



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
WU-16J

CERTIFIED MAIL 7001 0320 0006 0189 2201
RETURN RECEIPT REQUESTED

Mr. Craig A. Czarnecki, Field Supervisor
East Lansing Field Office
U.S. Fish and Wildlife Service
2651 Coolidge Road, Suite 101
East Lansing, MI 48823-6316

Dear Mr. Czarnecki:

Pursuant to Section 7 of the Endangered Species Act (ESA), (87 Stat. 884, as amended, 16 U.S.C. 1531 *et seq.*), the U.S. Environmental Protection Agency, Region 5 has reviewed biological and ecological information related to construction and operation of the Kennecott Eagle Minerals Company's mine and underground injection wells to determine the effect on any threatened or endangered species in the area around the proposed facility. The purpose of this letter is to seek concurrence from the U.S. Fish and Wildlife Service (FWS) on our determination that the proposed project is not likely to adversely affect federally listed species in the area of the project.

Federal Action

The Kennecott Eagle Mineral Company has applied to EPA for an Underground Injection Control Program permit for construction and operation of a treated water infiltration system (TWIS) to dispose of industrial process waste water generated from operation of a copper and nickel mine. The permit will cover solely these waste water disposal activities. The infiltration system is an essential component for the operation of the mine.

Project Description and Inter-Related Activities

The Kennecott Eagle Minerals Company proposes to construct and operate an underground mine approximately 25 miles northwest of Marquette, Michigan. The deposit to be mined is a high-grade sulfide deposit containing nickel and copper along with minor amounts of cobalt and gold.

Generation of acid mine drainage from the mine workings and from waste rock storage and disposal is a concern with all sulfide ore mines. The State of Michigan mining permit application identified measures to lessen and mitigate the risks from acid mine drainage

occurrences. Underground mining methods, instead of open-pit mining, will be used to extract the ore which will be crushed inside a building and then trucked off-site for processing. The on-site facilities will be limited to those necessary for storing and crushing ore; managing development rock; water storage, treatment and discharge; mine backfilling; mine ventilation; and other ancillary operations. No wetlands should be directly impacted by this project.

The company plans to discharge treated waste water from a point source (the drainfield) into the ground water which eventually discharges to surface water seeps that serve as the headwaters to local rivers. The Region 5 Water Division investigated the potential applicability of the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program to the process wastewater to be generated by Kennecott. Our review of the information provided by Kennecott and MDEQ indicates that the project does not meet the direct hydrologic connection test, so no State surface water discharge permit is needed.

The project will include many components, only three of which are regulated under EPA's Safe Drinking Water Act's Underground Injection Control program. The Kennecott project will have a large-capacity septic system for the use of employees and visitors, an infiltration system to dispose of industrial process waste water (up to 504,000 gallons per day), and mine backfill wells (for injecting fluids to fill the voids remaining following removal of rock during mining). The septic system is authorized by rule. A permit is required for the infiltration system. EPA has not yet made a final determination concerning the mine backfill wells.

The construction of the access road and mine facilities will generate some additional noise and dust during those activities but the duration will be short relative to the length of time the mine is projected to be in operation (two years for construction, approximately seven years for mining, two to three years for reclamation and an additional 25 years for long-term monitoring).

Action Area

The proposed Kennecott Eagle mine site is situated within the Yellow Dog Plains near portions of the Salmon Trout River. Since most of the activity for this project will consist of underground mining, the area which could potentially affect any listed species is limited to the surface footprint of the mine, including the area that will be disturbed by construction, and the land immediately surrounding that area. Therefore the action area is the 145 acres comprising the fenced area and access road for the Eagle Mine site as shown in Attachment 1 (Figure 4-2 from Foth and van Dyke 2006). Approximately 92 of the 145 acres will be disturbed by construction activity (Foth and van Dyke 2006). The TWIS construction and operation and all inter-related activities associated with the TWIS as described above will occur within the 145 acre action area.

List of Species

In a letter to Stephen Roy dated September 25, 2008 (FWS 2008a), the FWS identified two listed species, the Canada lynx (*Lynx canadensis*) and Kirtland's warbler (*Dendroica kirtlandii*) which might occur in the action area of the Kennecott Eagle Mine project. The FWS recommended a

determination be made as to potentially suitable habitat for the Kirtland's warbler. If such habitat occurs within the action area for the mine project, the FWS requested that a survey be conducted during late May to late June in order to detect the presence of any male Kirtland's warblers. With regard to the Canada lynx, the FWS makes the assumption that the lynx could be present and requests that an assessment be made of potential effects to the lynx. The assumption the lynx could be present is based on the variety of habitats the lynx uses for foraging, denning, dispersing, etc. and the small probability of detecting an individual animal that typically has a large home range.

Although gray wolves could also occur within the Action Area, their protection under the ESA has varied in the past two years. In 2007 the Western Great Lakes distinct population segment (DPS) of the gray wolf (*Canis lupus*) was identified and removed from protection under the ESA. After a court decision in 2008, however, the gray wolf was again protected under ESA as an endangered species. Then a final rule removing the Western Great Lakes wolf DPS from ESA protection was to become effective on May 4, 2009, but on July 1, 2009 that delisting decision was withdrawn to provide additional time for public comment. So at this time, gray wolves are still listed and protected under the ESA.

The 1360 acres surrounding and including the mine site and action area was used for the biological study for the Eagle Mine project as described in the environmental impact assessment report (Foth and van Dyke 2006) and for subsequent biological surveys to determine what species are in the general vicinity of the project. For a map of the 1360 acres, see Attachment 2 (Figure 1-2 from King and MacGregor 2007).

Summary of Effects Analysis

Kirtland's warbler

We reviewed the documents provided by Kennecott Eagle Minerals related to wildlife species assessment work that has been conducted over the past several years for this project. The mining permit from the State of Michigan contains special conditions which require Kennecott to routinely monitor the flora and fauna throughout the life of the mine operations. The monitoring includes semi-annual (spring and fall) surveys along seven established transects covering the 1360 acre area. We reviewed the annual survey and assessment reports for 2006, 2007 and 2008 (King and MacGregor 2007, 2008a, and 2008b) and the report that focused on the June 2006 survey to determine if the Kirtland's warbler was present at the mine site (King and MacGregor 2006). That 2006 assessment for Kirtland's warbler evaluated and mapped potential Kirtland's warbler habitat and surveyed for the presence of the bird.

The Kirtland's warbler has been increasing in numbers steadily over the past several years. Most of the population still nest in the northern part of Michigan's Lower Peninsula but some birds have been found in the Upper Peninsula, including Marquette County, every year since 1996. In 2008, 34 singing male warblers were counted in the Upper Peninsula during the annual census, including six warblers in Marquette County (Michigan DNR 2008a). The warbler location closest to the proposed Kennecott Eagle Mine is on the Yellow Dog Plains in northern Marquette County approximately 3 miles from the mine site. A single male warbler was heard singing at

that location in 2006 and one bird has been observed annually in this area since then (FWS 2009).

The preferred habitat for Kirtland's warblers is a jack pine forest ecosystem on the well drained soil type of Grayling sand. The optimal habitat is stands of jack pine greater than 80 acres in area with the size of the trees ranging from about five feet to 16 or 20 feet. The birds nest on the ground under the protection of low growing branches of these trees. Typical nesting areas have dense clumps of trees interspersed with small, grassy openings and low, dense ground cover plants such as sedges (*Carex* spp.), blueberries (*Vaccinium* spp.), blackberries (*Rubus* spp.), bearberry (*Arctostaphylos* spp.), and sweet fern (*Comptonia peregrina*). When jack pines are about 16 to 20 years old they lose their lower branches and no longer provide suitable nesting sites. (Michigan DNR 2005, Tesky 1992, FWS 2008a, 2008b).

Although a singing Kirtland's warbler male was detected 2-3 miles from the site in 2006, no Kirtland's warblers were detected within the 465 acre assessment area shown in Attachment 3 (Figure 4 from King and MacGregor 2006) or within the 1360 acres surrounding the location of the proposed Eagle mine (see Attachment 2). The biological survey work conducted to date has not detected the Kirtland's warbler in the action area.

Most of the jack pine stands mapped and characterized in the 2006 assessment were determined to be less than optimal for Kirtland's warbler nesting in terms of acreage, tree size and understory vegetation. Stand B, which is along the northern border of the northeast quadrant of the Kirtland's study area (see Attachment 3), had habitat characteristics that more closely fit the conditions needed for Kirtland's warbler breeding sites than the remainder of the study area, but the jack pines in Stand B were near the upper end of the preferred size and the total acreage is on the low end in terms of suitability. The other jack pine stands did not have the characteristics of the warbler's typical nesting habitat. Stand B is outside the action area and there will be no direct impacts to this habitat from the project's facility construction, maintenance, and operation.

Indirect effects of the project, such as noise and dust can result from activities such as mining and could cause adverse effects to plants and animals. While some animals are particularly sensitive to noise, no information is available to indicate that this is the case with the Kirtland's warbler and the warbler would abandon a site due to noise. No Kirtland's warblers are in the direct vicinity of the mine site. Therefore noise levels from mine activities at the site will likely be minimal at known Kirtland's warbler sites. Additionally, activities at the mine site such as construction, maintenance, and transport of mine product are not expected to adversely affect this species. Excessive dust can cause problems by settling on vegetation and resulting in negative effects to the plant community or even invertebrates such as insects. Since the Eagle Mine ore processing will occur inside the crusher building, dust is not expected to be a problem from the mine operation and should have no effect on the plant community or food sources upon which the Kirtland's warbler is dependent.

Based on the available information about this project, including the findings of the 2006 Kirtland's warbler assessment, and what is known about the habitat requirements and behavior of the Kirtland's warbler, EPA concludes that issuance of a permit for the treated water infiltration system, and the associated inter-related and interdependent activities at the mine site, are not likely to adversely affect this bird species.

Canada lynx

While the Canada lynx's range extends to the area of the project, any Canada lynx that might occur in the area would likely be a transient, dispersing individual. A home range for a lynx can vary from 3 to 300 square miles, and the lynx can travel very long distances searching for food. Preferred habitat for the Canada lynx consists of mature stands of boreal forests or other conifer stands. Large hollow logs or stumps and thick brush are used for denning. Snowshoe hares are the primary prey for the lynx but red squirrels are also common prey. Distribution of the lynx is tied closely to the abundance of snowshoe hare (FWS 2000).

There have been several reports and observations of lynx in Michigan's Upper Peninsula in recent years, but the FWS has indicated that if lynx are present, there are probably very few of them (FWS 2005). There is no record of any lynx breeding in the Upper Peninsula in recent years. None of the surveys conducted at the Kennecott Eagle Mine site detected any signs of lynx in the area. It is expected that construction and operation of the mine would simply result in any individual lynx avoiding the project site and moving to another location, since there is a large amount of forested land in Marquette County. Consequently, mining activity at the site is not likely to have any adverse affect on the Canada lynx.

Gray Wolf

EPA also considered the gray wolf which is a pack animal that occupies and defends the pack's territory. In the Upper Peninsula the pack size for the gray wolf averages 4 – 5 animals with territories that range from 22 to 128 mi². Wolves are habitat generalists, occupying a variety of habitat types that provide sufficient levels of ungulate prey (i.e., deer, moose, elk). White-tailed deer is the primary prey in the Upper Peninsula, especially in winter. The wolf diet is supplemented with smaller prey such as beaver, squirrels, shrews, and mice (Michigan DNR 2008b and FWS 2007).

The gray wolf may have been at least occasionally using the action area at times during the past several years, as the company's wildlife surveys in 2006 (King and MacGregor 2007) and 2007 (King and MacGregor 2008) did find large canine tracks and scat at the project site. Two Michigan wolf experts (Brian Roell, Michigan Department of Natural Resources, and Jim Hammill, Iron Range Consulting & Services Inc.) determined that the action area for this project "is not now nor has it been used by wolves for den or rendezvous activities", which are key habitat components for the wolf (Cherry 2008).

Sufficient suitable habitat is currently considered to be available in Michigan (approximately 11,000 mi² in the Upper Peninsula) to support a long-term wolf population which was at least 509 wolves in the Upper Peninsula during the winter of 2007 (Michigan DNR 2008b). Wolves are known to disperse long distances, even hundreds of miles, to find breeding partners and establish new territories. Human-modified landscape features such as roads and agricultural land do not seem to present barriers to wolf movement (Michigan DNR 2008b). This project should not prevent gray wolves from moving within and between suitable habitat in the Upper Peninsula nor should it affect the availability of sufficient prey. Therefore, EPA has concluded that this project is not likely to adversely affect the gray wolf.

Conclusion/Determination

The Kennecott Eagle Mine project site is within the range of the Canada lynx, the Kirtland's warbler and the gray wolf. There are no recorded sightings of either the Canada lynx or the Kirtland's warbler within the action area and wildlife surveys conducted within the action area did not detect the presence of either species. EPA's analysis of the available information has determined that due to the condition of the habitat the Kirtland's warbler is unlikely to utilize the site. Likewise, in the rare likelihood of a Canada lynx moving through the general area of the mine, the lynx could avoid the mine site to avoid any encounters with the project activities. Similarly, the gray wolf does not use the action area for dens or rendezvous activities and can easily avoid the area to find suitable habitat. Therefore, EPA concludes that the proposed project and related activities are not likely to adversely affect the Canada lynx, the Kirtland's warbler or the gray wolf. EPA respectfully requests FWS concurrence on this determination.

Sincerely,

Rebecca L. Harvey, Chief
Underground Injection Control Branch

cc: Christie Deloria, U.S. Fish and Wildlife Service

References

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U.S. Fish and Wildlife Service. 2009. Personal communication with Christie Deloria about Kirtland’s warbler observations in the vicinity of the Kennecott Eagle mine project.

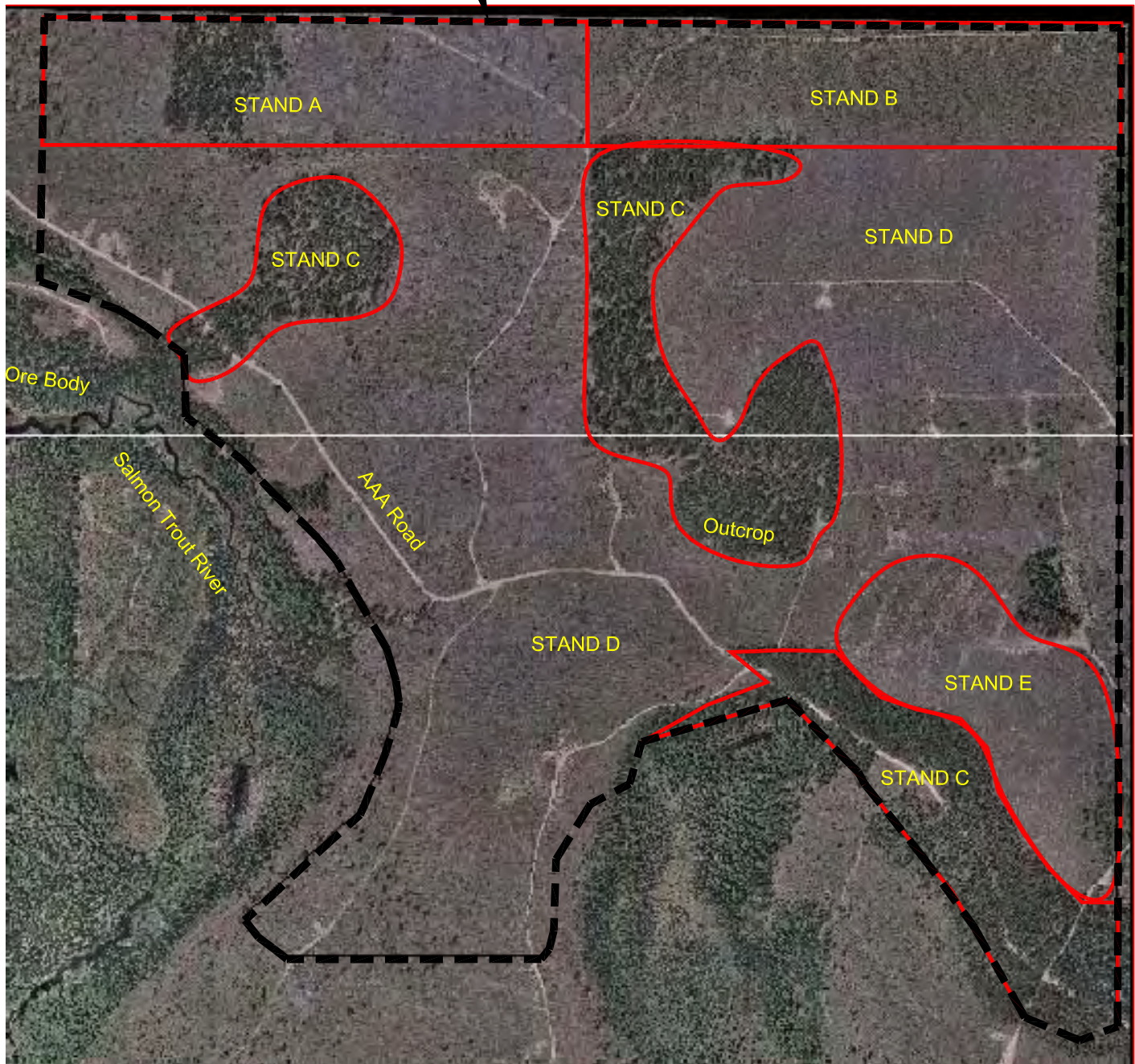
Attachments

Attachment 1: Figure 4-2, Site Development Plan and Topographic Map, from Foth & Van Dyke 2006.

Attachment 2: Figure 4, Stand Map – Habitat Types, from King and MacGregor 2006.

Attachment 3: Figure 1-2, Study Area, from King and MacGregor 2007.

STUDY AREA
(±465 Acres)



Aerial Source: Foth & Van Dyke



Kirtland's Warbler Assessment For :

Kennecott - Eagle Minerals

Michigamme Township

Marquette County, Michigan

Part of Sections 1, 2, 11, 12, T50N, R29W

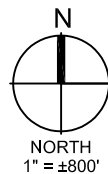
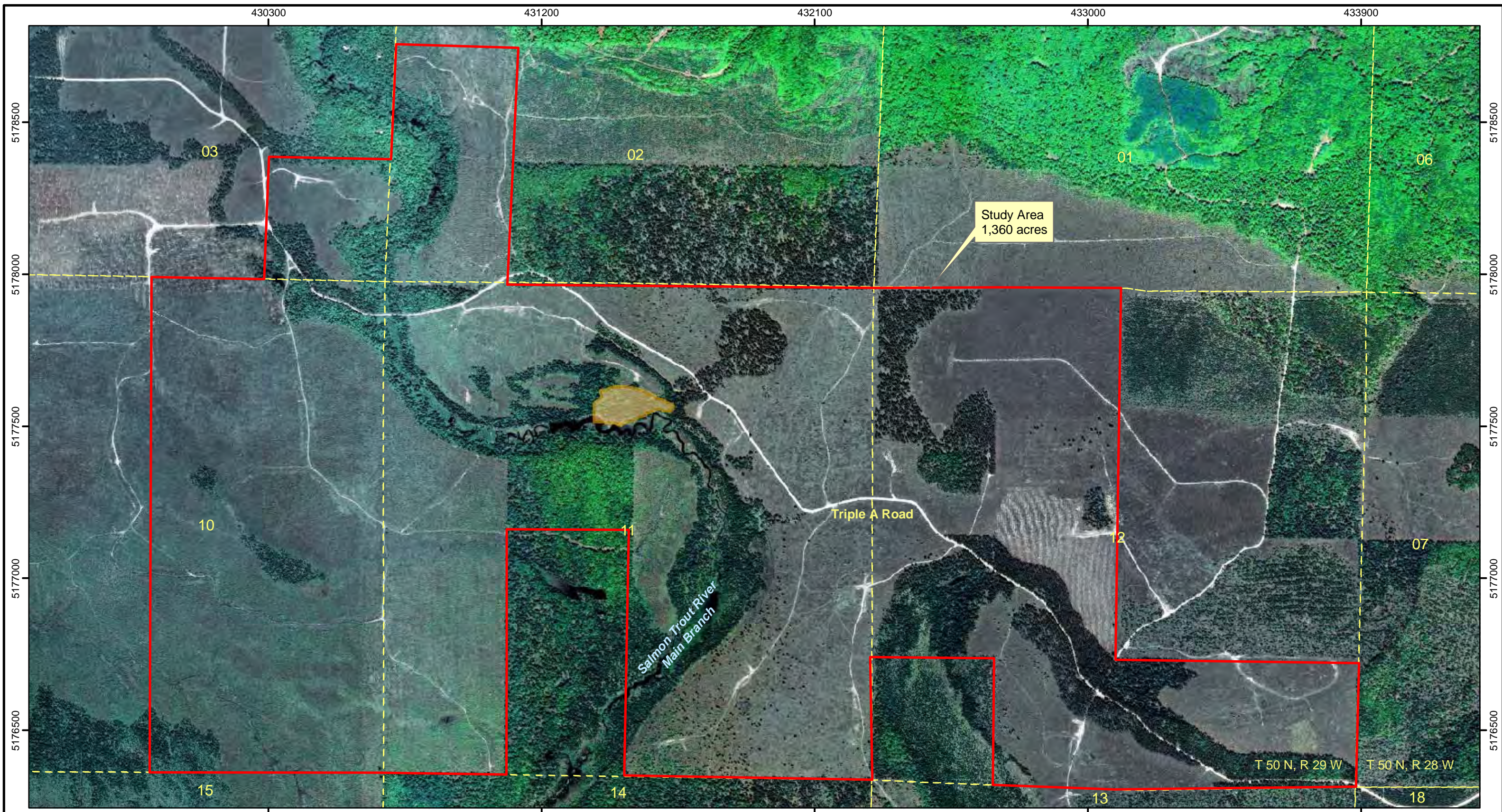


Figure
4

Stand Map -
Habitat Types

PROJECT NUMBER
06269



- NOTES**
1. Surface Property Boundary, Ore Body, and Orthophotography supplied by Kennecott via Golder Associates Inc., August, 2005.
 2. Horizontal datum based on NAD 83/94. Horizontal coordinates based on UTM Zone 16.
 3. Site Location - Project Site within Sections 11 & 12, T50N, R29W, Town of Michigamme, Marquette County, Michigan.

LEGEND

	Study Area
	Sections
	Ore Body



Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION
CHECKED BY:		AKM	DATE: APR. '07
APPROVED BY:		SVD1	DATE: APR. '07
APPROVED BY:			DATE:



**FIGURE 1-2
STUDY AREA**

Scale:	Date: APRIL, 2007
Prepared by: PEP1	Scope: 04W018