

Protocols for Conducting Surveys for Plant Species of Special Concern

Part 3 of 4 – Preparing the Botanical Survey Report

Introduction

The Department of Conservation and Natural Resources (DCNR) may request a botanical survey or habitat assessment be performed to investigate proposed project sites for PA Plant Species of Special Concern. This will be used to help DCNR determine whether or not a proposed project will remove or impact a Species of Special Concern (SOSC), evaluate the level of impact to the species of special concern habitat, and identify approaches to avoiding or minimizing project-related impacts to Species of Special Concern and their habitats.

The following protocols have been provided by DCNR as a means to enhance the quality of botanical surveys conducted, as well as to standardize the way in which project areas are surveyed and findings are documented and reported to DCNR for further review. DCNR has issued that the following protocols so they may be used to guide surveyors in the field and clearly indicate the expectations of DCNR in relation to survey result reporting. The following protocols are split into four sections: 1) recommended preparation in advance of a Survey, 2) field protocols for conducting a Survey, 3) guidelines for documenting field results and report writing, and 4) Voucher specimen collection protocols.

Please also note that as of January 2011, DCNR is recommending that a Wild Plant Management Permit be obtained before conducting botanical surveys for PA Plant Species of Special Concern. Permit information and application can be found on the Wild Plant Management Program Website at: <https://www.dcnr.pa.gov/Conservation/WildPlants/Pages/default.aspx> and on the PNDI Environmental Review Homepage at: <https://conservationexplorer.dcnr.pa.gov/>.

Preparing the Botanical Survey Report

I. Notation and Titling – Cover Page

- A. Surveyors should include the PNDI number and Project name (as it appears on the initial botanical survey request letter) on the cover page. Please clearly indicate that this is a “Botanical Survey Report.”
- B. The survey report should be clearly addressed to the environmental reviewer who sent the initial botanical survey request letter. The appropriate mailing address for these reports is as follows:

Mr./Mrs. Environmental Reviewer Name
 PA Dept. of Conservation of Natural Resources
 Bureau of Forestry Ecological Services Section, PNDI
 PO Box 8552
 Harrisburg, PA 17105-8552

- C. The cover page should also include the company or organization for whom the botanical survey was conducted.
- D. The cover page should also indicate which PA township(s) and county(s) the botanical survey took place.

II. Introduction

- A. Clearly indicate the survey’s target species.
- B. Indicate when the survey was conducted
- C. List who conducted the survey. All personnel present during the survey should be noted. Please also list all Wild Plant Management Permit Numbers (when applicable).
- D. Please also list other SOSC that the surveyor(s) may have been searching for and why these species were included.
- E. Optional: You may quickly summarize the results of the botanical field survey here if desired (e.g., “*ABC Botany located a population of Viola appalachiensis along the proposed pipeline route; in addition, while no individuals of Oxypolis rigidior were found, there were two areas of potential habitat, totaling approximately 2 acres.*”

III. Methodology

- A. Please justify the time of the year that the survey was conducted in regards to identifying the target species.

- B. Please carefully explain your sampling methods used to adequately survey the proposed project area. This should include a short narrative of how the survey progressed across the site. Also give reasoning for leaving out any habitat types from the survey (active agricultural field, manicured lawn, etc.).
- C. Please explain what botanical references were used to aid in field identification or if any additional botanist contacts were made to discuss identification.
- D. Surveyors should include any pertinent information regarding any previous field experience with any of the target species (preferably within PA) and any previous botanical experience in that particular portion of the state.

VI. Results

- A. Data security and confidentiality.
 - 1. All data collected during a Botanical Survey should be shared with clients, landowners, PA Herbaria (or museums), and DCNR's Bureau of Forestry. Due to the sensitivity of this data, it should not be shared further.
 - 2. DCNR submits all data pertaining to SOSC and Special Concern Populations (SP) species to the PA Natural Heritage Program Database.
- B. Habitat type(s) encountered. Surveyors should carefully explain all habitat types encountered within the project area. All habitat types and SOSC found should also include references to photographs and figures included in the survey report.
 - 1. This explanation should include how common each habitat type was, as well as, the dominant plant species within each type.

("Regenerating forest/Abandoned Pasture – The dominant tree species in the regenerating forest/abandoned pasture habitats included red maple and wild black cherry. Dominant mid-story trees and shrubs included: hawthorn (Crataegus punctata), blue beech, hop-hornbeam, blackberry, and multiflora rose. The dominant herbaceous species included white grass (Leersia virginica), Virginia wild-rye (Elymus virginicus), white avens (Geum canadensis), dwarf cinquefoil, and poverty grass (Danthonia spicata). Tree-of-heaven (Ailanthus altissima) was found within this habitat type. This habitat was found along the southern third of the project, covering approximately 10 linear acres")
 - 2. If any Target Species or other SOSC are found within these habitat areas, please note that within the habitat description

("Floodplain in Beech Forest – The portion of Middle Creek within the project area occurred in a beech forest. Creeping bluets (Houstonia serpyllifolia), a Pennsylvania SOSC was observed along the bank. This species was not listed as a target species for the survey.

The dominant tree species included beech, yellow birch, witch-hazel, and red maple. The dominant shrub –level species included beech and red maple. The dominant herbaceous species included tussock sedge (Carex stricta), white grass, clearweed (Pilea pumila), stonecrop (Sedum ternatum) and zig-zag aster (Symphyotrichum prenanthoides). No invasive plant species were found in this habitat. This habitat type was only found within 200 feet of either side of Middle Creek”)

3. Please see “Survey Protocols” section for all additional habitat observations that should be included in the results section.
- C. Narratives regarding any and all PA Plant Species of Concern found on site. Please see “Survey Protocols” section for all observations that should be included in the results section when describing SOSC found on site.
- D. If SOSC were not found on site, please prepare a detailed narrative that explains the following:
1. How the proportion of the project area surveyed (if not surveyed in its entirety) was sufficient to have found the SOSC had it existed on site.
 2. Disturbances that could have effected a previously present population
 3. Any areas of unsuitable habitat for SOSC
 4. Plant competition (notably invasive exotics)
 5. Any “potential habitat” that was found on site, but in which no SOSC were found.
- E. A list of all woody and non-woody plant species present at the site during the time of the year of the survey, identified to the **SPECIES** level should be included here. This list, if possible, should be split by habitat types described in the results section. This list should be as reasonably complete as possible. If species cannot be identified to species level, please explain these difficulties in identification.
- VII. Justifications and Recommendations. In current survey reports, the statement, “**We don’t anticipate any impacts to these species as a result of this project**” is often used to conclude the report. DCNR would prefer a more thorough discussion of the justifications for such a decision. Whether or not SOSC are found on site, opinions, and recommendations regarding the potential for negative or any positive impacts should be **thoughtfully considered and substantiated** based on field observations and proposed project details. Surveyors should attempt to address both direct and indirect impacts to SOSC and any potential habitat areas over the short- and long-term as a result of the project.
- A. If SOSC were found within the proposed project area surveyors should provide some commentary regarding how the proposed project would impact SOSC found on site. **Please be as specific as possible** regarding distances and construction

protocols. If the surveyor has any previous experience with this species, please provide that information as well. When possible, please provide a number of options that you feel may or may not work to protect the SOSC and their potential habitat(s), with justifications. Some examples follow (other formats are acceptable):

Species found, but not likely to be impacted by project:

(“Oxypolis rigidior was found adjacent (approximately 200 feet from the edge) to the proposed pipeline route in a wet, shrub dominated, forested edge habitat, however, since it was outside the proposed construction right-of-way, this population is unlikely to be directly affected by construction. The spring seep creating the hydric conditions near the O. rigidior population will not be impacted by construction, which should prevent any noticeable changes in hydrology near the population. There are unlikely to be any indirect, negative impacts as a result of this project. I have been told by my client that this population, as well as the spring seep, is outside the leased right-of-way area and will not be subject to any right-of-way maintenance activities. At this time, I do not recommend any changes to the proposed route or construction protocols. However, I would encourage my client to follow careful procedures such as: washing all vehicle and equipment wheels and undercarriages and using weed-free straw when re-seeding, to avoid colonization by invasive plant species.

This surveyor has also seen O. rigidior growing in a small shrub wetland immediately adjacent to a roadside ditch in Somerset County, as well as a larger population in Forbes State Forest in Fayette County. The Fayette county population was found in a wet, bottom land forest with numerous shrub openings. Habitat conditions in both the surveyed population and the Fayette county population appear to be similar. The Somerset County population while subject to occasional indirect disturbance, appeared to be setting seed (perhaps successfully reproducing?). If the Somerset County population is indicative in any way of the tolerance of O.rigidior of less-than- ideal growing conditions (due to roadway runoff and potential pollution and road maintenance activities), it may further indicate the relative viability of the surveyed population, given its stable habitat which is unlikely to be affected by the proposed right-of-way construction.

-or-

Species found, minor adjustments to the project activities necessary to ensure no negative impacts:

(“Platanthera ciliaris was found along the roadway in a periodically maintained road shoulder (approx 10 feet from road surface) within the State Forest in a sphagnous, wet depression. If the road surface improvements (re-paving, road grading) can remain within the existing road footprint and not impact the road shoulder areas, negative impacts could be avoided. In addition, as long as mowing of the road shoulder occurs very late in the season (September 1st or

later), after seeds have matured and dropped, reproduction of this species should not be disrupted by road maintenance activities. We would encourage DCNR to recommend a maintenance schedule that includes specific times of the year for mowing (if necessary) and restricts any herbicide spraying within the known habitat and potential existing habitat for this species.

The surveyor has experience examining P. ciliaris within existing utility and road ROWs. Often, the open conditions created and maintained within the ROW provide favorable conditions for P. ciliaris to persist from the seed bank or dispersal from nearby populations. When maintenance activities, such as mowing or herbicide, are completed during periods when this species is not actively growing, flowering, or setting seed, the populations do not appear to be negatively impacted. Some level of disturbance appears to be benefiting this species by lessening competing vegetation encroachment and providing open conditions for optimal flowering. This may be important in this particular instance for the long term viability of this population, since it appears that the periodic mowing is preventing Kalmia latifolia from encroaching from the forest to the road shoulder. However, maintenance activities may inadvertently cause the spread and persistence of non-native invasive species, and each case should be reviewed for unanticipated negative impacts of maintenance activities on this species.”)

-or-

Species found, major adjustments to the project activities necessary to avoid negative impacts:

(“Cypripedium reginae was found within a high-quality fen habitat that is bisected by the proposed pipeline route. We recommend re-routing the pipeline to entirely avoid this fen and to provide at least a 1000-foot no disturbance buffer from the furthest extent of any construction activities and the final right-of-way route. Directional boring is not recommended in this case. While it may protect this species from any impacts due to construction, it may be difficult to ensure that ROW maintenance in the future would not impact this species negatively. Due to the high quality nature of this habitat, it is the opinion of the surveyor that DCNR should recommend complete avoidance and at a distance deemed sufficient to avoid any direct or indirect impacts.)

- B. If additional studies are necessary, please indicate this here and explain any justifications.
- C. If no SOSC were found, but potential habitat for these species of concern was found on site, please indicate what (if anything) should be recommended to help protect or improve this habitat.
- D. Please include contact information (phone number and email) so that DCNR can contact the surveyors to discuss the results of the survey if necessary.

- E. Signatures. All personnel whom conducted the botanical survey and have Wild Plant Management Permits should sign the botanical survey report. This indicates their concurrence with the included information and recommendations as well as verifies that all information included is as accurate as possible.

VIII. Attachments and Appendices

- A. Maps and Figures. Maps of the entire project area that indicate all areas surveyed as well as locations of any and all SOSC found on site. Figures should also be included that clearly illustrate any SOSC individuals and populations and where they were found. Ideally, these maps would be provided in color as both topographical maps and aerial photography. Please carefully delineate all habitat types encountered and all areas surveyed / not surveyed on all maps.
- B. Site Photos.
 - 1. Color photographs should be included that are representative of all habitat types encountered.
 - 2. Color photographs of any SOSC encountered during the survey should be included.
 - a. Detailed photographs that aid confirmation of plant identification
 - b. Photographs that show any SOSC and their surrounding habitat
 - 3. Please be sure in the Maps and Figures section to include a map with points indicating where pictures were taken.
- C. Wetland delineation data sheets (if applicable)
- D. Copies of any correspondence with other botanists regarding SOSC identification, either pre- or post-survey.
- E. Copy of PNDI receipt and botanical survey request letter
- F. PA SOSC Field Survey Forms (along with maps and photographs, these data sheets are submitted to the PA Natural Heritage Program to be added to our records). A separate Field Survey Form should be submitted for every SOSC population found on site.
- G. Any other information, lists or figures that the surveyor deems as important
- H. A copy of the surveyor(s) Wild Plant Management Permit. This will enable DCNR to review the surveyor's qualifications by referring to the Wild Plant Management Permit application on file. If the surveyors have not obtained a Permit, a resume and statement of qualifications should be attached.
- I. GIS Shapefiles of the entire area project area surveyed. (Optional)