

**Proposed deliverables to implement recommendations across all 6 New England states outlined in "Effective Establishment of Native Plants on Roadsides in New England", a recently completed NETC study by the University of Connecticut**

**I. Specifications for Initiating Seed Production**

**1) *Define New England seed zones:*** Using EPA designated eco-region maps and USDA hardiness zone maps; determine seed zones from which seed populations will be harvested, increased, and used. Well defined seed zones will optimize persistence of new native plant community establishments by matching regional eco-typical seeds to their original climates. With this information, we can begin to solicit the help of seed collectors, growers, and others to collect and grow within the eco-regions.

**2) *Compile lists of workhorse species:*** Compile a list of the best native workhorse species for shrubs, grasses, forbs, and sedges. Workhorse species meet the following criteria: **a)** Easy to harvest, clean, and grow **b)** Establish easily with persistent longevity **c)** Provide ecosystem services such as optimal pollinator forage, drought tolerance, soil stabilization, and erosion control.

**3) *Identify existing populations of native plants in each New England seed zone:*** Scout locations of existing native plant populations for harvesting regional eco-typical seed and plant material. Start by compiling comprehensive lists of state conservation properties, public and private land trust holdings. We will also partner with New England Wildflower Society, for assistance. We will determine which workhorse species exist within each newly designated seed zone.

**4) *Create partnerships between N.E. DOTs, private sector collectors, and growers to increase seed supply:*** Survey existing seed collectors and growers to identify willing participants in initiatives to increase seed supply. Promote establishment of founder's plots across New England to grow eco-typical seed. Foster partnerships between N.E. DOTs, private sector seed collectors, growers, and non-profit organizations to establish viable markets for native eco-regional seed and eco-regional plant sources.

**II: Establishment of Demonstration Plots for Training and Research Purposes**

**5) *Locate roadside plots in each state to start establishing native plant communities:*** Work with each New England state DOT to scout locations for demonstration plots that will help familiarize DOT workers with the dynamics of native plant community establishment including reducing negative impacts of invasive plants. Two approaches will be used: **a)** Augmenting pre-existing native populations and **b)** establishing new native populations on disturbed sites, similar to what would exist following construction.

**6) *Study the effectiveness of decreased mowing, and developing effective mowing strategies:*** As part of N.E. DOTs efforts to improve existing native plant populations, we will collect quantitative data to determine if decreased mowing can improve pollinator habitat. In addition, we will develop more precise mowing protocols that provide pollinators with continuous forage, suitable habitat (e.g. - overwintering nesting sites above and below ground), and decreased habitat fragmentation that contributes to pollinator population decline.

Justification: Since the mid-1990's native pollinator populations have decreased dramatically across North America. Presidential Executive Orders have been issued in response as well as state initiatives to study related issues to better understand how to enhance and improve habitat as well as stem the vectors contributing to this decline. At least 70% of the food we consume is directly related to native pollinators and non-native European honeybees. Much research, problem solving, and implementation of solutions has begun, but New England states currently lag behind. This proposal continues the work begun to bring this topic home to New England to connect public and private sectors in this effort along with working through each N.E. DOT to provide demonstration plots and affirm the benefits of reducing or eliminating mowing. Recently, the U.S. Fish and Wildlife Service elevated the rusty patch bumblebee to endangered species status. They are also considering monarch butterflies for endangered species status. This now alters how states must manage roadside vegetation to favor pollinators including reducing invasive plants and favoring native plant alternatives. This project will help vegetation managers and others to become successful at providing pollinator friendly habitat. USF&WS has also requested that by spring of 2017 state DOTs provide for migratory bird habitat in roadside environments. The requirements of migratory birds are not dis-similar to those of pollinators. This project will provide guidance on improving habitat that will benefit both pollinators and migratory birds while reducing exotic and invasive plants in roadside environments.