



**Natural Heritage
& Endangered Species
Program**

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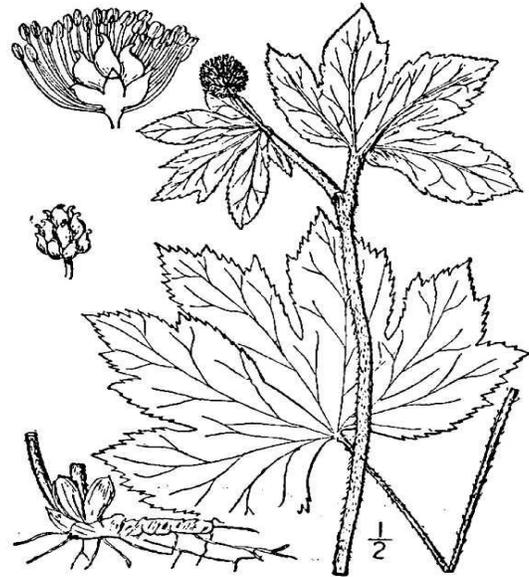
Massachusetts Division of Fisheries & Wildlife

**Golden Seal
Hydrastis canadensis
L.**

State Status: **Endangered**

Federal Status: **None**

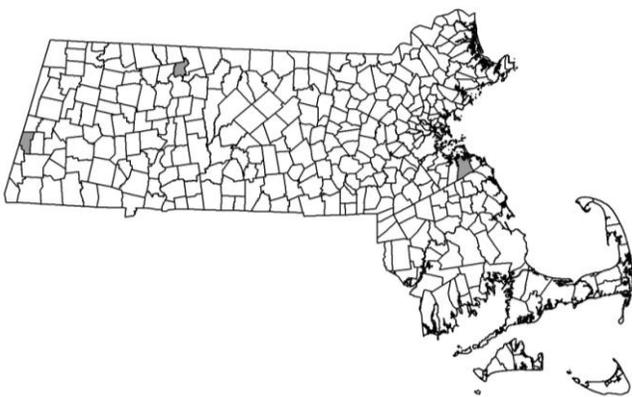
DESCRIPTION: Golden Seal, also known as Orange-root, is an herbaceous perennial in the Buttercup family (Ranunculaceae) that grows to about 15-50 cm (about 6-20 in) tall. The plant rises from an orangey-yellow, knotted rhizome that has been, and still is, harvested for medicinal purposes. Stem scars on the upper side of the rhizome resemble wax seals. Golden Seal's shiny leaves are palmately divided into five lobes with doubly serrate edges. One large, long-stalked basal leaf appears in the spring; plants that have reached the flowering stage (which does not occur until the third or fourth year) have two cauline leaves, borne near the top of the hairy flowering stem. Golden Seal's leaves measure from 3 to 10 cm (1.2 to 4 in.) wide at the time of flowering, but may continue to grow up to 25 cm (~10 in.) wide. The sole flower is rather inconspicuous and greenish-white in color. Like flowers of most species in the Buttercup family, it has several pistils and many stamens (50 to 75). This ephemeral, approximately 1.3 cm (0.5 in.) wide bloom has no petals, and the three green to purplish sepals fall off as the flower opens. The filaments of the stamens are 5 to 8 mm (0.2-0.3 in.) long, and the anthers are yellowish. Its dark red, aggregate fruit resembles a raspberry. Each berry contains 1-2 blackish seeds.



USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913.
*An illustrated flora of the northern United States, Canada and the
British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol.
2: 85.*

PHENOLOGY IN MASSACHUSETTS: In New England, Golden Seal blooms from early to mid May.

SIMILAR SPECIES: The leaves of Golden Seal resemble those of certain members of the genus *Hydrophyllum*, so much so that Linnaeus at first called the species *Hydrophyllum verum canadense*. However, of the two species of waterleaf (*Hydrophyllum* spp.) in this area, only Broad Waterleaf (*Hydrophyllum canadense*) has palmately-lobed leaves, and unlike Golden Seal, it has bell-shaped blossoms with whitish to pinkish-purple petals.



A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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RANGE: The range of Golden Seal extends from Vermont to Minnesota and south to North Carolina, Tennessee and Arkansas.

HABITAT: Golden Seal grows in woodlands, especially, but not limited to, rich mesic forests. These forests are characterized by moderately moist (mesic) soils that are high (rich) in nutrients. The rich, mesic woods also possess soils that are extremely rich in organic matter. In Massachusetts, there are three documented current stations: a mesic, acidic oak/conifer forest; a regenerating sugar maple woods, with many herbs typical of mesic forests; and a rich, mesic, deciduous forest at the base of a dolomitic limestone ledge. At the first station, Golden Seal grows under a canopy dominated by Black Birch. Other trees here include hickories, maples, American Elm, White Pine and oak; the understory includes Alternate-leaved Dogwood (*Cornus alternifolia*) and such herbs as Round-lobed Hepatica (*Hepatica americana*), Virginia Grape-fern (*Botrychium virginianum*), Downy Yellow Violet (*Viola pubescens*), Nodding Trillium (*Trillium cernuum*), and Dog Violet (*Viola conspersa*). In the regenerating Sugar Maple woods, Golden Seal grows with such representative species of the rich mesic forest as Trout Lily (*Erythronium americanum*), Wild Ginger (*Asarum canadense*), and Bloodroot (*Sanguinaria canadensis*). Finally, in the rich mesic forest situated at the base of a limestone ledge, Golden Seal grows under a canopy of Sugar Maple (*Acer saccharum*) with such herbs as Christmas Fern (*Polystichum acrostichoides*), Bellwort (*Uvularia perfoliata*), and Bladder-Fern (*Cystopteris bulbifera*); also growing here are the rare Massachusetts species American Ginseng (*Panax quinquefolius*), Hitchcock's Sedge (*Carex hitchcockiana*) and Fragile Rock-brake (*Cryptogramma stelleri*). Two of these stations face east, and the third faces north and east.

POPULATION STATUS IN MASSACHUSETTS:

Golden Seal is listed as Endangered under the Massachusetts Endangered Species Act. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. There are only three current stations (1985-2010) and one historical station (unverified since 1978). Of the three current stations, however, only two are believed to be natural. It is thought that the species was planted at one site where there are other garden

plants. At another of the current stations, no plants were found the last time a survey was made; all had been dug up, either by humans or wildlife. Golden Seal is considered rare in numerous other states, including Vermont, Connecticut, New York, Delaware, Maryland, North Carolina, Georgia, Alabama, Mississippi, Tennessee, Indiana, and Minnesota. NatureServe ranks Golden Seal as G4, "Apparently Secure." The plant's rarity is mainly the result of collecting by humans and development of habitat that further fragments its distribution and reduces populations. Other threats include deer browsing, competition from invasive plants, and trampling.

MANAGEMENT RECOMMENDATIONS: As with most rare plants, exact needs for management of Golden Seal are not known. The following advice comes from observations of the populations in Massachusetts and other states where the species is rare. Golden Seal has declined throughout its entire range primarily due to collecting, which has actually caused its extirpation from many areas. Like Ginseng, the plant has a long history of use in folk medicine. It contains several alkaloids, including hydrastine and berberine, and has been used as a folk remedy for ailments ranging from mouth sores and nasal congestion, to stomach ulcers and sore throats. In addition, it was used by native Americans to make dyes, and is currently used in commercial pharmacology. In Massachusetts the plant's apparently preferred habitat, rich, mesic forest, is uncommon; these habitats provide the humus-rich soil and leaf litter cover that Golden Seal thrives on. Loss of habitat through development, logging, and even alteration of the soil by compaction may threaten this habitat. Golden Seal seems not to tolerate increased light from canopy opening. Therefore, sound management practices would be to avoid logging or soil compaction by heavy equipment in the immediate vicinity of Golden Seal. Because invasive species are impinging on at least one of the populations where deer have been browsing on Golden Seal, removal of invasive plants and an enclosure to reduce deer browsing has been recommended. In other areas, grazing has been found to diminish the plant populations. All active management of rare plant populations (including invasive species removal) is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage and Endangered Species Program.

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

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Flowering time in Massachusetts

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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REFERENCES:

- NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, VA. Available <http://www.natureserve.org/explorer> (Accessed: December 13, 2010).
- USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 13 December 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. <http://plants.usda.gov/java/profile?symbol=HYCA>

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