



Glacial Gazette

Glaciated Soil Survey Region 12 Newsletter

Summer 2015



While aboard the NRCS subaqueous soil survey vessel, Mr. Kramer listened to presentations from Donald Parizek, 12-TOL MLRA Soil Survey Office Leader and Brett Still, a Ph.D. candidate from the University of Rhode Island (URI).

Northeast Regional Conservationist Tours Connecticut Subaqueous Soil Survey Project

by Donald C. Parizek, Soil Survey Office Leader, Tolland, Connecticut

On June 9, 2015, Tony Kramer, NRCS Northeast Regional Conservationist (acting), toured an ongoing subaqueous soil survey project in Branford, Connecticut as part of a week long tour of NRCS projects in Connecticut, Massachusetts, and Rhode Island.

With a signed MOU in place, Connecticut NRCS and the Connecticut Department of Agriculture are working together on a Branford subaqueous soil survey project which encompasses an area in the vicinity of the scenic Thimble Islands within Long Island Sound. Connecticut NRCS then used cooperative agreements with the University of Rhode Island and Eastern Connecticut State University to manage and complete the project. The project will develop a 1:12,000 scale soil survey extending below the surface of the water and will add to previously published subaqueous soil surveys in Connecticut and Rhode Island in both saltwater and freshwater environments.

Connecticut has a long history of shellfish production and an established system of leases within Long Island Sound, not unlike what farmers do on dry land. Within the Branford subaqueous soil survey there are numerous shellfish beds used to grow oysters and clams for commercial markets. Having an inventory of the subaqueous soils present within these shellfish bed is very important for maintaining production and modifying management techniques to promote sustainable shellfish production, as research at URI has concluded that growth rates can vary greatly in shellfish living in different subaqueous soils.

Connecticut and Rhode Island NRCS in cooperation with URI and other institutions continue to lead the nation in subaqueous soil survey. As a new frontier for soil science, subaqueous soils have become an important piece of soil systems that has not always been considered until recently. During the tour, Mr. Kramer remarked that he now has a much better appreciation for what it takes to get subaqueous soil survey completed and the importance of the work for aquaculture and the environment. ■

In this Issue

- 2 Regional Director's Message
- 3 USDA Two Chiefs' Partnership Award
- New Audio Product—Guide to Pronouncing Soil Terms
- 4 Tidal Marsh Project
- 6 Ecological Site Descriptions and Biodiversity
- 7 Sandy Lake Plain ESD
- 8 Raster Soil Survey of Essex County, Vermont
- Society of Wetland Scientists
- 9 Personnel Updates
- 10 Contact us



International Year of Soils

As part of the global celebration and awareness campaign,

the Soil Science Society of America developed a set of videos, centered around a monthly theme.

The video for August, ***Soils Support Health***, is available online. Visit <https://www.soils.org/iys/monthly-videos> for more information and to view the videos.

NRCS August Video, Just What the Doctor Ordered, is available on [YouTube](#).

Upcoming Themes:

September—***Soils Protect the Natural Environment***

October—***Soils and the Products We Use***

November—***Soils and Climate***

December—***Soils, Culture, and People***

Digital Soil Mapping with ArcSIE Training—August 25–27, 2015
Amherst, Mass.

Digital Soil Mapping with ArcSIE training will cover the use of ArcGIS software for data development, analysis and interpretation, and the use of Fuzzy Classification techniques with the ArcSIE extension.

Regional Director's Message

Summer Greetings! I hope this message finds you well and enjoying summer and all that this season offers.

First, I would like to recognize and thank Al Averill, State Soil Scientist for Massachusetts and Vermont, for his leadership and outstanding work during his tenure as Acting Regional Director earlier this year. I also wish to personally thank Al for his help during my transition as the current Acting Regional Director.

This has been an interesting and challenging year for all of us in Soil Survey Region 12 (SSR 12). We find ourselves with the fourth Regional Director during this short time, three of them acting. However, because of the strong efforts, dedication, and professionalism of the regional and MLRA soil survey office staffs, SSR 12 has been focused and very productive in achieving soil survey goals and assisting states in meeting conservation goals. This work includes Soil Data Join Recorrelation initiative, initial and MLRA soil survey projects, developing the Ecological Site Inventory and the Regional Modeling Unit, supporting soil education and state conservation activities through technical soil services, and managing administrative operations during this challenging time of broad organizational changes.

We continue to address Soil Science Division priorities as well as contribute to new initiatives such as the National Ecological Observatory Network (NEON). The St. Johnsbury and Tolland MLRA soil survey office staffs will be involved coordinating the description and sampling of soil points within study plots in three NEON sites in New England later this year and next. We continue to support partnership opportunities for urban and subaqueous soil survey and ecological site inventory.

In closing, it is noteworthy to mention that members of the St. Johnsbury, Vermont MLRA soil survey office staff were jointly awarded the USDA Two Chiefs' Partnership Award for their collaboration with the U.S. Forest Service (USFS) and the University of New Hampshire (UNH) in promoting the use and validation of cutting-edge technologies for mapping soil and ecological sites in the White Mountain National Forest. An official ceremony was held in Durham, N.H. on May 19. Bob Long, Roger Dekett, Jessica Philippe, and Martha Stuart from the St. Johnsbury MLRA Soil Survey Office received the recognition along with Scott Bailey, Roger Colter, Greg Nowacki, Joseph Phillips, and Erica Roberts of the USFS and Mark Ducey, Tom Lee, and Michael Palace from UNH.

Continue to enjoy your summer!

A handwritten signature in black ink, appearing to read 'Shawn Finn'.

Shawn Finn, Acting Regional Director

USDA Two Chiefs' Partnership Award

Tom Wagner (pictured left) from the U.S. Forest Service and Luis Hernandez (pictured right) from NRCS present Jessica Philippe, Bob Long, Roger Dekett, and Martha Stuart with the USDA Two Chiefs' Partnership Award.



Jessica Philippe
Soil Scientist
St. Johnsbury, Vermont



Bob Long
Soil Survey Office Leader
St. Johnsbury, Vermont



Roger Dekett
Soil Scientist
St. Johnsbury, Vermont



Martha Stuart
Soil Scientist
St. Johnsbury, Vermont

New Audio Product—Guide to Pronouncing Terms in Soil Taxonomy and Soil Survey

Disagreements over the proper pronunciation of terms like aniso, goethite, spodisol, and more can now be resolved with the new *Guide to Pronouncing Terms in Soil Taxonomy and Soil Survey*.

This guide promotes consistent pronunciation among users of Soil Taxonomy and members of the National Cooperative Soil Survey. The guide presents a list of terms (in alphabetical order) that are used in Soil Taxonomy along with other terms used to describe soils.

The list is not comprehensive but does include many commonly used terms. Included with each term are its origin, a respelling of the word for the purpose of pronunciation followed by the phonetic spelling in parentheses, an alternate pronunciation (if one exists), and an audio file of narrator Craig Ditzler pronouncing the term. Using headphones to hear the pronunciations is recommended.

The guide is available through the NSSC Soil Classification page. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/class/>



Ipswich soil profile at Riverbend Marsh in the New Jersey Meadowlands.

Tidal Marsh Project

A Cooperative Effort in New York City and New Jersey

by Rich Shaw, State Soil Scientist, New York and New Jersey

Tidal marshes provide important habitat and shoreline stabilization, and act as a buffer between upland areas and open water. They sequester significant amounts of carbon and are areas of high biomass production. Once considered unproductive land in need of “reclamation,” only recently have these areas been appreciated for the full extent of their ecosystem services. Current NRCS surveys indicate 214,454 acres of tidal marsh in New Jersey, a little more than 4 percent of the state’s land area. About 93 percent of the currently mapped area is salt marsh; the remaining 7 percent is fresh water tidal marsh. According to the recently completed USDA-NRCS initial soil survey, salt marsh currently comprises 3,878 acres, or 2 percent of the land area of New York City. Efforts to restore tidal marsh, by the U.S. Fish and Wildlife Service, the National Park Service, and the New York City Department of Parks and Recreation (NYCDPR), among others, are ongoing in numerous locations in New Jersey and New York City.

From April 29 through May 1, 2015, the NRCS New Jersey soils staff, with assistance from the Tolland, Connecticut (12-TOL) soil survey staff and personnel from the Department of Earth and Environmental Sciences at Brooklyn College, sampled tidal marsh soils in the New Jersey Meadowlands for Kellogg Soil Survey Laboratory analyses. This was the first phase of a New Jersey–New York City project to begin collecting characterization data for tidal marsh soils in a cooperative effort with some of our partners (e.g. Meadowlands Environmental Research Institute, Barnegat Bay Partnership, and New York City Department of Parks and Recreation). It will initiate long term monitoring of tidal marsh properties at sites where these cooperators have established sediment elevation tables (SETs) and collected supplemental site information.

Though the 12-TOL office has already harmonized all of its tidal marsh map units using the limited data available, the collection of this data will help to clarify, narrow, and justify map unit ranges for future and ongoing projects. Little characterization (laboratory) data exists for salt or freshwater marsh soils. Such data is needed to accurately depict the properties of these soils in our database to provide reliable resource inventory information, as well as dependable interpretations and ratings for use and management of these soils. It will help in understanding the depositional and pedological processes, both anthropogenic and natural, taking place in these areas, and provide baseline information for long term monitoring of soil change. The data will also allow for an estimation of carbon stocks in the marshland as part of a city-wide inventory. Most of the map units in New Jersey tidal marsh areas are complexes containing two or more major soil series or components. There was little interest in differentiating series in the marshes at the time that most of these soil surveys were

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Tidal Marsh Project continued...

conducted. Characterization data from these sites will provide the foundation for evaluating our tidal marsh mapping and future map unit refinement as we move toward digital and raster-based mapping. The three Meadowlands sites, including pedons of the Westbrook (Loamy, mixed, euic, mesic Terric Sulfihemists) and Ipswich (Euic, mesic Typic Sulfihemists) series, were sampled in cooperation with the Meadowlands Environmental Research Institute (MERI), which serves as the scientific and technological arm of the New Jersey Meadowlands Commission. MERI staff provided plenty of background and anecdotal information on the area as well as transportation to and from the sampling sites. MERI Director Dr. Francisco Artigas proved to be an ideal cooperater.



Danielle Wagner of Brooklyn College, Dr. Francisco Artigas of Meadowlands Environmental Research Institute, Dr. Hermine Huot of Brooklyn College, Marissa Theve of 12-TOL, and Rob Tunstead from the Hammonton, N.J. (3-HAM) soil survey office examine a one meter core sample at the Riverbend Marsh along the Hackensack River in the New Jersey Meadowlands.

Further sampling in 2015 is planned for:

1. Six SET sites in New York City managed by the NYCDPR in Bronx, Brooklyn, Queens, and Staten Island—The Ipswich and Pawcatuck series are mapped in these areas. As NYCDPR personnel are active in marsh restoration, there is interest in participating in the sampling event.
2. Three sites on Barnegat Bay, monitored by the Barnegat Bay Partnership and the Partnership for the Delaware Estuary (PDE)—These locations are all mapped as a complex of Appoquinimink (Fine-silty, mixed, active, nonacid, mesic Thapto-Histic Sulfaquents), Transquaking (Euic, mesic Typic Sulfihemists) and Mispillion (Loamy, mixed, euic, mesic Terric Sulfihemists) soils. A subaqueous soil survey of Barnegat Bay is currently in progress, led by Hammonton, N.J. MLRA Soil Survey Office Leader Rob Tunstead.

Future sampling will target freshwater tidal marshes along the Delaware River, where the SETs are monitored by the PDE. These sites are mapped as a complex of the Mannington (Fine-silty, mixed, active, nonacid, mesic Thapto-Histic Hydraquents) and Nanticoke (Fine-silty, mixed, active, nonacid, mesic Typic Hydraquents) series.

The tidal marsh floods twice a day, offers no protection from the sun or wind, is home to several types of insect pests, and can be difficult to cross due to the boot-sucking substrate or the dense vegetation. The soils are messy to describe and sample, often with an oppressive sulfide odor, and the profile is almost always beneath the water table. It's commonly an area where many contaminants come to rest; yet to some soil scientists, it's a fascinating and attractive environment. ■

Ecological Site Descriptions and Biodiversity Off the Shores of Lake Michigan

by Nels Barrett, Regional Ecological Site Specialist, Amherst, Massachusetts

NRCS sponsored and participated in NatureServe's Conservation Conference "Biodiversity without Boundaries—2015" on April 26-30 at Traverse City, Mich., off the shores of Lake Michigan. The main theme of the conference was on collaborations that advance landscape-level conservation with a focus on science. Scheduled sessions and presentations followed four major topics: Great Lakes Symposium, Biodiversity Information, Conservation Assessment, and Conservation Planning.

NRCS displayed an exhibit featuring the Web Soil Survey and WebSoil App. NRCS also portrayed the "NRCS International Year of Soils" on a large display poster and in a prominent program advertisement. The dominant focal point for NRCS was a special half-day session, held Wednesday afternoon, specifically on the topic of Ecological Site Descriptions and the role of partnerships. This session included five presentations followed by a panel discussion. Approximately, 30 people were in attendance. In keeping with the conference theme, this special session with NRCS introduced the need for the continued development of

enduring partnerships among NatureServe, Natural Heritage Programs, various Federal agencies, and other non-governmental organizations to promote vegetation science, especially as it relates to NRCS' Ecological Site Descriptions. During the panel discussions, NRCS' Provisional Ecological Sites Initiative was showcased as an opportunity to collaborate in future, region-wide workshops—workshops with specific objectives that could apply NatureServe's vegetation information in the creation of appropriate state-and-transition models.

The conference also included a field trip to Sleeping Bear Dunes National Lakeshore to take in the views and discuss ecological site features and the associated vegetation. A back-road "transect" crossed through several habitats including relic "strandplains" of alternating wooded ridges and wet swales, to open dunelands, and eventually, beaches. From the water's edge, the view to the north revealed the headlands of Empire Bluffs and Sleeping Bear. ■



Platte Bay, Lake Michigan with a view of Empire Bluffs to the right and Sleeping Bear to the left.

Sandy Lake Plain Ecological Site Description

by Greg J. Schmidt, Ecological Site Inventory Specialist,
Grand Rapids, Michigan

The soil survey office in Grand Rapids, Michigan (12-GRR) recently completed the Sandy Lake Plain Ecological Site Description (ESD) for Major Land Resource Area (MLRA) 97. This ESD covers portions of the Lake Michigan Lake Plain extending from just north of the Indiana border in Michigan, north to Muskegon County.

An ESD describes the climate, soil, natural processes, and plant and animal communities' characteristic of a site. The central concept of the Sandy Lake Plain is almost pure sand with no water table within 150 cm. Due to the proximity to the lake, the site receives heavier snowfall than areas inland or on

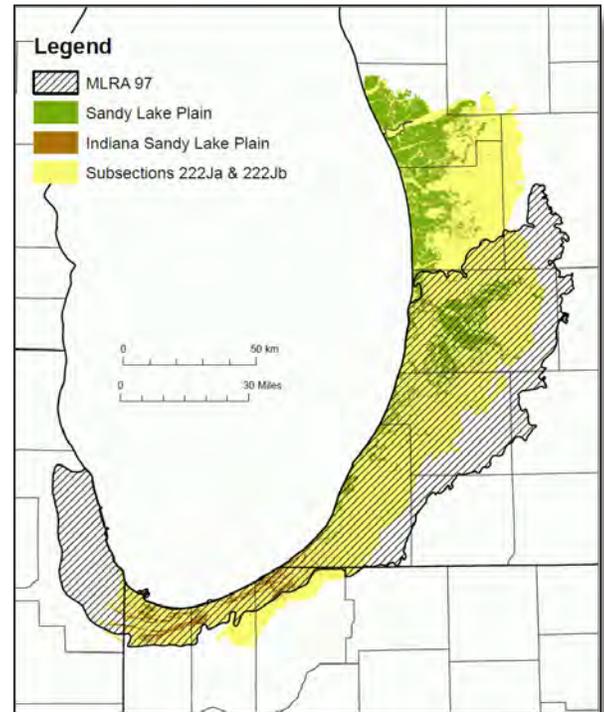
the Indiana and Illinois portions of the lake plain.

Consequently, the historic fire regime was generally infrequent over smaller delineations, favoring late successional plant communities such as beech, maple, and hemlock forests. Larger, unbroken areas, in proximity to past historic human settlement, however, had more frequent fires, resulting in oak-pine barrens vegetation.

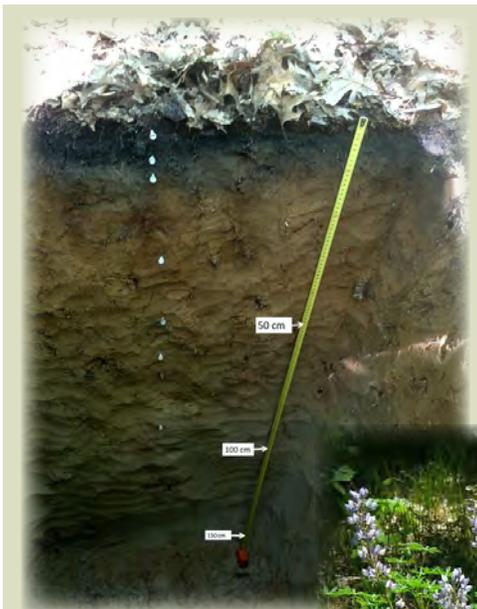
The reference community is still prevalent mid-successional phase, white oak-white pine forest. The most open community phases are unique habitats for several state-listed plant species and wild lupine,

host of the federally listed Karner blue butterfly. Land use, other than natural vegetation, is unlikely to be productive due to the droughty nature of the sand and available plant nutrients being predominantly bound to biomass and decaying leaf litter.

Presettlement vegetation maps currently being developed by the U.S. Geological Survey for northern Indiana will be utilized to determine the appropriate natural boundary between northern and southern portions of the sandy lake plain. The Southern Sandy Lake Plain will differ mainly by having historically more prairie and oak barrens vegetation and fewer conifers. ■



Geographic extent of the Sandy Lake Plain.



Soil profile for the Plainfield Sand.

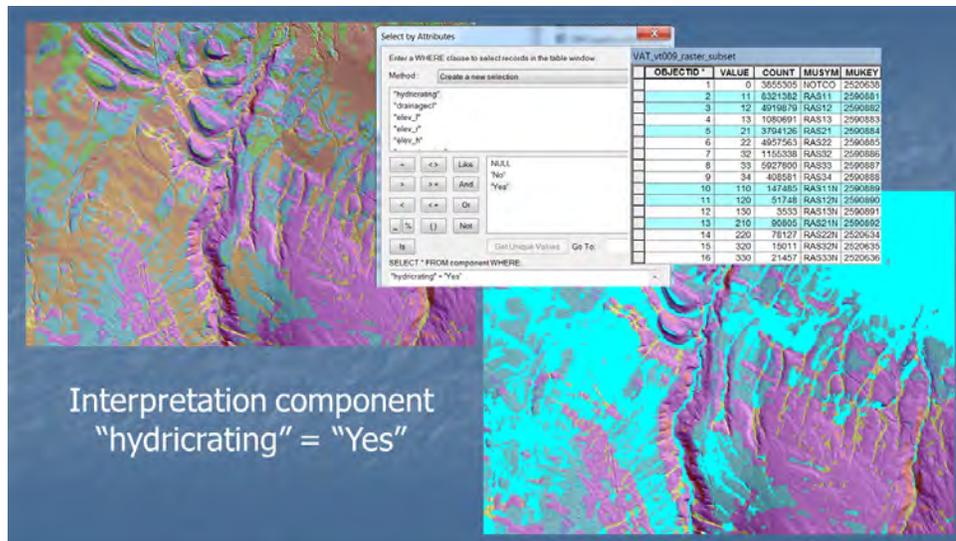


Wild lupine (*Lupinus perennis*), host to the Karner blue butterfly.

Raster Soil Survey of Essex County, Vermont

by Bob Long, Soil Survey Office Leader, St. Johnsbury, Vermont

The Raster Soil Survey (RSS) of Essex County, Vermont was posted to the NRCS Geospatial Data Gateway in 2014, making it the first officially published RSS in the nation. This raster soil survey more precisely represents soil concepts on the landscape than the traditional vector soils product (SSURGO). In 2015 soil scientists and GIS experts from Soil Survey Region 12, National Soil Survey Center, and NRCS headquarters investigated the potential for enhanced soil interpretations derived from this high-resolution product.



In addition to interpretations typically populated as component attributes, such as the one shown in the image above, the following models were studied:

1. Classic interpretations using the NASIS interpretations generator, and only data from NASIS.
2. Interpretations from a generator not in NASIS that uses NASIS attributes and raster data from outside sources—such as slope, climate, land use, or proximal sensed data. ■

Facebook users! **The National Soil Survey Center has a Facebook page** that you may be interested in liking. Please visit the page at <https://www.facebook.com/pages/National-Soil-Survey-Center-NSSC/185426441556087>.

Society of Wetland Scientists Hold Annual Meeting

by Jim Turenne, Assistant State Soil Scientist, Rhode Island

The 36th Annual Meeting of the Society of Wetland Scientists was held in Providence, Rhode Island on May 31 through June 4. This year's theme, "Changing Climate, Changing Wetlands" examined the role that wetlands play in the global carbon cycle, how they are affected by our changing climate, and how they can provide adaptation services. This year's meeting had the largest attendance since the society was founded in 1980 with an estimated 650 people from around the world attending.

There was a small but committed group of soil scientists at the meeting including members of the Society of Soil Scientists of Southern New England who provided an International Year of Soils exhibit, staffed by Jim Turenne, Assistant State Soil Scientist for Rhode Island.

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*Society of Wetland Scientists
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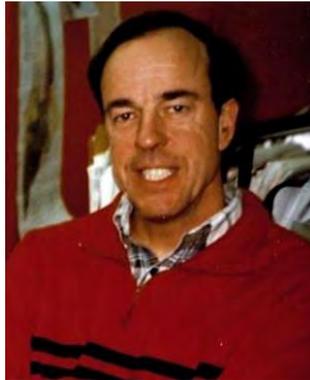
The soils exhibit featured several soil trays of the unique hydric soils found in Southern New England along with a wealth of soils handouts and live demos on accessing soils data via Web Soil Survey and the SoilWeb App. The soils exhibit was very popular and often had lines of people waiting to have questions answered.

Soil presentations and posters for the meeting were mainly focused on the Rhode Island Coastal Zone Soil Survey, blue carbon, vernal pools, and subaqueous interpretations. Maggie Payne, Massachusetts NRCS Resource Soil Scientist, gave a talk on creating seamless soil maps in shallow subtidal wetlands; and Dr. Mark Stolt, Professor of Pedology at the University of Rhode Island presented information about the research on carbon sequestration in shallow subtidal wetlands. Several of Mark's graduate and doctorate students also presented their research on soils at the meeting.

Society of Wetland Scientists has nearly 3,000 members in more than 60 counties. For more information visit: www.sws.org. ■



Personnel Updates



David Turcotte, Retired Soil Scientist
Dover-Foxcroft, Maine

After nearly 20 years of service on the Soil Survey in Maine, Dave Turcotte hung up his shovel on March 27, 2015. Dave plans to retire to Norridgewock, Maine with his wife, Mallaney. He continues to be an active member of the Maine Association of Professional Soil Scientists and is pursuing opportunities to teach soils as an adjunct professor at several local universities. Dave's

knowledge of soils and how they interact on the landscape will be greatly missed in the 12-DFX office. We would like to thank him for his dedicated service and wish him the best of luck in his future endeavors.



Carl Bickford, Soil Scientist

Dover-Foxcroft, Maine

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Carl Bickford started working as a soil scientist in the Dover-Foxcroft office in May 2015. Prior to joining the 12-DFX soils crew Carl worked as a forester and became a certified planner in Somerset County, Maine. Carl enjoyed interacting with customers and promoting

NRCS programs. He served as the acting District Conservationist in Somerset County numerous times and also in Piscataquis County for an extended period of time. Prior to joining the Somerset office, Carl worked for almost 6 years (starting in a temporary position) as a soil scientist in the Dover-Foxcroft office. Carl worked extensively in northern Maine on initial soil survey and also on the extensive revision of southern Penobscot County during his previous tenure. Carl graduated from the University of Maine at Orono in 2006 with a forest management degree and a minor in soils. Carl also had 15 years of forestry experience prior to joining NRCS.

Carl grew up in Monson, Maine in Piscataquis County. He enjoys the outdoors—spending as much time as he can hunting and fishing, but not nearly as much time as he would like. He and his wife spend most of their free time chasing his two children from one sporting event to another. ■

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Your suggestions, comments, and articles are welcome! Articles may be sent via email as either an MS Word attachment saved as text only, or pasted directly into your email message. Photographs should be emailed as a separate jpg attachment. Please include a caption for each photo submitted.

Send items to SSR 12 editor,
kristina.wiley@ma.usda.gov

