Jesup's Milk-Vetch

Astragalus robbinsii var. jesupii

Sara Cairns/NH Natural Heritage Bureau

Jesup's milk-vetch and columbine

Plant and animal life is tenacious, and can take hold in the most unlikely conditions. Consider the challenge of living on the steep rocky outcrops of a fast-flowing New England river, especially during the ice-cold winters. One plant that can meet this challenge is Jesup's milk-vetch, a highly endangered plant found in only three locations along the Connecticut River in New Hampshire and Vermont.

Life of an enduring plant

Jesup's milk-vetch was first collected in 1876 by Professor Henry Griswold Jesup of Dartmouth College. He wrote that he found this plant "crevices of rocks," a harsh environment with ice scours in winter, major floods in spring, and summer extremes of cool shade for half the day and blazing sun for the other half. More than 125 years after Jesup's discovery, the plants are still there.

Jesup's milk-vetch is in the legume family. The plant emerges after the winter ice and spring floods have receded, usually sometime in April. It grows from a taproot that serves to stabilize the plant, hold vital nutrients, and provide a way to absorb oxygen during floods. Plant heights range from 8 inches to nearly 24 inches. Jesup's milk-vetch has compound leaves; each leaf has from 9 to 17 small leaflets. Small violet flowers bloom in early May, followed by nearly inch-long pea-like seed pods in June. Though this plan can self-fertilize, the seeds develop most successfully with the aid of pollinators such as bees.

Interestingly, this stretch of the Connecticut River provides habitat for several other state and federally listed species, including the endangered dwarf wedgemussel (Alasmidonta heterodon), the Vermont and New Hampshire state-listed cobblestone tiger beetle (Cicindela marginipennis), and more than a dozen rare plant species.

Drought, floods and milk-vetch – oh, my

The main threats to Jesup's milk-vetch are non-native plant species, climate change, trampling and lack of genetic diversity. Typically, ice scouring and flooding of the rocky habitat has kept other plants at bay, but dams built upstream have changed the rivers flow, making scouring and flooding less frequent. As a result, invasive plants such as black swallowwort and Japanese honeysuckle, formerly held in check by ice scouring, are now spreading over the rocky ledges and competing with Jesup's milk-vetch for light and soil. In addition, at the time when Jesup's milk-vetch is flowering and setting seed, unusual weather events possibly connected to climate change have caused significant flooding of the plants and their habitat during the summer months. Botanists monitoring this plant have known it to go through boom-and-bust cycles of seed production depending on the severity of the weather each year. However, because the numbers of remaining plants are dwindling, and possibly due to the stress of changed flooding patterns, the seed cycle is becoming more bust than boom. This means the genetic pool for the species is more limited, producing plants that are prone to disease and the other problems that beset a small gene pool.

And if we lose this plant?

The extinction of each plant and animal diminishes the diversity and complexity of life on earth. Wild plants and animals are important to the development of new and improved medicines, agricultural crops and other industrial products. Nearly 40 percent of all

prescriptions written in the United States today contain chemicals that were originally discovered in plants and animals. Industry and agriculture are increasingly making use of wild plants, seeking out the remaining wild strains of many common crops such as wheat and corn to produce hybrids that are more resistant to disease, pests and marginal climatic conditions. As a legume, Jesup's milk-vetch is part of a family of foods important in our diet. Could it hold the key to increasing the genetic stamina of edible legumes in inhospitable conditions? We may never know if these organisms are destroyed before we can learn their value. When a species is lost, the benefits it might have provided are gone forever.

What you can do to help

- By native plants from known and reputable sources to ensure they have not been collected in the wild.
- Avoid purchasing known invasive pest plants. To view a list of pest plants in your state, go to http://plants.usda.gov/java/noxiousDriver
- Stay on designated trails.
- When recreating around rocky outcrops on the Connecticut River, avoid trampling vegetation.
- Learn more about endangered plants and the causes for their declines.
- Participate in the protection of our remaining wild lands and the restoration of damaged habitats.
- Support your state agency responsible for protecting plants.

For more information, contact:

U. S. Fish and Wildlife Service
New England Field Office
70 Commercial St., Suite 300
Concord, New Hampshire 03301-5094
603/223-2541

Federal Relay Service
for the deaf and hard-of-hearing
1 800/877 8339

U.S. Fish & Wildlife Service
1 800/344 WILD
http://www.fws.gov

October 2010