F-2

Gentian Plant Survey

Narrow-leaved Gentian

1. Introduction

Several Narrow-leaved Gentian (NLG) plants were found along the Salmon Trout River in the vicinity of the Eagle Project during the T & E baseline investigation in 2004. The purpose of this study in 2005 was to determine the approximate distribution and populations of NLG in the general project area and adjacent areas of northern Marquette County. NLG is listed as a "facultative wetland" species in the State of Michigan, meaning that it can survive in wetland or upland conditions. In this investigation NLG plants were found in very wet conditions along streams and also in dry conditions on the upper fringe of wetlands. The Michigan Natural Features Inventory (MNFI) considers the NLG a species of "threatened" status.

2. Study Area

The study area included the fringe areas along the Yellow Dog River, the Main Branch Salmon Trout River, and several streams to the west of the Eagle Project area to the Peshekee River (Figures 1 and 3). Also included in the investigation area were Harvey Lake and Powell Lake located on the Sands Plain, south of the City of Marquette (approximately 30 miles south of the Eagle Project site).

3. Results of Investigation

Flowering NLG plants (Figure 2, 5, 6 and 7) were found in all areas investigated along the Yellow Dog River. This included areas from 0.4 miles downstream to 0.6 miles upstream of the Trail 5 bridge on the left (north) side of the river (Figure 2). The first flowering plant was observed on July 9, 2005. The NLG continued to bloom through September 2005. These plants were observed in very wet areas in heavy organic soil along the Yellow Dog River and in the drier fringe areas in sandy soils several hundred feet from the river (Sections 13 and 14, T50N-R29W) (Figure 2). Additional flowering plants were observed in Section 24, T50N-R29W, south of the Yellow Dog River at the edge of the wetland near the bedrock outcrop. Several thousand flowering plants were observed in the Yellow Dog River areas.

NLG were found along the Salmon Trout River in approximately the same areas where they were recorded by Wetland Coastal Resources in 2004 (Figure 4). This area included the right side (north and east) of the Salmon Trout River from upstream of the ore body to a point just upstream (south) of County Road AAA (Triple A Road) in Section 11, T50N-R29W. Several hundred flowering plants were observed in August and September 2005.

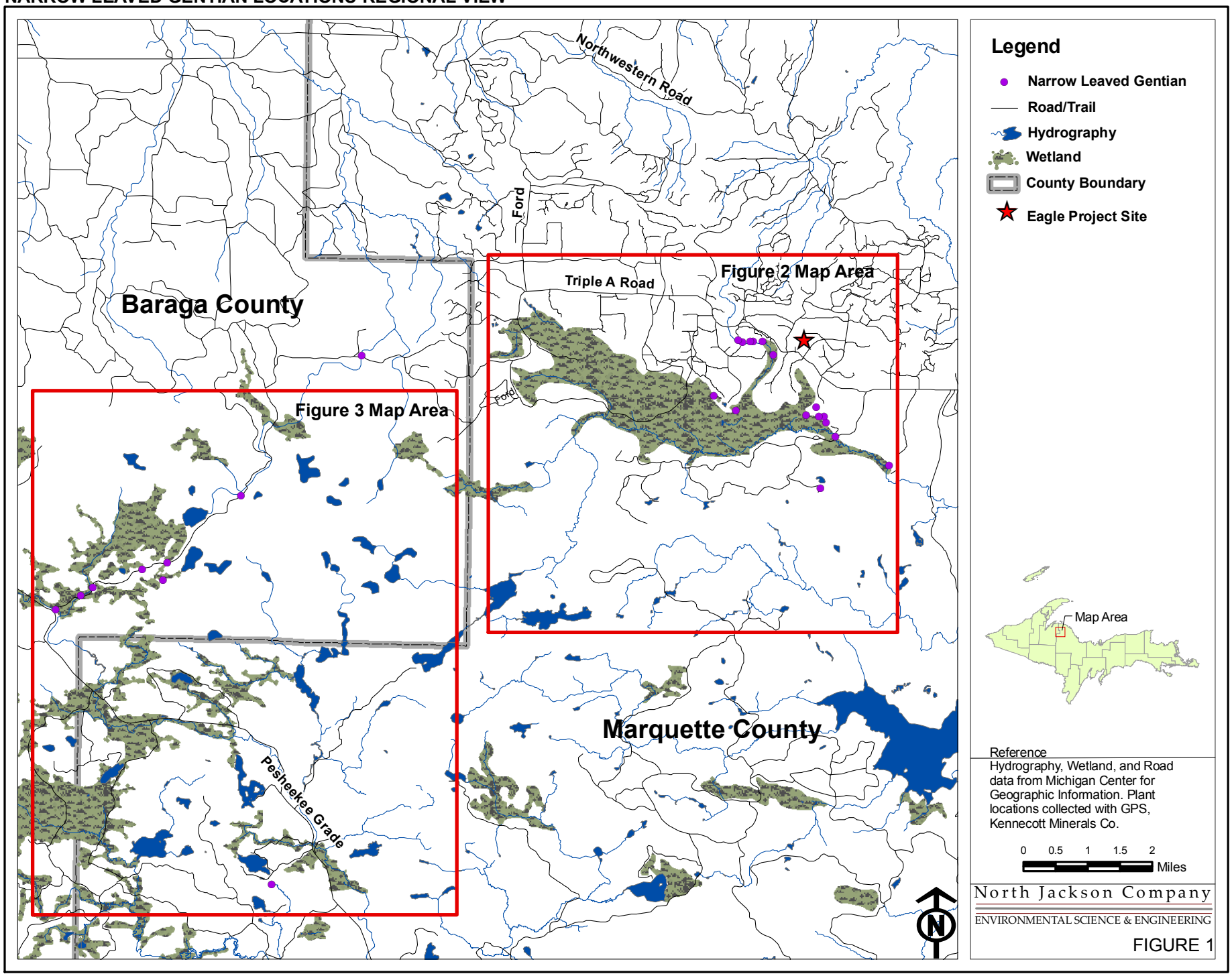
The investigation continued west of the Eagle Project area along the Triple A Road to the West Branch Huron River Road and then on to the Peshekee Grade. These roads

traverse western Marquette County, eastern Baraga County and then back into Marquette County (Figures 3). Flowering NLG were observed at nearly all stream crossings along the road rights-of-way. They were observed in small borrow pits near the roads, sometimes in very dry perched areas in sand and gravel soils. At most locations at least fifty flowering plants were observed and sometimes several hundred plants were observed at single locations.

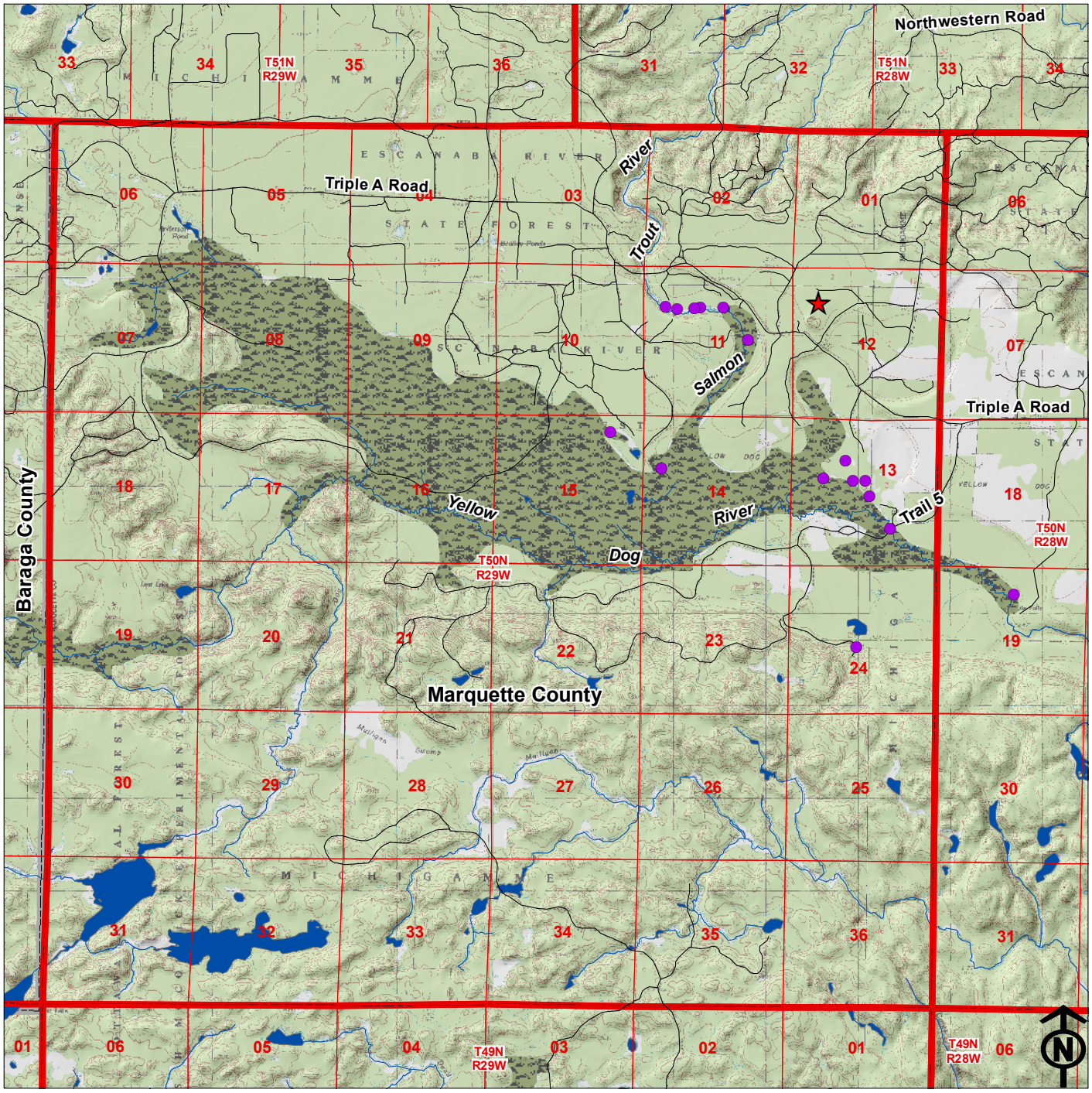
Approximately fifty NLG were also observed south of Lake Arfelin in Sections 21 and 22, T49N-R30W (Figure 3). The habitat in this location was a relatively dry bog adjacent to a small stream.

NLG (several hundred) were observed along the southern shore of Harvey Lake (Section 31, T47N-R25W) in dry sandy soils. NLG could not be found during this study period in the gravelly soils on the shore of Powell Lake in Sections 8 and 9, T46N-R25W.

NARROW LEAVED GENTIAN LOCATIONS-REGIONAL VIEW



NARROW LEAVED GENTIAN LOCATIONS - EAST



Legend

- Narrow Leaved Gentian
- Road/Trail
- Hydrography
- Wetland
- County Boundary
- Town & Range Line
- Section Line
- Eagle Project Site

Reference
Hydrography, Wetland, and Road data from Michigan Center for Geographic Information. Plant locations collected with GPS, Kennecott Minerals Co.

0 0.25 0.5 0.75 1 Miles

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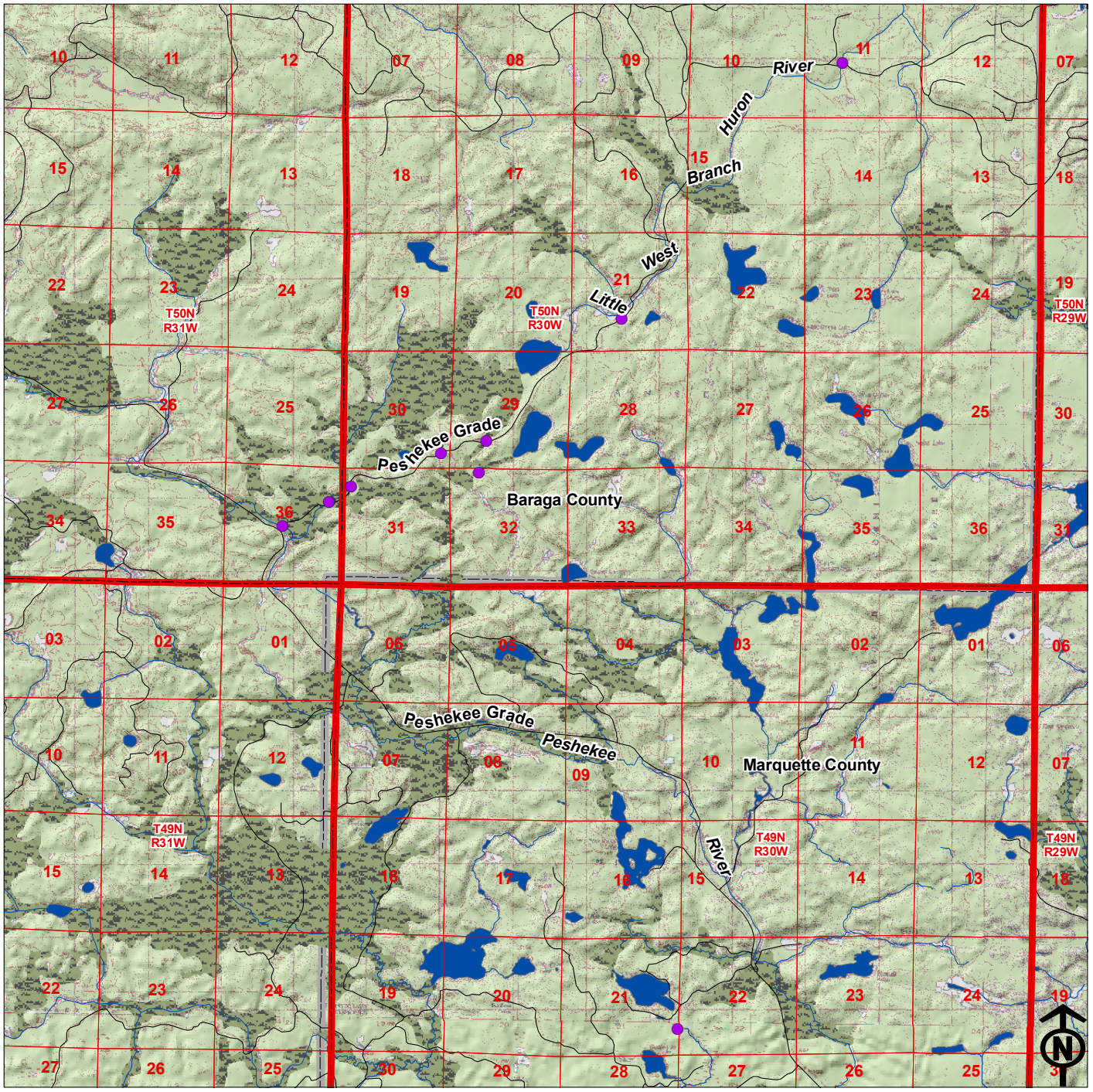
FIGURE 2

NARROW LEAVED GENTIAN LOCATIONS - WEST



Legend

- Narrow Leaved Gentian
- Road/Trail
- Hydrography
- Wetland
- County Boundary
- Town & Range Line
- Section Line

Reference
Hydrography, Wetland, and Road data from Michigan Center for Geographic Information. Plant locations collected with GPS, Kennecott Minerals Co.

0 0.25 0.5 0.75 1 Miles

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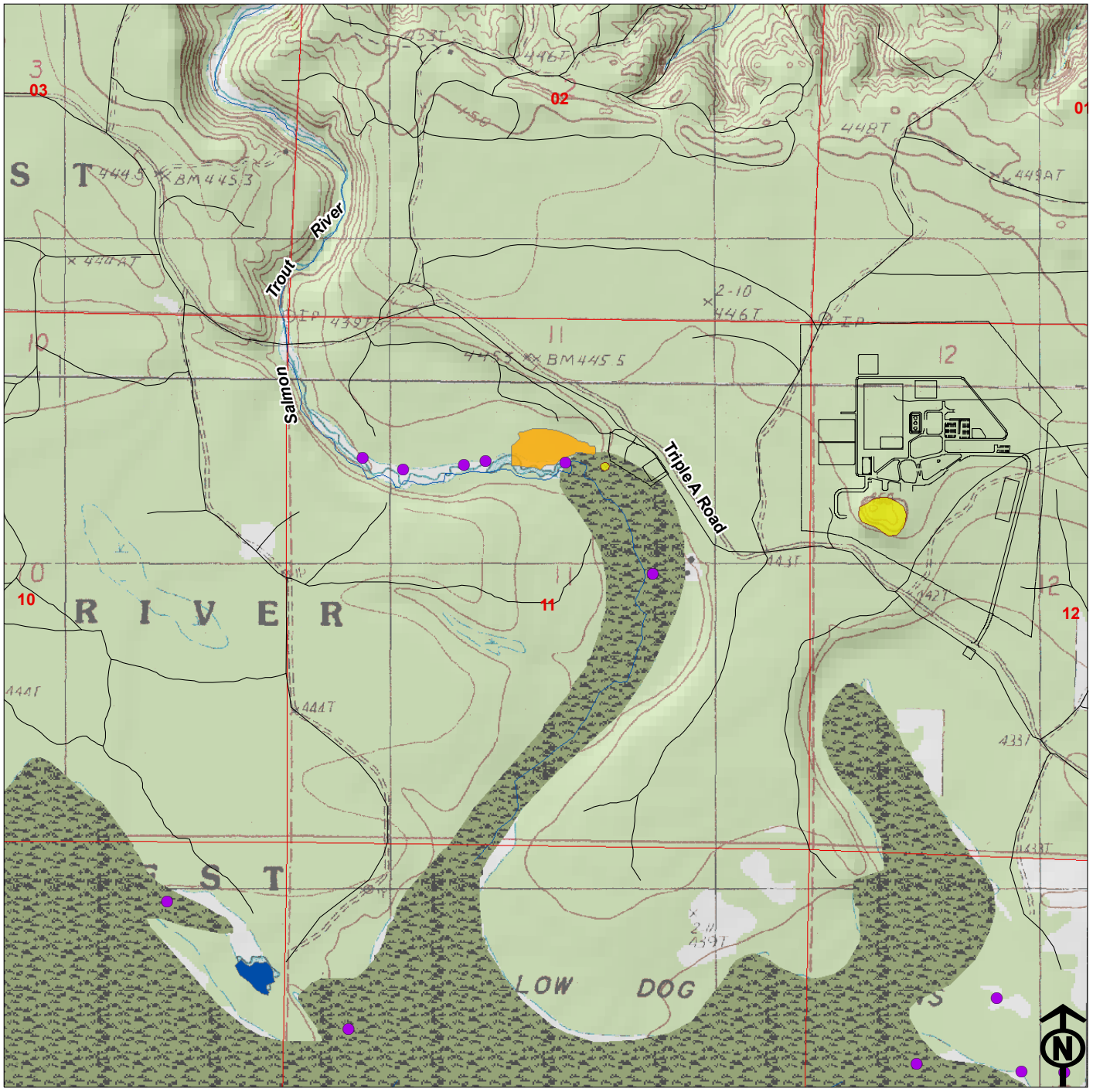
FIGURE 3

NARROW LEAVED GENTIAN LOCATIONS - PROPOSED MINE AREA (T50N - R29W)



Legend

- Narrow Leaved Gentian
- Road/Trail
- Hydrography
- Wetland
- Section Line
- Ore Body
- Outcrop
- Eagle Project Site

Reference
Hydrography, Wetland, and Road data from Michigan Center for Geographic Information. Plant locations collected with GPS, Kennecott Minerals Co.

0 500 1,000 1,500 Feet

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FIGURE 4

Figure 5

Figure 6

Figure 7