

ATTACHMENT 1

DNR Letter and Report Summary



Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

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St. Paul, Minnesota 55155-4025

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July 21, 2008

Mr. Joe Galluzzi
Sunde Engineering
10830 Nesbitt Avenue South
Bloomington, MN 55437

Re: Request for Natural Heritage information in the vicinity of the proposed Tiller Corporation Zavoral Mine, T32N R19W Sections 18 & 19, Washington County
Correspondence # : ERDB 20080847

Dear Mr. Galluzzi,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, several rare features have been documented within the search area (for details, see the enclosed database reports). Please note that the following **rare features may be impacted** by the proposed project:

- The forested area within the project site is part of a Regionally Significant Ecological Area (RSEA). **We encourage you to avoid or minimize disturbance in this area**, especially as it contains suitable habitat for rare species (see below). In 2003, the DNR Central Region, in partnership with the Metropolitan Council, conducted a landscape-scale assessment of the seven-county metro area that identified ecologically significant terrestrial and wetland areas. The mapping of RSEAs was done using two primary data sources. The first data source was native plant communities mapped by the Minnesota County Biological Survey. The remaining areas were derived using a modeling process that predicts the likelihood that high quality native animal habitats exist in a contiguous area. Shapefiles of the RSEAs are available on the DNR's data deli website at <http://deli.dnr.state.mn.us> (named "Twin Cities Metro Regionally Significant Ecological Areas"). To view pdf versions of the final maps, refer to <http://www.dnr.state.mn.us/rsea/index.html>. If you would like help interpreting the RSEA data, contact Hannah Texler, Regional Plant Ecologist for DNR's Central Region, at 651-772-7570 or hannah.texler@dnr.state.mn.us.
- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been reported from the area and may be encountered on site. If Blanding's turtles are found on the site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harms way, otherwise they should be left undisturbed.

For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. Please refer to the first list of recommendations for your project. If greater protection for turtles is desired, the second list of additional recommendations can also be implemented. The attached flyer should be given to all contractors working in the area.

- Red-shouldered hawks (*Buteo lineatus*), a state-listed species of special concern, have been documented during the breeding season in the vicinity of the project area. This species requires large, contiguous forest tracts interspersed with wetlands and prefers lowland woods and river bottoms. We recommend, to the extent possible, the retention of forest cover on the project site to help maintain habitat connectivity to other forest tracts in the area. In addition, disturbance near nests, if any, should be avoided during the critical nesting time (April and May).
- Several state-listed threatened and endangered mussel species have been documented in the St. Croix River in the vicinity of the proposed project. Because they are declining nationwide, freshwater mussels are considered one of North America's most imperiled groups of animals. In Minnesota, 25 of our 48 native mussel species are listed as either endangered, threatened, or of special concern. Mussels are particularly vulnerable to deterioration in water quality, especially increased siltation. As such, the mining project should not be allowed to negatively affect the water quality of the St. Croix River. Toward this end, a buffer of vegetation should remain between the mine and the river, and sound erosion and sediment control practices should be implemented and maintained for the duration of the project.
- Bog bluegrass (*Poa paludigena*) and kitten-tails (*Besseyia bullii*), both state-listed threatened plants, have been documented in the vicinity of the project area, and American ginseng (*Panax quinquefolius*), a state-listed plant species of special concern, has been documented within the project boundary. Minnesota's endangered species law (MS 84.0895) and associated rules (MR 6212.1800 -6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. For plants, taking includes picking, digging, or destroying.

In Minnesota, bog bluegrass is limited to wetland habitats maintained by groundwater seeps. These may include swamps, sedge meadows, margins of small pools, or rivulets of water. Such areas are often dominated by black ash (*Fraxinus nigra*), yellow birch (*Betula alleghaniensis*), and sometimes speckled alder (*Alnus incana* subsp. *Rugosa*). The Minnesota Land Cover Classification System has identified two black ash seepage swamps within the project boundary (please see attached map). We recommend that these seepage areas be avoided. If avoidance is not feasible, we recommend that a botanical survey of these communities be conducted prior to any ground disturbance.

In Minnesota, kitten-tails is largely restricted to the bluffs and terraces of the St. Croix, Mississippi, and Minnesota river valleys. This species is primarily a species of oak savanna communities, though it also occurs in dry prairies and oak woodlands. According to the Minnesota Land Cover Classification System a significant portion of the project boundary is white pine/hardwood forest (please see attached map), which is potential habitat for this species. Again, if avoidance of this habitat is not feasible, we recommend that a botanical survey be conducted prior to any ground disturbance in this habitat.

American ginseng requires mature hardwood forests with little undergrowth and was abundant in Minnesota at the time of European settlement. Since then, however, it has been intensively exploited for its commercial uses, and is now nearly extirpated from most of its former range. Species of special concern are not protected under the state endangered species law. Nevertheless, given the potential for special concern species to become threatened due to cumulative losses, we encourage you to survey for this species and to avoid any identified populations.

Please note that all surveys should be conducted by an individual with previous experience doing rare plant surveys. I have enclosed a list of qualified contractors for your reference. **Please send me a proposed survey plan prior to any survey work.** Feel free to contact Welby Smith, the

staff botanist, at 651-259-5142 for further information on survey protocol and timing for the above species. The results of any survey work should also be sent to my attention.

- The response to Item 11b of the EAW should address the measures that will be taken to avoid or minimize negative impacts to the rare features mentioned above.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area.

The enclosed results include an Index Report and a Detailed Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location information, which might result in the destruction of a rare feature, both reports are copyrighted.

The Index Report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index report for any other purpose, please contact me to request written permission. **The Detailed Report may include specific location information, and is for your personal use only. If you wish to reprint or publish the detailed report for any purpose, please contact me to request written permission.**

Please be aware that this letter focuses only on potential effects to *rare natural features*; there may be other natural resource concerns associated with the proposed project. This letter does not constitute review or approval by the Department of Natural Resources as a whole. If you would like further information on the environmental review process, please contact your Regional Environmental Assessment Ecologist, Wayne Barstad, at (651) 259-5738.

An invoice in the amount of \$113.78 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Lisa Joyal
Endangered Species Environmental Review Coordinator

enc. Rare Features Database: Index Report
Rare Features Database: Detail Report
Rare Features Database Reports: An Explanation of Fields
Blanding's Turtle Fact Sheet
Map
DNR List of Surveyors

cc: Wayne Barstad

The Division of Ecological Resources recently adopted a new database system called Biotics. As a result of this change, the layout and contents of the database reports have been revised. Many of the fields included in the new reports are the same or similar to the previous report fields, however there are several new fields and some of the field definitions have been slightly modified. We recommend that you familiarize yourself with the latest field explanations.

Rare Features Database Reports: An Explanation of Fields

The Rare Features Database (Biotics) is part of the Natural Heritage Information System, and is maintained by the Division of Ecological Resources, Minnesota Department of Natural Resources (DNR).

Please note that the print-outs are copyrighted and may not be reproduced without permission

Field Name: [Full (non-abbreviated) field name, if different]. Further explanation of field.

-E-

Element Name and Occ #: [Element Name and Occurrence Number]. The Element is the name of the rare feature. For plant and animal species records, this field holds the scientific name followed by the common name in parentheses; for all other elements (such as native plant communities, which have no scientific name) it is solely the element name. Native plant community names correspond to Minnesota's Native Plant Community Classification (Version 2.0). The Occurrence Number, in combination with the Element Name, uniquely identifies each record.

EO Data: [Element Occurrence Data]. For species elements, this field contains data collected on the biology of the Element Occurrence* (EO), including the number of individuals, vigor, habitat, soils, associated species, peculiar characteristics, etc. For native plant community elements, this field is a summary text description of the vegetation of the EO, including structure (strata) and composition (dominant/characteristic species), heterogeneity, successional stage/dynamics, any unique aspects of the community or additional noteworthy species (including animals). Note that this is a new field and it has not been filled out for many of the records that were collected prior to conversion to the new database system. Some of the information meeting the field definition may be found in the General Description field.

EO ID#: [Element Occurrence Identification Number]. Unique identifier for each Element Occurrence record.

EO Rank: [Element Occurrence Rank]. An evaluation of the quality and condition of an Element Occurrence (EO) from A (highest) to D (lowest). Represents a comparative evaluation of: 1) quality as determined by representativeness of the occurrence especially as compared to EO specifications and including maturity, size, numbers, etc. 2) condition (how much has the site and the EO itself been damaged or altered from its optimal condition and character). 3) viability (the long-term prospects for continued existence of this occurrence - used in ranking species only). EO Ranks are assigned based on recent fieldwork by knowledgeable individuals.

Extent Known?: A value that indicates whether the full extent of the Element is known (i.e., it has been determined through field survey) at that location. If null, the value has not been determined.

-F-

Federal Status: Status of species under the U.S. Endangered Species Act: LE = endangered; LT = threatened; LE,LT = listed endangered in part of its range, listed threatened in another part of its range; LT,PDL = listed threatened, proposed for delisting; C = candidate for listing. If null or "No Status" the species has no federal status.

First Observed Date: Date that the Element Occurrence was first reported at the site in format YYYY-MM-DD. A year followed by "Pre" indicates that the observed date was sometime prior to the date listed, but the exact date is unknown.

-G-

General Description: General description or word picture of the area where the Element Occurrence (EO) is located (i.e., the physical setting/context surrounding the EO), including a list of adjacent communities. When available, information on surrounding land use may be included. Note that the information tracked in this field is now more narrowly defined than it was in the old database system, and some of the information still in this field more accurately meets the definition of the new EO Data field. We are working to clean up the records so that the information in the two fields corresponds to the current field explanations described herein. Also note that the use of uppercase in sentences in this field is not significant but rather an artifact of transferring data from the old database system to the new system.

Global Rank: The global (i.e., range-wide) assessment of the relative rarity or imperilment of the species or community. Ranges from G1 (critically imperiled due to extreme rarity on a world-wide basis) to G5 (demonstrably secure, though perhaps rare in parts of its range). Global ranks are determined by NatureServe, an international network of natural heritage programs and conservation data centers.

-L-

Last Observed Date: Date that the Element Occurrence was last observed to be extant at the site in format YYYY-MM-DD.

Last Survey Date: Date of the most recent field survey for the Element Occurrence, regardless of whether it was found during the visit. If the field is blank, assume the date is the same as the Last Observed Date.

Location Description: County or Counties in which the Element Occurrence was documented followed by Township, Range, and Section information (not listed in any particular order). Each unique Township, Range, and Section combination is separated by a comma. In some cases, there are too many Township, Range, and Section combinations to list in the field, in which case, the information will be replaced with, "Legal description is too lengthy to fit in allotted space".

-M-

Managed Area(s): Name of the federally, state, locally, or privately managed park, forest, refuge, preserve, etc., containing the occurrence, if any. If this field is blank, the element probably occurs on private land. If "(Statutory Boundary)" occurs after the name of a managed area, the location may be a private inholding within the statutory boundary of a state forest or park.

MN Status: [Minnesota Status]. Legal status of plant and animal species under the Minnesota Endangered Species Law: END = endangered; THR = threatened; SPC = special concern; NON = tracked, but no legal status. Native plant communities, geological features, and colonial waterbird nesting sites do not have any legal status under the Endangered Species Law and are represented by a N/A.

-N-

NPC Classification (v1.5): Native plant community name in Minnesota's Native Vegetation: A Key to Natural Communities (Version 1.5). This earlier classification has been replaced by Minnesota's Native Plant Community Classification (Version 2.0).

-O-

Observed Area: The total area of the Element Occurrence, in acres, which is measured or estimated during fieldwork. If null, the value has not been determined.

Ownership Type: Indicates whether the land on which the Element Occurrence was located was publicly or privately owned; for publicly owned land, the agency with management responsibility is listed, if known.

-S-

Site Name: The name of the site(s) where the Element Occurrence is located. Sites are natural areas of land with boundaries determined and mapped according to biological and ecological considerations.

Survey Site #/Name: The name of the survey site, if applicable, where the Element Occurrence is located. Survey sites are sites that provide a geographic framework for recording and storing data, but their boundaries are not based on biological and ecological considerations. Minnesota County Biological Survey site numbers, if applicable, are also listed in this field.

Survey Type: Information on the type of survey used to collect information on the Element Occurrence.

Surveyor(s): Name(s) of the person(s) that collected survey information on the Element Occurrence.

State Rank: Rank that best characterizes the relative rarity or endangerment of the taxon or plant community in Minnesota. The ranks do not represent a legal status. They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are updated as inventory information becomes available. S1 = Critically imperiled in Minnesota because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. S2 = Imperiled in Minnesota because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. S3 = Vulnerable in Minnesota either because rare or uncommon, or found in a restricted range, or because of other factors making it vulnerable to extirpation. S4 = Apparently secure in Minnesota, usually widespread. S5 = Demonstrably secure in Minnesota, essentially ineradicable under present conditions. SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, but suspected to be still extant. An element would become SH without the 20-year delay if the only known occurrences in the state were destroyed or if it had been extensively and unsuccessfully looked for. SNR = Rank not yet assessed. SU = Unable to rank. SX = Presumed extinct in Minnesota. SNA = Rank not applicable. S#S# = Range Rank: a numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element. S#B, S#N = Used only for migratory animals, whereby B refers to the breeding population of the element in Minnesota and N refers to the non-breeding population of the element in Minnesota.

-V-

Vegetation Plot: Code(s) for any vegetation plot data that have been collected within this Element Occurrence (i.e., either Releve Number or the word "RELEVE" indicates that a releve has been collected).

* Element Occurrence – an area of land and/or water in which an Element (i.e., a rare species or community) is, or was, present, and which has practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. Specifications for each species determine whether multiple observations should be considered 1 Element Occurrence or 2, based on minimum separation distance and barriers to movement.

Data Security

Locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. For example, wildflowers such as orchids and economically valuable plants such as ginseng are vulnerable to exploitation by collectors; other species, such as bald eagles, are sensitive to disturbance by observers. For this reason, we prefer that publications not identify the precise locations of vulnerable species. We suggest describing the location only to the nearest section. If this is not acceptable for your purposes, please call and discuss this issue with the Endangered Species Environmental Review Coordinator at (651) 259-5109.

Minnesota Natural Heritage Information System: Rare Features Database

Index Report of records within 1 mile radius of:

Tiller-Zavoral

T32N R19W Sections 18 & 19

Washington County

Printed June 2008
Data valid for one year

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Chisago, Washington County, MN						
<u>Acipenser fulvescens</u> (Lake Sturgeon) #1 Location Description: T33N R19W S28, T30N R20W S28, T33N R19W S10, T33N R19W S22, T [...]		SPC	S3	G3G4	2004-09-08	14571
<u>Epioblasma triquetra</u> (Snuffbox) #1 Location Description: T34N R19W S36, T34N R19W S35, T33N R19W S2, T33N R19W S27, T [...]		THR	S2	G3	2004-08-25	10953
<u>Lampsilis higginsii</u> (Higgins Eye) #6 Location Description: T33N R19W S2, T34N R18W S30, T33N R19W S11, T34N R19W S25, T [...]	LE	END	S1	G1	2004-08-25	10964
<u>Quadrula fragosa</u> (Winged Mapleleaf) #2 Location Description: T34N R18W S30, T33N R19W S11, T32N R19W S30, T32N R19W S18, T [...]	LE	END	S1	G1	2007-10-01	10961
Washington County, MN						
<u>Acipenser fulvescens</u> (Lake Sturgeon) #106 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		SPC	S3	G3G4	1996-09-26	6484
<u>Actinonaias ligamentina</u> (Mucket) #12 Location Description: T32N R19W S19, T32N R19W S18		THR	S2	G5	2001-09	10537
<u>Actinonaias ligamentina</u> (Mucket) #211 Location Description: T32N R19W S30, T32N R19W S19		THR	S2	G5	2001-07-30	30001
<u>Actinonaias ligamentina</u> (Mucket) #221 Location Description: T32N R19W S7		THR	S2	G5	2001-09	29955
<u>Actinonaias ligamentina</u> (Mucket) #222 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		THR	S2	G5	2001-09	29964
<u>Alasmidonta marginata</u> (Elktoe) #94 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		THR	S2	G4	2001-09	29965
<u>Apalone mutica</u> (Smooth Softshell) #4 Location Description: T32N R19W S8, T32N R19W S7		SPC	S3	G5	1988-06-02	8607
<u>Besseyia bullii</u> (Kitten-tails) #88 Location Description: T32N R19W S19		THR	S2	G3	1993-09-01	18849
<u>Buteo lineatus</u> (Red-shouldered Hawk) #18 Location Description: T32N R19W S7, T32N R19W S18		SPC	S3B,SNRN	G5	1988-06-11	8753

Printed June 2008
Data valid for one year

Index Report of records within 1 mile radius of:

Tiller-Zavoral

T32N R19W Sections 18 & 19

Washington County

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Washington County, MN						
<u>Buteo lineatus</u> (Red-shouldered Hawk) #19 Location Description: T32N R19W S19		SPC	S3B,SNRN	G5	1988-06-11	8752
<u>Buteo lineatus</u> (Red-shouldered Hawk) #30 Location Description: T32N R19W S18		SPC	S3B,SNRN	G5	1982-06-23	9512
<u>Buteo lineatus</u> (Red-shouldered Hawk) #31 Location Description: T32N R19W S30, T32N R19W S19		SPC	S3B,SNRN	G5	1982-06-23	9513
<u>Buteo lineatus</u> (Red-shouldered Hawk) #32 Location Description: T32N R19W S30		SPC	S3B,SNRN	G5	1982-06-23	9514
<u>Carex typhina</u> (Cattail Sedge) #8 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		SPC	S3	G5	1987-07-07	872
<u>Cycleptus elongatus</u> (Blue Sucker) #7 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		SPC	S3	G3G4	1989-09-28	15749
<u>Cycleptus elongatus</u> (Blue Sucker) #8 Location Description: T32N R19W S32, T32N R19W S30, T32N R19W S19, T32N R19W S31		SPC	S3	G3G4	2004-09-08	15750
<u>Cycleptus elongatus</u> (Blue Sucker) #89 Location Description: T32N R19W S7		SPC	S3	G3G4	2000-08-22	27285
<u>Dendroica cerulea</u> (Cerulean Warbler) #51 Location Description: T32N R19W S7		SPC	S3B	G4	1988-06-15	16969
<u>Dendroica cerulea</u> (Cerulean Warbler) #104 Location Description: T32N R19W S30		SPC	S3B	G4	1970-07-01	23244
<u>Dry Bedrock Bluff Prairie (Southern) Type</u> #127 Location Description: T32N R20W S12, T32N R19W S7		N/A	S3	GNR	1987-05-07	7515
<u>Ellipsaria lineolata</u> (Butterfly) #28 Location Description: T32N R19W S19, T32N R19W S18		THR	S2	G4	2001-09	29985
<u>Ellipsaria lineolata</u> (Butterfly) #44 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		THR	S2	G4	2001-09	29966
<u>Elliptio dilatata</u> (Spike) #179 Location Description: T32N R19W S30, T32N R19W S19		SPC	S3	G5	2001-09	30000
<u>Elliptio dilatata</u> (Spike) #180 Location Description: T32N R19W S19, T32N R19W S18		SPC	S3	G5	2001-09	29981

Minnesota Natural Heritage Information System: Rare Features Database

Index Report of records within 1 mile radius of:

Tiller-Zavoral

T32N R19W Sections 18 & 19

Washington County

Printed June 2008 Data valid for one year
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Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Washington County, MN						
<u>Elliptio dilatata</u> (Spike) #191 Location Description: T32N R19W S7		SPC	S3	G5	2001-09	29956
<u>Elliptio dilatata</u> (Spike) #192 Location Description: T32N R19W S8, T32N R19W S17, T32N R19W S18		SPC	S3	G5	2001-09	29967
<u>Emydoidea blandingii</u> (Blanding's Turtle) #335 Location Description: T32N R20W S24, T32N R20W S13		THR	S2	G4	1988-05-14	8987
<u>Emydoidea blandingii</u> (Blanding's Turtle) #513 Location Description: T32N R19W S30, T32N R19W S19, T32N R20W S25		THR	S2	G4	1990-06-21	11313
<u>Freshwater Mussel Concentration Area</u> (Mussel Sampling Site) #202 Location Description: T32N R19W S19, T32N R19W S18		N/A	SNR	G3	1987-06-24	17831
<u>Hydrocotyle americana</u> (American Water-pennywort) #1 Location Description: T32N R20W S24, T32N R19W S30, T32N R20W S35, T32N R19W S31, T [...]		SPC	S3	G5	1946-09-06	4835
<u>Ichthyomyzon gagei</u> (Southern Brook Lamprey) #26 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		SPC	S3	G5	1996-09-26	24175
<u>Lasmigona costata</u> (Fluted-shell) #163 Location Description: T32N R19W S7, T32N R19W S18		SPC	S3	G5	2001-09	29963
<u>Ligumia recta</u> (Black Sandshell) #322 Location Description: T32N R19W S19, T32N R19W S18		SPC	S3	G5	2001-09	29982
<u>Ligumia recta</u> (Black Sandshell) #331 Location Description: T32N R19W S7		SPC	S3	G5	2001-09	29958
<u>Ligumia recta</u> (Black Sandshell) #332 Location Description: T32N R19W S19		SPC	S3	G5	2001-09	29996
<u>Obovaria olivaria</u> (Hickorynut) #120 Location Description: T32N R19W S19		SPC	S3	G4	2001-09	29997
<u>Obovaria olivaria</u> (Hickorynut) #128 Location Description: T32N R19W S7		SPC	S3	G4	2001-09	29959
<u>Panax quinquefolius</u> (American Ginseng) #9 Location Description: T32N R19W S30, T32N R19W S18, T32N R20W S13, T32N R20W S24, T [...]		SPC	S3	G3G4	1953-09-12	5184

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Index Report of records within 1 mile radius of:

Tiller-Zavoral
T32N R19W Sections 18 & 19
Washington County

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Washington County, MN						
<u>Panax quinquefolius</u> (American Ginseng) #42 Location Description: T32N R19W S7		SPC	S3	G3G4	1988-09-07	9333
<u>Panax quinquefolius</u> (American Ginseng) #43 Location Description: T32N R19W S19, T32N R19W S18		SPC	S3	G3G4	1988-09-07	9332
<u>Panax quinquefolius</u> (American Ginseng) #77 Location Description: T32N R20W S12, T32N R19W S7		SPC	S3	G3G4	1990-08-02	12087
<u>Percina evides</u> (Gilt Darter) #48 Location Description: T32N R19W S32, T32N R19W S30, T32N R19W S19, T32N R19W S31		SPC	S3	G4	2004-08-23	6204
<u>Pleurobema coccineum</u> (Round Pigtoe) #7 Location Description: T32N R19W S19, T32N R19W S18		THR	S2	G4G5	2001-09	14637
<u>Pleurobema coccineum</u> (Round Pigtoe) #118 Location Description: T32N R19W S7		THR	S2	G4G5	2001-09	29960
<u>Pleurobema coccineum</u> (Round Pigtoe) #122 Location Description: T32N R19W S18, T32N R19W S17		THR	S2	G4G5	2001-09	29968
<u>Poa paludigena</u> (Bog Bluegrass) #2 Location Description: T32N R19W S7		THR	S2	G3	1987-07-07	7418
<u>Quadrula metanevra</u> (Monkeyface) #11 Location Description: T32N R19W S19, T32N R19W S18		THR	S2	G4	2001-09	10460
<u>Quadrula metanevra</u> (Monkeyface) #52 Location Description: T32N R19W S19		THR	S2	G4	2001-09	29998
<u>Quadrula metanevra</u> (Monkeyface) #57 Location Description: T32N R19W S7, T32N R19W S18		THR	S2	G4	2001-09	29961
<u>Quadrula metanevra</u> (Monkeyface) #59 Location Description: T32N R19W S18, T32N R19W S17		THR	S2	G4	2001-09	29969
<u>Red Oak - Sugar Maple - Basswood - (Bluebead Lily) Forest Type</u> #10 Location Description: T32N R19W S7		N/A	S4	GNR	1987-05-07	7543
<u>Seepage Meadow (South), Southeast Subtype</u> #4 Location Description: T32N R19W S7		N/A	S2	GNR	1988-06-09	7512
<u>Seiurus motacilla</u> (Louisiana Waterthrush) #7 Location Description: T32N R19W S7, T32N R19W S18		SPC	S3B	G5	1988-06-11	8776

Minnesota Natural Heritage Information System: Rare Features Database

Index Report of records within 1 mile radius of:

Tiller-Zavoral

T32N R19W Sections 18 & 19

Washington County

Printed June 2008 Data valid for one year
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Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Washington County, MN						
<u>Seiurus motacilla</u> (Louisiana Waterthrush) #8 Location Description: T32N R19W S19		SPC	S3B	G5	1988-06-11	8732
<u>Seiurus motacilla</u> (Louisiana Waterthrush) #12 Location Description: T32N R20W S12, T32N R19W S7		SPC	S3B	G5	2002-06-15	8736
<u>Silver Maple - (Virginia Creeper) Floodplain Forest Type</u> #15 Location Description: T32N R19W S8, T32N R19W S18, T32N R19W S17, T32N R19W S7		N/A	S3	GNR	1987-07-07	7521
<u>Southern Wet Ash Swamp Class</u> #3 Location Description: T32N R19W S7		N/A	S2	GNR	1987-07-07	7637
<u>Spikerush - Bur Reed Marsh (Northern) Type</u> #1137 Location Description: T32N R19W S18		N/A	S4	GNR	1987-07-07	7533
<u>Tritogonia verrucosa</u> (Pistolgrip) #55 Location Description: T32N R19W S19		THR	S2	G4G5	2001-09	29999
<u>Tritogonia verrucosa</u> (Pistolgrip) #56 Location Description: T32N R19W S19, T32N R19W S18		THR	S2	G4G5	2001-09	29983
<u>Tritogonia verrucosa</u> (Pistolgrip) #60 Location Description: T32N R19W S7, T32N R19W S18		THR	S2	G4G5	2001-09	29962
<u>Tritogonia verrucosa</u> (Pistolgrip) #61 Location Description: T32N R19W S18, T32N R19W S17		THR	S2	G4G5	2001-09	29970
Non-MN County - Located just outside Minnesota in adjacent jurisdiction(s).						
<u>Haliaeetus leucocephalus</u> (Bald Eagle) #139 Location Description: Just outside Minnesota in adjacent jurisdiction(s).		SPC	S3B,S3N	G5	1994	13697
<u>Haliaeetus leucocephalus</u> (Bald Eagle) #230 Location Description: Just outside Minnesota in adjacent jurisdiction(s).		SPC	S3B,S3N	G5	1989	10374
<u>Haliaeetus leucocephalus</u> (Bald Eagle) #246 Location Description: Just outside Minnesota in adjacent jurisdiction(s).		SPC	S3B,S3N	G5	1989-Pre	10375
<u>Haliaeetus leucocephalus</u> (Bald Eagle) #1163 Location Description: Just outside Minnesota in adjacent jurisdiction(s).		SPC	S3B,S3N	G5	1989-Pre	15840

Records Printed = 70

Zavoral Mine
T32N R19W Sections 18 & 19
Washington County

-  Project Boundary
- MLCCS communities
-  White pine-hardwood forest
-  Black ash swamp seepage subtype

