

Annual Report 2015



RCCD implementing the first installation in New Hampshire of a new innovative technology to reduce nitrogen from septic system leachate. Brentwood, NH.

The mission of the Rockingham County Conservation District is to conserve and sustain the natural environment for present and future generations by working to make wise land-use decisions.

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Rockingham County Conservation District

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Dedicated to the Wise Use of Our Natural Resources.

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Associate Supervisors

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RCCD Regular Staff

- Leonard A. Lord, PhD - District Manager/Ecologist, NH Soil Scientist, NH Wetland Scientist, NH Septic System Designer (Reviewer), NH Pesticide Applicator
- Tracy Degnan - Conservation Specialist
- Diane Knapp - Office Manager
- Vicky Stafford - Assistant District Manager
- Michael O'Malley - Conservation Technician, NH Pesticide Applicator

RCCD As-Needed Staff & Contractors

- Michael Cuomo - NH Soil Scientist, NH Wetland Scientist, NH Septic System Designer (Reviewer)
- David Detour - Surveyor and AutoCAD Draftsman
- Marc Jacobs - NH Soil Scientist, NH Wetland Scientist, Certified Professional in Erosion and Sediment Control
- Gerald Lang, PE - Hydraulic Engineer
- Danna Trustlow - Restoration Hydrologist

RCCD SERVICES

- | | | |
|--------------------------------------|-----------------------------------|--|
| • Non-Point Source Pollution Control | • Invasive Species Control | • IPM for Reduced Pesticide Impacts |
| • Ecological Restoration | • Stormwater Management Reviews | • Agricultural Wetland Impact Permits |
| • Sustainable Agriculture | • Septic System Design Reviews | • Soil Potential Index for Current Use Tax |
| • Conservation Easements | • Natural Resource Impact Reviews | • Historic Aerial Photography back to 1943 |
| | • Grant Writing | |

NEW HAMPSHIRE STATUE

TITLE XL

SOIL CONSERVATION AND FARMLAND PRESERVATION Conservation Districts

432:8 Declaration of Policy. - It is hereby declared to be the policy of the state to provide for the establishment of conservation districts under the supervision of a state conservation committee, said districts are to be composed of landowners and land occupiers within the district, who may join together in the interest of the conservation and development of the soil, water, and related natural resources and preventing soil erosion, floodwater and sediment damages. It is the intent of this subdivision to facilitate the joint effort of landowners, land occupiers, and units of government in carrying out measures for the conservation and development of lands within the district, voluntarily and with such assistance as may be available for this purpose from local, state, or federal governmental agencies.

432:11 Duties. - The state conservation committee shall:

IV. Seek the cooperation and assistance of the United States, of this state, and of town and county governments, in the work of such districts, and receive funds from such agencies or from any other source and use such funds to carry out the purposes of the state conservation committee and the conservation districts.

Looking Ahead to 2016



○ In 2016, the RCCD will be participating in a multi-agency partnership called the **Costal Watershed Regional Conservation Partnership Program**. This project will help focus conservation efforts in the NH Coastal Watershed - which includes the land surrounding Great Bay and its tributaries - to improve water quality and protect important farmland. RCCD will be assisting farmers with access to conservation programs to help

them continue farming in sustainable ways.

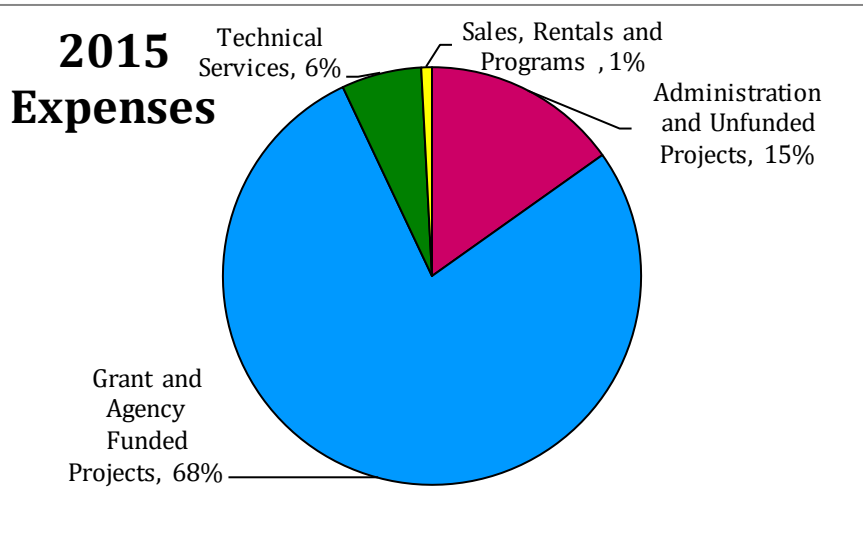
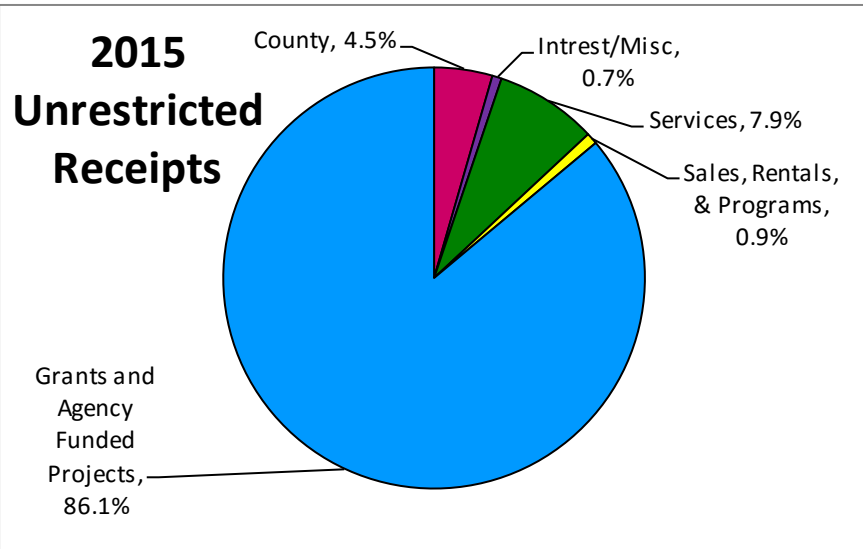
○ Restoring native habitats through targeted **invasive plant control** will continue to be an important part of RCCD programming.

○ In 2016, the RCCD is looking forward to continuing existing **Soil Health Initiatives** by connecting with farmers, creating nutrient management plans based on individual farm resources and needs, and assisting producers in implementation of those plans. Specialized Farm Equipment Rentals that assist with conservation farming practices will also be important RCCD programs in 2016. This will help reduce the nutrients in runoff to our surface waters, including those reaching Great Bay and the Merrimack River.

○ Continued **native habitat restoration** work at Odiorne Point State Park.



Financials



Over the past year RCCD has made a number of strides to reduce costs and increase revenues to help offset the 50% county funding cut of \$45,000 in 2011. To this end we have aggressively pursued grant and outside agency funded projects, as well as fee-for-service projects, raised our fee-for-service rates, and reduced our office hours.

Connections: Climate Change, Ocean Dead Zones, Great Bay, and Soil Health

Globally, climate change has brought greater fluctuations to our weather patterns. Nationally, our Gulf and southeastern coasts are dotted with dead zones associated with nitrogen laden runoff from agriculture (hypoxia). Locally, nitrogen in our waters has caused significant problems to the Great Bay Estuary. The NH Department of Environmental Services has determined that 20% of the non-point source, non-atmospheric nitrogen entering Great Bay is associated with agriculture. Soils farmed with traditional methods typically need more fertilizer, have depleted soil organic matter, and have compacted soil layers. This makes the soil less likely to absorb rainfall needed to sustain crops

The RCCD utilizes base funding provided by the County for grant writing and leveraging funds from other sources but these resources are becoming increasingly scarce.

during periods of drought, and more likely to result in nutrient laden runoff during periods of heavy rainfall. Healthy soils not only reverse these characteristics but can also act as carbon sinks, reducing greenhouse gasses in our atmosphere. Many states have begun regulating farming practices to reduce nitrogen in runoff but we believe that New Hampshire can address this problem with VOLUNTARY solutions to improve soil health. However, voluntary programs need financial support to succeed. As state and federal programs are shrinking, the Conservation District welcomes the increasing responsibility to conserve our natural resources. We know the local needs, we operate efficiently, and we get the job done!

For every dollar provided by the County in 2015, RCCD leveraged \$21.19 from other sources.

Rockingham County is ranked in the top 2% in the country for direct food sales from farms to consumers. Based on the 2012 Agricultural Census.

The RCCD Board of Supervisors appreciates the support of our programs by the Rockingham County Commissioners and the County Delegation.



Great Bay Nutrient Management Initiative

The Great Bay Nutrient Management Initiative is a collaborative effort of the Rockingham and Strafford County Conservation Districts to reduce non-point source nitrogen and other pollutants from entering Great Bay. This is accomplished primarily by assisting farmers in **voluntarily** reducing nutrient inputs. Through conversations with local farmers, the Districts learned that the best equipment available for efficient farming and nutrient management is typically too expensive for individual farmers to own. The Districts obtained grant funding to purchase a wood ash/lime spreader, a soil aerator, a no-till seeder, and a new Yeoman's Plow for farmers to rent at low cost. These four pieces of equipment have been used on over 1285 acres to manage soil pH, compaction, and soil structure over the past four years. A workshop highlight from this year was a no-till roundtable held in the spring to connect farmers, District staff, and specialists from UNH cooperative Extension and NRCS to discuss what works well, and ways to improve the implementation of no-till practices.



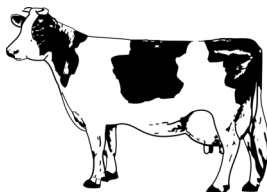
Great Bay Nutrient Management Initiative

Reducing Nitrogen Runoff from Agriculture

Nitrogen from agriculture makes up approximately 20% of non-point source non-atmospheric nitrogen reaching Great Bay (NHDES).

RCCD employees began working on Nutrient Management Plans in 2015 with guidance from the Natural Resources Conservation Services in training to become certified in Nutrient Management Planning, (NMP). NMP is a technique used to balance the needs of the crops, the need to recycle nutrients being produced by livestock, and the need to manage nutrients in effective ways. This planning process also helps to reduce runoff into surrounding waterways. This is an important step for improving the surface waters of Rockingham County including those in the Coastal and Merrimack River watersheds. Partial funding for this training process is contributed by the New Hampshire Department of Environmental Services.

RCCD is also partnering with The Nature Conservancy to increase farmer interest and use of nutrient management plans.



NRCS Accomplishments in 2014

NRCS Funds in Rockingham County- Fiscal Year 2014

Technical Assistance	Amount	Description
	\$169,926	Field Office Personnel
	\$272,384	Share of Statewide Personnel
	\$77,873	Support Costs
Total	\$520,183	

The USDA Natural Resources Conservation Service provides technical and financial assistance to farmers, ranchers, and forest landowners to voluntarily put conservation on the ground. This helps them to implement practices which improve environmental and agricultural quality.



2015 data not available at the time of printing

NRCS Contracts and Agreements in Rockingham County

Financial Assistance	# of Contracts	Amount	Conservation Program
	14	\$232,550	Environmental Quality Incentive Program
	1	\$597,500	Agricultural Conservation Easement Program
	9	\$2,424,602	Wetland Reserve Easements
Total	24	\$3,254,652	

Total Technical and Financial Assistance: \$3,006,317

Natural Resources Conservation Service Partnering



RCCD continues to partner with NRCS to identify and address natural resource concerns in local communities and to coordinate public and private resources to meet local needs on a grassroots level. The District worked with NRCS during 2015 to provide assistance to landowners and producers to carry out environmentally sound practices that benefit all residents of the County under the 2014 Farm Bill.

The Natural Resources Conservation Service is a core partner of the Rockingham County Conservation District. The partnership between the NRCS and Conservation Districts is one that was carefully designed to foster a unique and productive relationship to get conservation implemented on a VOLUNTARY BASIS and to provide federal resources at a local level.

Locally Led Voluntary Conservation

Conservation Districts are in a unique position to provide guidance on local conservation needs and priorities to our federal partners at the NRCS. This fall, RCCD convened related conservation agencies, forming a Local Work Group to discuss and prioritize



local natural resource needs and concerns. RCCD enhanced work completed by the past Local Work Group by inviting additional partners, administering a new resource concern survey, and further developing conservation priorities for Rockingham County. RCCD is proud to be the local voice for conservation priorities and looks forward to the 2016 local work group meeting. If you would like more information about the 2016 Local Work Group meeting or would like to be on our survey mailing list, please contact the District.

District led Local Work Groups establish spending priorities for NRCS that are based on local concerns.

Great Bay Nutrient Management Initiative

Innovative Septic Nitrogen Reduction

In 2015, the first of two demonstration Permeable Reactive Barriers (PRB) was installed at Windsor Meadows Condo Association, in Brentwood, NH. A Permeable Reactive Barrier (PRB) is a new passive technology used to control nitrogen with a formulation of wood chips, exchange media, and sand or gravel to transform inorganic nitrogen to nitrogen gas. This patented technology (Nitrex System) can be used in conjunction with an existing or new septic system to prevent nitrogen migration to sensitive watershed areas. The installation of the second demonstration site is scheduled for January 2016. In 2014, RCCD was awarded a Watershed Assistance Grant from the New Hampshire Department of Environmental Services with funds from the Environmental Protection Agency to set up demonstration sites for this new technology to help reduce the amount of nitrogen leaching from



Nitrogen from septic systems makes up approximately 50% of non-point source non-atmospheric nitrogen reaching Great Bay (NHDES).

septic systems. Great Bay has been identified in New Hampshire as an impaired water body for excess total nitrogen levels. Many non-point sources have been identified, including nitrogen coming from septic systems. Conventional septic systems do not do an adequate job of removing nitrogen. Active on-site septic system technologies to remove nitrogen from these systems are expensive and are subject to mechanical failure. This study is testing the feasibility of the PRB technology for widespread use. RCCD is partnering with the Town of Durham and the Town of Brentwood for the installations. Initial water quality data was collected before the installations and post-water quality monitoring is planned for 2016.



Great Bay Nutrient Management Initiative Conservation Farming Equipment

***New this year* Yeoman's Plow.** With funding from the State Conservation Committee and the sale of Conservation Moose Plates, RCCD and the Strafford County Conservation District completed custom built Yeoman's Plow to tackle deep subsoil compaction with minimal impact on soil structure. The plow can be used for a technique called Keyline farming where furrows along contours are created to manage runoff on farmed slopes. This will reduce erosion from rain water. The first Keyline



workshop was held in the fall 2015.

Wood Ash Spreader: A Stoltzfus Wood Ash/Wet Lime Spreader was purchased with funding through the NH State Conservation Committee Grant Program. To combat the growing challenges created by New Hampshire's acidic soils, this piece of equipment is available for rent to spread wood ash or lime, which will help



modify soil pH. Soils that are less acidic or soils with a pH closer to neutral are better environments for legumes and other nitrogen fixing plants, which allows for reduced fertilizer use. This piece of equipment has been used to spread over 1120 tons of lime/wood ash on 365 acres in 2015.

AerWay Soil Aerator: This piece of equipment was purchased with funding from the New Hampshire Association of Conservation Districts Innovative Demonstration Projects in partnership with the Natural Resource Conservation Service. Compacted soils affect soil health in a variety of ways including limiting normal water infiltration, gas exchange, and limiting plant root access to nutrients. The aerator will loosen compaction without damaging soil structure as often happens with traditional tillage practices. This piece of equipment was used on over 135 acres in 2015.



No-Till Drill The Great Plains 606NT no-till seeder arrived in the summer of 2013 has been available for rent ever since. The no-till drill reduces soil disturbance and conserves organic matter, improving soil properties. The drill also aids in the seeding of cover crops which can loosen compaction, add organic matter, and improve soil tilth. The drill was used to seed 110 acres in 2015.



Other District Programs Statewide Pollinator Initiative

The decline in native pollinators and the collapse of many honey bee colonies has caused concern for many farmers and naturalists. In the past few years many agencies have joined together to promote the restoration of habitat for native pollinators. The New Hampshire Association of Conservation Districts received funding in 2013 from the New Hampshire Department of Agriculture, Markets, and Foods Specialty Crop Block Grant to create demonstration sites in each county and hold workshops with pollinator specialists culminating with a Statewide Pollinator Summit in November 2015.



This year, RCCD completed two pollinator habitat demonstration sites and two pollinator habitat workshops at those sites, featuring pollinator specialists from the Xerces Society. The first demonstration site and workshop was held in the spring at Salt Box Farm in Stratham, led by Eric Mader. The second was held in the fall at Goss Farm in Rye, led by Jarrod Fowler. The NH Pollinator Summit was a great success held in November, in Concord, NH with over 250 participants, featuring a wide range of professionals and experienced farmers and landscapers.

Preparing Sites for Pollinator Plantings

An important step in creating herbaceous pollinator habitat is preparing the site. Often, other vegetation will outcompete the wildflower seeds if the site is not prepared properly. At Goss Farm, herbicides were used twice in the summer of 2015 to eradicate weeds and other plants from the area that would soon be seeded with



pollinator specific wildflowers. Farms that choose not to use herbicides can use solarization and tillage to eliminate vegetation.

RCCD Restoration in 2015

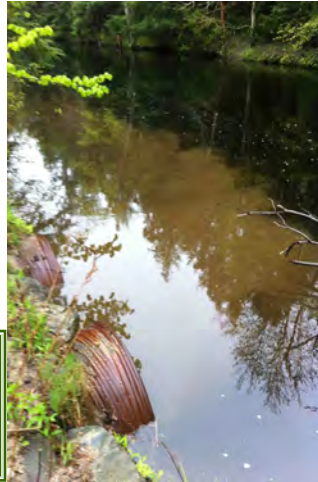
A prescribed burn was also implemented in October 2015 at Goss Farm to further prepare the seedbed. Prescribed burns can be difficult to coordinate and obtain

permits for, but luckily the Rye Fire Department was able to assist on this town owned property. This is an extremely effective method of removing weed pressure and preparing the seed bed for pollinator-friendly plants. Look for more pollinator activities in 2016 and beyond!

Other District Programs

Assisting Towns to Protect Resources

RCCD continues to be relied upon as an objective provider of technical expertise to municipalities and landowners. RCCD provides technical assistance to municipalities for services such as stormwater management and related site engineering design reviews, erosion & sediment control reviews, test pit witnessing for subdivision and septic system designs, septic system design reviews, septic system installation reviews, wetland reviews, other natural resource impact reviews, and monitoring of town held conservation easements.



In 2015 RCCD staff spent 1,490 hours providing technical assistance to municipalities

All programs are offered on a non-discriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, disability or political beliefs.

Other District Programs

Land for Water Quality and Farmland and Open Space Protection

In addition to protecting open space, conservation easements protect communities from higher taxes, help keep government and government services small, protect town character and aesthetics, and protect natural resources for future generations. RCCD is legally responsible for monitoring 103 conservation easements on approximately 4,600 acres of land throughout the county. As part of our new business model, RCCD has greatly reduced the number of new easements it is now able to accept due to our limited staff. RCCD staff spent 520 hours managing easements in 2015



Grant and Agency Funded Projects

Saving the New England Cottontail



In partnership with the New Hampshire Association of Conservation Districts and other Conservation Districts throughout the state, RCCD assisted in the completion of over 40 acres of habitat managed for the New England Cottontail (NEC) in the Merrimack River Corridor in the western section of Rockingham County. Restoration efforts included selective cutting, brush mowing, invasive plant management, and brush pile development. RCCD also participated in an statewide event celebrating the collaboration between many organizations to increase local participation in creating additional acreage of shrubby and early succes-



sional habitat in New Hampshire that is imperative for the survival of the NEC. At this event, it was announced that the NEC will not be listed as a federal endangered species due to the great restoration efforts that are in place.



Grant and Agency Funded or Fee for Service

Restoring Native Plant Communities

In 2015 RCCD helped to restore native plant communities and removed invasive species on 9 parcels totaling approximately 68 acres. These restorations were completed utilizing integrated vegetation management techniques, which combine both chemical and non-chemical



approaches to remove invasive plant species and replace them with native ones. The RCCD is accepting new invasive plant work that is grant funded or on a fee for service basis. Please contact the District if you have an area in mind. The RCCD District Manager is also a member of the NH State Invasive Species Committee.



Grant and Agency Funded Projects

Rare Coastal Habitat Restoration

In 2015 RCCD completed its sixth year of habitat restoration at Odiorne Point State Park in Rye. This year, RCCD focused on a soil acidification study to return soil to historic pH levels in order to make the habitat more favorable to native species. Follow up invasive work at previous restoration plots also occurred. This phase was funded through the NH State Conservation Committee and the sale of Conservation Moose Plates. The RCCD has recently been awarded a \$50,000 grant from NH Department of Environmental Services Costal Program in order to expand to 11 new acres in 2016 in order to restore the coastal areas of the park. These habitats have become degraded over time due to past disturbances and human impacts that have promoted infestation by invasive species. This effort will not only have environmental benefits, but is expected to improve the quality of the park for recreation, aesthetics, education, and safety. Odiorne Point State Park includes some of New Hampshire's rarest native ecosystems such as coastal pitch pine forest, sand dunes, salt marshes and barrier marshes.



NEW HAMPSHIRE DIVISION
OF PARKS AND RECREATION



Grant and Agency Funded Projects

Wetland Buffers in New Castle

Beginning the summer of 2015, RCCD is working with the Town of New Castle, funded with a Piscataqua Region Environmental Planning Assessment Project Grant, to update to the 2005 New Castle Wetlands Study. The two goals of the update are to make a case for the importance of Laveneger Creek for potential prime wetlands classification, and to look at the possibility of increasing wetland buffer protection. An outreach workshop was held in October with Dr. David Budick where 30 New Castle residents toured the Laveneger Creek salt marsh, learned about the rare and critical plants and animals that live in that ecosystem, and what actions residents can take to help protect them.



Grant and Agency Funded Projects

Wetland Restoration Partnering



In 2015 RCCD continued to manage approximately 60 wetland restoration projects through a cooperative agreement with the Natural Resources Conservation Service. This program gives landowners the ability to improve wetland habitat for wildlife, water quality, flood storage. The projects involve site evaluations, selection of contractors, permit preparation, and implementation management.

A significant portion of the projects under this agreement have been completed in 2015. RCCD work on these projects will continue into 2016 and 2017.

Grant and Agency Funded Projects

Learning about an Agricultural Pest

In 2015 The RCCD, completed a small continuation of a 2014 project investigating the relationships between the spotted wing Drosophila (SWD), and the presence of wild plant hosts, with emphasis on invasive plants. The goal of this project is to better understand how management of vegetation surrounding farm fields may impact SWD pest pressure. This project was funded through the New Hampshire Association Conservation Districts and the Integrated Pest Management (IPM) program through the New Hampshire Department of Markets and Foods.

Other District Programs

Reducing Pesticide Use and Impacts

Rockingham County has seen a tremendous increase in local farming over the last decade. This has provided local jobs, high quality local farm products, increased local food security, and is an income producing alternative to development that helps preserve the rural character of our county.

IPM plans consider human health risks, soil-pesticide interactions, impacts to sensitive areas, and alternative ways to mitigate pesticide impacts.



With this rise in local agriculture has also come an increase in pesticide use. Integrated pest management (IPM) takes a common sense approach to pest control by considering pest life cycles, economic impact thresholds, pest monitoring, and both chemical and mechanical approaches. The RCCD provides Integrated Pest Management Plans for Farms.