



Karro A. Frost

Senior Botanist, Wetland Scientist

Summary

Ms. Frost is an experienced environmental scientist and botanist at New England Environmental, Inc. (NEE) having twenty-nine years of experience working with wetlands throughout New England. Her primary specialties are botanical surveys, wetland delineations, wetland permitting and odonate surveys; she is also involved in wildlife habitat evaluations, vernal pool identification, rare plant species assessment, and project co-ordination. She has designed and monitored wetland mitigation areas. Her work has also included monitoring wetland construction sites for sediment and erosion control. Ms. Frost has designed and implemented long-term vegetational monitoring programs to document plant responses to herbicide treatments in a variety of wetlands and water bodies. She has also monitored vegetation responses to groundwater withdrawals in three Massachusetts towns, and the experimental use of infrared heat treatments to control problem vegetation.

Areas of Expertise

- State, federal and local environmental permitting
- Wetlands delineation and assessment of functions and values
- Wetland Mitigation Design and Monitoring
- Stormwater Permitting
- Botanical Surveys
- Rare plant Surveys
- Vernal Pool Identification and Certification
- Dragonfly identification, survey and habitat impact analysis
- Erosion and sedimentation control monitoring at construction sites

Education

M.A., Environment, Technology and Society – Clark University, Worcester, MA, May, 1985.
B.A., Geography – Clark University, Worcester, MA, 1979.
Junior year – Marlboro College, Marlboro, VT, 1977-1978.

Credentials

Professional Wetland Scientist #1771
Pesticide Applicator License #36645
Certified Erosion, Sediment and Storm Water Inspector #0271
OSHA 10 Hour Safety Course

Experience

New England Environmental, Inc. **1995-present**

Project work includes wetland delineation and mapping; wetland permitting with local, state, and federal agencies for projects ranging from single family homes to subdivisions, supermarkets and malls; long-term vegetation monitoring and mapping; botanical assessments; Lake and pond management plans, use of federal wetland assessment techniques and wetland functional values; wetland replication plans; peer review for Conservation Commissions; wildlife habitat assessments for birds, mammals, reptiles, amphibians and fishes; vernal pool identification and certification; wetland restoration and creation; wetland replication area construction monitoring and supervision; rare plant identification and surveys.





Karro A Frost Wetland Specialist**1986-1995****Sole Proprietor**

Completed wetland delineations, flagging and mapping of wetlands; assisted clients in project design to minimize environmental impacts; wetland permitting through local, state and federal agencies; represented clients before town boards. Assisted Conservation Commissions with site inspections, writing Orders of Conditions and Enforcement Orders. Designed and implemented small scale wetland restoration and mitigation areas. Worked with a number of pond associations in permitting drawdowns and aquatic vegetation control.

New England Research, Inc.**1984-1985****Research Associate**

Project work included assessing impacts to aquatic and terrestrial ecosystems, analysis and writing of Environmental Impact Reports, hazardous material packaging and hazardous waste disposal and management issues, and technical report writing and editing.

NER Institute**1984-1985****Teaching Associate**

Designed and prepared training materials, lectured in professional training programs including training programs for the Massachusetts Department of Public Works on the Federal Highway Administration method of wetland functional assessment, and workshop on Toxicology Applied to Water Supplies. Arranged seminar logistics, bulk mailings.

University of Massachusetts in Amherst, Department of Plant and Soil Sciences**1984-1986****Research/Department Assistant**

Assisted with Agronomy field work in the research of corn, soybeans and alfalfa. Research involved crop yields with different Integrated Pest Management programs. Assisted in plant tissue culture lab preparing growing mediums, maintaining callus cultures, and amino acid analysis in the development of salt tolerant grass species.

University of Massachusetts, Suburban Experiment Station, Waltham MA and RESCO-Refuse Energy Systems, Co, Saugus, MA**1981-1983**

Studied ecosystem response resulting from the placement of incinerator residue within a wet meadow ecosystem. Environmental impacts were examined including changes, and the extent of such changes, in the plant community over time, soil and water analysis, uptake by plants of heavy metals from incinerator residue, and researching the potential for food chain contamination through insect vectors through greenhouse studies determining plant and insect uptake of heavy metals. Maintained and expanded the wetland herbarium.





**Professional
Training/Education**

- Submersed and Floating Aquatic Flowering Plants: Taxonomy, Ecology, and Management – Barre Hellquist, instructor at Humboldt Field Research Institute, Steuben, ME June, 2008
- Describe and Interpret Soil Conditions, UMASS Amherst, MA – Spring, 2004
- Microbiology of the Soil, UMASS Amherst, MA – Spring, 2003
- Multivariate Methods for Life Sciences, UMASS Amherst, MA – Fall, 2000
- Botanical Field Survey Techniques, Humboldt Field Research Institute, Steuben, ME Summer, 1998
- Aquatic Invertebrates, UMASS Amherst, MA – Fall, 1996

**Professional
Instruction**

- “Freshwater Wetland Plant Identification.” 2009 & 2010 MACC Annual Meeting. Lead Instructor/Coordinator.
- “Unit 4, Plan and Site Review,” MACC, 2008. Instructor.
- AMWS “Difficult Wetland Delineations” in 2006 and 2007 Botanical Instructor
- AMWS “Herbaceous Species, 2007” Assistant Botanical Instructor
- NEWIPCC “Wetland Delineation Course for Regulators, 2005” Botanical Instructor
- NEIWPC “Wetland Delineation Course for Regulators, 2004” Assistant Botanical Instructor

**Affiliations/
Memberships**

- Society of Wetland Scientists
- Association of Massachusetts Wetland Scientists
- Soil and Water Conservation Society
- New England Botanical Club
- Dragonfly Society of the Americas

Public Service

- Town of Warwick, MA Conservation Commission, Chairman since 2002
 - Warwick Open Space Plan Committee
 - Massachusetts Association of Conservation Commissions
 - New England Plant Conservation Program, Massachusetts Task Force
 - Plant Conservation Volunteer (New England Wild Flower Society)
 - Invasive Plant Atlas of New England Contributor
 - Massachusetts Audubon Herptile Atlas Project Contributor
 - Acid Rain Monitoring Volunteer
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Publications

Burnham, Doug, Greg Prull, and Karro Frost. 2003. Non-Chemical Methods of Vegetation Management on Railroad Rights-of-Way. National Technical Information Service/NTIS FTA-VT-0001-03-1.
http://ntl.bts.gov/lib/24000/24700/24729/Non-Chem_Veg_Mgmt_RR_ROW.pdf

Frost, Karro A. 2003. Dragonflies on the Connecticut River In AMWS Newsletter. Association of Massachusetts Wetland Scientists.

_____. 2008. Two Native U.S. Wetland Plants Expand Range into New England. Poster presented at Society of Wetland Scientists 29th Annual Meeting in Washington, D.C.

Frost, Karro A. and Karen B. Searcy. 2009. *Geum vernum*, spring avens (Rosaceae): A new, potentially weedy species in Berkshire County, Massachusetts. Rhodora vol. 111:120-123.

Marcus, Mickey, Karro Frost, Gregory S. Liberman. 2003. River Bank Erosion Mapping Using Geo-Referenced Video & G.I.S. Data: Mapping Techniques and Applications. Poster presented at Society of Wetland Scientists 24th Annual Meeting in New Orleans, LA.

Marcus, M.J. and K. Frost. 2009. Riverbank restoration and the protection of rare Odonates. In Conference Abstracts, SERI World Conference on Ecological Restoration, Perth, Western Australia, Australia. p 240.

Mika, J.S., K.A. Frost, W.A. Fader, and C.J. Puccia. 1985. The Impact of Land Applied Incinerator Ash Residue on a Fresh Water Community. Environmental Pollution, Series A.

Presentations

- Influence of Riverbank Stabilization on Dragonfly Populations in the Connecticut River. Michael Marcus and Karro Frost. Oral Paper presented at Society of Wetland Scientists 29th Annual Meeting in Washington, D.C. May, 2008.
- Exotic and Invasive Species in a New England Herbaceous Wetland. Oral Paper presented at Society of Wetland Scientists 24th Annual Meeting in New Orleans, LA. June, 2003.
- Monitoring Vegetative Response to Municipal Wells in Mansfield, Massachusetts. Oral Paper presented at Society of Wetlands Scientists 23rd Annual Meeting in Lake Champlain, NY. 2002.
- Long-Term Vegetative Sampling to Detect Changes As A Result of Groundwater Drawdown From New Municipal Well. Presented at Society of Wetlands Scientists 20th Annual Meeting in Norfolk, Virginia. 1999.

