

LAPWAI CREEK

ROADSIDE WEED INVENTORY SUMMARY REPORT

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NEZ PERCE SOIL AND WATER CONSERVATION DISTRICT

Lapwai Creek Roadside Weed Inventory Report

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Introduction

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

In order to assess the distribution of noxious weeds in the Lapwai 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 as critical steelhead habitat (February 16, 2000, 56 FR). From its mouth to river mile 16.3, Lapwai Creek was listed as water quality impaired on the State of Idaho's (303)d list (1998) for nutrients, turbidity, and suspended solids.

The Lapwai Creek Watershed is located within the boundaries of the Nez Perce Soil and Water Conservation District (District) (Figure 1). Lapwai Creek encompasses 175,000 acres and is located in Nez Perce and Lewis County. Elevations range from 1,100 to 4,500 feet.

Land use in the watershed is dominated by agriculture and grazing with dryland grain and cattle being the most important products (Espinoza 1997).

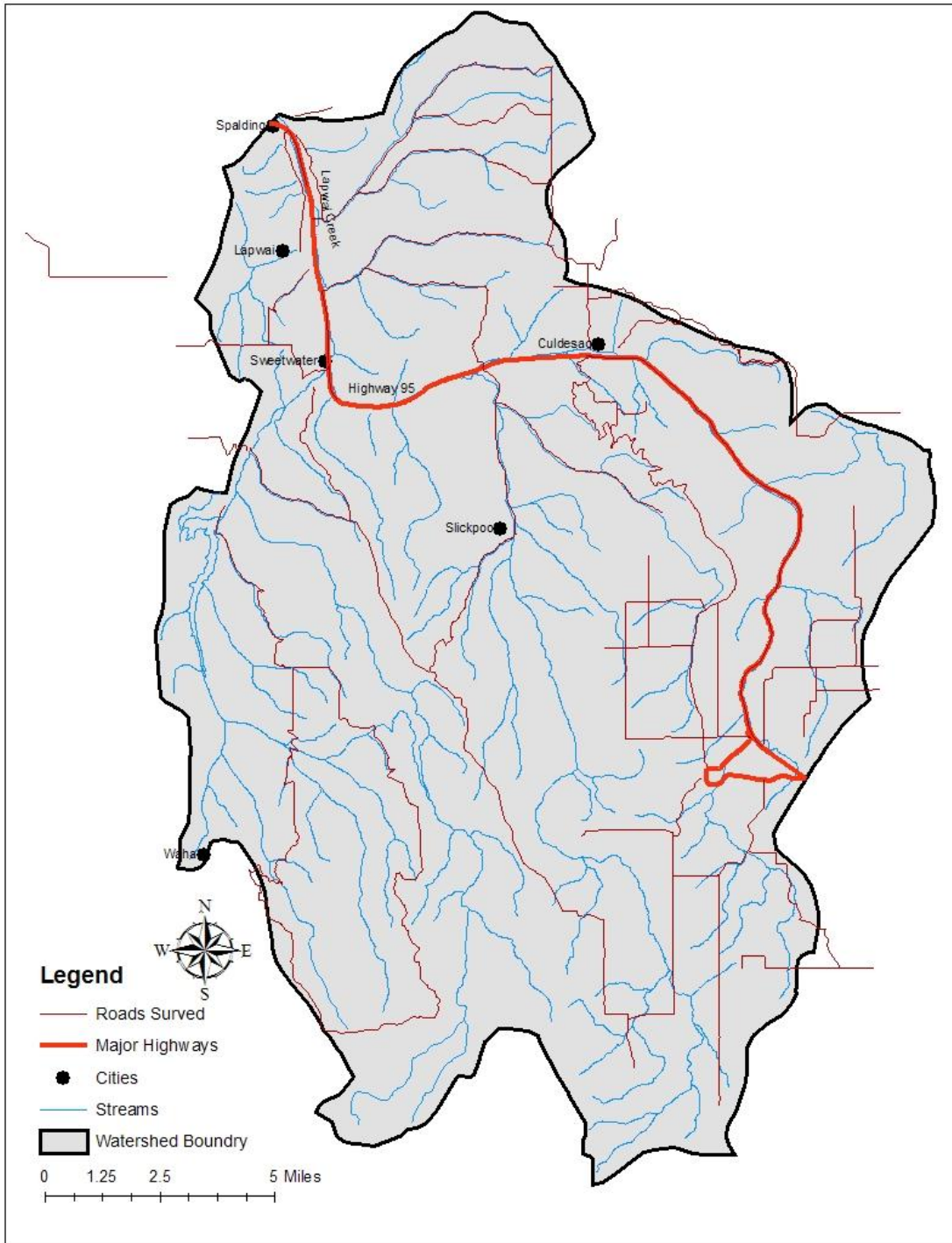
In 1983, Kucera et al. (1983) identified limiting factors for anadromous fishery to be: lack of instream cover, high stream temperatures, low summer flows, and extreme intra-annual flows. Many of these limiting factors can be attributed to the reduced riparian vegetation. Riparian vegetation contributes to various functions essential to stream health including: providing shade thereby reducing stream temperatures, increasing recruitment of large woody debris (LWD) essential to instream habitat complexity, and increasing 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 (Pranther et al. 2002).

Weeds can affect anadromous fish habitat in many ways. Most weeds are annuals, which typically have less extensive root systems than the perennial native riparian vegetation. Most native riparian vegetation 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 Lapwai 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 Lapwai Creek watershed. Each road was divided into sections 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): 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 propugules.
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.

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

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%

Results

In 2004, a total of 228.4 miles of road were surveyed in the Lapwai Creek watershed. Overall, 20 weed species were observed ranging from trace to 108.2 miles (Table 3). Total length for all weed segments observed is available in (Table 3). Canada thistle (*Cirsium arvense*) and St. John's Wort (*Hypericum perforatum*) were the most widely distributed weeds observed, covering 108.2 and 104.6 linear miles, respectively (Figure 1 and 2). The distribution of other weeds will be discussed by group as defined by the CBWMA.

Table 3. List of Weed Species and Length of Infestation Present in the Lapwai Creek Watershed

Weed Species	Management Group	Length
Canada Thistle	Reduce	108.2
Yellowstar Thistle	Reduce	71.4
Spotted Knapweed	Reduce	17.3
Total		196.9
Field Bindweed	Custodial	59.7
Sulfur Cinquefoil	Custodial	35.9
Total		95.6
Poison Hemlock	Contain	44.0
Scotch Thistle	Contain	17.3
Hybrid Knotweed	Contain	1.0
Jointed Goat Grass	Contain	Trace
Total		62.3
Dalmatian Toadflax	Control	3.0
Total		3.0
Puncture Vine	Eradicate	1.0
Yellow Hawkweed	Eradicate	Trace
Total		1.0
St. John's Wort	Other Species	104.6
Hounds Tongue	Other Species	12.4
Common Burdock	Other Species	6.8
White Bryony	Other Species	3.0
Kochia	Other Species	0.9
Bull Thistle	Other Species	Trace
Common Tansy	Other Species	Trace
Total		127.7

Reduce

Canada thistle, yellowstar thistle (*Centaurea solstitialis*), and spotted knapweed (*Centaurea maculosa*) were the three species classified in the reduce group. Overall the three were observed along 196.9 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 95.6 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 4.

Contain

Poison hemlock (*Conium Maculatum*), scotch thistle (*Onopordum acanthium*), hybrid knotweed (*Polygonum bohemicum*), and jointed goat grass (*Aegilops cylindrical*) were the four species

classified in the contain group. They were observed along 62.3 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 5.

Control

Dalmation toadflax (*Lindaria dalmatica*) was the only species observed in the control group. It was observed along 3.0 miles of road (Table 3). A map of its distribution throughout the watershed is available in Appendix 6.

Eradicate

Puncture vine (*Tribulus terrestris*) and yellow hawkweed (*Hieracium pratense*) were the two species classified in the eradicate group. Combined they were observed along 1.0 miles of road (Table 3). A map of their distribution throughout the watershed is available in Appendix 7.

Other species

St. Johns Wort, hounds tongue (*Cynoglossum officinale*), common burdock (*Arctium minus*), white bryony (*Bryonia alba*), kochia (*Kochia scoparia*), common tansy (*Tanacetum vulgare*), and bull thistle (*Cirsium vulgare*) combined were observed along 127.7 miles of road (Table 3). 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. Reducing their distribution along these roads may slow or prevent further distribution. Eradication methods might include chemical, mechanical, or biological means. Spotted Knapweed despite being distributed along more than ten miles of road, should also be included in this group. This is largely due to concerns about its invasive nature and extensive distribution in other areas nearby.

Due to limited resources and available methods of control, widely distributed weeds will be approached differently. 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, 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, 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 Lapwai 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 individuals assisted in this project:

Nez Perce Tribe Biocontrol Center

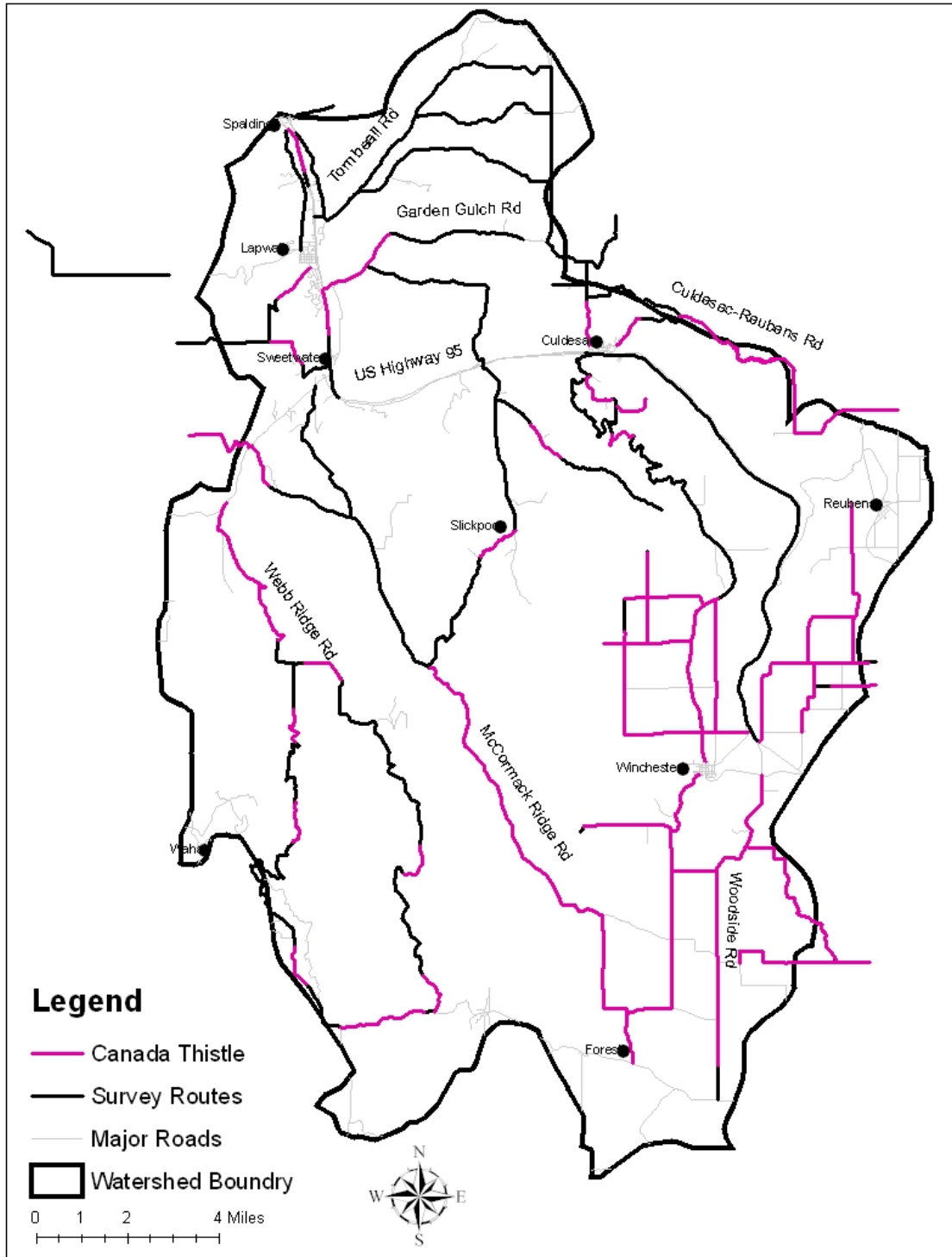
Nez Perce Tribe Land Services

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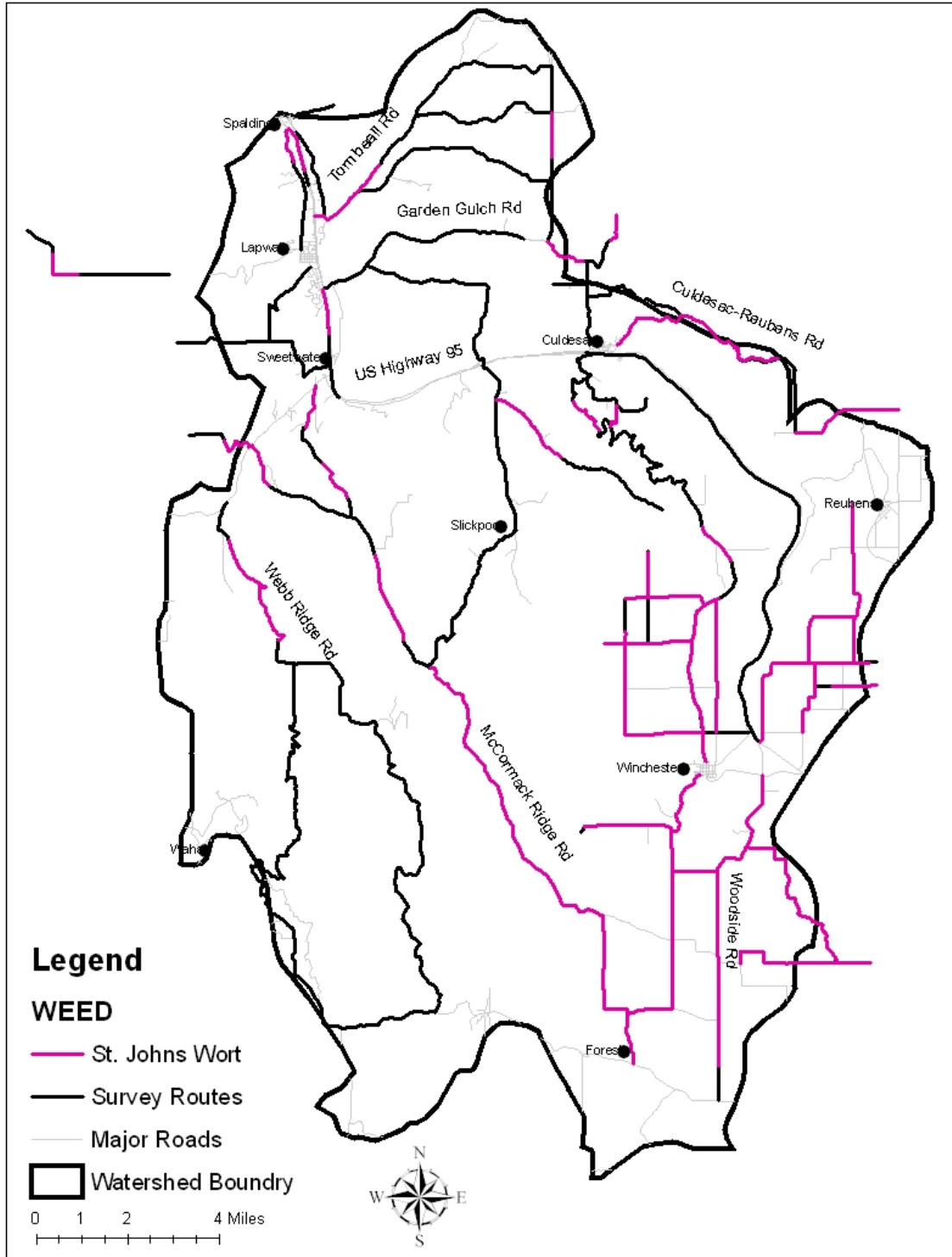
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Appendix

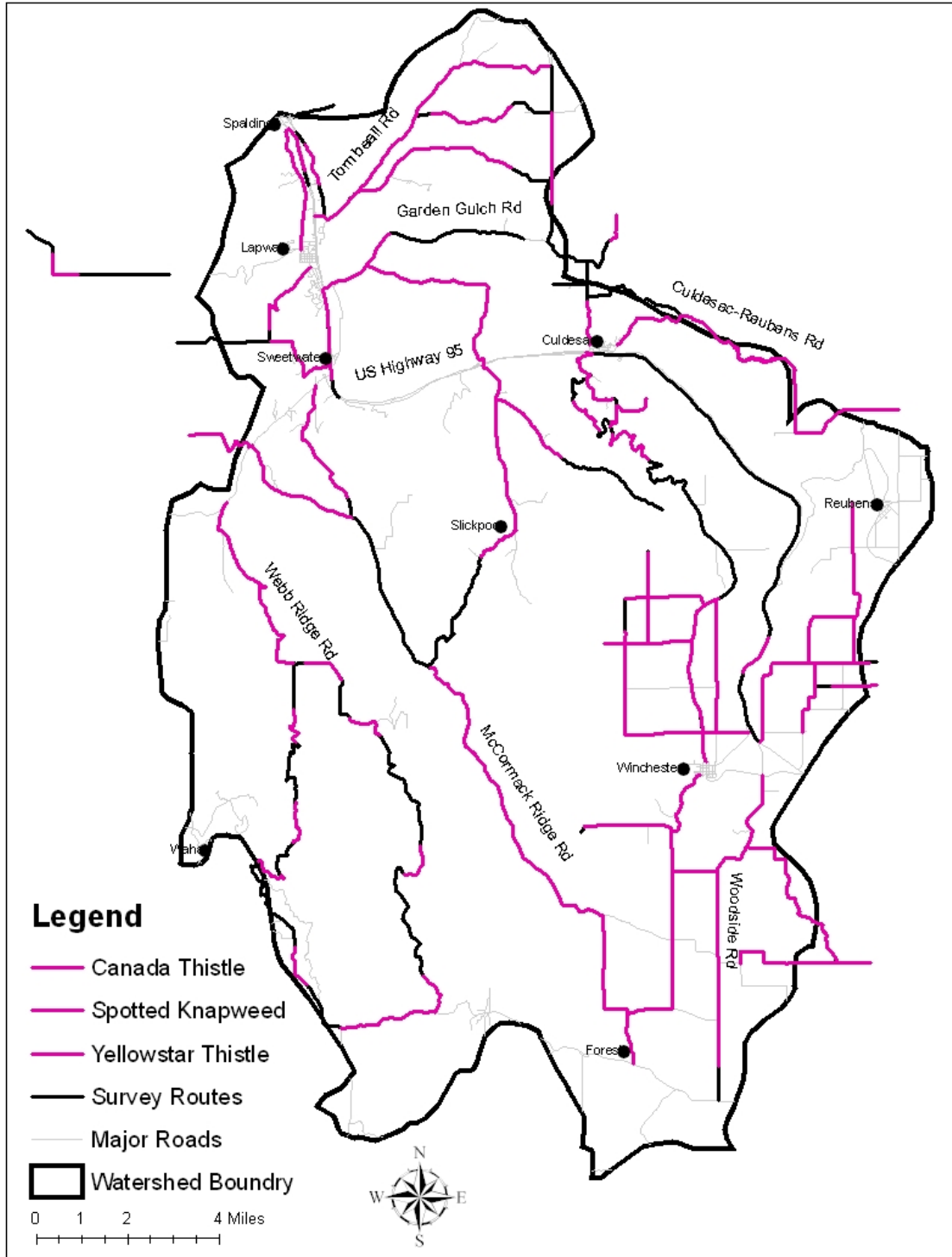
Appendix 1. Distribution of Canada Thistle in the Lapwai Creek Watershed



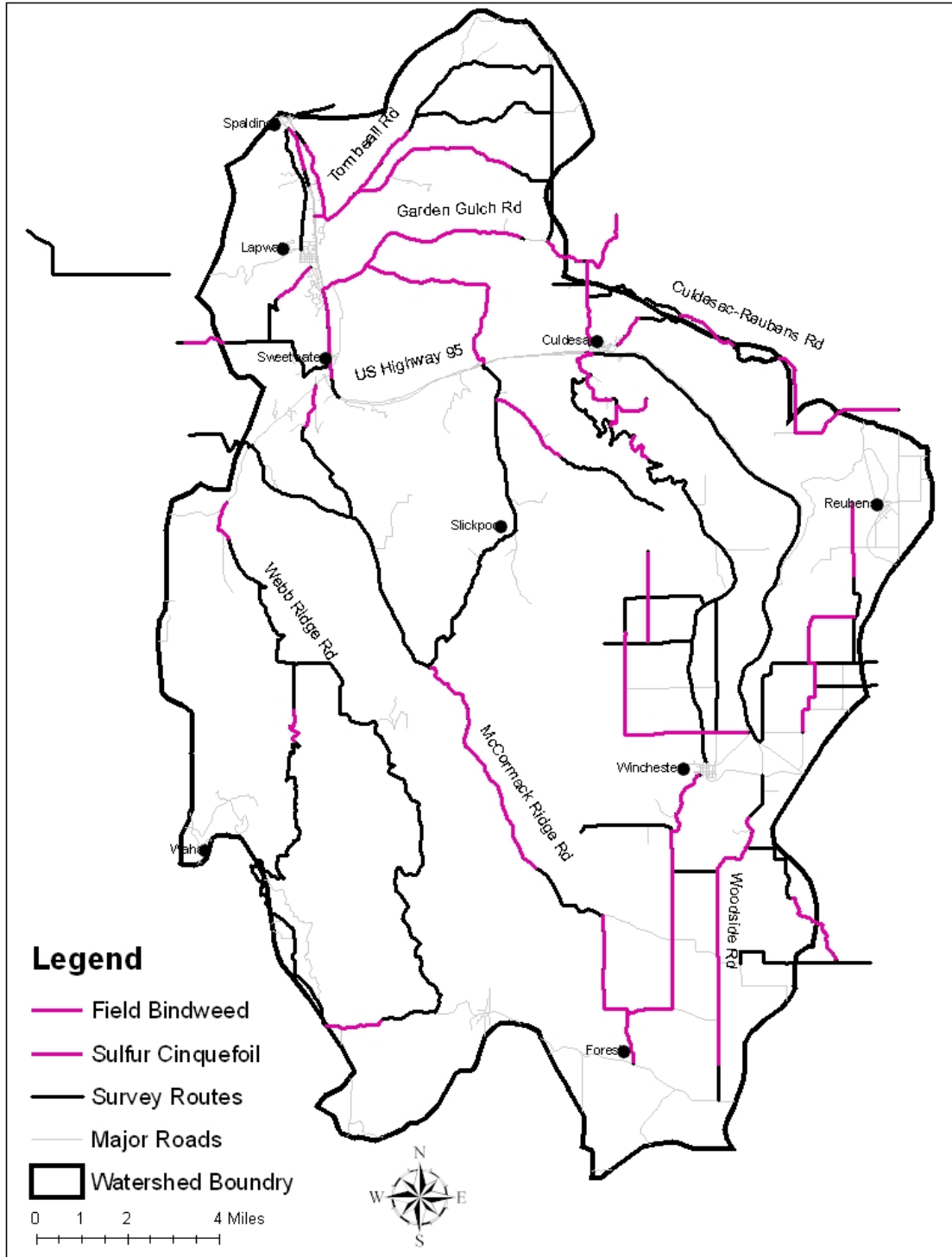
Appendix 2. Distribution of St. Johns Wort in the Lapwai Creek Watershed



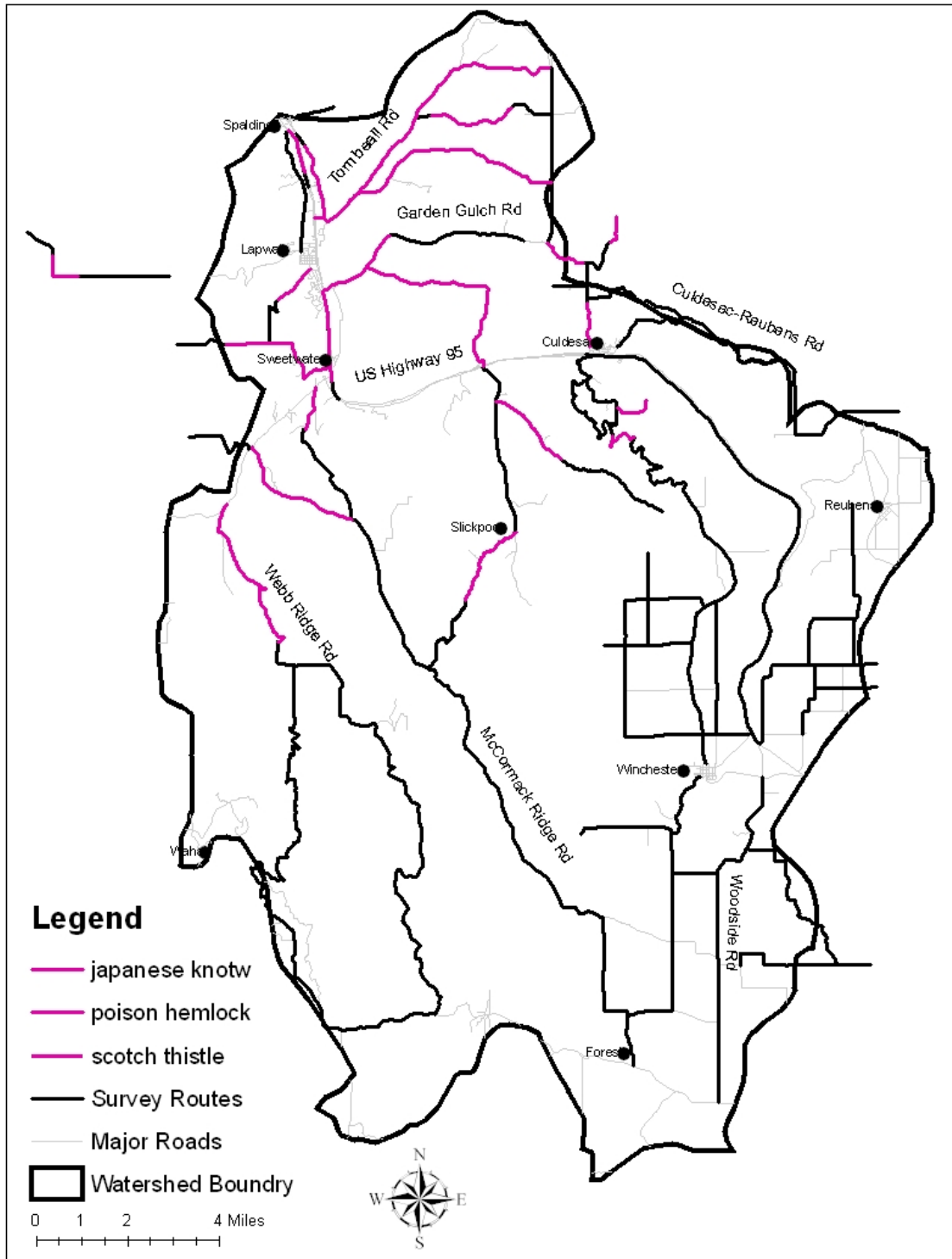
Appendix 3. Distribution of Weeds Designated as %Reduce+by the CBWMA in the Lapwai Creek Watershed



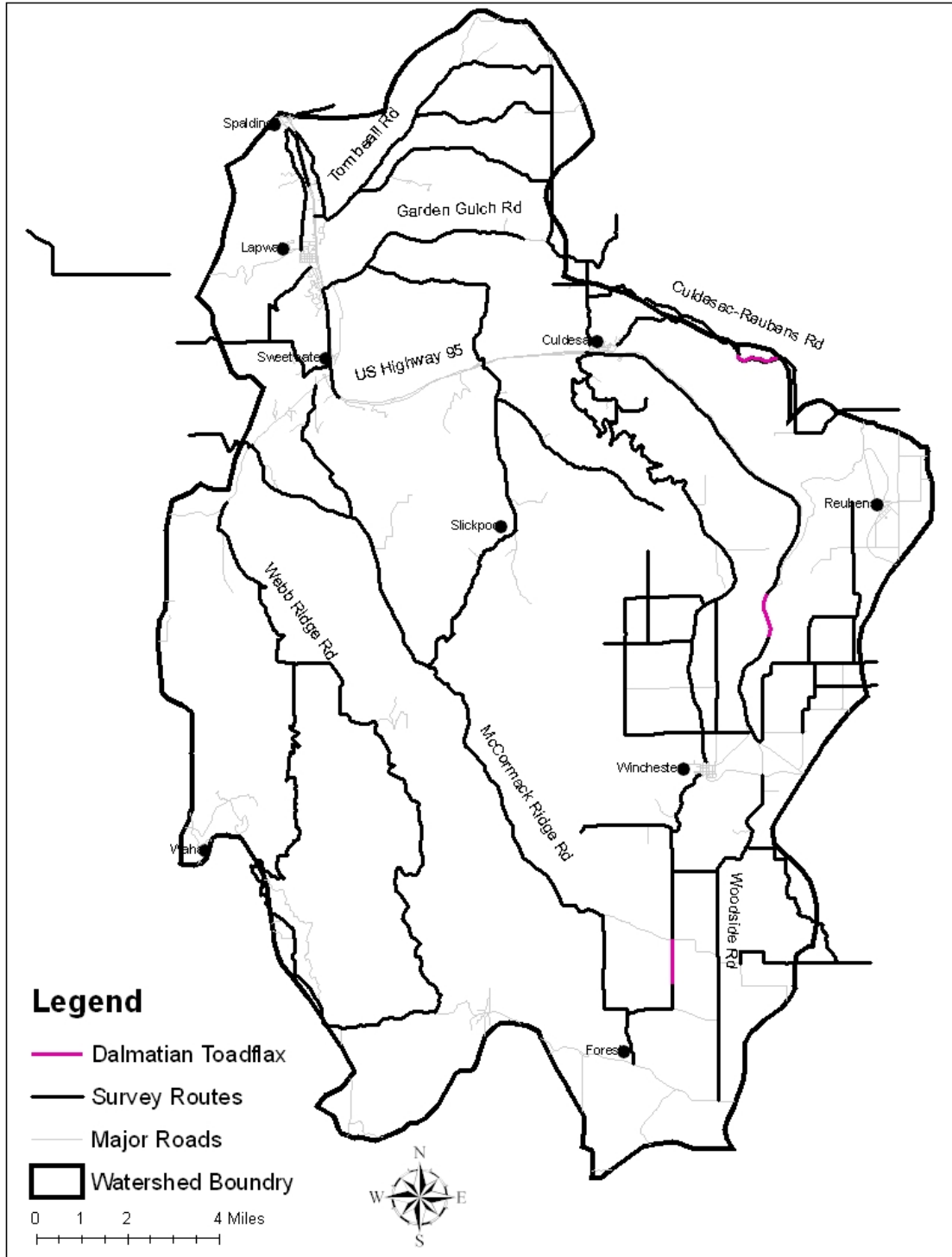
Appendix 4. Distribution of Weeds Designated as %Custodial+by the CBWMA in the Lapwai Creek Watershed



Appendix 5. Distribution of Weeds Designated as %Contain+by the CBWMA in the Lapwai Creek Watershed



Appendix 6. Distribution of Weeds Designated as %Control+by the CBWMA in the Lapwai Creek Watershed



Appendix 7. Distribution of Weeds Designated as %Eradicate+by the CBWMA in the Lapwai Creek Watershed

