Introduction

Reed canarygrass (Phalaris arundinacea) is an aggressive colony-forming grass which invades disturbed sites and wetland areas (Taylor 1990, Whitson et al 1991). A perennial introduced from Eurasia, reed canarygrass has a persistent seed bank and creeping rhizomes which allow it to form thick mats (Apfelbaum 1987). Its rapid radial growth has been compared to that of purple loosestrife (Lythrum salicaria), another aggressive invader of wetlands.

In Olympic National Park, reed canarygrass is particularly abundant at Lake Ozette along roadsides, ditches, streams, and other open moist habitats. Because it forms monospecific populations, reed canarygrass may threaten many rare, threatened, or special native taxa. A survey of Lake Ozette in 1991 revealed approximately XX of XX miles of lakeshore were infested by this species (Roberson 1991).

Reed canarygrass is considered a Serious Threat species under Olympic's Exotic Plant Rating System (score=51). Exotic species rated this high are considered to have the potential to dramatically and permanently affect the integrity of natural ecosystems (Olson 1991).

Reed canarygrass has become widely established throughout other lowland areas of the Olympic National Park. Populations have been located within the Hoodsport, Hurricane, Lake Crescent, Kalaloch, and Quinault subdistricts. The species is not limited to frontcountry areas. A grass specimen collected in the 1950's from "Kimta Basin" in the North Fork Quinault drainage was recently identified as P. arundinacea by Olympic Peninsula floral researcher Nelsa Buckingham. Further spread of this species is expected with the resulting loss of species diversity, displacement of rare native species, and general degradation of meadow, wetland, riparian, and lakeshore ecosystems.

There is speculation that invading reed canarygrass at Lake Ozette may have already reduced the abundance of several rare native grasses including Calamagrostis crassiglumis (thickglume reedgrass) through profound alteration of lakeshore vegetation communities (Buckingham 1989).

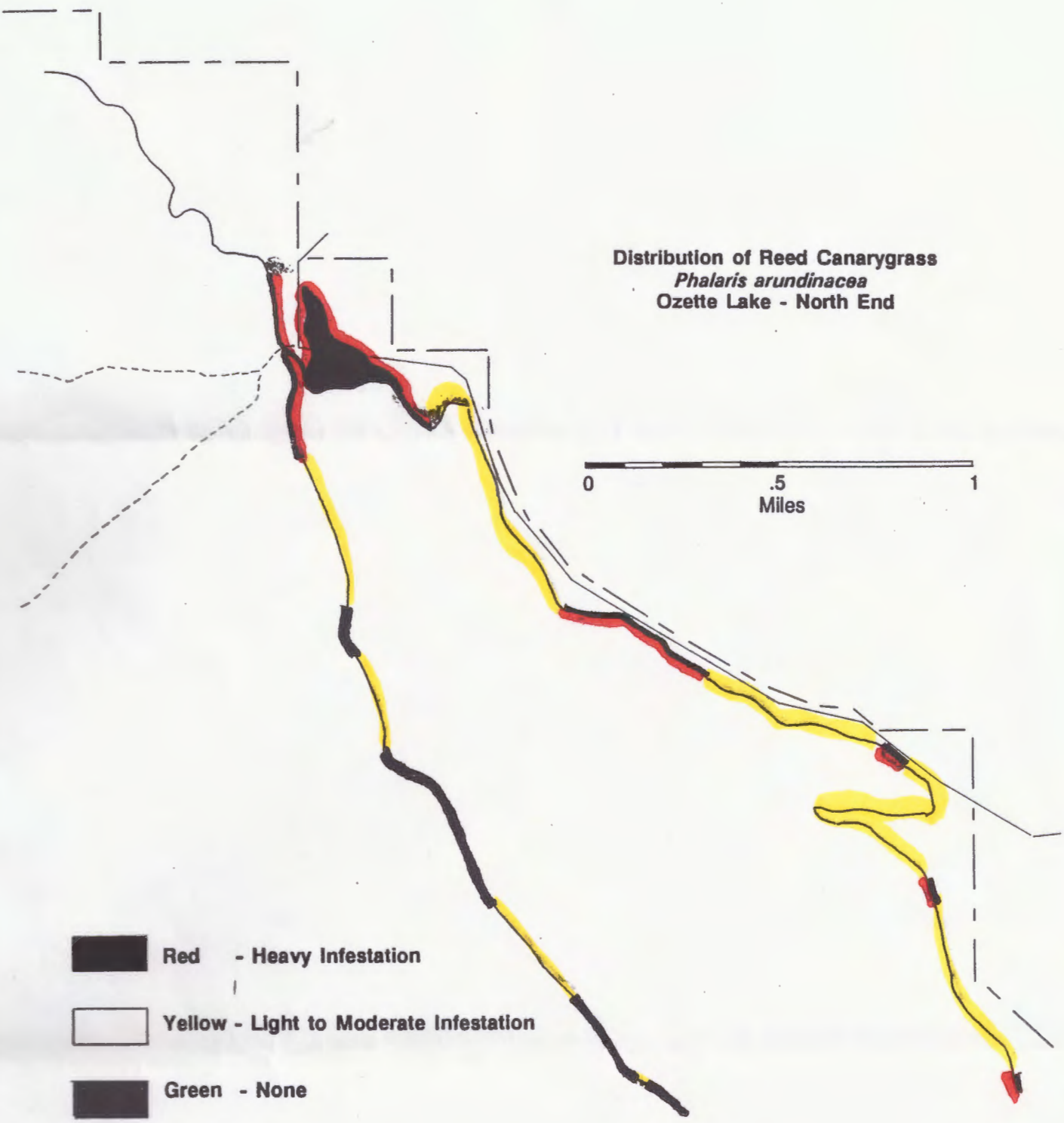
A search of the literature indicates that reed canarygrass is difficult to control and nearly impossible to eradicate (Apfelbaum 1987). Many available control techniques are unsuitable for use in natural areas where the preferred habitat of reed canarygrass is particularly sensitive.

Methods

Five potential control methods for reed canarygrass are being tested at Lake Ozette. The methods included:

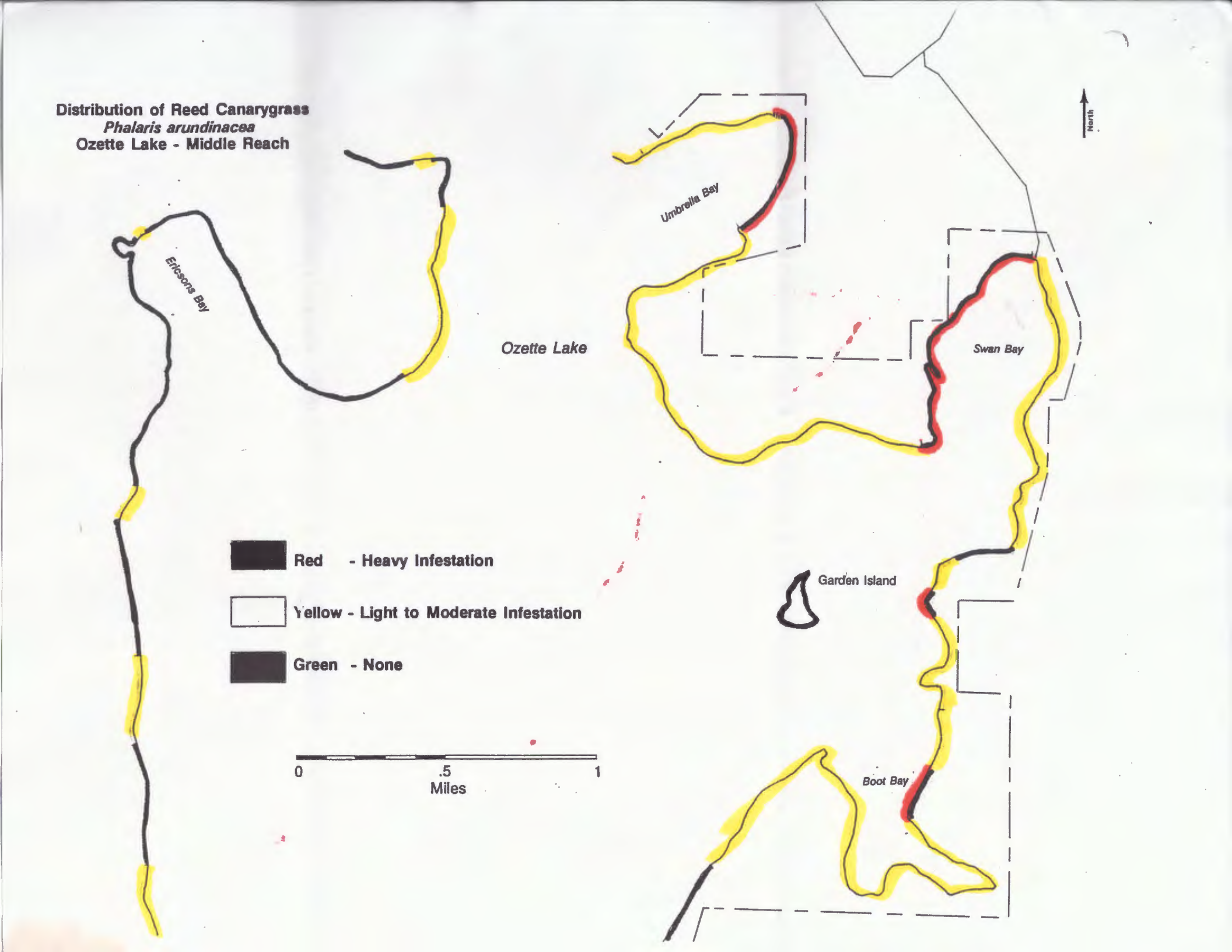
1. Mowing
2. Repeated mowing
3. Spraying with an approved herbicide
4. Mowing followed by spraying with an approved herbicide
5. Mulching with opaque plastic sheeting

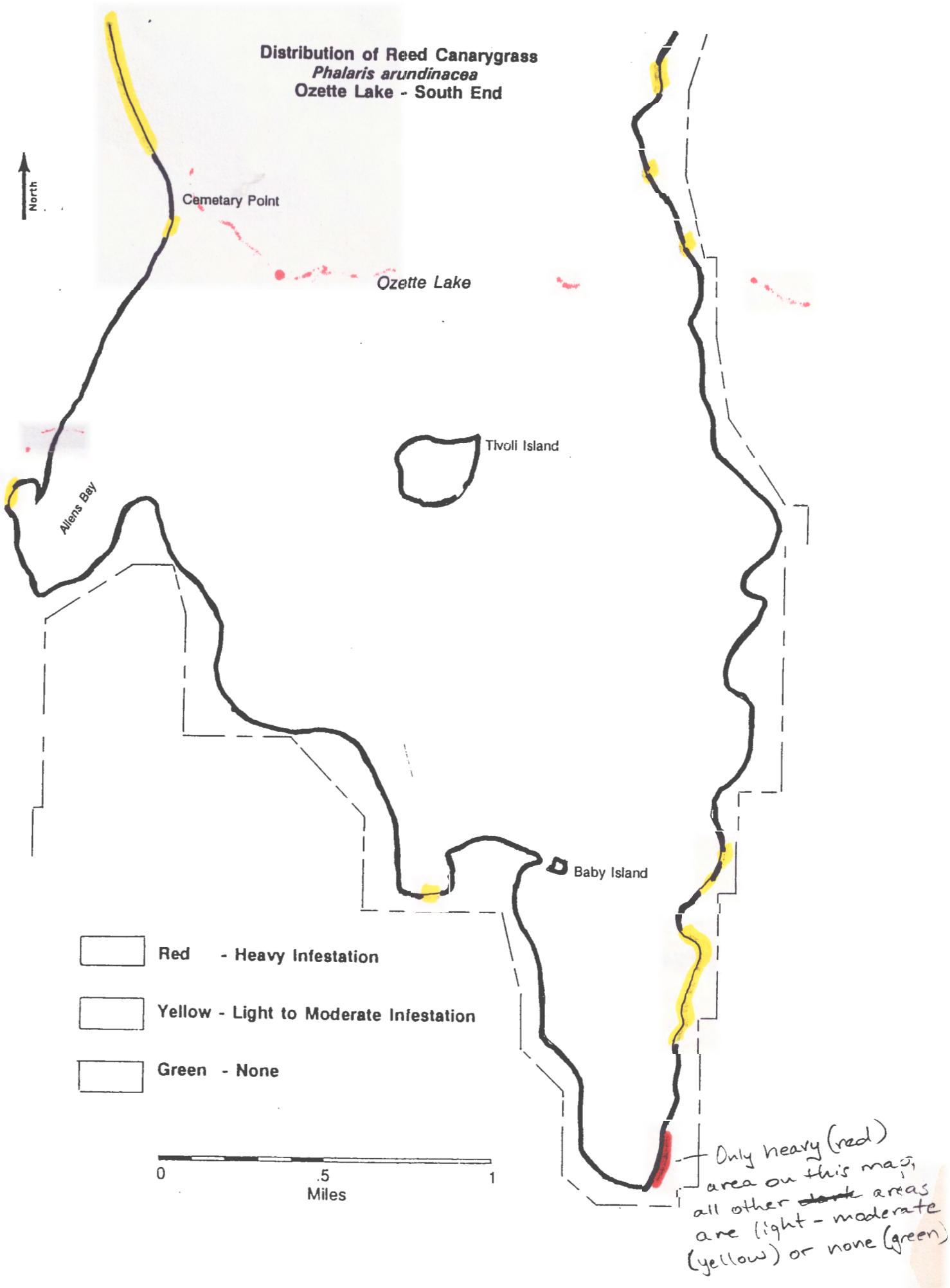
Experimental plots have been established within a population of reed



Notes:

1. **Shoreline areas with light infestations (yellow) often consist of scattered, isolated clumps (outliers) ranging from $<1m^2$ to 2 x 2m.**
2. **Data based on boat and foot surveys conducted during summer 1991.**
3. **Base outline from 7-1/2' USGS quadrangles Ozette Lake, Dickey Lake, Allen's Bay (1984).**


Distribution of Reed Canarygrass
Phalaris arundinacea
Ozette Lake - Middle Reach
North
Umbrella Bay
Ericsons Bay
Ozette Lake
Swan Bay
Garden Island
Boot Bay
Red - Heavy Infestation
Yellow - Light to Moderate Infestation
Green - None
0
.5
1
Miles


Distribution of Reed Canarygrass
Phalaris arundinacea
Ozette Lake - South End
North
Cemetary Point
Ozette Lake
Tivoli Island
Allens Bay
Baby Island
Red - Heavy Infestation
Yellow - Light to Moderate Infestation
Green - None
0
.5
1
Miles
Only heavy (red) area on this map, all other ~~dark~~ areas are light - moderate (yellow) or none (green)

Species : Phalaris arundinacea [Poaceae=Gramineae]
Common Name : Reed canarygrass

Category : Naturalized
Range : L,n-ne,s-sw,nw
Habitat : Wet

Rating/Threat : 51/Serious

Taxonomic Description:

Strongly rhizomatous perennial mostly 7-14 dm tall. Ligules 4-10 mm long, obtuse, usually lacerate and turned backward, puberulent externally. Blades flat, 7-17 mm broad. Panicle mostly 8-15 cm long, compact, but the branches more or less spreading at anthesis. Glumes slightly unequal, 4.5-5 mm long, acute, 3-nerved, minutely scabridulous-puberulent. Sterile lemmas 1-1.5 mm long, brownish, hairy. Fertile lemma 3-4 mm long, subglabrous, lightly 5-nerved. Palea subequal to the lemma, 2-nerved. Anthers 2.5-3 mm long. Lodicules lanceolate, about 0.5 mm long.

Discussion:

Introduced from Eurasia, this species is a coarse, colony-forming grass of wetland areas. It is extremely aggressive and has the ability to tolerate and even multiply with disturbance. Originally planted in the eastern United States for animal forage and erosion control, it can rapidly spread by seed to new areas via ditches and water courses. Within Olympic, it is often found on the shores of lakes and streams, and along disturbed roadsides. Seasonal flooding has little effect on the grass due to anoxia-tolerant rhizomes. These rhizomes and a persistent seed bank enable the plant to form thick monocultures, to the exclusion of native species.

OLYM Locations:

QUIN	QUEE	KALA	HOH	MORA	OZET	SOLD	CRES	ELWH	HEAD	HURR	DOSE	STAI
R		R			X	X	X	X	X	X		X

Specific Populations:

Large populations are located along the Hoko River road and on the shores of Lake Ozette, particularly at Swan Bay and near the outlet at the north end; scattered, smaller populations are found along the Highway 101 corridor at Lake Crescent; small population at Soleduck trailhead; scattered populations along roads in Elwha subdistrict; small populations at the lower elevations of the Hurricane Ridge Parkway.

Control:

Effective control of canarygrass is probably limited to burning and herbicides. The effects of prescribed fire on canarygrass are not well known, and the use of this technique at Olympic is probablyimpractical. The wet habitat preferred by this species limits or restricts herbicide use. Clipping and covering with opaque plastic has proven ineffective in other areas. Mechanical removal, if attempted, must be undertaken carefully as incomplete removal of rhizomes will stimulate spread. At Lake Ozette, canarygrass co-exists with numerous threatened, rare or sensitive native taxa, confounding selection of a suitable control technique.

A conservative approach is advocated in all instances where control of canarygrass is contemplated, and prevention of further site disturbance must be a priority.