. Small amounts of Douglas-fir are present, but the shrub stratum is sparse. At higher elevations the Douglas-fir-common snowberry type, in which wild and baldhip rose, birch-leaved spirea, and showy aster are also characteristic, is fairly widespread.

A winter den (hibernaculum) of the Western rattlesnake, used by about 25 snakes, is located in two large earth-covered mounds of broken rock. This is a significant decline in the population. In 1993, there were about 100 snakes reported from this hibernaculum. Most snakes emerge in April and return to the den in September. Maximum dispersal from the den is less than two km, and most home ranges are a few hectares in size. These snakes prey almost entirely on small mammals, of which voles and deer mice are most prominent in the diet. These rattlesnakes, near the northern limit of the species range, have a low reproductive rate and are therefore easily reduced by human-caused mortality.

Birds have not been thoroughly inventoried but typical dry-forest species like Lewis' Woodpecker, Northern Flicker, chickadees and juncos are present. The reserve provides excellent winter range for Mule Deer.

Cultural: This is the first ecological reserve in the province to be established on donated land. The land was provided by Dr. Hugh Campbell-Brown.

MANAGEMENT CONCERNS

SIGNIFICANT SPECIES	BC LIST STATUS	COSEWIC STATUS	CF PRIORITY
Western Rattlesnake	Blue listed	Threatened (2004)	2

THREATS

Climate Change: As the climatic conditions change, the forest transition that is represented in this reserve may be altered due to migrating and reorganizing ecosystems. In this area, hotter drier summers may be more suitable for bunch grass habitat than for the forest systems that are present.

Agriculture: Damage to the ecosystem is resulting from grazing cattle.

Forest health: Fire suppression has increased the fuel load and risk of wildfire. Mountain pine beetle has killed most if not all of the dense Ponderosa pine stand in the southern triangle section of the reserve, adding to the fuel load. The Ponderosa pines in the rest of the reserve, which tend to be sparser, located adjacent to Douglas-fir, or scattered on the steep bunchgrass slopes, appear healthy with the exception of a few single dead trees and one small patch at the north end.

Non-native species: Aggressively invasive species such as Hounds tongue, sulphur cinqfoil and meadow knapweed, show potential of completely supplanting native plants.

Recreation: Public viewing of the snake den in the reserve poses a threat to the snakes, especially during breeding and/or birthing times, as well as to people, since snakes may feel threatened and strike proximate onlookers.

RESEARCH OPPORTUNITIES

A graduate thesis on rattlesnakes in the Vernon area includes data on the den in this reserve. If climate is the limiting factor in the reproductive rate of rattlesnakes, the warming climate will push the range farther north and may increase the reproductive rate in the ER. With the baseline data provided in the thesis, a future project could look at this.

SCIENTIFIC NAMES OF SPECIES MENTIONED IN THE CAMPBELL-BROWN (KALAMALKA LAKE) ER ACCOUNT

Flora

aster, showy (*Aster conspicuus*)
Douglas-fir, coast (*Pseudotsuga menziesii*)
fescue, Idaho (*Festuca idahoensis* ssp. *idahoensis*)
moss (*Tortula ruralis*)
pine, ponderosa (*Pinus ponderosa*)

rose, baldhip (*Rosa gymnocarpa*)
snowberry, common (*Symphoricarpos albus*)
spirea, birch-leaved (*Spiraea betulifolia* ssp. *lucida*)
wheatgrass, bluebunch (*Pseudoroegneria spicata*)

Fauna

Chickadee (*Poecile* spp.)
Deer, Mule (*Odocoileus hemionus*)
Flicker, Northern (*Colaptes auratus*)
Junco, Dark-eyed (*Junco hyemalis*)
Rattlesnake, Western (*Crotalus oreganus*)
Woodpecker, Lewis's (*Melanerpes lewis*)