



# PAC Meeting 2

## Zavoral Mine & Reclamation Project EIS

April 27, 2010



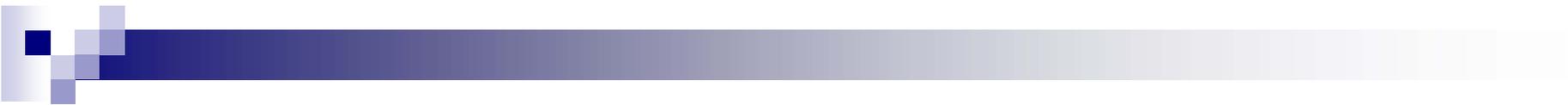
# Biological Assessment



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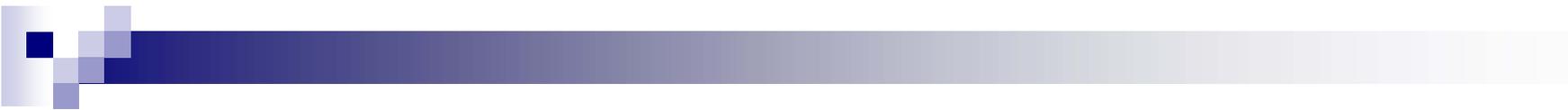
## Jason Husveth, Principal Ecologist

- 15 years professional and research experience conducting rare species surveys, biological and ecological assessments
- Minnesota DNR Approved Surveyor
- Office in Scandia, conduct surveys throughout the Upper Midwestern States and elsewhere in the continental US, having surveyed hundreds of thousands of acres for rare features
- Have completed surveys for dozens of mining sites throughout Minnesota



# Biological Assessment

- At the request of the Minnesota DNR, a biological assessment of the Zavoral property was completed
- Based on historic records of rare species occurrences within the area, the DNR requested that biological field surveys for five species be conducted
- This list was generated by the DNR from a query of the MN DNR NHIS Biotics database, and a cursory analysis of the Zavoral Property's landscape
- If potential habitat was present for additional rare species, CCES surveyed for these species that were not included in the MN DNR's database query or letter



At the request of the Minnesota DNR, rare species that were specifically surveyed for at the Zavoral Property included:

- Kitten Tails (*Besseya bullii*)  
Vascular Plant, MN Threatened
- Bog Bluegrass (*Poa paludginea*)  
Vascular Plant, MN Threatened
- American Ginseng (*Panax quinquefolius*)  
Vascular Plant, MN Special Concern
- Red Shouldered Hawk (*Buteo lineatus*)  
Bird/Raptor MN Special Concern
- Blanding's Turtle (*Emydoidea blandingii*)  
Reptile, MN Threatened
- When present, potential habitats for other rare species populations were also surveyed

**Kitten Tails (*Besseya bullii*)**  
Vascular Plant, MN Threatened



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MN DNR



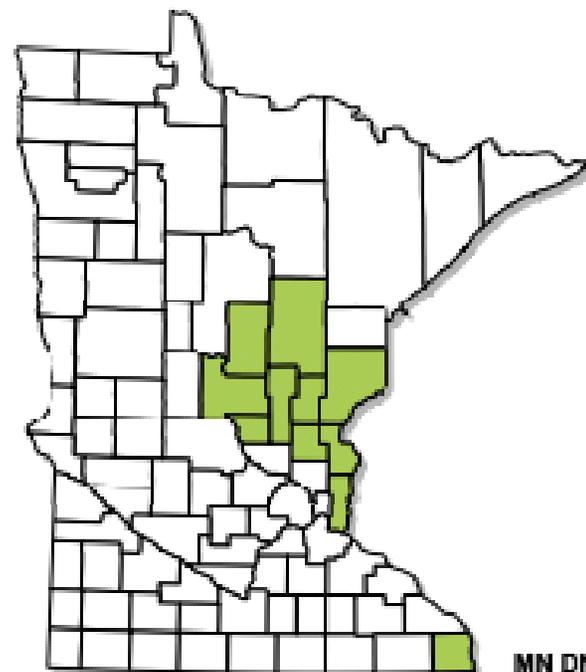
MN DNR



**Bog Bluegrass (*Poa paludginea*)**  
**Vascular Plant, MN Threatened**



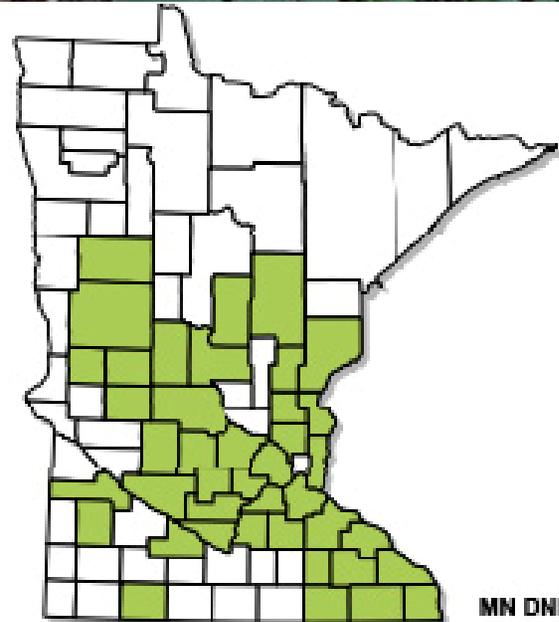
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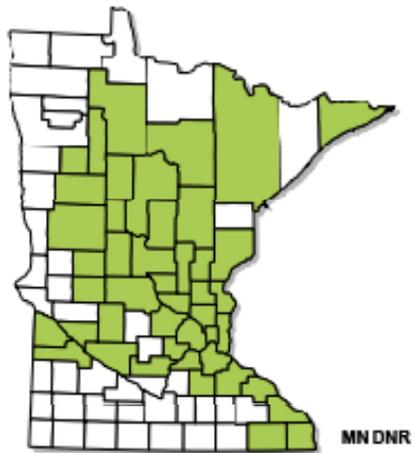


MN DNR

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**American Ginseng (*Panax quinquefolius*)**  
**Vascular Plant, MN Special Concern**





© Wayne Hass, MNDNR

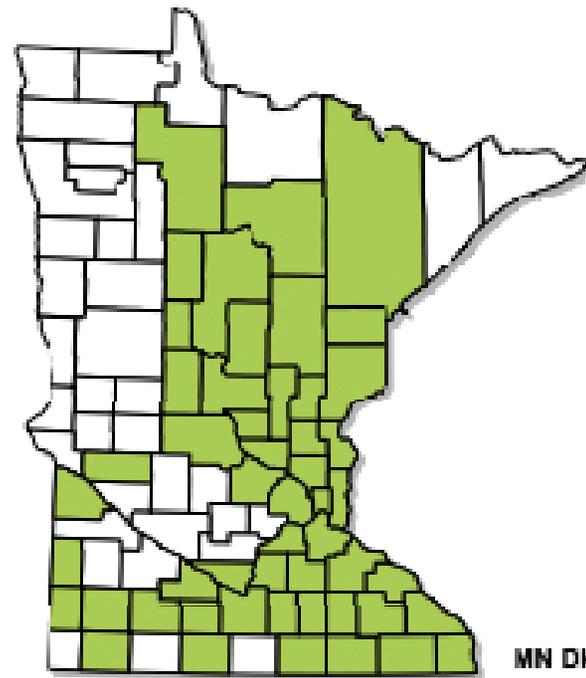
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**Red Shouldered Hawk (*Buteo lineatus*)**  
**Bird/Raptor MN Special Concern**

**Blanding's Turtle (*Emydoidea blandingii*)**  
**Reptile, MN Threatened**



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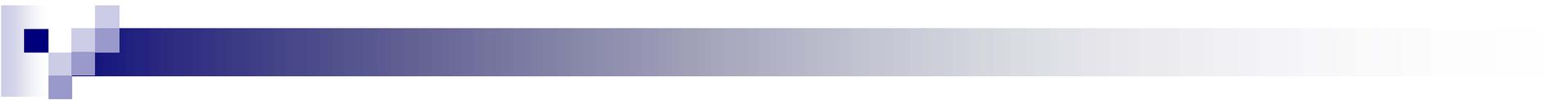
MN DNR



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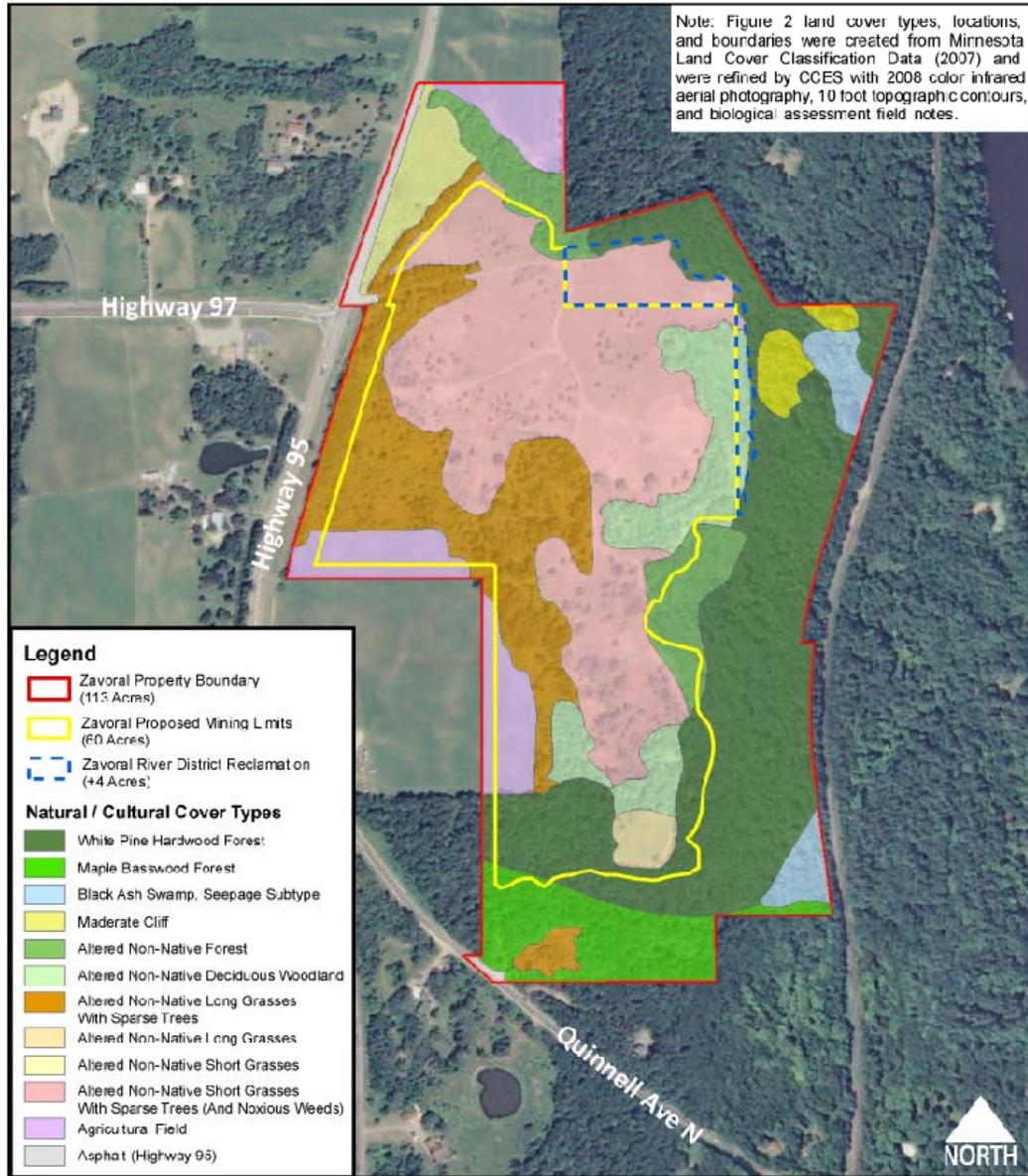


# Methods & Standards Used



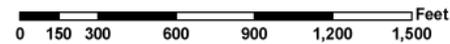
## Survey Methods and Standards

- Methods and standards for the biological assessment of the Zavoral Property follow methods and standards developed by and used by the Minnesota DNR, Ecological Services, and County Biological Survey
- Pre-Survey Preparation (e.g. research and remote sensing)
- Proper phenology and knowledge of life history requirements and species autecology is critical
- Vascular plant surveys described
- Blanding's turtle surveys described
- Red shoulder hawk surveys described
- CCES surveyed for other listed / rare species when potential habitat is present within a site



**Zavoral Property Cover Type Map**

Aerial Photo Source: 2008 FSA Color Aerial Photograph  
December 16, 2009



**Critical Connections  
Ecological Services, Inc.**  
14760 Oakhill Road • Scandia, Minnesota 55073  
P: 651.433.4410 F: 651.433.4528 E: info@ccesinc.com

**Figure 2**



# Assessment Results (and their significance)



# Results

- Rare species detected: none of the DNR target species were detected, however, CCES detected a population of Butternut (*Juglans cinerea*) on the property.
  - Vascular Plant, Deciduous Tree, MN Special Concern
  - 33 Individuals, Show Location Map and Photographs
  - All but one showed signs of disease due to Butternut Canker
- Endangered, Threatened, Special Concern species and status explained, and level of legal protection in MN
- Results of Additional Ecological Assessment
  - Zavoral Property Land Cover
  - Zavoral Property Natural Community Types



# MN Endangered Species Statute

## 84.0895 PROTECTION OF THREATENED AND ENDANGERED SPECIES

- **Endangered:**

A species is considered **endangered** if the species is threatened with extinction throughout all or a significant portion of its range within Minnesota. Protected by statute.

- **Threatened:**

A species is considered **threatened** if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota. Protected by statute.

- **Special Concern:**

A species is considered a species of **special concern** if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations. Not protected by statute.

Zavoral Rare Species Report Photos 2009

Butternut, *Juglans cinera*



17.5" dbh butternut



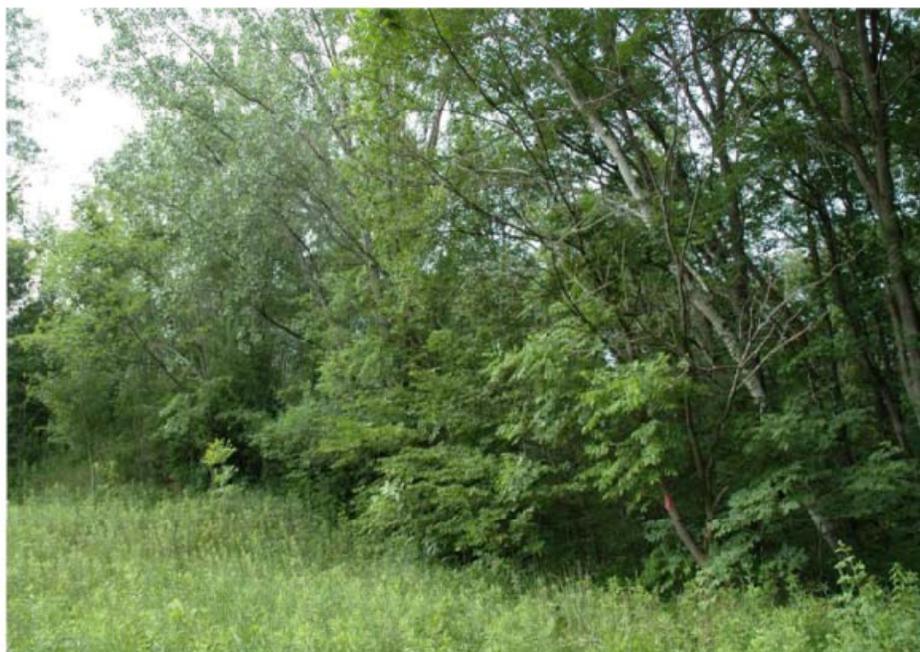
Leaflet of butternut



Seeds of butternut



Woodland edge habitat (butternut with pink flagging, lower right)

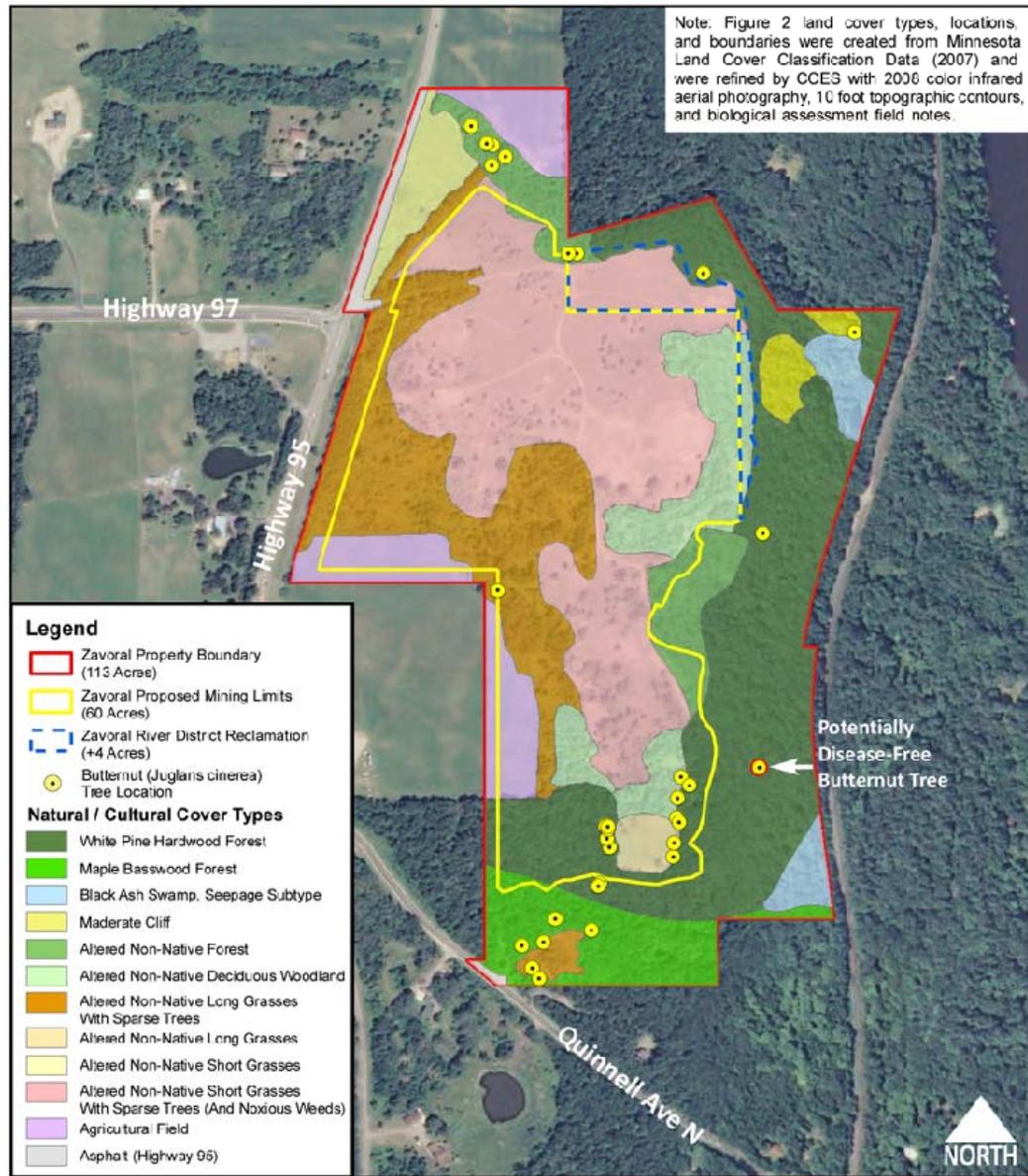


Butternut with cankers on main trunk



Close-up of infected butternut branch





Aerial Photo Source: 2008 FSA Color Aerial Photograph  
December 16, 2009

### Zavoral Property Rare Species Locations



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14760 Oakhill Road - Scandia, Minnesota 55073  
P: 651.433.4410 F: 651.433.4528 E: info@cceinc.com



Figure 3



# Follow Up Work



# Follow Up Work

- Call back surveys for Red Shoulder Hawks, May 2010
- Development of a forest stewardship plan
  - Management and improvement of forest resources outside/adjacent to proposed mining areas,
  - Stewardship plan would dovetail with reclamation plan for proposed mining areas
  - Management of Butternut Canker to salvage and protect remaining healthy population of Butternut trees
- Results of biological and ecological assessments will be used as the basis for the design and development of the mining reclamation plan (e.g. invasive species management) and forest stewardship plan