A Tale of Two Flowers

The end of summer brings its own special sights and smells. In a pastoral meadow, yellow goldenrods and purple asters are blooming, as well as a rare sight in Connecticut—New England Blazing Star. On a walk through this meadow, one finds not only the beautiful purple flowers of the blazing star, but also many of the plants are covered with monarch and swallowtail butterflies sipping nectar from the flowers.

Less than a mile away, if you walk along the Long Island Sound shoreline, another flower might still be seen, but you’re more likely to notice the large red “hips” of Rugosa rose.

Though both are very pretty, one plant (New England Blazing Star), land managers want to encourage, and the other (Rugosa Rose), they’re trying to restrain. With rapidly increasing introductions, invasive species have been making headlines more and more recently (including the story of Grateloupia in the Fall/Winter issue of Wreck Lines). Here, a Connecticut land trust is working to restore two coastal habitats: a coastal meadow and sand dunes, both of which are being overtaken by invasive shrubs.

The Lynde Point Land Trust (LPLT) in Old Saybrook, Connecticut has undertaken two extensive restoration projects with funding from the Natural Resources Conservation Service (NRCS) and management and monitoring recommendations from Connecticut Sea Grant and NRCS. The first project involves management for a state-listed rare plant, New England Blazing Star (Liatris scariosa var. novae-angliae), in a coastal meadow in which invasive shrubs are over-taking the herbaceous vegetation. The second project involves the elimination of Rugosa Rose (Rosa rugosa—also commonly known as salt spray or beach rose) from a stretch of sand dunes and the back dune area and replanting with beach grass and other native species.

New England Blazing Star and a coastal meadow

Coastal grasslands, heathlands and shrublands are uncommon sites along the Connecticut coast. Most such habitats occur on Cape Cod, the Islands and Long Island. These areas provide habitat for numerous federal and state listed rare plant and animal species such as sandplain gerardia (Agalinus acuta), bushy rockrose (Helianthemum dumosum), and grasshopper and Savannah sparrows (Ammodramus savannarum and Passerculus sandwichensis, respectively).

Contrary to the thought that these habitats developed primarily before European settlement and were maintained by natural disturbances and Native American practices, researchers at Harvard Forest, Glenn Motzkin and David Foster, demonstrated through a review of paleoecological, archeological, historical, and biological data that most of these areas

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Grasses and herbaceous perennials of this meadow include little blue stem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), butterfly weed (*Asclepias tuberosa*), roundhead lespedeza (*Lespedeza capitata*), wild indigo (*Baptisia tinctoria*) and numerous goldenrods and asters (*Solidago* spp and *Aster* spp) such as stiff aster (*I. linearifolius*). Shrubs such as winged sumac (*Rhus copallina*) and choke cherry (*Prunus virginiana*) are rapidly overtaking the meadow in spite of the fact that the meadow is mown annually.

Blazing Stars are popular garden flowers. New England Blazing Star is the only Blazing Star native to New England. It grows from an underground corm and reaches an approximate height of 12 to 40 inches, with very attractive purple flowers blooming in late July into September. Numerous types of insects such as butterflies, bees and flies pollinate the flowers. New England Blazing Star is most often found in open habitats with dry, sandy soil, particularly in grasslands or coastal heathlands. Such habitats are found along coastal New England and inland along sandy river terraces. The coastal sites are often prime real estate and few occurrences in Connecticut remain. Without active management, many of the remaining grasslands are becoming dominated by shrubs and trees.

New England Blazing Star has a total of only 82 extant populations occurring in Maine, New Hampshire, Massachusetts, New York, Rhode Island, Pennsylvania, and Connecticut, and it is state-listed as special-concern, threatened or endangered in each of these states. With numerous occurrences recently extirpated, it is clear that conservation actions are needed to preserve this species. As part of their New England Plant Conservation Program (NEPCOP), The New England Wildflower Society contracted to have a Conservation and Research Plan written for this species. Completed by Ailene Kane and Johanna Schmitt (Brown University) in 2001, this plan documents the current status, threats, objectives and actions for the protection of New England Blazing Star. Management actions taken for the Old Saybrook population follow NEPCOP recommendations for this species.

The primary threat to populations of New England Blazing Star is loss of habitat due to either development or succession by shrubby species. Other threats to populations documented in the Conservation and Research Plan include destructive mowing regimes, deer browse, seed predation by moths, herbicide use, and
plant collection. Mowing during the summer months and before seed set can prevent not only growth of existing individuals but growth of seedlings as well. Timing of mowing is critical and must be coordinated for sites that are also managed for grassland birds. As any gardener with Blazing Stars has found, deer love to eat these flowers and may drastically inhibit flower and seed production.

Researchers have found that prescribed burning of the grassland habitat is the preferred management method for New England Blazing Star. Peter Vickery (the Center for Ecological Research), studied New England Blazing Star in Maine grasslands and found that fire stimulated flowering, reduced seed predation, and improved conditions for seed establishment and growth by reducing the amount of thatch. Other management tools include mowing and deer exclosures (tall fencing used to prevent deer from entering an area). While mowing reduces woody plant growth, it does not have many of the other benefits seen following prescribed burns. Kane found that in a Rhode Island population with deer exclosures, plants within the exclosure showed an increase in flower heads and seed production compared to those outside the exclosure, but such exclosures prevent grazing of woody growth and thus other management tools such as burning and/or mowing are still necessary.

Given the location of the Old Saybrook meadow bordering a major roadway and residential homes, burning is not a viable option. At this time, the best management alternative is to continue to mow the area in late fall after seed set, and to decrease the number of shrubs through selective herbicide use and hand removal. Therefore, the LPLT has undertaken a management strategy focusing on herbiciding, shrub removal and late fall mowing.

Currently the New England Blazing Star population size at the Old Saybrook site is 460 individuals. Anecdotal accounts from neighbors indicate that the population size has rapidly declined over the last 10 years. Deer browse in 2006 was extensive, but many plants sprouted lateral buds and still produced flowers.
After seed set, shrubs were sprayed with an herbicide, with hand spraying near the New England Blazing Star. The meadow was later mown. During the spring and summer of 2007, shrub regrowth will be assessed to determine if hand pulling and/or further herbicide treatment is necessary. Monitoring of the plants will be continued with numbers and density determined in the early fall.

**Rugosa rose and the coastal dunes**

Rugosa Rose is a very attractive coastal shrub commonly found on the Connecticut shoreline. However, it is considered potentially invasive in Connecticut and is considered noxious in some states.

“Rosa rugosa can be highly invasive in coastal dune areas and rocky shorelines of Connecticut, but does not appear to be an invasive problem anywhere else in the state,” said Les Mehrhoff, Director of the Invasive Species Atlas of New England, at the University of Connecticut. It can form dense thickets that do provide sand stabilization, and with its thorny branches, it can also be used to direct pedestrians at dune crossings. However, due to its dense growth, it does displace native vegetation on the sand dunes. The purpose of this project is to remove a dense 25-foot-long stand of Rugosa rose from a sand dune and replace it with native vegetation. With funding from NRCS, the LPLT, which owns this stretch of dune on Long Island Sound, is attempting this native species project.

Rugosa Rose is a perennial member of the Rose family, and is native to Eastern Asia. It grows to a height of 4 to 5 feet, with stout stems and branches covered with thorns, and can rapidly form dense colonies. The plants have shiny, dark green leaves with two to three-inch diameter flowers ranging in color from white to dark pink. The fruits are large rose hips that are high in vitamin C and may be used in jellies and teas. Plants grow in sandy, dry soil and can withstand salt spray, so it is often planted on roadsides and coastal sites.

Of note, there is a cultivar of Rugosa Rose that is available in certain states for use with sand dune stabilization. This cultivar, ‘Sandy,’ is a cross from twelve different collections and was released in 1992 by the Cape May Plants Material Center. Interestingly, a recently created invasive alien fact sheet for Northern Europe and the Baltic describes the history of Rugosa Rose introduction and its spread. Similar to the situation in the eastern United States, Rugosa Rose negatively impacts native flora, and the fact sheet suggests that it not be planted within at least 50 km of the coast.

In order to replace the Rugosa Rose with native species, the LPLT hired contractors to spray the shrubs with herbicide. After several weeks, the above ground stems were cut and removed. The root system was left intact as an erosion control measure. This spring, volunteers from the LPLT will plant American beachgrass (Ammophila breviligulata) among the cut rose stems, and several native shrubs such as beach plum (Prunus maritima) and northern bayberry (Morella pensylvanica) in the backdune area. Monitoring of the site is taking place through before and after photographs.

As spring approaches, members of the land trust are looking forward to observing what changes their efforts have brought about in the meadow, with hopefully more flowers and butterflies come fall. As for the dunes, a beach grass planting party on an April morning, sand in one’s shoes, and a fresh breeze are a fine way to start the day.

As work on these two restoration projects continue, a follow-up article will be written for *Wrack Lines* to share the outcomes of these projects and suggestions from the LPLT for other groups attempting such work.

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**About the Author:**

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