

BIG CANYON CREEK WATERSHED

ROADSIDE WEED INVENTORY SUMMARY REPORT

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NEZ PERCE SOIL AND WATER CONSERVATION DISTRICT

Big Canyon Creek Watershed Roadside Weed Inventory Report

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Introduction

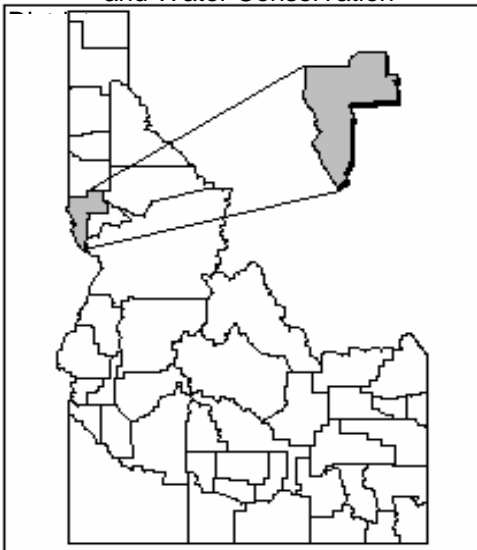
The Big Canyon Creek Roadside Weed Inventory is a component of the *Restoring Anadromous Fish Habitat in the Big Canyon Watershed* project funded by the Bonneville Power Administration (BPA) and the Nez Perce Soil and Water Conservation District (District). The project's goal is to enhance steelhead trout (*Oncorhynchus mykiss*) natural production within the Big Canyon watershed by improving salmonid spawning and rearing habitat.

In order to assess the distribution of noxious weeds in the Big Canyon Creek Watershed, a weed inventory was completed along all federal, state, and county roads in the Watershed. The inventory will be useful in identifying new invaders and developing treatment strategies. This coverage is available upon request from the District.

Background

Snake River steelhead were listed as threatened in 1997 under the Endangered Species Act (ESA) (February 5, 1999, 56 FR). In 2000, the Clearwater River was designated critical steelhead habitat (February 16, 2000, 56 FR). Big Canyon Creek was listed as water quality impaired on the State of Idaho's (303)d list (1998) for bacteria, flow, nutrients, sediment, habitat alteration, and temperature.

Figure 1. Location of Nez Perce Soil and Water Conservation



The Big Canyon Watershed is located within the District (Figure 1). The Big Canyon watershed encompasses more than 85,000 acres in Nez Perce and Lewis Counties. Elevations range from 950 to 4,600 feet.

Land use in the watershed is dominated by agriculture and grazing (over 60 % of the acreage).

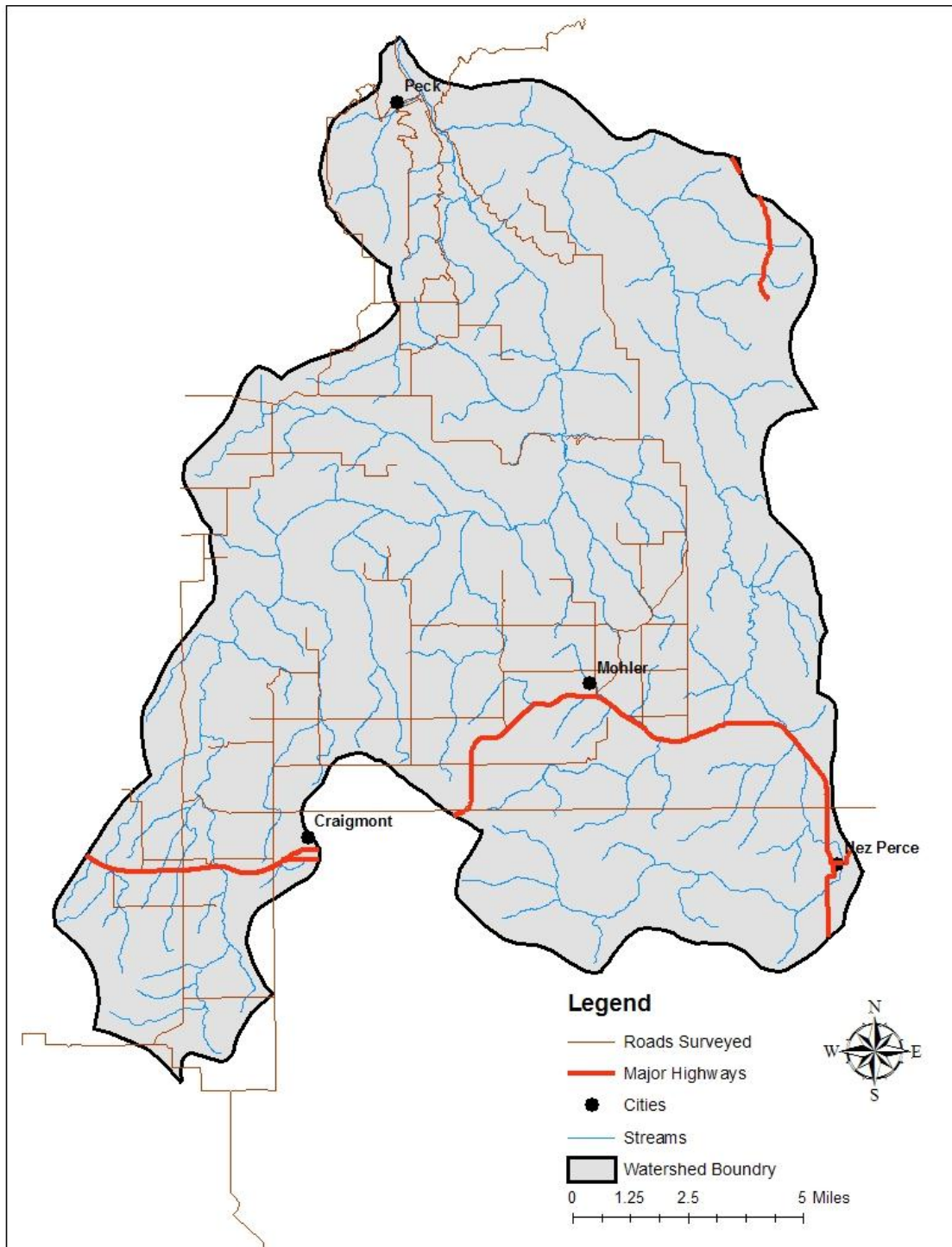
In 1985, Kucera et al (1985) identified limiting factors for anadromous fisheries to be: low summer stream flow, high summer temperatures, lack of in stream cover, annual stream flow variation, and siltation. Many of these limiting factors can be attributed to the reduced riparian vegetation. Riparian vegetation contributes to various functions essential to stream health including: providing shade, thereby reducing stream temperatures, increases recruitment of large woody debris (LWD) essential to in stream habitat complexity, increases bank stability which reduces erosion and sedimentation.

Noxious weeds

Noxious weeds are an ever-increasing threat to native ecosystems. Weeds have a variety of detrimental effects including degrading wildlife habitat, crowding out beneficial native plants, choking streams and waterways, poisoning or injuring livestock and humans, and fouling recreation sites (Prather et al. 2002).

Weeds can affect anadromous fish habitat in many ways. Most weeds are annuals, which typically have less extensive root systems than perennial native riparian vegetation. These root systems provide stability for stream banks and reduce erosion. Weeds will also crowd out wetland plants common along stream banks and transitional areas. Many wetland plants act as filters reducing excess nutrients and trapping fine sediments before they reach the stream. Additionally due to their highly competitive life strategies, weeds can reduce recruitment of trees and shrubs which provide canopy cover that help maintain cool water temperatures.

Figure 2. Overview map of the Big Canyon Creek Watershed and location of roads surveyed.



Noxious weeds cost the U.S. \$7.4 billion in lost productivity and \$300 million is lost due to weeds in Idaho alone. Noxious weeds can spread at an alarming rate, increasing their acreage up to 14 percent per year (ISDA 1999). Roads are one of the primary pathways noxious weeds are spread across the landscape (Sheley et al. 2002, and Rooney et al. 2004). Weeds generally establish quicker in the disturbed, open areas along road corridors, and they often out-compete native vegetation in areas of disturbance.

Project Objectives

- 1) Obtain a baseline weed inventory for public roads within the watershed.
- 2) Identify target weeds for management.

Methods

Site Selection - Inventory was performed along all county, state, and federal roads within the Big Canyon Creed watershed. Each road was divided into segments and labeled with a unique number. Most segments followed road junctions.

Weed Groups - Weed species were organized into the following management groups established by the Clearwater Basin Weed Management Area (CBWMA) (CBWMA 2004): eradicate, control, contain, reduce, and custodial. Each of these management groups has a defined management or treatment objective (Table 1).

Table 1. Weed Groups Established by the CBWMA.

Management Group	Management Objective/Definition
Eradicate	Elimination of every individual weed and all viable seeds or propagules.
Control	Viable seeds and propagules are prevented to decrease the distribution overtime.
Contain	Weeds are geographically contained and are not increasing beyond the perimeter of infestation.
Reduce	The density or rate of spread of weeds is reduced across a geographic area.
Custodial	Infestations are treated in association with other weed activities. Either the weed is not invasive or infestation is beyond capabilities of groupings.

Table 2. Weed Cover Percentage Classes.

Code	Cover	MidPoint
T	0-1%	0.5%
0	1.1-5.0%	3.0%
1	5.1-15.0%	10.0%
2	15.1-25.0%	20.0%
3	25.1-35.0%	30.0%
4	35.1-45.0%	40.0%
5	45.1-55.0%	50.0%
6	55.1-65.0%	60.0%
7	65.1-75.0%	70.0%
8	75.1-85.0%	80.0%
9	85.1-95.0%	90.0%
A	95.1-99.0%	97.0%
X	99.1-100.0%	99.5%

Site inventory - Inventory data collected included presence/absence of weed species and percent cover of species present (Table 2). The inventory collected was completed by road segment, and weed locations were documented using the odometer of a vehicle.

Results

In 2004, a total of 199.4 miles of road were surveyed in the Big Canyon Creek watershed. Overall, 16 weed species were observed ranging from 0.1 to 144.6 miles of road segments (Table 3). Total lengths for all weed segments observed is available in Table 3. Canada thistle (*Cirsium arvense*) and St Johns Wort (*Hypericum perforatum*) were widely distributed, being observed along 144.6 and 105.0 linear miles of road segments, respectively (Appendix 3 and 4). The distribution of other weeds will be discussed by groups as defined by the CBWMA.

Table 3. Weed Species and Length of Infestation Present in the Big Canyon Watershed.

Weed Species	CBWMA Group	Length (miles)
Canada Thistle	Reduce	144.6
Yellowstar Thistle	Reduce	19.5
Spotted Knapweed	Reduce	6.1
Total		170.2
Sulfur Cinquefoil	Custodial	43.2
Field Bindweed	Custodial	37.4
Total		80.6
Tansy Ragwort	Eradicate	6.8
Yellow Toadflax	Eradicate	0.1
Total		6.7
Poison Hemlock	Contain	2.0
Scotch Thistle	Contain	1.3
Hybrid Knotweed	Contain	0.1
Total		3.4
Dalmatian Toadflax	Control	0.4
Total		0.4
St. John's Wort	Other Species	105.0
Hounds Tongue	Other Species	10.9
Common Tansy	Other Species	10.9
Bull Thistle	Other Species	0.3
Common Burdock	Other Species	0.2
Total		127.3

Reduce

Canada thistle, yellowstar thistle (*Centaurea solstitialis*), and spotted knapweed (*Centaurea maculosa*) were the three species observed and classified in the reduce group. Overall, the three were observed along 170.2 miles of road (Table 3.) A map of their distribution throughout the watershed is available in Appendix 3.

Custodial

Sulfur cinquefoil (*Potentilla recta*) and field bindweed (*Convolvulus arvensis*) were the two species classified in the custodial group; they were observed along 80.6 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 4.

Eradicate

Tansy ragwort (*Senecio jacobacea*), and yellow toadflax (*Linaria vulgaris*) were the two species classified in the eradicate group. Combined, they were observed along 17.8 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 5.

Contain

Poison hemlock (*Conium Maculatum*), scotch thistle (*Onopordum acanthium*), and hybrid knotweed (*Polygonum bohemicum*) were the three species observed from the contain group. They were observed along 3.4 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 6.

Control

Dalmation toadflax (*Linaria dalmatica*) was the only species observed in the control group. It was observed along 0.4 miles of road (Table 3). A map of its distribution throughout the watershed is available in Appendix 7.

Other species

St. Johns Wort, bull thistle (*Cirsium vulgare*), hounds tongue (*Cynoglossum officinale*), common burdock (*Arctium minus*), and common tansy (*Tanacetum vulgare*) were observed along 116.4 miles of road. These introduced species are not addressed by the CBWMA, but were noted during the weed surveys.

Discussion/Recommendations

We recommend the eradication of all weed species distributed along less than 10 road miles through out the entire watershed. These species are listed in Table 3. Reducing their distribution along these roads may slow or prevent further distribution. Eradication methods might include chemical, mechanical, or biological means.

Due to limited resources and available methods of control, widely distributed weeds will be approached differently (Table 3). For these species, we recommend efforts to slow, not eliminate, distribution. Treatments may include: treating the leading edge of infestations, eradication of small isolated infestations, or use of bio controls over the entire distribution. Species with extensive distributions should be treated by methods that treat at an appropriate scale, such as biological controls. These species include: Canada thistle, yellowstar thistle, spotted knapweed, and st. johns wort.

We will use this document to help coordinate efforts with other weed control entities. This document will be provided to county road departments, and the CBWMA, and the Nez Perce Tribe. The document will also be available to private, county, state, federal, and tribal entities for use in controlling and managing weeds in the Big Canyon Creek watershed. Due to the collection methodology (driving along major roadways), this document should not be used for presence/absence, distribution or abundance of weeds outside of this context.

Acknowledgements

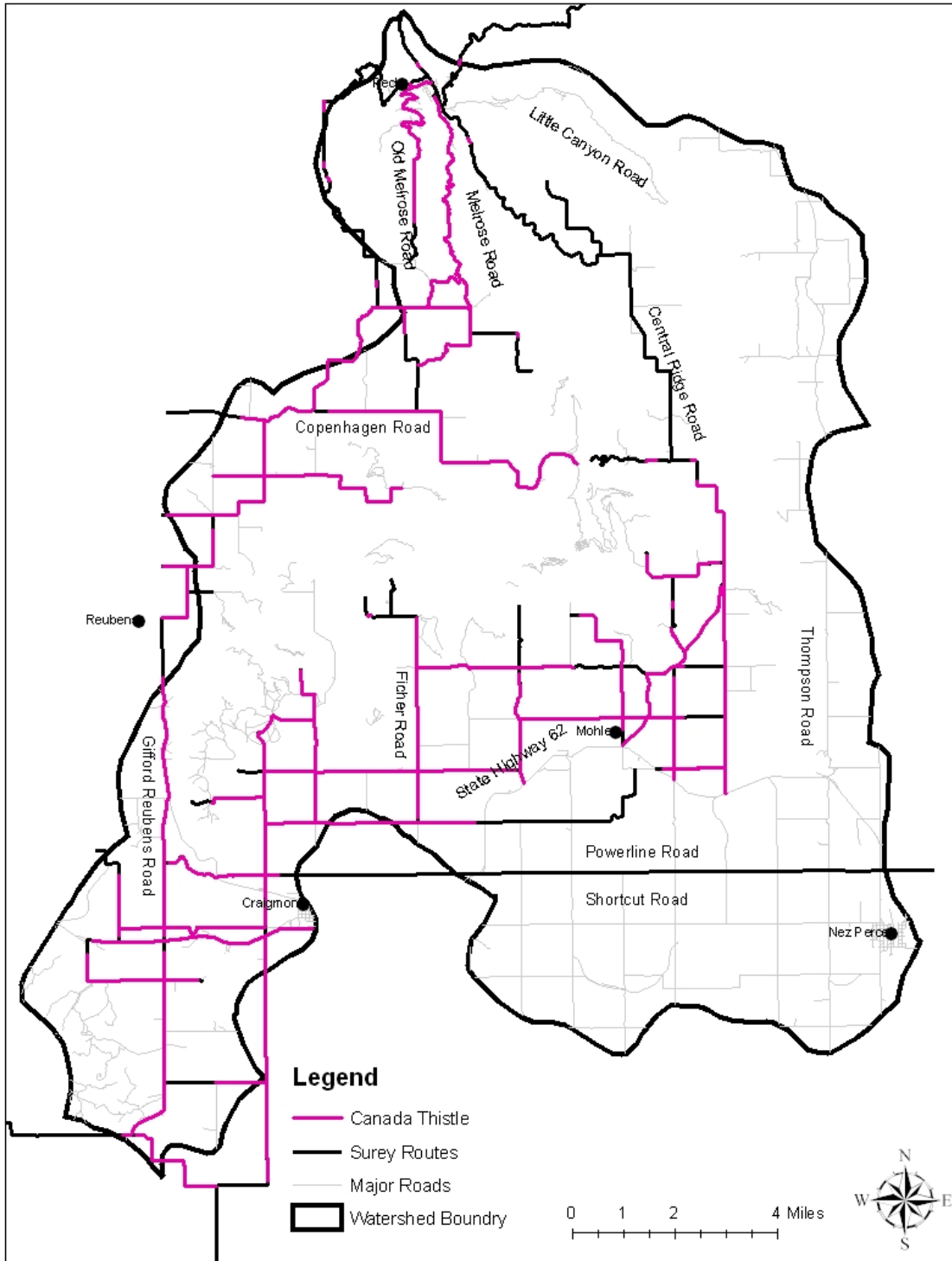
The following assisted in this project:

- Nez Perce Tribe Biocontrol Center
- Nez Perce Tribe Land Services

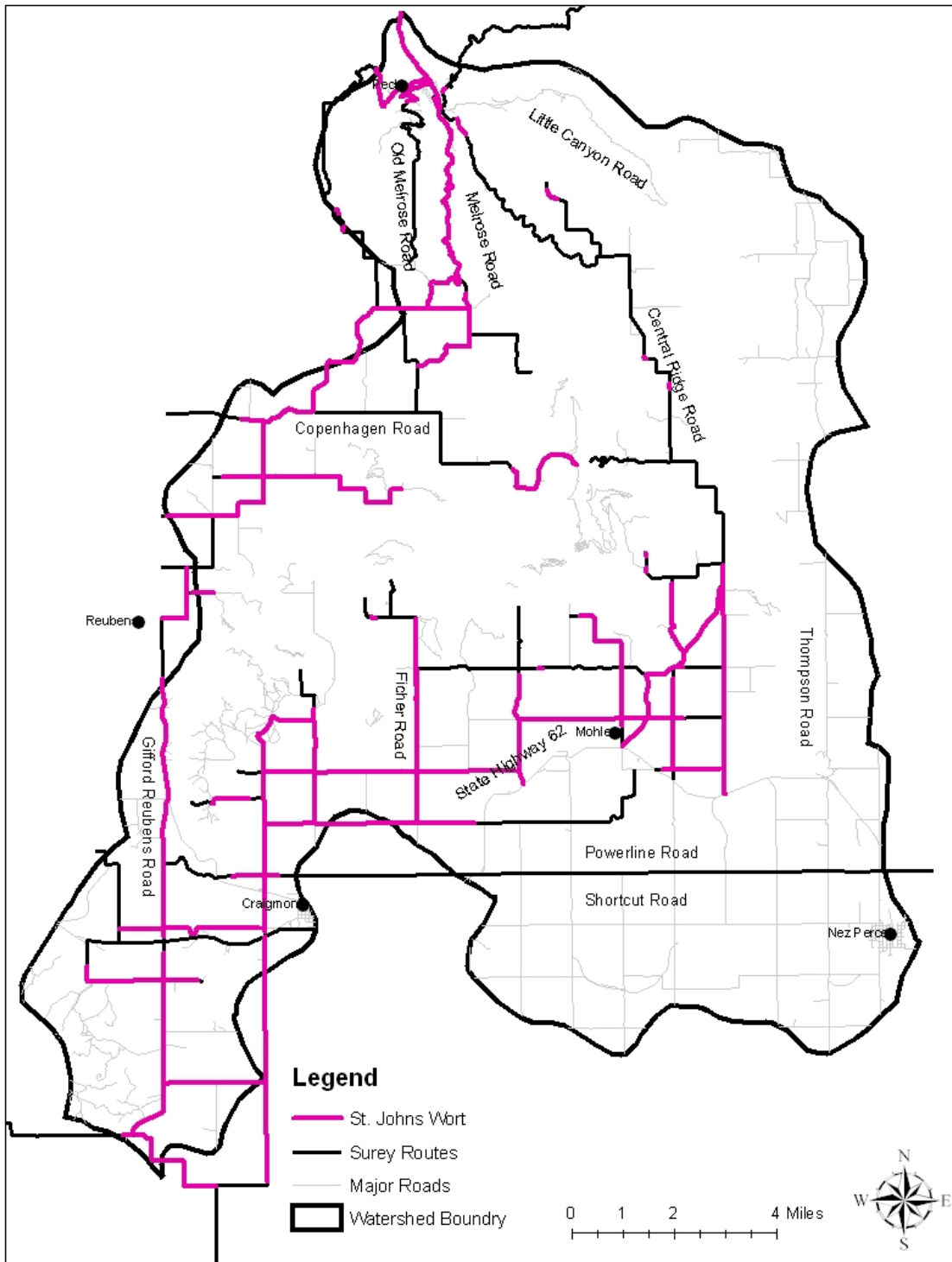
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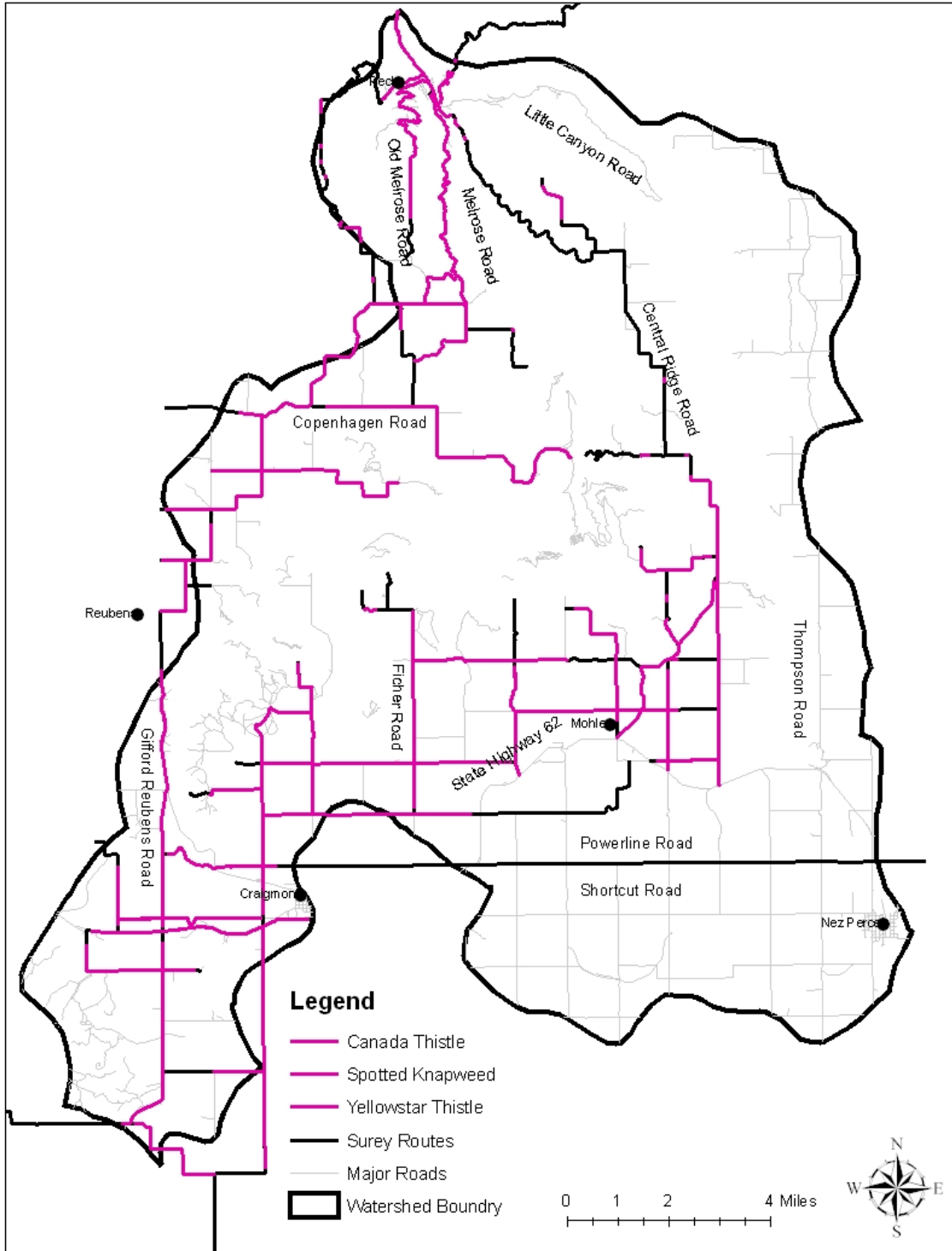
Appendix 1. Distribution of Canada Thistle in the Big Canyon Creek watershed



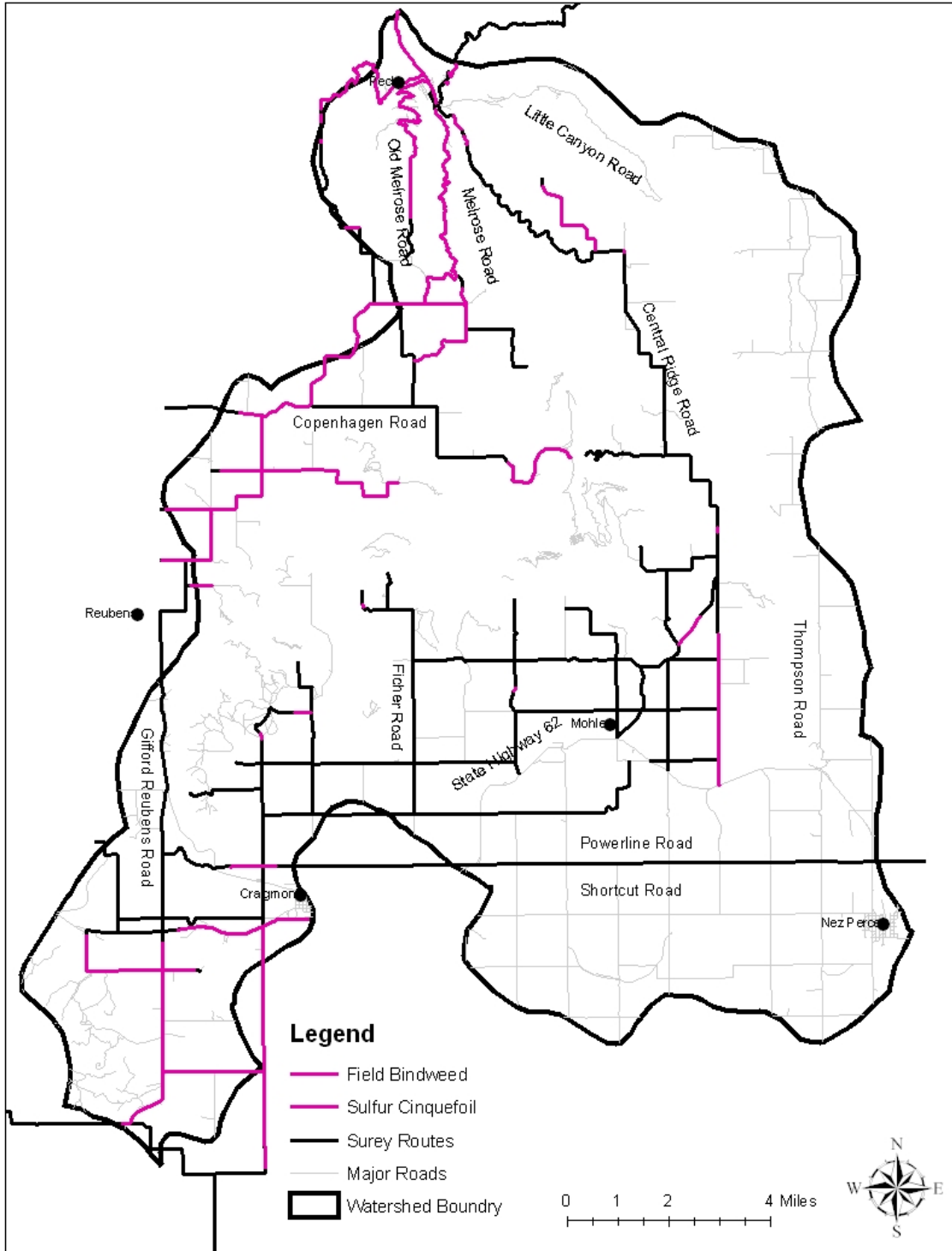
Appendix 2. Distribution of St. Johns Wort in the Big Canyon Creek watershed



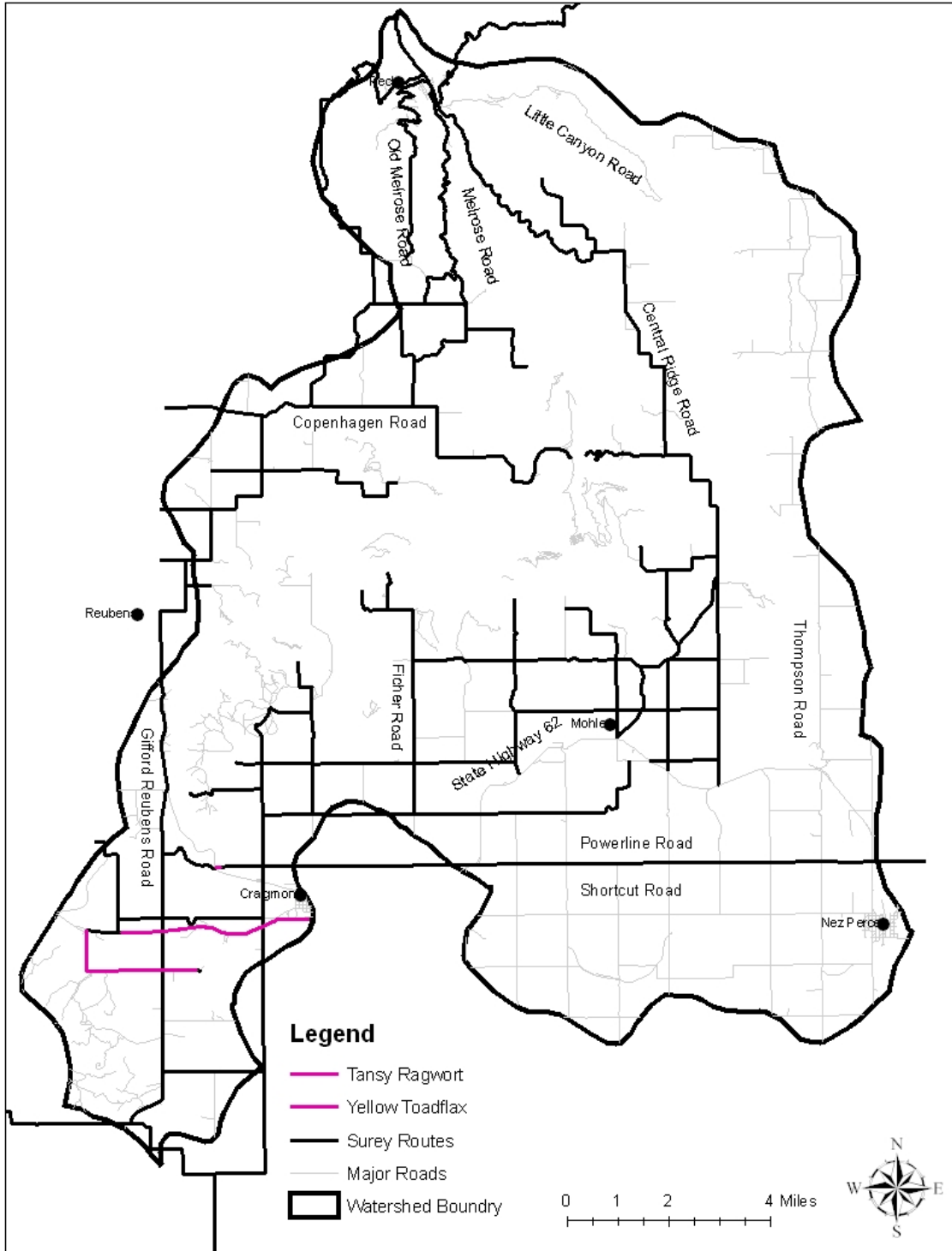
Appendix 3. Distribution of Weeds Designated as %Reduce+ by the CBWMA in the Big Canyon Creek watershed



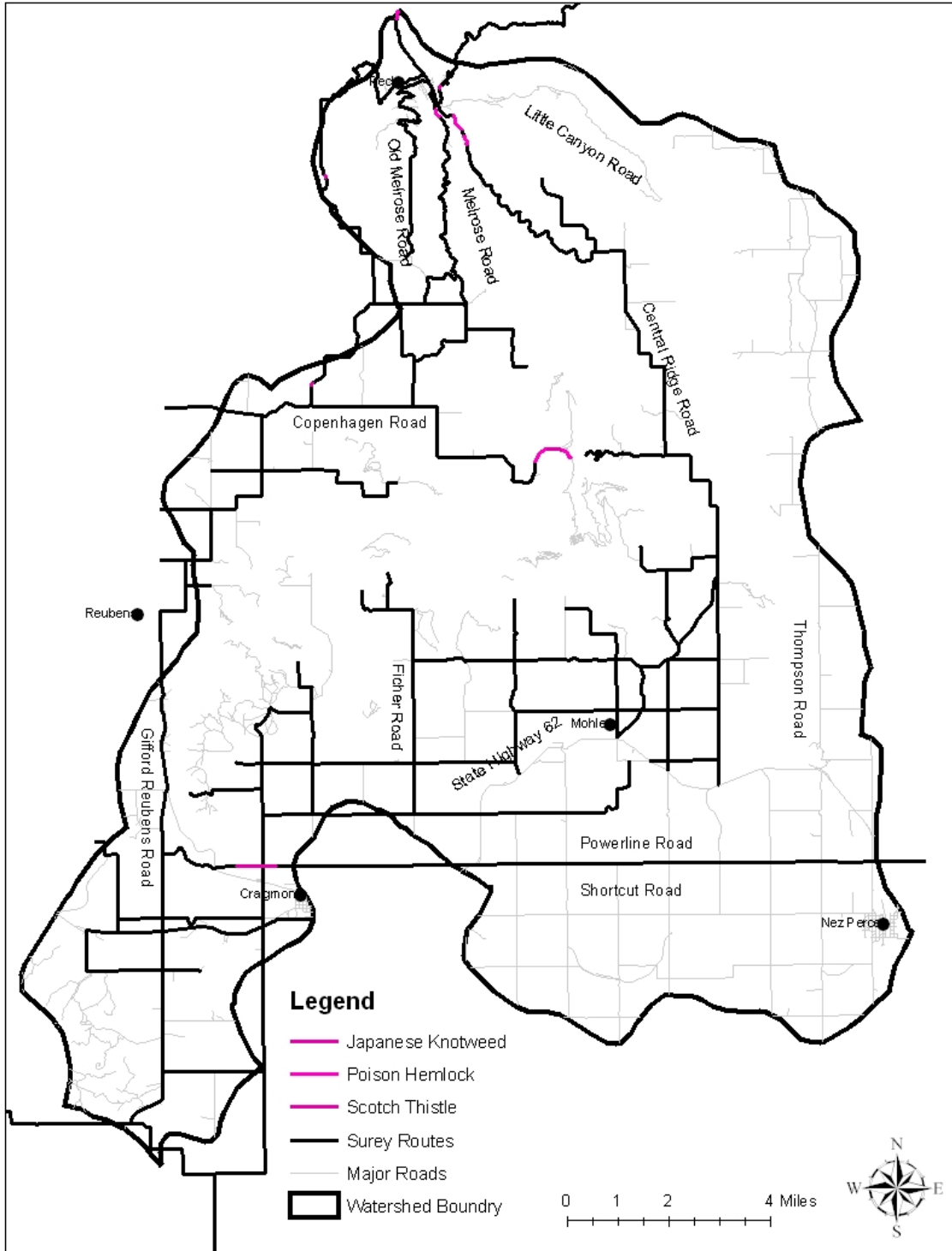
Appendix 4. Distribution of Weeds Designated as %custodial+by the CBWMA in the Big Canyon Creek watershed



Appendix 5. Distribution of Weeds Designated as %radicate+by the CBWMA in the Big Canyon Creek watershed.



Appendix 6. Distribution of Weeds Designated as %Contain+by the CBWMA in the Big Canyon Creek watershed



Appendix 7. Distribution of Weeds Designated as %Control+by the CBWMA in the Big Canyon Creek watershed

