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## Technical Memorandum

**To:** Jim Scott  
**From:** Daniel Jones  
**Subject:** Results of sensitive plant species surveys along Dunka Road and Pipeline Route  
**Date:** Revised February 3, 2012 (original date: August 8, 2008)  
**Project:** 2369862  
**c:** John Borovsky

Surveys were conducted between June 24 and July 11, 2008 along the segments of Dunka Road and the proposed pipeline alignment from the west end of the mine site to the plant area. These surveys identified six locations with small populations of the state-endangered plant species *Botrychium pallidum*. This technical memorandum details the schedule, methods and results of the road and pipeline sensitive plant species survey.

### Survey schedule

Surveys were initiated on June 24, 2008, but were suspended due to the incomplete development of the *Botrychium* species that were found. The 2008 growing season began more slowly than normal, especially in northern Minnesota. By June 24, key identifying features on the *Botrychium* plants that were found had not fully developed, making reliable identification difficult. The June 24<sup>th</sup> survey was suspended for this reason.

The survey was resumed on June 28<sup>th</sup>. Plants had developed sufficiently to be identified, and the survey of the eastern half of the road and pipeline alignment was completed. The remainder of the alignment was completed on July 11, 2008.

Survey methods involved walking the proposed Dunka Road and pipeline alignments, searching for listed species. Populations of listed species were recorded with a GPS unit, photographed and documented in the botanists' field notes.

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**Results**

Small populations of the state-endangered Pallid moonwort (*Botrychium pallidum*) were identified in six locations along the road and pipeline alignment (see Figure 1). All were within 25' of the edge of Dunka Road, generally growing in the transition between roadside vegetation and the edge of forested areas. Associated vegetation was typically hawkweeds (*Hieracium* sp.), goldenrods (*Solidago* sp.), red and white clover (*Trifolium pratense* and *T. repens*), wild strawberry (*Fragaria virginiana*), oxeye daisy (*Leucanthemum vulgare*), brome (*Bromus inermis*), bluegrass (*Poa* sp.) and timothy (*Phleum pratense*). Adjacent trees were young balsam poplar (*Populus balsamifera*), quaking aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*). The pallid moonwort populations were small, generally 2-4 individuals per location. In all, sixteen individuals were found among the six locations.

**Discussion**

All six locations will be removed by improvements to Dunka Road. Impacts to these populations are unavoidable. Therefore, under Minnesota Rules 6212.1800, a takings permit will be required prior to initiation of improvements to the road.

*Botrychium pallidum* is currently listed as an endangered species in Minnesota. The DNR is currently in the process of revising the state list. Under the proposed revisions, *Botrychium pallidum*'s status would be revised to special concern. The Minnesota takings rules do not apply to special concern species. The revised list was scheduled to be approved in early 2008. However, I contacted Rich Baker at DNR on August 8, 2008, and was told that the rulemaking process for the revisions would not be complete before January 1, 2009 at the earliest. Moreover, the list of proposed changes may not be approved in its entirety. Each proposed change will be evaluated individually, with some being accepted and others rejected.

The uncertain future status of *Botrychium pallidum* opens up several options for proceeding with permitting. The first is to assume that no change will occur, either through further delays or rejection of the proposed change in status for *Botrychium pallidum*. Under this assumption, we should proceed with preparing the takings permit application and submitting it to DNR.

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A second option is to wait to see whether DNR does indeed complete the rulemaking process near the beginning of 2009, and that *Botrychium pallidum* is moved to special concern. In that event, there would be no need for a takings permit.

The principal advantage to waiting is that, if the species is reduced in status, we can not only avoid the permit, but we will not have to negotiate mitigation of the loss. Mitigation of lost *Botrychium* populations is complicated, and DNR in recent years has had no clear, consistent policy as to what constitutes acceptable mitigation.