

Results of 2013 Malone's jumping slug (*Hemphillia malonei*) surveys in harvested Tee Timber Sale units, Gifford Pinchot National Forest

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INTRODUCTION

In fiscal year 2013, the Region 6 Interagency Special Status/Sensitive Species Program provided funding to the Gifford Pinchot National Forest to resurvey for Malone's jumping slugs in harvested units of the Tee Timber Sale where this species was found in abundance in pre-disturbance surveys. The purpose of the resurvey was to determine if Malone's jumping slugs remain in these units at densities similar to pre-disturbance levels. The timber sale is located in the East Fork Lewis River watershed, Skamania County, Washington, which was burned over in the Yacolt Burn in 1902, and subsequent reburns through 1929. The stands that exist there today are fully stocked, composed of primarily Douglas-fir and western hemlock that was either planted or regenerated naturally after the fire. There was extensive snag felling done by the Civilian Conservation Corps in the 1930s, and that resulted in numerous large down logs that are now in advanced stages of decay.

Malone's jumping slug (*Hemphillia malonei* Pilsbry, 1917) is endemic to western Washington and northwestern Oregon. From NatureServe, the species has a Global Heritage Status Rank of G3, and a United States National Heritage Status Rank of N3 (last reviewed February 24, 2005). The species has a state rank of S3 in both Washington and Oregon.

BACKGROUND

The pre-disturbance mollusk surveys were done in 2002, 2003, and 2005 as required by the Survey and Manage provision in the Northwest Forest Plan. Malone's jumping slugs were found to be very numerous in this watershed, and since the watershed was extensively burned over in the early 1900s, it seemed that this species was likely resilient to disturbance.

The general harvest prescription for the timber sale was variable density thinning. The harvest reduced overstory canopy cover from 80 – 100 percent to 40-45 percent. Mitigation to protect the existing remnant logs to the extent possible was included in the timber sale contract. The units were logged with a combination of ground-based feller-bunchers (Unit 29), and feller-bunchers with helicopter yarding (Units 26, 31, and 45). The four units have aspects of north, south and southwest. Other than protecting existing down wood, none of the known Malone's jumping slug sites located in the pre-disturbance surveys was protected/buffered from harvest. The requirement for this species is to protect high priority sites, and since numerous sites were found outside of the Tee units, the sites inside unit boundaries were not determined to be high priority sites.

2013 SURVEY METHODS & RESULTS

Between April 30, 2013 and May 31, 2013 these four units were resurveyed by Mitch Wainwright and Jennifer DeShong of the Gifford Pinchot N.F. using the same mollusk survey protocol that was used in the pre-disturbance surveys (two visits with a combination of meandering and plot searches). We only resurveyed the portions of the original polygons that were actually thinned. We did not attempt to relocate any of the original sites found in the pre-disturbance surveys, but some of the sites found in the resurvey are close to sites found in the pre-disturbance surveys. The following table summarizes the results of the resurvey, and displays the number of sites that were found in the original pre-disturbance surveys.

Table 1. Resurvey results

Unit Number	Acres	Logging Completed	Resurvey Dates	Malone's JS Sites Found in 2013	Individual Malone's JS Found in 2013	Malone's JS Sites Documented in Original Mollusk Surveys	Individual Malone's JS Found in Original Mollusk Surveys**
Unit 26	46 ac.	September 2009	May 3 & May 31, 2013	25	41	11	12
Unit 29	32 ac.	June 2007	April 30 & May 22, 2013	20	36	25	37
Unit 31	59 ac.	June 2010	May 2 & May 30, 2013	33	39	22	45
Unit 45	44 ac.	November 2007	May 1 & May 21, 2013	15	20	10*	15*

* Only one survey visit done in 2005

** These figures only represent the Malone's jumping slugs found in the mollusk surveys, and do not include those found during amphibian surveys.

The Malone's jumping slugs that were found in the resurvey were found near the old remnant logs, or under deep sword fern litter. These were sites that retained more moisture than in the surrounding thinned areas. Only adults were found. There were very few other slugs found, and the only other slug species found was banana slug (*Ariolimax columbianus*). Other mollusk species found were *Haplotrema vancouverense* and *Vespericola columbianus*. Western red-backed salamanders (*Plethodon vehiculum*) and Ensatina (*Ensatina eschscholtzii*) salamanders were found commonly in the stands in both the pre-disturbance surveys, and in these resurveys.

CONCLUSION

Even though the thinned stands were warmer and drier than the surrounding unthinned stands, the abundance of Malone's jumping slugs and the number of occupied sites were similar to preharvest levels in all four resurveyed stands 3 to 6 years after thinning. Given the time since the thinning was completed, some of the slugs that were found could potentially be survivors from before the harvest, but were more likely hatched following the harvest. Based on where they were found within the

thinned stands, microsites that retain moisture and remain cooler than the surrounding area, such as large old logs, and deep litter, are important. Protecting these features during harvest is likely to be crucial to retain this species post-harvest.

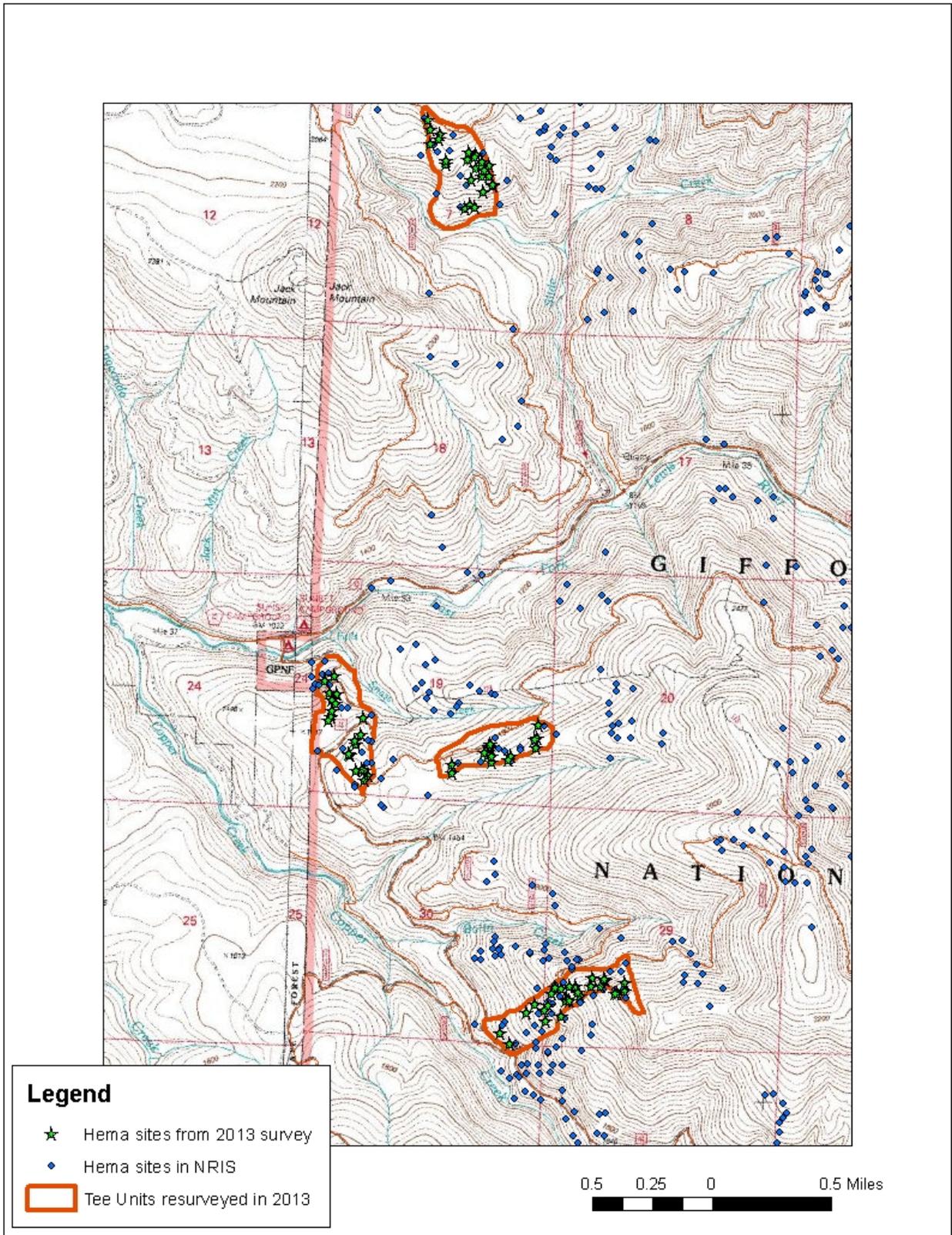


Figure 1. Tee units resurveyed in 2013

Tee Unit 26

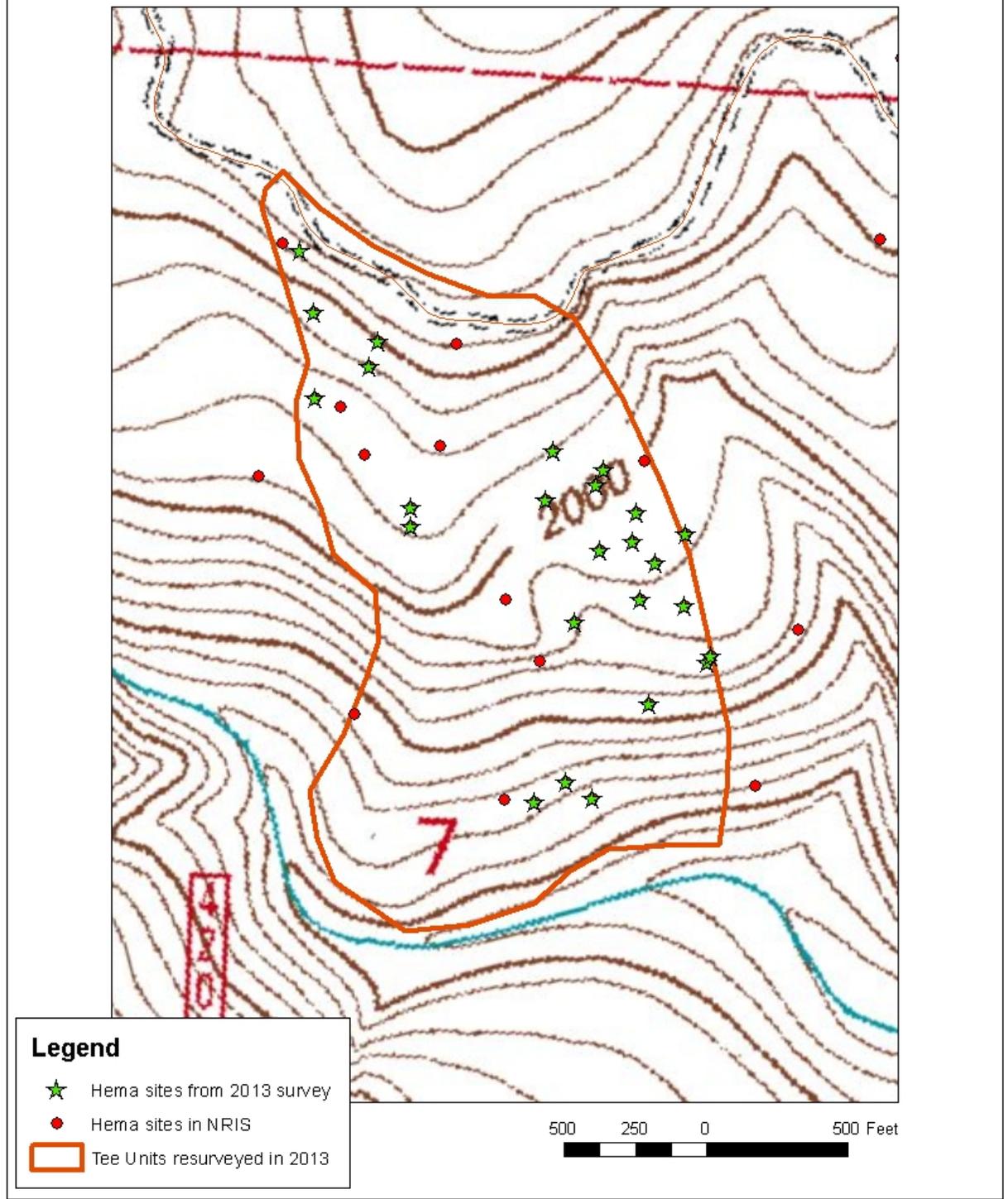


Figure 2. Unit 26

Tee Unit 29

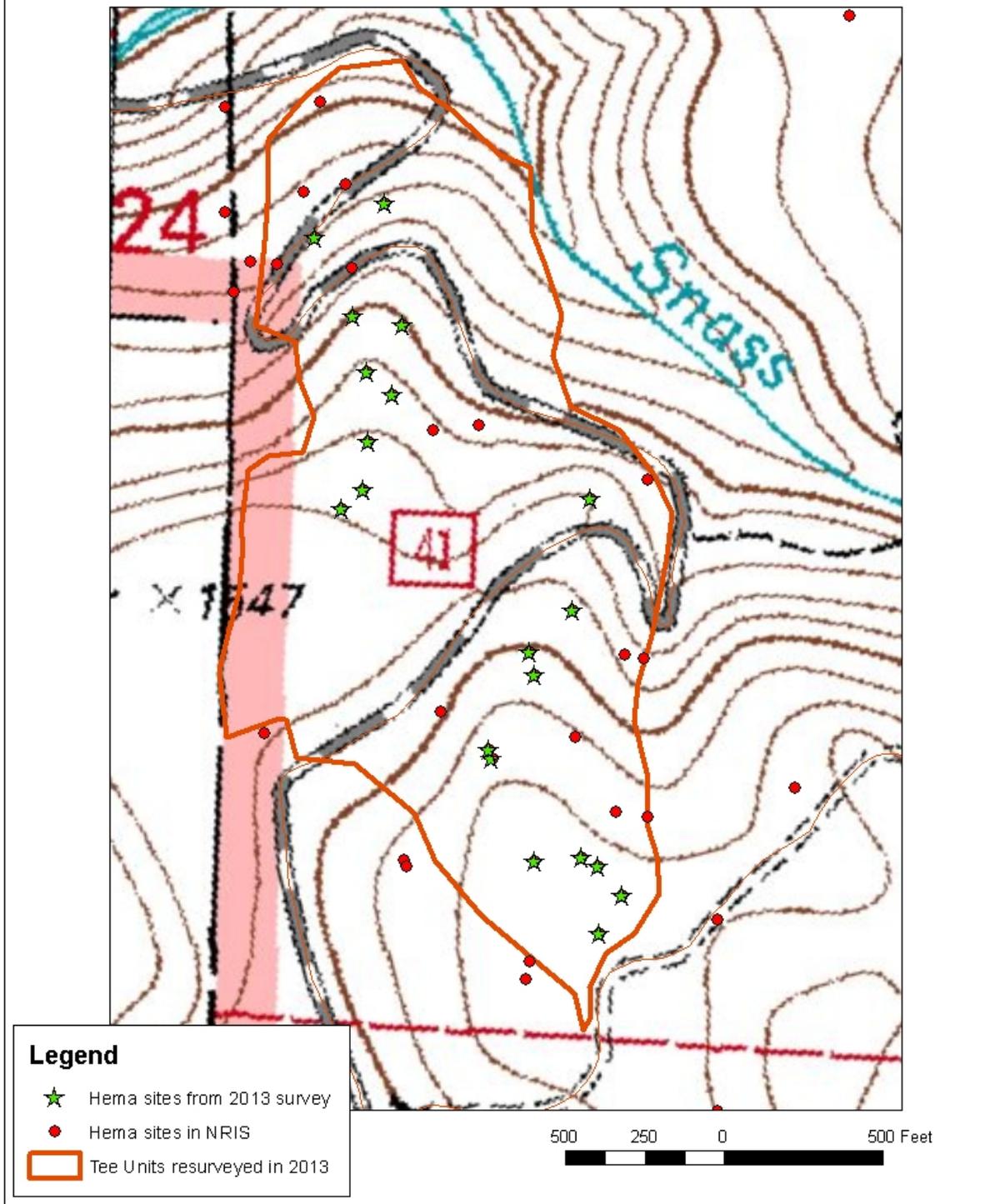


Figure 3. Unit 29

Tee Unit 31

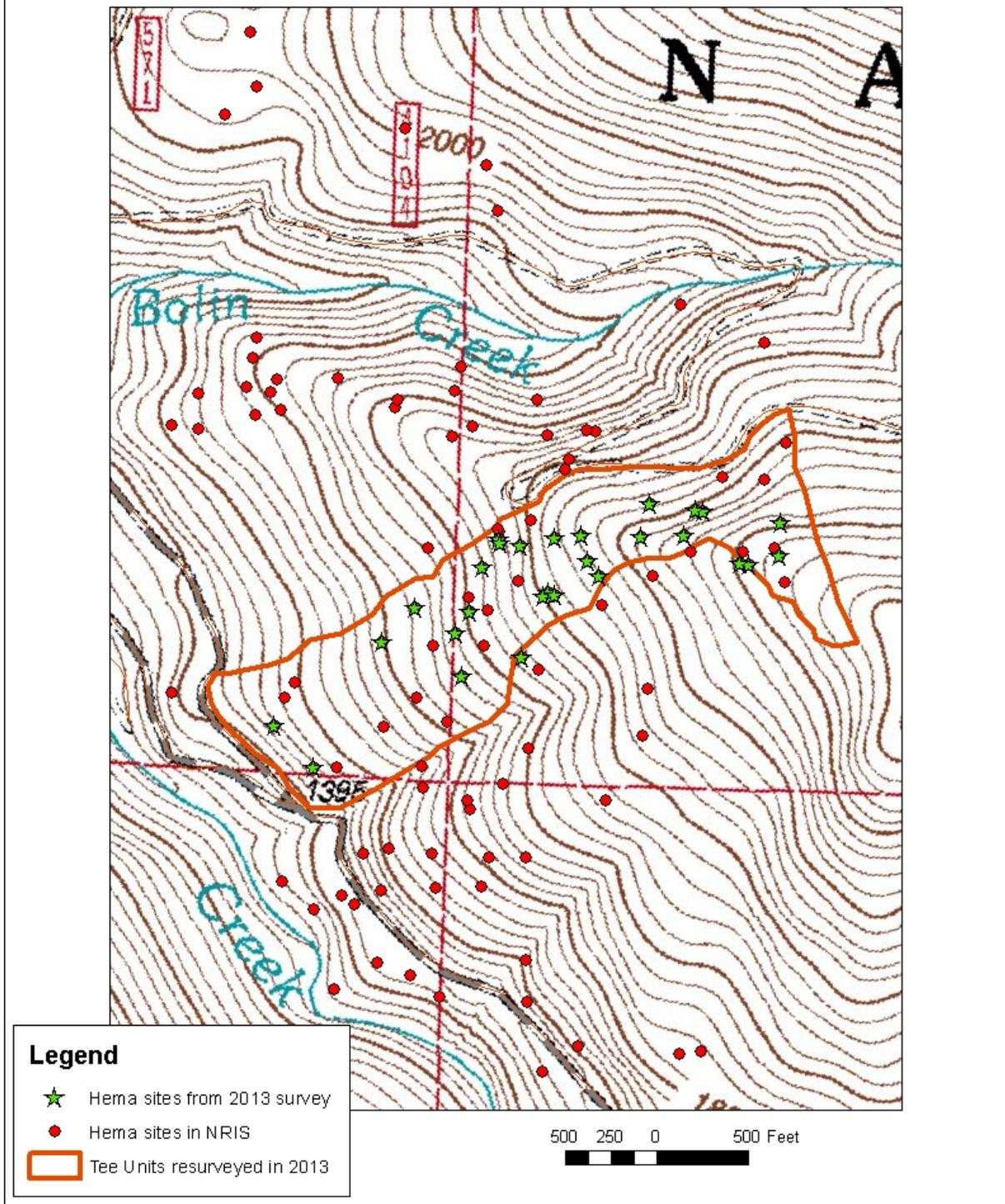


Figure 4. Unit 31

Tee Unit 45

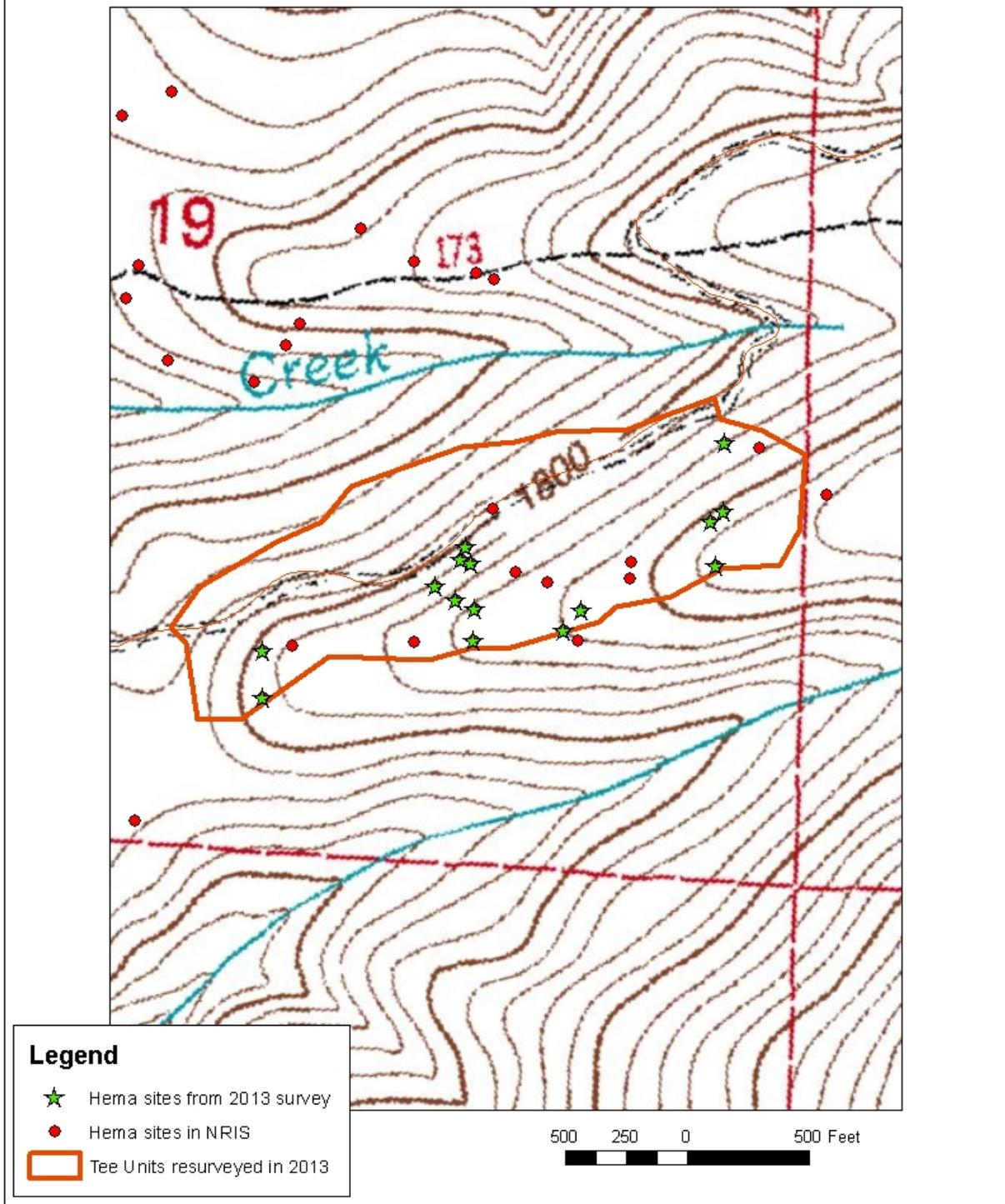


Figure 5. Unit 45