



November 16, 2009

Scott Slagley
AECOM
4840 Cox Road
Glen Allen, Virginia 23060

**Re: Habitat Survey for the Epling's Hedge-nettle (*Stachys eplingii*) and Small Whorled Pogonia (*Isotria medeoloides*)
Blantons Powerline Conservation Site, Caroline County, Virginia
WEG Project #4317A**

Dear Mr. Slagley:

This report follows a habitat investigation for the Epling's Hedge-nettle (*Stachys eplingii*) and the federal-listed threatened and state-listed endangered small whorled pogonia (*Isotria medeoloides*) by Williamsburg Environmental Group, Inc. (WEG), for the Blantons Powerline Conservation Site in Caroline County, Virginia. The approximate 49-acre site is located within the South River drainage basin, south of Blantons 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. The approximate survey limits are depicted on the Epling's Hedge-nettle Habitat Map and the Small Whorled Pogonia Habitat Map (Attachments).

Chris Senfield of WEG, who is endorsed by the U.S. Fish and Wildlife Service (FWS) as a survey contact for the small whorled pogonia (SWP), conducted the habitat surveys. Surveys were conducted in accordance with habitat criteria specific to each plant. The following sections, starting with Epling's Hedge-nettle, will present a brief description of the plants, the methodology utilized, and the results of this habitat survey for Epling's Hedge-nettle and SWP.

Epling's Hedge-nettle

Species Description – Epling's Hedge-nettle is a perennial herb in the mint family (Lamiaceae), twenty to forty inches in height, with opposite, finely toothed leaves. Flowers are produced annually in early summer months, typically June or July. The inflorescence consists of generally 8 or more white irregular flowers, with purple/lavender spots or lines, growing in interrupted racemes (Gleason and Cronquist 1991, Godfrey and Wooten 1979). Other hedge-nettle species have a morphological similarity, which has been a cause for confusion in nomenclature in the past (Nelson and Fairey 1979). However, Epling's Hedge-nettle can be distinguished by short or absent petioles, leaf shape, and structure of hairs along the stem (Godfrey and Wooten 1979, Weakley 2008).

Habitat Description – Epling's Hedge-nettle seems to occupy a variety of habitat types and is sporadically distributed within its southeastern United States range. It is associated with several montane habitats of Georgia, North Carolina, South Carolina, and Virginia, including mesic

forests, bogs, and wet meadows, often occurring over calcareous or mafic substrates (Weakley 2008). The species has also been observed at lower elevations, with specimens noted near Washington D.C. (Nelson and Fairey, 1979) and within Caroline County, Virginia (Virginia Botanical Associates, 2009).

Methodology – Habitat surveys for Epling's hedge-nettle can occur year-round due to the variety of habitat types in which it has been observed. The purpose of this type of survey is to identify portions of a site where preferable habitat types or attributes may be present. Observations of existing habitat on the Blantons Powerline Conservation Site occurred during general site reconnaissance on November 5, 2009. During this time, notes were taken regarding cover types and community assemblages, and general observations were made regarding moisture regime of habitat types identified. Data gathered on-site was combined with off-site research performed to ascertain types of soil and substrate historically recorded within the survey area. This aspect was performed using the Soil Survey for Caroline County, Virginia, as prepared by the Natural Resources Conservation Service (NRCS).

Results – Potential habitat for Epling's Hedge-nettle was found within the Blantons Powerline Conservation Site. Areas of potential habitat are generally depicted on the attached Epling's Hedge-nettle Habitat Map. A portion of active agricultural field, located in the northeast portion of the site, was not included as potential habitat due to frequency of disturbance to the vegetative community and its underlying soil substrate.

Potential habitat identified includes woodland vegetation communities located to the north and south of the transmission line corridor. The majority of these communities can be identified as semi-mature to mature hardwood assemblages, with gently to moderately sloping topography. Additionally, the herbaceous vegetation community within the transmission line corridor was also identified as potential habitat. Regular maintenance within the transmission line corridor likely contributes to the meadow-like vegetative assemblage, limiting development of field succession. Both wooded and open areas have a range of moisture regimes, including hydric conditions in headwater wetland seepages, mesic conditions within shallow depressional swales, and xeric conditions near the highest point of the land. Signs of surface water influence seemed increased throughout the site, as a result of either water retention within disturbed, compacted soil or runoff from agricultural fields. Slopes are generally underlain by the Helena-Applying Complex soil type, portions of which have mafic substrates associated with parent material.

Small Whorled Pogonia

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 2008). 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 – The normal vegetative cycle of SWP is late spring to mid summer. Thus, the FWS will only accept detailed survey data collected within a certain season (approximately June 1st through July 20th in Caroline County, Virginia). Outside of this time frame, qualified survey contacts may conduct habitat surveys using the guidelines listed above to determine whether a particular site contains potential habitat for the species. The purpose for this type of survey is to identify portions of the site that may require in-season detailed surveys for the species. The out-of-season preliminary habitat survey conducted by WEG on this site occurred on November 5, 2009.

This SWP habitat survey was conducted using general ground reconnaissance of the project 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 identification of potential SWP habitat, based on the presence of favorable habitat conditions for the target species.

Results – Potential SWP habitat was found within the Blantons Powerline Conservation Site. Areas of potential habitat are generally depicted on the attached Small Whorled Pogonia Habitat Map. Potential habitat is limited to semi-mature and mature upland forests comprised of hardwood and mixed hardwood vegetative communities. These communities are located both to the north and south of the existing transmission line. Typical vegetation observed in these communities includes white oak (*Quercus alba*), northern red oak (*Quercus rubra*), hickory (*Carya* spp.), tulip poplar (*Liriodendron tulipifera*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), eastern red cedar (*Juniperus virginiana*), huckleberry (*Gaylussicia* spp.) and wintergreen. Additionally, these communities are generally flat to gently sloping, with relatively open understories, presence of decomposing woody debris, and well developed detritus.

The remainder of the project area can be considered of poor habitat condition, with no current potential for SWP habitat. Community types with poor habitat conditions include a small area of pine-dominated forest, agricultural fields, maintained herbaceous meadow within the existing transmission line right-of-way, and existing roads. These communities are considered poor SWP habitat due to age structure, lack of appropriate vegetative structure, aggressive vegetative competition, improper moisture regime, regular disturbance, etc, and preclude potential for SWP habitat.

In summary, potential habitat for both Epling's Hedge-nettle and SWP exists within the Blantons Powerline Conservation Site. WEG recommends a detailed in-season survey (June 1st to July 20th) to determine if SWP is present. WEG also recommends a detailed survey for Epling's Hedge-nettle during the same timeframe, which falls within the plant's period of annual flower production. If you have any questions regarding the information presented herein, please feel free to call at your convenience. We appreciate the opportunity to provide these environmental services to AECOM and Dominion Virginia Power.

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.
- Godfrey, R. K. and J. W. Wooten. 1979. *Aquatic and Wetland Plants of Southeastern United States: Dicotyledons*. University of Georgia Press, Athens, GA. p. 621
- Mehrhoff, L. A. III. 1983. Pollination in the genus *Isotria* (Orchidaceae). *American Journal of Botany* 70:1444-1453.
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- Weakley, A. S. 2008. *Flora of the Carolinas and Virginia*. Working draft. UNC Herbarium, University of North Carolina, Chapel Hill, NC.

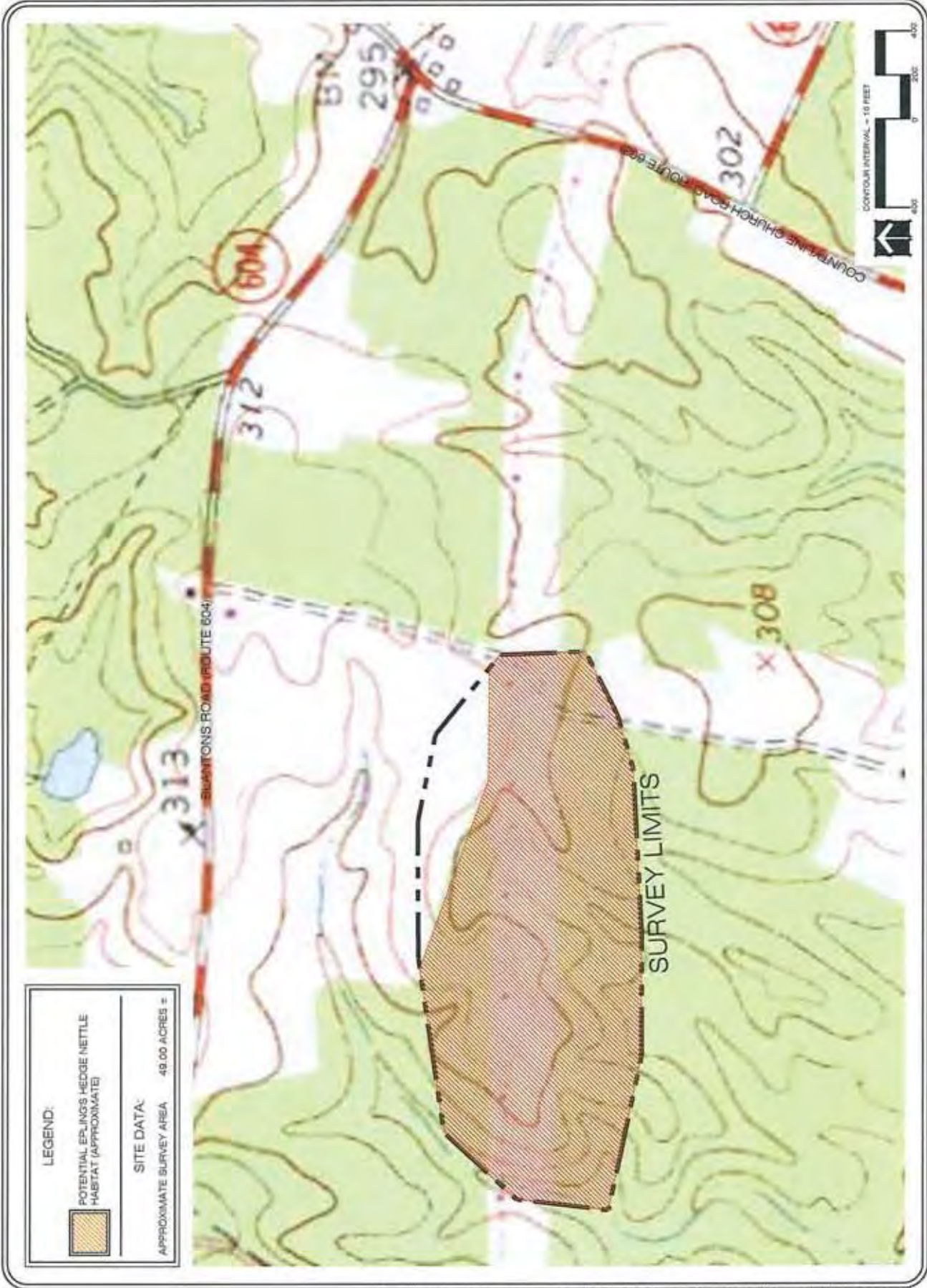
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**EPLING'S HEDGE-NETTLE
 HABITAT MAP
 BLANTONS POWERLINE
 CONSERVATION SITE
 CAROLINE COUNTY, VIRGINIA**

DATE: NOVEMBER 18, 2008
 JOB NUMBER: 4317A
 SCALE: 1 INCH = 400 FEET
 SOURCE: BASE MAP PROVIDED BY MAPTECH



LEGEND:

 POTENTIAL EPLING'S HEDGE NETTLE HABITAT (APPROXIMATE)

SITE DATA:

APPROXIMATE SURVEY AREA 49.00 ACRES ±

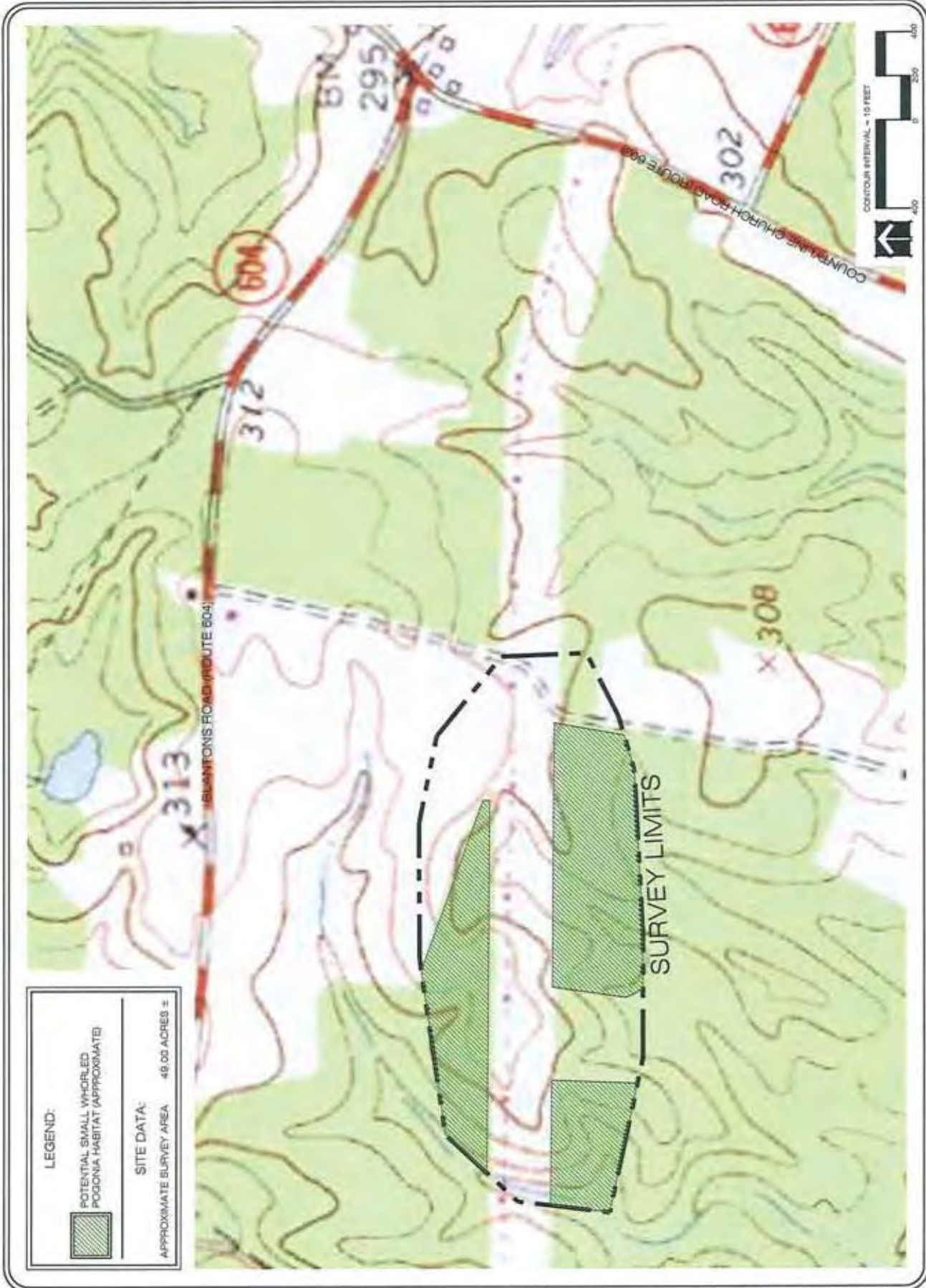
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**SMALL WHORLED POGONIA
 HABITAT MAP
 BLANTONS POWERLINE
 CONSERVATION SITE
 CAROLINE COUNTY, VIRGINIA**

DATE: NOVEMBER 9, 2009
 JOB NUMBER: 4317A
 SCALE: 1" = 400 FEET
 SOURCE: BASE MAP PROVIDED BY MAPTECH



LEGEND:

POTENTIAL SMALL WHORLED POGONIA HABITAT (APPROXIMATE)

SITE DATA:

APPROXIMATE SURVEY AREA 48.00 ACRES ±