



DIVISION OF FISHERIES & WILDLIFE

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State-listed Species Habitat Assessment & Survey Guidelines: Plants

The Massachusetts Division of Fisheries and Wildlife's Natural Heritage and Endangered Species Program (the Division) may request a Habitat Assessment and Survey for state-listed imperiled plants, which shall follow the guidelines and reporting and submittal requirements provided below.

PRIOR TO HABITAT ASSESSMENT AND SURVEY

1. *Qualified Botanist:* The Division must pre-approve the botanist who will conduct the assessment and survey. The botanist must demonstrate the ability to locate and definitively identify the state-listed plant species and their habitat(s).
2. *Pre-Approval of Protocols:* The Division must pre-approve the assessment and survey protocol. The assessment should evaluate the entire project site, not just the portion within the proposed project "footprint," unless otherwise approved by the Division. Surveys need only occur within all areas of suitable habitat on the property for each target species. The methods and timing of surveys for each target plant species also need to be described in the protocol. Multiple visits may be necessary for larger properties, for sites with multiple plant species, or for species in which definitive identification is contingent on the presence of determinative, short-lived plant parts. A description of the salient identification features for each species, as well as how it is distinguished from closely related or look-alike species, is required. Required equipment includes a camera (minimum 5MP resolution), a metric ruler (minimum 15cm in length), and a modern, handheld GPS unit set in decimal degrees, NAD 83 datum.
3. *Scientific Collection Permits:* If the survey botanist and/or the Division anticipate that state-listed plant specimens may need to be collected for confirmation or vouchering, a "Scientific Collection Permit" will be required. For additional details, please refer to the Guidelines for Rare Plant Collection in Massachusetts (revised December 2015).

REPORTING REQUIREMENTS

After the assessment and survey, a summary document **MUST** be submitted that includes the following:

1. *Existing Conditions:* A description of important site features such as existing developed or disturbed areas, general vegetation cover types, non-native invasive species, and all suitable habitat for state-listed plant species. All features should be identified on a map overlaid on an ortho-photo of the property. For each state-listed species found, include a plant community description with ten associated species (in forested habitats, describe canopy, shrub and herbaceous species) and notes on soil type, bedrock or glacial deposits, slope and aspect, deer or insect herbivory, evidence of recent disturbance such as fire, flood or storm damage, and hydrology.
2. *Summary of Survey Methodology:* (a) A map of the survey area extent and the route taken during the survey, including a GPS track file; (b) a detailed summary of any deviations from the approved survey protocol; and (c) a list of botanical references, herbaria, experts and any other resources used for identification, botanical nomenclature and authority.
3. *Summary of Survey Results:* (a) A map showing any state-listed plants and/or plant populations located; (b) GPS waypoints for each plant and/or plant population found; (c) a count or estimate of population size (if a count is not feasible); and (d) notes on individual plant and/or population vigor,

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including more detailed observations of co-occurring species and habitat conditions. All state-listed species observed on the property must be reported.

4. *Representative Photographs*: Photographs of suitable habitats, unsuitable habitats, any state-listed plants or plant populations observed, and any closely related or look-alike species. State-listed plants must be photographed at appropriate scales with a reference ruler to capture its size and habit as well as any determinative plant parts such as the flower, fruit, bark, leaf morphology, etc. Indicate photograph locations on a map of the property, or provide coordinates for each photo location (in Massachusetts State Plane Coordinate System (meters) or decimal degrees), and the cardinal direction of view.
5. *Impact Analysis*: An analysis of the proposed project's impacts to state-listed plants and their habitat(s), including calculations of proposed habitat disturbance, the number of plants to be impacted (directly or indirectly), and recommendations for potential design changes and protective measures to avoid and/or minimize impacts. Provide recommendations regarding potential avoidance and mitigation strategies where direct impact to state-listed species is proposed.

SUBMITTAL REQUIREMENTS

Email the final report to the appropriate Endangered Species Review Biologist. All state-listed species observations (plants or animals) must be submitted to the Division via the Heritage Hub (see www.mass.gov/heritagehub for more information).