



June 25, 2010

Scott Slagley
AECOM
4840 Cox Road
Glen Allen, Virginia 23060

Re: **Summary Report**
Detailed Survey for Small Whorled Pogonia (*Isotria medeoloides*)
Blanton's Powerline Conservation Site, Caroline County, Virginia
WEG Project #4317A

Dear Mr. Slagley:

This report summarizes habitat investigations and detailed surveys for the federal-listed threatened and state-listed endangered small whorled pogonia (*Isotria medeoloides*) by Williamsburg Environmental Group, Inc. (WEG), for the Blanton's Powerline Conservation Site in Caroline County, Virginia. The approximate 49-acre site is located within the South River drainage basin, south of Blanton's Road (Route 604), and west of Countyline Church Road (Route 603). The survey area includes a portion of the right-of-way between towers 67 and 71 along transmission line 575, in addition to forested and open-field areas lying directly adjacent to the north and south.

Chris Senfield of WEG, who is listed by the U.S. Fish and Wildlife Service (FWS) as a survey contact for the small whorled pogonia (SWP), conducted this survey in accordance with habitat criteria specific to the plant. The following sections will present a brief description of the plant, the methodology utilized, and the results of this habitat survey for SWP.

Species Description – SWP is a self-pollinating perennial orchid (Family: Orchidaceae), four to twelve inches in height, with a characteristic whorl of five to seven leaves at the summit of a singular, hollow, pale green stem with one or two pale yellowish-green irregular flowers (Mehrhoff 1983, Gleason and Cronquist 1991, Vitt and Campbell 1997). Morphologically similar species include large whorled pogonia (*Isotria verticillata*) and Indian cucumber root (*Medeola virginiana*), the former distinguished from SWP by a reddish-purple stem and the latter by a wiry stem with cotton-like hairs (Ware 1991).

Habitat Factors – SWP occupies a very specific habitat type within its range. In particular, the species seems to require the following conditions: mature, mixed hardwood, upland forests; generally open understory conditions with minimal aggressive ground level species; generally level to moderately sloping land within shallow upland draws often, but not always, of northerly or easterly exposure; scattered ground-level sunlight; and, acidic, sandy loam soils (Ware 1991, Gleason and Cronquist 1991, Weakley 2010). In addition, many professionals have noted a prevalence of decaying logs and a well-developed detritus layer on the forest floor. These attributes tend to be present with the species when found, although the exact mechanisms associated with each affinity are not understood (Ware 1991).

Certain indicator species, among others, may also be helpful in identifying small whorled pogonia habitat, such as large whorled pogonia, strawberry bush (*Euonymus americanus*), tick trefoil (*Desmodium* spp.), and wintergreen (*Chimaphila maculata*). These species, among others, are considered associates, and occur frequently near documented SWP colonies. It should be noted that the absence of one or even several of the above-referenced habitat criteria does not necessarily preclude the species from occurring on a particular site. A habitat determination should therefore be based upon the experience of a qualified professional.

Methodology – A detailed field survey for the SWP was conducted on June 3, 2010, a time frame that occurs within the sampling window suggested by the FWS (approximately June 1st through July 20th in Caroline County, Virginia). During this time, the target species may be identified in vegetative phase (i.e. without flower or fruit). The normal vegetative cycle is late spring to mid summer.

This SWP detailed survey was conducted using general ground reconnaissance of the property boundary and all interior upland slopes. Notes were taken regarding cover types, community assemblages, slope aspect and grade, associate species, substrate, and other relevant information concerning habitat quality. Such reconnaissance and data collection allows for grouping of various regions into general habitat types: suitable, marginal, or poor, based on the presence of favorable habitat conditions for the target species. These categories represent the relative degree to which areas express favorable site attributes for the target species. Suitable habitat is present in areas that retain most of the habitat factors described above. Marginal habitat occurs in somewhat degraded areas, but based on professional judgment may still support the target species. Poor habitat is not sufficient for SWP colonization.

Detailed survey methods typically include utilization of contour transects. For the survey of potential habitat areas, a baseline is established and transects are walked parallel to the baseline on approximately 15-foot spacing, to ensure that the visual ranges of adjacent transects are overlapping. Each transect set is marked with flagging as it is searched, to ensure that subsequent transects are not established off course from the baseline. In areas determined to have marginal habitat for the species, a combination of transects and areal spot-checks are employed where topography, canopy density, and understory density reflect improved habitat.

Results – No SWP individuals were found within the survey area at the Blanton's Powerline Conservation Site. Several areas of marginal habitat are located within the forested portions of the site. The attached Small Whorled Pogonia Habitat Map depicts the approximate locations of these marginal habitat areas.

Marginal SWP habitat in the survey area has degraded quality for several reasons. Common degradation factors include poorly developed detritus on the forest floor, dense shrub communities in the understory, inappropriate slope aspects, few associate species, reduced or absent decomposing woody debris, and increased light penetration from the surrounding open areas. Forested communities within marginal habitat areas identified are generally composed semi-mature to mature hardwood tree species in the canopy. The overstory is generally

dominated by tulip tree (*Liriodendron tulipifera*), white oak (*Quercus alba*), hickory (*Carya* spp.), northern red oak (*Quercus rubra*), and southern red oak (*Quercus falcata*). Tree species in the understory include some saplings from overstory species, in addition to black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), American holly (*Ilex opaca*), ironwood (*Carpinus caroliniana*), and flowering dogwood (*Cornus florida*). Shrub species in the understory include dense communities of American holly, interspersed with sassafras (*Sassafras albidum*), deerberry (*Vaccinium stamineum*), arrowwood (*Viburnum dentatum*), and small canopy species. The herbaceous stratum is composed of seedlings from the aforementioned tree and shrub species, Virginia creeper (*Parthenocissus quinquefolia*), catbrier (*Smilax glauca*), roundleaf greenbrier (*Smilax rotundifolia*), huckleberry (*Gaylussacia baccata*) trailing club moss (*Lycopodium digitatum*), partridge berry (*Mitchella repens*), and bellwort (*Uvularia* spp.). Associates species scattered in the herbaceous strata include, striped prince's pine (*Chimaphila maculata*), lowbush blueberry (*Vaccinium pallidum*), strawberry bush (*Euonymus americana*), tick trefoil (*Desmodium* spp.), and one large whorled pogonia.

The remainder of the survey area is considered poor, or inappropriate, SWP habitat, due to one or more limiting factors. Limiting factors include the absence of forested communities within the transmission line corridor, agricultural land use, high density pine-dominated forests, immature forest communities, and wetland habitats.

Conclusion – In summary, the results of this study show that SWP was not present within the survey area at the Blanton's Powerline Conservation Site. This report provides a summary of WEG's findings during the detailed survey for SWP for the purpose of inclusion with Dominion Virginia Power's Joint Permit Application. If you have any questions regarding the information presented herein, please feel free to call at your convenience.

Sincerely,



Chris Senfield
Ecologist II

Enclosures

References Cited

Gleason, H. A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. New York Botanical Garden, Bronx, New York. p. 828.

Mehrhoff, L. A. III. 1983. Pollination in the genus *Isotria* (Orchidaceae). *American Journal of Botany* 70:1444-1453.

Vitt, P. and C. S. Campbell. 1997. Reproductive biology of *Isotria medeoloides* (Orchidaceae). *Rhodora* 99:56-63.

Ware, D. M. E. 1991. Small Whorled Pogonia, *Isotria medeoloides* (Pursh) Rafinesque. In *Virginia's Endangered Species*, K. Terwilliger, ed. McDonald and Woodward, Blacksburg, Virginia.

Weakley, A. S. 2010. *Flora of the Carolinas and Virginia*. Working draft. UNC Herbarium, University of North Carolina, Chapel Hill, NC.

49.00 ACRES ±

BLANTONS ROAD (ROUTE 604)

313

312

604

SURVEY LIMITS

308

302

INTYLINE CHURCH ROAD (ROUTE 603)

