

Abstract of 2004 Award winner Krissa Skogen of the University of Connecticut for her proposal entitled "Using demography, genetic diversity, and the effects of increased nitrogen deposition to understand the decline of *Desmodium cuspidatum* (Fabaceae)."

Plant conservation research has mostly focused on easily identified threats: habitat conversion, loss, or fragmentation, and competition from invasive exotics. But some species decline even when their habitat seems intact. One example of such a decline is that of the perennial legume, *Desmodium cuspidatum* (large-bracted tick-trefoil, Fabaceae), which has declined recently in New England (from 28 populations in 1976 to six populations in 2003). Though this species' range extends across the eastern half of the United States, New England populations, determining the northeastern boundary, are the only populations known to have declined in recent years. *Desmodium cuspidatum* is now listed as endangered in Vermont and Massachusetts, is historic in New Hampshire and untracked in Connecticut and Rhode Island, although both states have records of the species from as recently as the 1930s. I am investigating aspects of this species' biology to determine how less apparent but ecologically and evolutionarily significant factors, may contribute to population declines. My research has two main goals. The first focuses on characterizing genetic diversity, reproductive biology and demography, "classical" factors that may contribute to or be the consequence of declining population numbers. The second investigates the role of anthropogenic increases in nitrogen deposition on declines in this nitrogen-fixing plant species. Funding acquired from the New England Botanical Club will support both field and laboratory expenses relating to gathering and analyzing demographic, genetic and ^{15}N data during the 2004 field season.