

Plant Survey Protocols

Project Development and
Environmental Analysis Branch



Approved:
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Purpose

The purpose of this procedure is to guide biologists through the general protocol for surveying for protected plant species.

Responsibility

It is the duty of the biologist assigned to the project to either conduct the actual survey or manage the private firm conducting the survey to be familiar with this protocol and to make sure it is followed.

It is the responsibility of the NEU Project Manager (or their consultants) to conduct plant surveys or to request for the Biological Survey Group to conduct the surveys. The person requesting the survey should also familiarize themselves with the Survey Windows List. This list was developed by the US Fish and Wildlife Service to provide optimal survey windows for North Carolina's Federally Threatened and Endangered plant species.

Scheduling and Time Constraints

Surveys for the protected plant species (listed below) remain valid for **5 years** unless any of the following occur in which case the survey is valid for 2 years.

- 1) Suitable habitat is likely to develop, for example due to fire or clearing (some species such as American chaffseed are dependent on fire).
- 2) The Natural Heritage Program shows a population occurring within 1 mile of the project area.
- 3) Project plans are altered and encompass additional habitat.

- American chaffseed - *Schwalbea americana*
- Blue Ridge goldenrod - *Solidago spithamea*
- bunched arrowhead - *Sagittaria fasciculata*
- Canby's dropwort - *Oxypolis canbyi*
- dwarf-flowered heartleaf - *Hexastylis naniflora*

- green pitcher plant - *Sarracenia oreophila*
- Heller's blazing star - *Liatris helleri*
- mountain golden heather - *Hudsonia montana*
- mountain sweet pitcher plant - *Sarracenia rubra* ssp. *jonesii*
- pondberry - *Lindera melissifolia*
- Roan Mountain bluet - *Hedyotis [=Houstonia] purpurea* var. *montana*
- rock gnome lichen - *Gymnoderma lineare*
- spreading avens - *Geum radiatum*
- swamp pink - *Helonias bullata*
- white irisette - *Sisyrinchium dichotomum*

Surveys for the following plants are valid for approximately **2 years**. These plants may be more likely to move (for example, due to ease of seed spread/or scour causing fragmentation or opportunity for seed dispersal during beach renourishment, or the plant (orchids) may not emerge above-ground every year necessitating the need for more frequent surveys)

- [Cooley's meadowrue](#) - *Thalictrum cooleyi*
- [golden sedge](#) - *Carex lutea*
- [Harperella](#) - *Ptilimnium nodosum*
- [Michaux's sumac](#) - *Rhus michauxii*
- [rough-leaf loosestrife](#) - *Lysimachia asperulifolia*
- [Schweinitz's sunflower](#) - *Helianthus schweinitzii*
- [seabeach amaranth](#) - *Amaranthus pumilus*
- [sensitive joint-vetch](#) - *Aeschynomene virginica*
- [small-anthered bittercress](#) - *Cardamine micranthera*
- [small whorled pogonia](#) - *Isotria medeoloides*
- [smooth coneflower](#) - *Echinacea laevigata*
- [Virginia spiraea](#) - *Spiraea virginiana*

Procedures

The biologist conducting the survey will follow the steps below.

- Step 1.** Review the current [Threatened and Endangered Species List](#) for the county the project is located.
- Step 2.** Reference the [Survey Windows List](#) to identify the actual times to survey for the protected plant species.
- Step 3.** Prior to conducting the survey, prepare by visiting a known population as close to the proposed project site as possible to review the plant's local appearance, habitat, and flowering status. Populations can be located by:
 - Consulting the N.C. Natural Heritage Database
 - Consulting a species expert
 - Reviewing the layer of NCDOT Roadside Populations in ArcMap or the T&E Roadside Plant Management Booklets for known roadside populations.

The species listed below can also be viewed at the North Carolina Botanical Garden in Chapel Hill.

- Schweinitz's sunflower

- smooth coneflower
- Michaux's sumac
- Heller's blazing star
- bent avens
- swamp pink
- dwarf-flowered heartleaf
- Virginia spiraea
- green pitcher plant
- Cooley's meadowrue
- mountain sweet pitcher plant
- rough-leaved loosestrife
- harperella

Step 4. Bring the following items out to the field to help with positive identification of the plant.

- Pictures of the species (available on the internet, NEU S: drive, or NEU Staff)
- ID books and/or keys (e.g. Radford, Weakley draft)

Other items that are helpful are for later identification:

- GPS units and flagging for marking and relocating questionable plants
- Camera
- Rulers to differentiate similar species (i.e., the flower of the dwarf-flowered heartleaf versus other *Hexastylis* species).
- All of the above items are especially useful for identifying plants that are closely related.

Step 5. Plant surveys should be performed under the on site supervision of a biologist experienced with the species in question. The surveys are generally conducted by walking the project study area and visually searching for suitable habitat and conducting a plant by plant survey within suitable habitat. Make note of where suitable habitat exists so if/when resurveys are necessary, the biologist will know where to look in the future.

Step 6. If no plants are found after a thorough survey during the optimal survey period and there are no known populations of the species within a mile of the study area, a "No Effect" biological conclusion can be drawn. "No Effect" is also appropriate if there is no suitable habitat in the study area.

Step 7. If habitat is present and the species in question is known to occur within a mile of the study area and the plant species is not found, the biological conclusion should be "May Affect – Not Likely to Adversely Affect."

Step 8. If plants are found, please contact the Biological Surveys Group as a consultation between NCDOT and USFWS should be initiated.

Step 9. Report the results of the survey using the Survey Reporting Procedures (future link).

Step 10. Note completion of the survey, if applicable, in the NEU Data Warehouse and under the appropriate STaRS activity for the project.

Background

The Endangered Species Act (ESA) is the main federal law dealing with the protection of plants and animals in the United States. The ESA is administered by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Section 7 of the ESA directs Federal agencies to avoid and minimize impacts to federally threatened and endangered species and to ensure that activities do not jeopardize federally listed species. The list of endangered, threatened and rare plants is tracked and maintained by the NC Natural Heritage Program. In NC, the Plant Conservation Program (NC Department of Agriculture) administers the Plant Protection and Conservation Act and is the delegated authority that governs the movement, transplanting and seed collection of listed plants and issues required permits for these practices. Moving protected or rare species from one location to another in order to avoid adverse effects from a DOT project should only be considered after all other avoidance and minimization options have been thoroughly evaluated.

Policy, Regulatory, and Legal Requirements

¹ [Endangered Species Act](#)
[NC Plant Protection and Conservation Act](#)
[FHWA ESA Delegation to DOT](#)
[NMFA ESA Delegation to DOT](#)

Warnings and Precautions

Accurate surveys/habitat assessments are needed to assess the potential impacts (if any) to protected species. Failure to request surveys for protected species in a timely manner and/or properly conduct the surveys could result in project delays, especially if the species has a narrow survey window.

Resources and Tools

Radford
Weakly, Alan S. [Flora of the Carolinas, Virginia, Georgia, Northern Florida and Surrounding Areas](#)
[USFWS Website](#)
[N.C. Natural Heritage Program](#)
[Invasive Exotic Plants of North Carolina](#)

Contacts

- For suggestions to change this procedure contact: Karen Capps, (919) 715-7299
- For questions about performing this procedure contact: Logan Williams (919) 715-1482

User Access

Restricted NCDOT, FHWA, MPO, RPO, Consultants, etc.