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LU-1

Promote inclusion of natural resource chapters in municipal master/comprehensive plans, natural resource assessments, adoption of conservation subdivisions ordinances, and creation of open space plans

Highest

Population and land development continue to increase in the Region and recent land development patterns are typical of sprawl. Adoption of compact development patterns by municipalities will help slow open land consumption and retain the Region’s green infrastructure that provides important ecological services such as drinking water protection, nitrogen attenuation, pollutant filtration, wildlife habitat, and floodwater absorption. Communities should conduct a natural resource inventory (NRI) to inform regulations to protect natural resources. Maine towns are required to address BwH elements in plans and adopt minimum strategies for their protection. BwH also reviews all plan drafts for consistency with rules.

ACTIVITIES:

* Periodically review status of each PREP community’s Master/Comprehensive Plans, adoption of conservation subdivisions ordinances, and creation of open space plans.
* Provide technical assistance to municipalities to complete NRIs in accordance with LU-12.
* Provide technical assistance to municipalities to include natural resource chapters in Master Plans, and revise Maine municipal Comprehensive Plans, in accordance with relevant wildlife action plans.1,2
* Provide technical assistance to municipalities to develop/update conservation subdivisions ordinances for residential and commercial projects.3,4
* Provide technical assistance to municipalities to develop/update open space/conservation plans that incorporate regionally significant Conservation Focus Areas.5,6

MEASURING PROGRESS:

Outputs:

* Report of regulatory and non-regulatory approaches to resource protection
* Completed or updated natural resource inventories
* Adopted, updated, or draft natural resource chapters in municipal Master/Comprehensive Plans
* Adopted, updated, or draft conservation subdivision regulations

Outcomes:

Critical habitats are protected from development

Implementation Metrics:

Municipalities require conservation subdivisions

Municipalities have conservation overlay districts that include CFAs from regional plans

Municipalities have Natural Resource Inventories (NRIs)

NH municipalities have a Natural Resource Chapter in their Master Plan

Issues Addressed:

* Buffers
* Development
* Land Protection
* LID
* Nutrients

Leads:

* BwH
* RPC
* SMRPC
* SNHPC
* SRPC

Cooperators:

* Conservation Commissions
* GBNERR
* MSPO
* NROC
* Planning Boards
* Planning Departments
* PREP
* UNH-CE
* WNERR
* Zoning Boards of Adjustments

Funding:

* MDEP
* NHDES
* NOAA
* PREP
* USEPA

Critical Guidance:

1New Hampshire Fish & Game Department. 2015. New Hampshire Wildlife Action Plan.

2Frazer & Charry. 2006. Beginning with Habitat: Conserving Wildlife in Maine’s Coastal Habitat.

3New Hampshire Department of Environmental Services, New Hampshire Association of Regional Planning Commissions, New Hampshire Office of Energy & Planning, & New Hampshire Local Government Center. 2008. Innovative Land Use Planning Techniques: A Handbook for Sustainable Development.

4Maine Department of Inland Fisheries & Wildlife. 2003. Beginning with Habitat: Toolbox.

5Zankel, Copeland, Ingraham, Robinson, Sinnott, Sundquist, Walker, & Alford. 2006. The Land Conservation Plan for New Hampshire’s Coastal Watershed.

6Walker, Smith, Schumacher, Czapiga, Sowers, Oman-Saltmarsh, & Dest. 2010. The Land Conservation Plan for Maine’s Piscataqua Region Watersheds.

LU-2

Employ BMPs and LID approaches in new, existing, and redevelopment to minimize stormwater runoff impacts and limit changes to pre-development site hydrology

Highest

Stormwater best management practices (BMPs) and low impact development (LID) techniques are designed to reduce peak stormwater runoff volumes, protect water quality, and limit off-site impacts and changes to existing hydrology caused by development. Limiting the adverse impacts of stormwater is important to maintain clean water and natural resource function. Both NHDES and MDEP have developed LID guidelines and regional planning commissions assist in training and implementation of these standards and ordinances.

ACTIVITIES:

* Periodically review status of municipal stormwater regulations and erosion and sediment control regulations.
* Encourage municipalities to adopt LID technologies and stormwater BMPs in accordance with WR-8.1,2,3,4
* Provide technical support to municipalities to implement stormwater management, erosion and sediment control, and LID programs and regulations.
* Improve capacity/funding for municipal inspection and maintenance of stormwater treatment systems in accordance with LU-5.
* Encourage municipalities to adopt an impervious cover cap for new development for residential lots.5,6
* Promote use of Southeast Watershed Alliance model stormwater standards.
* Encourage municipalities to establish developer incentives to use LID technology.

MEASURING PROGRESS:

Outputs:

* Report of regulatory and non-regulatory approaches to resource protection in the Region
* Outreach campaign to municipal staff and boards on adopting LID technologies and stormwater BMPs
* Adopt, update, or draft stormwater management, erosion and sediment control, and/or LID programs and regulations for municipalities
* Participation in UNH-SC workshops for municipal staff and boards
* Stormwater utility feasibility studies
* Outreach campaign to municipal staff and boards on adopting an impervious surface cap for new development on residential lots
* Outreach campaign to municipal staff and boards on creating developer LID incentive program

Outcomes:

Reduced environmental impact from stormwater

Implementation Metrics:

10% effective impervious cover for new development

LID techniques for new development and redevelopment

Municipal stormwater management regulations reflect NHDES model

Municipalities require site inspections for compliance with stormwater/E&S requirements

Issues Addressed:

* Groundwater
* LID
* Nutrients
* Stormwater

Leads:

* MDEP
* NHDES
* RPC
* SMRPC
* SNHPC
* SRPC
* UNH-SC

Cooperators:

* Businesses
* Departments of Public Works
* Granite State Rural Water Association
* ME Rural Water Association
* NHCAW
* NHDOT
* NROC
* PREP
* SSC
* UNH-CE
* UNH-SC
* Watershed Organizations

Funding:

* MDEP
* NH Coastal Program
* NHDES – Regional Environmental Planning Program
* PREP
* USEPA

Critical Guidance:

1New Hampshire Department of Environmental Services, New Hampshire Association of Regional Planning Commissions, New Hampshire Office of Energy & Planning, & New Hampshire Local Government Center. 2008. Innovative Land Use Planning Techniques: A Handbook for Sustainable Development.

2Horsley Written Group. 2011. LID Guidance Manual for Maine Communities: Approaches for Implementation of Low Impact Development Practices at the Local Level.

3US Environmental Protection Agency. 2007. Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices.

4US Environmental Protection Agency. 2018. National Menu of Stormwater Best Management Practices.

5New Hampshire Department of Environmental Services. 2014. New Hampshire Stormwater Manual.

6Peterson, Stone, & Houle. 2009. Protecting Water Resources and Managing Stormwater: A Bird’s Eye View for New Hampshire Communities.

LU-3

Refine and support existing outreach and training programs that promote *LID*, *LEED*, and sustainable development practices and adopt relevant standards for environmental resource protection

High

National, regional, and state guidance on Smart Growth development, low impact development (LID), and green building practices or Leadership in Energy and Environmental Design (LEED) have been well developed. However, a need exists to identify appropriate local standards and promote implementation that protects resources in the Piscataqua Region Watershed.

ACTIVITIES:

* Identify current LID, LEED, Smart Growth, and green development standards in Maine and New Hampshire that adequately protect watershed resources.1
* Provide technical assistance to communities to integrate current LID, LEED (or comparable) performance, and green development standards into municipal zoning and development regulations.1
* Track implementation of LID and green development practices for municipalities with specific attention on those subject to the EPA MS4 permit.

MEASURING PROGRESS:

Outputs:

* Report of LID, LEED, Smart Growth, and green development guidance and regulation standards in Maine and New Hampshire
* Adopted, updated, or drafted municipal zoning and development regulations that incorporate current LID, LEED, and green development standards

Outcomes:

Decision makers that understand sustainable development standards and how to incorporate them into land use and building standards and ordinances

Zoning ordinances and building codes that are more protective of watershed resources

Implementation Metrics:

Impervious surfaces in coastal watersheds

10% effective impervious cover for new development

LID techniques for new development and redevelopment

Municipal stormwater management regulations in accordance with Southeast Watershed Alliance model stormwater standards

Municipalities require site inspections in accordance with NHDES model ordinance

Issues Addressed:

* Development
* LEED
* LID
* Stormwater
* Water Use

Leads:

* GBNERR
* NROC
* RPC
* SMRPC
* SNHPC
* SRPC
* UNH-CE
* UNH-SC
* WNERR

Cooperators:

* Conservation Commission
* Developers
* Energy Commissions
* Financial Institutions
* Local River Management Advisory Committees for Lamprey, Exeter, Oyster, Cocheco, & Isinglass
* MDEP
* ME Coastal Program
* MSPO
* NHDES
* Planning Boards
* Planning Departments
* Realtors
* The Jordan Institute
* Zoning Boards of Adjustments

Funding:

* MDEP
* NHDES – Regional Environmental Planning Program
* NOAA
* USEPA

Critical Guidance:

1Southeast Watershed Alliance. 2012. Model Stormwater Standards for Coastal Watershed Communities.

LU-4

Track and promote reduction of impervious surfaces

Highest

Impervious surfaces increase the volume and peak discharge of stormwater runoff and degrade water quality. This occurs through the land development process by reducing the landscapes “sponge-factor” and the ability to filter and recharge rainfall runoff. Many urbanized areas with impaired waters have impervious cover far in excess of 10%. The impervious cover in many newly developing areas within the Piscataqua Region is still below 5%. Keeping effective impervious surfaces below 5-10% helps maintain predevelopment hydrology and is protective of aquatic biota.1,2 It is important to provide information and training to land use boards on impervious cover status, impacts to aquatic habitat, and how to successfully implement low impact development and green infrastructure. Proactively conserving riparian lands and buffers will also contribute to the success of this action.

ACTIVITIES:

* Identify subwatersheds with current impervious cover of 5-10% or less.
* Support outreach and education for municipalities identified as having low impervious cover that emphasizes the importance of maintaining low effective impervious cover.
* Provide technical assistance to municipalities to adopt a 10% effective impervious cover cap and to require the use of LID for new and redevelopment.
* Prioritize targeted municipalities during implementation of action plans that lead to reduced impervious surface cover.
* Support municipality adoption of the SWA Post Construction Stormwater Management Standards3 and provide erosion and sediment control training to planning boards and code enforcement officers.
* Continue updates to the impervious surface data for the entire Region every 5 years and communicate new findings to stakeholders.
* Promote retrofits that reduce effective impervious cover.

MEASURING PROGRESS:

Outputs:

* Report of subwatersheds with impervious cover < 5-10% and associated municipalities
* Adopted, updated, or draft municipal land use ordinances with < 10% impervious surface cap that require the use of LID in new and redevelopment
* Adopted, updated, or draft municipal land use ordinances with redevelopment criteria that reduce existing impervious cover
* Report on impervious surface cover in the Region

Outcomes:

Water quality and hydrology maintained in lightly developed watersheds

Water quality and hydrology restored/improved in developed watersheds

Implementation Metrics:

Impervious surfaces in coastal watersheds

Preservation of riparian and wetland buffers

Issues Addressed:

* Development
* Flooding
* Nutrients
* Stormwater

Leads:

* NH Grant
* NROC

Cooperators:

* GBNERR
* Land Protection Organizations
* MDEP
* ME Coastal Program
* Municipalities
* PREP
* RPC
* SMRPC
* SNHPC
* SRPC
* UNH-CE
* UNH-SC
* Watershed Organizations
* WNERR

Funding:

* PREP
* USEPA

Critical Guidance:

1Spromberg, Baldwin, Damm, McIntyre, Huff, Sloan, Anulacion, Davis, & Scholz. 2016. Coho Salmon Spawner Mortality in Western US Urban Watersheds: Bioinfiltration Prevents Lethal Storm Water Impacts.

2Schueler, Fraley-McNeal, & Cappiella. 2009. Is Impervious Cover Still Important? Review of Recent Research.

3Southeast Watershed Alliance. 2017. Post Construction Stormwater Management Standards.

LU-5

Explore creation of stormwater and resilience fees to fund stormwater system maintenance and upgrades and on-the-ground adaptation

Moderate

Aging infrastructure, increasing development, changes in precipitation with more frequent extreme storms, and water quality permit requirements are increasing municipal costs to maintain and operate stormwater. NH RSA 149-I:6-b enables municipalities to establish fees for the creation of stormwater utilities, which, like water or sewer utilities, charge for management of stormwater. These fees can be based on impervious surface area or some other metric applied by municipalities and can be used for the maintenance and operation of stormwater management.

There are currently over 1,200 stormwater utilities nationwide, and some communities, like Northampton, Massachusetts, have implemented dual purpose fees to fund flood mitigation projects in addition to stormwater. NHDES and MDEP are assisting municipalities to investigate dual purpose stormwater and resilience fees to improve not only stormwater quality and management, but to generate funding for climate adaptation and resilience strategies. In Maine, a stormwater service fee has been established in Portland, Lewiston, and Bangor, but none currently in the Piscataqua Region Watershed. In New Hampshire, Portsmouth and Dover have previously explored the creation of a stormwater utility.

ACTIVITIES:

* Evaluate results of feasibility studies for stormwater in Portsmouth and Dover and implementation of a stormwater service fee in Portland to determine applicability to other watershed communities in the Region.
* Support feasibility studies in the Region at any scale (i.e. watershed, municipal, neighborhood).
* Support outreach and education to municipalities and residents in the Region related to advancing, understanding, and implementing stormwater and resilience fees.
* Support establishment of stormwater and resilience fees where feasible.

MEASURING PROGRESS:

Outputs:

* Report on feasibility of stormwater and resilience fees in the Region
* Stormwater and resilience fees feasibility study(ies)
* Established or proposed stormwater and resilience fees
* Coordinated outreach and education to municipalities and residents about stormwater utilities or stormwater and resilience fees

Outcomes:

Improved implementation of stormwater management projects leading to improved water quality and resilience

Establishment of a secure, adequate, flexible, and equitable (SAFE) funding source to support stormwater management, on-the-ground adaptation, and to leverage federal grant opportunities

Implementation Metrics:

None

Issues Addressed:

* Climate Adaptation
* Flooding
* Nutrients
* Resilience
* Stormwater
* Water Quality
* Water Use

Leads:

* NHDES

Cooperators:

* Local River Advisory Committees
* MDEP
* Municipalities
* New England Environmental Finance Center
* NROC
* PREP
* RPC
* SSC
* SNHPC
* SRPC
* SWA
* UNH-SC
* USEPA

Funding:

* MDEP
* Municipalities
* NHDES – Clean Water State Revolving Fund & Asset Management Funds
* USEPA

LU-6

Promote and implement measures to protect floodplains and riparian shoreland areas from detrimental impacts associated with development

High

Recent flood events have increased attention on the need to keep most development out of floodplain areas subject to catastrophic channel changes or frequent inundation. Accurate mapping of chronic flooding areas and land use regulations associated with these areas will help municipalities limit future property and environmental damage. Mapping should incorporate anticipated changes in the frequency and severity of storm events as a result of climate change.1

ACTIVITIES:

* Identify shorelands most vulnerable to inundation or flooding.
* Encourage adoption of regulations that protect floodplains and shorelands by limiting development in or adjacent to floodplains and shorelands.2

MEASURING PROGRESS:

Outputs:

* Report on vulnerable shorelands and floodplains including GIS data
* Advocacy campaign to municipal staff and boards on measures to adopt regulation and policy to protect floodplains and riparian shoreland areas from development – campaigns should reference NH office of strategic initiative floodplain model ordinance2

Outcomes:

Protected shoreland and fluvial zones

Reduced damage to infrastructure, property, and habitat during storm events

Implementation Metrics:

75’ wide shoreland buffer protections on first order streams and ≥100’ on all others

Issues Addressed:

* Flooding
* Floodplains
* Shorelands

Leads:

* BwH
* MDEP
* NHDES
* NHGS

Cooperators:

* ME Coastal Program
* ME Emergency Management Agency
* NH Bureau of Emergency Management
* NHCAW
* NROC
* RPC
* SMRPC
* SNHPC
* SRPC
* Watershed Organizations

Funding:

* FEMA
* MDEP
* NHDES
* NOAA

Critical Guidance:

1Wake, Knott, Lippmann, Stampone, Ballestero, Bjerklie, Burakowski, Glidden, Hosseini-Shakib, & Jacobs. 2019. New Hampshire Coastal Flood Risk Summary – Part I: Science.

2New Hampshire Office of Strategic Initiatives. 2019. Model Floodplain Management Ordinance.

LU-7

Assess and implement adaptive measures to protect and retain resiliency and function of tidal and freshwater wetlands, shorelands, fluvial zones, and watershed areas given the expected impacts of climate change

Highest

Sea-level rise, flooding, and geomorphologic change will impact the limits of wetlands, shorelines, and fluvial zones. Assessing and implementing adaptive management and restoration strategies and identifying land protection priorities based on inundation mapping and projected areas of flooding will assist in minimizing the impacts of these changes. Models from Rhode Island and Massachusetts are being used to estimate climate change impacts and future land use planning and regulations will be based on these assessments. This process can be used as a model for similar habitat assessment work in the Piscataqua Region.

ACTIVITIES:

* Evaluate and rank vulnerable wetlands, shorelands, and watershed areas. Prepare recommendations for areas that require land conservation, adaptive management, and restoration.
* Create adaptive plans for optimal areas for coastal and fluvial resources and infrastructure.
* Evaluate and encourage adaptive regulatory and non-regulatory approaches for protection of tidal shoreline and riparian areas in Region communities to accommodate climate change induced changes to hydrology and limit development in these high-hazard zones.

MEASURING PROGRESS:

Outputs:

* Vulnerable wetlands, shorelands, fluvial zones, and watershed areas report(s)
* Adaptive plans for coastal and fluvial resources and infrastructure
* Report of regulatory and non-regulatory approaches to resource protection in the Region
* Outreach campaign to municipal staff and boards on approaches for protection of tidal shoreline and riparian areas to accommodate climate change induced changes to hydrology and limit development in these high-hazard zones

Outcomes:

Climate change adaptation measures that provide habitat resiliency and avoid high economic and social costs

Implementation Metrics:

None

Issues Addressed:

* Climate Change
* Land Protection
* Shorelands
* Wetlands

Leads:

* BwH
* MGS
* NHCAW
* RPC
* SMRPC
* SRPC

Cooperators:

* GBNERR
* Land Owners
* MDEP
* MDOT
* NHDOT
* PREP
* TNC-NH
* UME
* UNH-EOS
* UNH-GRANIT
* WNERR

Funding:

* FEMA
* NOAA
* USEPA
* USGS

LU-8

Identify and protect highest value wetlands within the Piscataqua Region Watershed by improving municipally based assessments, zoning, and regulation or through land conservation

Highest

Towns and cities may study and prioritize wetlands within their borders and provide additional regulatory protections to wetlands with exceptional ecological or social functions or values. Protection of wetlands with the highest functions and values will protect habitat, water quality, and the hydrologic function of wetlands.

In New Hampshire, municipalities have the option of recognizing certain local wetlands as “prime wetlands” – a designation that provides stronger protection to these wetlands at the state level under the state’s wetland permitting program. Maine does not have a prime wetland designation but does provide special protections for wetlands that are identified as “significant wetlands” by MIFW. Maine’s State Planning Office has developed a statewide FVA model that BwH is applying town by town for outreach efforts. Higher value wetlands are required to be addressed in local comprehensive plans.

ACTIVITIES:

* Evaluate and periodically update tracking of municipal wetland inventories, prime wetland designations, and wetland buffer standards.
* Provide technical assistance to municipalities to complete updated nontidal and tidal evaluation wetland functional assessments.
* Provide technical assistance to municipalities to protect high value wetlands and sufficient associated upland buffers by adopting or updating local wetland mitigation, buffer, and/or setback ordinances and/or regulations.
* Encourage local and regional land trusts to incorporate wetland assessment and evaluation data into protection priorities.
* Encourage and provide technical assistance to municipalities to designate high value wetlands as Prime Wetlands1 or significant wetlands.
* Support and participate in a coordinated effort to develop consistent messaging and promote wetland protections across the Region.

MEASURING PROGRESS:

Outputs:

* Report of regulatory and non-regulatory approaches to resource protection in the Region
* Wetland functional assessments
* Adopted, updated, or draft wetland mitigation ordinances
* Adopted, updated, or draft wetland buffer ordinances
* Adopted, updated, or draft setback ordinances
* Outreach campaign to local and regional land trusts on incorporating wetland assessment and evaluation data into protection priorities
* Outreach campaign to municipal staff and boards to designate high value wetlands as Prime Wetlands or significant wetlands
* Adopted, updated, or draft Prime Wetlands or significant wetlands designations

Outcomes:

Improved protection of high value wetlands and associated upland buffers

Implementation Metrics:

Municipalities have designated prime/significant wetlands

Issues Addressed:

* Buffers
* Land Protections
* Wetlands

Leads:

* BwH
* MDEP
* Municipalities
* NHDES

Cooperators:

* Land Protection Organizations
* PREP
* RPC
* SMRPC
* SNHPC
* SRPC

Funding:

* MDEP
* MDOT
* NHDES
* NHDOT
* PREP

Critical Guidance:

1New Hampshire Department of Environmental Services. 2019. Env-Wt 100-800 Wetlands Rules.

LU-9

Work with MDEP and NHDES to evaluate effectiveness of wetlands mitigation policies and In-Lieu Fee programs, where applicable

Moderate

Permitted wetland impacts sometimes require a permit applicant to either create a wetland, perform wetland restoration to mitigate the permitted impact, or, in some cases, permanently protect other wetland areas and/or adjacent upland buffers.

Developers or organizations can choose to pay an In-Lieu Fee if a suitable wetland mitigation project cannot be located. This fee is placed in a fund that can be used for larger conservation goals, with preference for projects completed within the Watershed where the wetland impact occurs. NHDES and MDEP administer the In-Lieu Fee programs in their respective states.

ACTIVITIES:

* Cooperate with NHDES and MDEP on tracking the extent of wetland mitigation projects and compare function losses to functional gains.
* Track net permitted wetland loss on a regional basis and evaluate whether the “no net loss” of wetlands goal is being met.
* Track use of In-Lieu Fees (in NH) to determine if larger conservation goals are being met and evaluate tradeoffs being made in wetland acreage, type, and function. If conservation goals are not being met or tradeoffs in wetland functions/values is determined to be undesirable, recommend modifying In-Lieu Fee program rules to implement improvements.

MEASURING PROGRESS:

Outputs:

* Report on wetland mitigation policies and In-Lieu Fee programs, that includes summaries of wetland mitigation projects, permitted wetland loss, wetlands or other habitat restored or protected, and use of In-Lieu Fees for Watershed improvement projects

Outcomes:

Improved protection and preservation wetland functions in the Region

Implementation Metrics:

None

Issues Addressed:

* Development
* Flooding
* Stormwater
* Water Quality

Leads:

* MDEP
* NHDES
* RPC
* SMRPC
* SNHPC
* SRPC

Cooperators:

* Land Protection Organizations
* ME Coastal Program
* Municipalities

Funding:

* MDEP
* NHDES

LU-10

Develop and implement consistent municipal ordinances to protect 1st, 2nd, and 3rd order streams and buffers throughout the Watershed

Highest

Small streams (first, second, and third order) are the headwaters in a watershed and are the source of water to larger river systems. Development within upland buffers adjacent to these streams degrades these systems and impairs their capacity to protect water quality, provide healthy aquatic habitat, and regulate peak flow volumes. Removing vegetation from shoreland (riparian) buffers and adding impervious surfaces increases downstream flooding hazards and increases the delivery of polluted runoff into the river system.

The NH Shoreland Water Quality Protection Act protects buffer zones adjacent to streams that are 4th order and higher, not the smaller headwater streams. The Maine Mandatory Shoreland Zoning Act requires that municipalities protect shoreland buffer areas through adopting shoreland zoning maps and ordinances for streams that are second order and higher. Municipalities can protect smaller streams and enact more protective regulations than provided by Maine or New Hampshire laws. Uniform protection of shoreland buffers within a watershed and across town boundaries is important so that all headwater streams continue to provide valuable ecosystem services.

ACTIVITIES:

* Periodically assess the status of existing buffer regulations and ordinances for 1st, 2nd, and 3rd order streams in Piscataqua Region communities.
* Integrate science-based information on the importance of protecting small streams into existing outreach and training programs for municipal decision makers, as needed.
* Provide outreach to all communities on the importance of small stream and riparian buffer protection, in accordance with LU-4 and communities that have minimal or no low order stream buffer regulations in place.
* Promote at least a 100’ wide buffer on all streams, rivers, ponds, and lakes.1
* Provide technical assistance to communities to adopt small stream buffer ordinances.2,3,4

MEASURING PROGRESS:

Outputs:

* Report of regulatory and non-regulatory approaches to resource protection in the Region
* Adopted, updated, or draft municipal shoreland buffer regulations
* Outreach campaign to natural resource outreach and training program administrators on integrating science-based information on the importance of protecting small streams into existing curriculum
* Outreach campaign to municipal staff and boards on value of low order streams and stream buffers
* Adopted, updated, or draft small stream buffer ordinances

Outcomes:

Improved water quality and habitat quality from protected riparian buffers

Implementation Metrics:

100’ wide shoreland buffer protections on all streams

Issues Addressed:

* Buffers
* Land Protection
* Small Streams

Leads:

* BwH
* MDEP
* Municipalities
* NHDES
* RPC
* SMRPC
* SNHPC
* SRPC

Cooperators:

* GBNERR
* ME Coastal Program
* NH Coastal Program
* NROC
* PREP
* SWA
* UNH-SC
* WNERR

Funding:

* MDEP
* NH Coastal Program
* NHDES – Regional Environmental Planning Program
* NOAA
* USEPA

Critical Guidance:

1Flanagan, Patrick, Leonard, & Stacey. 2017. Buffer Options for the Bay: Exploring the Trends, the Science, and the Options of Buffer Management in the Great Bay Watershed Key Findings from Available Literature.

2New Hampshire Department of Environmental Services, New Hampshire Association of Regional Planning Commissions, New Hampshire Office of Energy & Planning, & New Hampshire Local Government Center. 2008. Innovative Land Use Planning Techniques: A Handbook for Sustainable Development.

3Maine Department of Inland Fisheries & Wildlife. 2003. Beginning with Habitat: Toolbox

4Chase, Deming, & Latawiec. 1997. Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities

LU-11

Promote collaboration among national, state, and local land protection groups to implement landowner education and outreach, provide technical assistance and training, and coordinate on land protection and stewardship efforts

High

Cooperation between national, regional, and local land protection organizations is needed to optimize land protection efforts and raise the capacity of all organizations. Regular interaction and training among these groups is essential to keep all organizations informed of new laws, standards and practices, and funding mechanisms.

In New Hampshire, SPNHF supports a number of these functions and UNH-CE organizes an annual New Hampshire Saving Special Places land protection conference. The Maine Land Trust Network and Maine Coast Heritage Trust support Maine land trusts and hold a conference and trainings each year. The national Land Trust Alliance provides support and training to improve land conservation practices and advocate for land protection policies.

The Land Trust Accreditation Commission provides independent verification of 37 indicator practices from Land Trust Standards and Practices that show a land trust’s ability to operate in an ethical, legal, and technically sound manner. Accreditation is an effective, methodical approach to promoting well-executed projects in the Region.

The existing coastal conservation plans for the Region represent a shared vision of land protection priorities. Efforts, like Connect the Coast and Pawtuckaway to Great Bay Greenway, include visions and plans for connecting landscapes across communities and with cooperating agencies for improved recognition and protection of green infrastructure, wildlife values, clean and abundant water supplies, and recreation.

ACTIVITIES:

* Provide training to landowners and land protection organizations on best practices, landowner education, and legal issues in land conservation.
* Encourage further collaboration between local, state, and national conservation organizations on land conservation projects through such regular meetings as the Great Bay Resource Protection Partnership meetings and annual Saving Special Places conference.
* Provide training of land trusts to comply with Land Trust Accreditation.1
* Complete development of land conservation connectivity plans that supplement and/or update the LCP-NH and LCP-ME to ensure conservation focus areas are joined in a well-buffered network that permanently protects the conservation values and functions of the focus areas and supports the PREP CCMP.

MEASURING PROGRESS:

Outputs:

* Training(s) to landowners and land protection organizations on best practices, landowner education, and legal issues in land conservation
* Outreach campaign to local, state, and national conservation organizations on land conservation projects
* Trainings to land trusts on complying with Land Trust Accreditation
* Land conservation connectivity plans that link existing CFAs into a regional green infrastructure

Outcomes:

Well-informed land trust staff

Well-informed landowners

LTA-accredited land trusts

Improved ecologically functioning conservation land network

Implementation Metrics:

None

Issues Addressed:

* Land Protection

Leads:

* Land Trust Alliance
* ME Land Trust Network
* SELT
* SPNHF
* TNC
* UNH-CE

Cooperators:

* Land Protection Organizations
* MDIFW
* ME Coastal Program
* Municipalities
* NHFGD
* RPC
* SMRPC
* SNHPC
* SRPC
* USFWS

Funding:

* Foundations
* Municipalities
* NOAA
* PREP
* State & Federal Grants

Critical Guidance:

1Land Trust Alliance. 2017. Land Trust Standards and Practices.

LU-12

Assist watershed communities in adopting local land conservation plans and natural resource inventories that incorporate regional land protection priorities, species and habitat information, and wildlife habitat connectivity concepts

High

The LCP-NH and LCP-ME were collaboratively created by several key resource management organizations and utilized resource co-occurrence mapping to identify focus areas for land protection. PREP recognizes these plans as the guiding land protection documents for the Region. The NHWAP and BwH are state-led natural resources efforts that provide valuable habitat and wildlife information and a blueprint for conducting local natural resource inventories and conservation planning on a landscape scale. PREP recognizes these two plans as the guiding wildlife management documents for the Region. Habitat connectivity models map terrestrial and aquatic habitat and migration corridors. Planning for habitat connectivity can be enhanced by including local knowledge in these connectivity models and by encouraging multi-town planning.

ACTIVITIES:

* Encourage incorporation of the priorities and data from the LCP-NH and LCP-ME into land trust and municipal conservation plans.1,2
* Promote conservation overlay districts that include CFAs.1,2 Post online maps of overlay districts.
* Encourage municipalities, watershed organizations, and land protection organizations to access, interpret, and integrate WAP and BwH resources and data into NRIs and land conservation plans.3,4
* Promote collaboration among land protection organizations and multiple adjacent municipalities on WAP and BwH implementation.
* Promote inclusion of habitat connectivity models in development of land conservation plans and delineate wildlife corridors and buffers in land conservation and stewardship plans.
* Encourage communities to use LCP-NH, LCP-ME, WAP, and BwH when developing ordinances and conservation overlay districts.
* Track municipal adoption of regional plans.
* Update the LCP-NH and LCP-ME as needed to include new conservation data, connectivity, and local and statewide land protection priorities and progress on focus areas protection.

MEASURING PROGRESS:

Outputs:

* Outreach campaign to municipal staff and boards, watershed organizations, and land protection organizations on incorporating LCP-NH, LCP-ME, WAP, and BwH resources and data into land trust and municipal conservation planning
* Regional maps/GIS illustrating habitat connectivity and migration corridors
* Updated LCP-NH and LCP-ME
* Report of regulatory and non-regulatory approaches to resource protection in the Region

Outcomes:

Land protection that incorporates local and regional conservation priorities

Incorporation of habitat connectivity corridors into local and regional conservation plans

Implementation Metrics:

Municipalities have conservation overlay districts that include CFAs from regional plans

Municipalities have conservation plans that include CFAs from regional plans

Municipalities have online maps of NRI features and zoning district overlays

Issues Addressed:

* Habitat
* Land Protection

Leads:

* BwH
* GBNERR
* Land Protection Organizations
* Municipalities
* RPC
* SMRPC
* SNHPC
* SRPC
* UNH-CE
* WNERR

Cooperators:

* GBRPP
* ME Coastal Program
* NROC
* PREP
* TNC
* USFWS
* Watershed Organizations

Funding:

* MDIFW
* Municipalities
* NHFGD – Taking Action for Wildlife Community Assistance Program Grants
* PREP
* UNH-CE

Critical Guidance:

1Zankel, Copeland, Ingraham, Robinson, Sinnott, Sundquist, Walker, & Alford. 2006. The Land Conservation Plan for New Hampshire’s Coastal Watershed.

2Walker, Smith, Schumacher, Czapiga, Sowers, Oman-Saltmarsh, & Dest. 2010. The Land Conservation Plan for Maine’s Piscataqua Region Watersheds.

3New Hampshire Fish & Game Department. 2015. New Hampshire Wildlife Action Plan.

4Frazer & Charry. 2006. Beginning with Habitat: Conserving Wildlife in Maine’s Coastal Habitat.

LU-13

Develop land stewardship and management approaches on conserved lands in a compatible and complementary manner across the Watershed to maintain ecosystem services on a landscape scale

High

Many plans and programs have been developed that focus on regional land and habitat protection and restoration on a landscape scale in the Region. However, land stewardship and management approaches at the individual parcel level are often developed and implemented without consideration of nearby conserved land management and regional conservation objectives.

The purpose of this action plan is not to create a common stewardship and management standard to be applied evenly across all conserved lands in the Region, but to improve the ability of land stewards to develop and implement appropriate management approaches that compliment adjoining managed land and support regional conservation objectives.

Most land trusts and some conservation commissions prepare and implement management plans for their properties, but additional effort is needed to coordinate management of the network of conserved lands across ownerships and jurisdictional boundaries.

ACTIVITIES:

* Review and refine land stewardship practices to maintain ecosystem services. Stewardship should be consistent with LCP-NH, LCP-ME, WAP, BwH, GBERC, and HSERC and should incorporate BMPs to protect water resources and wildlife habitat that are identified in state guidance documents1,2 and stewardship guidelines.3
* Work with conservation land stewards to collaboratively manage networked conservation lands in a compatible and complementary manner, especially in CFAs.
* Provide municipalities, land protection organizations, and land owners with information on regional land stewardship and management approaches and goals.

MEASURING PROGRESS:

Outputs:

* Land stewardship and management approaches that maintain ecosystem services on a landscape scale
* Outreach campaign to municipalities, land protection organizations, and land owners on developing management approaches that are compatible and complementary to adjacent and regional conserved lands, especially in CFAs

Outcomes:

Sustained ecological services provided by conservation lands

More efficient stewardship and management on a network on conservation lands

Implementation Metrics:

None

Issues Addressed:

* Land Management
* Land Protection

Leads:

* SPNHF
* TNC
* UNH-CE

Cooperators:

* GBNERR
* Land Owners
* Land Protection Organizations
* MDEP
* MDIFW
* ME Coastal Program
* Municipalities
* NH Audubon
* NH Division of Forest & Lands
* NHDES
* NHFGD
* NRCS
* SPNHF
* Timber Harvester
* USFS
* USFWS
* Watershed Organizations
* WNERR

Funding:

* Forest Legacy Program
* Landowners
* MDIFW
* Municipalities
* NHFGD
* NOAA
* NRCS
* PREP
* Timber Industry
* USFWS

Critical Guidance:

1New Hampshire Division of Forests & Lands and The Society for the Protection of New Hampshire Forests. 1997. Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.

2University of New Hampshire Cooperative Extension. 2018. Habitat Stewardship Brochure Series. University of New Hampshire Cooperative Extension.

3University of New Hampshire. 2009. New Hampshire Stream Crossing Guidelines.

LU-14

Work with landowners to permanently protect land and water through conservation easements and fee acquisitions, particularly associated with Conservation Focus Areas (CFAs)

Highest

As of 2017, a total of 15.5% of Piscataqua Region Watershed lands are permanently protected from development. Only 25% of CFA core areas are included within this protected area. PREP has a goal of protecting 20% of the Watershed by 2020. In the 22 coastal communities, 19.8% of lands have been protected, which is quickly approaching the goal. Land protection organizations, municipalities, and landowners will need ongoing support and funding for land acquisition, conservation easements, and transaction costs in order to meet the regional goal. Protection efforts to target land in the CFAs has been steady, with 40.1% of CFA land being under permanent protection. However, additional, targeted efforts along with reassessment of the CFA boundaries is needed to ensure investment in the most critical lands for conservation in the Region.

ACTIVITIES:

* Foster and implement permanent land protection projects on private and public lands using conservation easements and fee acquisitions. Focus protection efforts on CFAs and land parcels that connect existing protected areas.
* Provide assistance to land protection organizations and conservation commissions for land stewardship, including baseline and annual conservation easement monitoring.
* Advocate for using local land use change tax for land conservation, management, and stewardship funding in New Hampshire communities.
* Provide conservation easement education to current and subsequent owners of lands on which there are conservation easements. Include topics in education and outreach to real estate professionals and municipalities. Support implementation of these recommendations.
* Inventory and evaluate state and federal land protection funding opportunities and innovative fundraising approaches for land protection projects and stewardship activities.
* Provide assistance to land protection organizations and municipalities for land protection transaction costs with a priority for projects within CFAs.
* Work with landowners to permanently protect land and water through conservation easements and fee acquisitions, with a focus on CFAs.
* Advocate for funding of state-funded conservation grant programs, such as LCHIP.

MEASURING PROGRESS:

Outputs:

* Outreach campaigns to private landowners on permanent land conservation options and benefits
* Training(s) for stewardship plan development and implementations
* Advocacy campaign to municipal boards and voters to allocate local land use change tax to land conservation, management, and stewardship funding
* Report on state and federal land protection funding opportunities and innovative fundraising approaches for land protection projects and/or stewardship activities, including recommendations
* Innovative fundraising activity for land protection projects and/or stewardship activities
* Land protected in CFAs
* Land protected in the Region
* Advocacy campaign to policy makers on funding state-funded land conservation grant programs, such as LCHIP

Outcomes:

Continued land protection efforts in the Piscataqua Region

Well-executed land protection projects

Implementation Metrics:

Protected conservation focus areas in the coastal watershed

Protected conservation lands

Issues Addressed:

* Land Protection

Leads:

* BwH
* Conservation Commissions
* Land Trust Alliance
* MEACC
* Municipalities
* SELT
* SPNHF
* TNC
* UNH-CE

Cooperators:

* Land for Maine’s Future
* Land Protection Organizations
* ME Coast Heritage Trust
* ME Coastal Program
* MDIFW
* PREP

Funding:

* Foundations
* NOAA
* NRCS
* State Grants
* USEPA

LU-15

Work with public and private landowners to manage habitat for species in greatest need of conservation by implementing strategies and priorities from regional wildlife resource plans

High

The WAP, BwH, and Maine’s Comprehensive Wildlife Conservation Strategy provide objectives on maintaining and restoring habitat for species of concern. In the Region these habitats include salt marshes, estuarine habitat, coastal islands, grassland, shrubland and early successional communities, urban wildlife habitat, lakes, rivers and streams, floodplain forest, and marsh/wet meadow/shrub swamp. The plans also stress land use management priorities including terrestrial invasive control and maintenance of natural flow regimes. Both New Hampshire and Maine resource agencies have identified Species of Greatest Conservation Need (SGCN) and habitats most in need of protection.

A coordinated approach between NHFGD, MDIFW, and cooperators to work with landowners on protecting and managing habitats will lead to broader landscape-scale benefits to wildlife and their habitats throughout the Piscataqua Region Watershed.

Peer-to-peer outreach programs such as the NH Coverts Project, funded primarily by NHFGD and administered by UNH-CE, are an effective tool to reach private landowners. These programs train landowners and community decision-makers to promote wildlife conservation and habitat stewardship in their communities and to other landowners.

ACTIVITIES:

* Determine habitat management needs based on existing resource mapping, survey results, species conservation plans, and site-specific conditions.1,2,3
* Identify priority areas (and corresponding landowners) where improved land management would improve wildlife habitat for SGCN.
* Conduct outreach and training for landowners to maintain or restore habitat and species of concern, based on recommendations from the NHWAP, BwH, MCWCS, and UNH-CE Habitat Stewardship Series. Currently this activity is addressed in New Hampshire by NH Coverts Project.4
* Provide assistance to landowners to develop and implement land stewardship plans.

MEASURING PROGRESS:

Outputs:

* Report of habitat management needs, priority areas, and land owners where improved land management would improve wildlife habitat for specific target species
* Outreach campaign to landowners on maintaining or restoring habitat that supports species of concern
* Land stewardship plans

Outcomes:

Strategic habitat management and cooperation between landowners, natural resource agencies, and land protection organizations

Implementation Metrics:

None

Issues Addressed:

* Land Management
* Land Protection
* Wildlife

Leads:

* MDIFW
* NHFGD
* UNH-CE

Cooperators:

* GBNERR
* Land Owners
* Land Protection Organizations
* Municipalities
* NHFGD
* NRCS
* NROC
* PREP
* SWOAM
* TNC
* USFWS
* WNERR

Funding:

* Landowner Incentive Program (LIP) Grants (distributed by NHFGD & ME Natural Areas Program)
* MDEP
* MDIFW
* NHDES
* NHFGD
* NOAA
* NRCS
* USFWS

Critical Guidance:

1New Hampshire Fish & Game Department. 2015. New Hampshire Wildlife Action Plan.

2Maine Department of Inland Fisheries & Wildlife. 2005. Maine’s Comprehensive Wildlife Conservation Strategy.

3Frazer & Charry. 2006. Beginning with Habitat: Conserving Wildlife in Maine’s Coastal Habitat.

4University of New Hampshire Cooperative Extension. 2018. Habitat Stewardship Brochure Series.

LU-16

Conduct surveys and monitoring to augment databases on the distribution of species of conservation concern and critical habitats

Moderate

Strategic land protection requires the best available information on wildlife and their habitats. Both New Hampshire and Maine resource agencies have identified Species of Greatest Conservation Need (SGCN) and habitats most in need of protection. Supplemental monitoring and mapping data are required to further define species and habitat distribution on a local and regional scale.

Additional resources – funding and staff – are needed to conduct wildlife and habitat surveys and monitoring to enhance existing data and to “ground truth” habitat mapped based on broad habitat designations.

ACTIVITIES:

* Identify and prioritize Piscataqua Region Watershed areas in need of surveys and monitoring, focusing on SGCN and associated habitats.
* Develop survey and monitoring programs or promote existing protocols, in coordination with NHFGD, NHA, and MDIFW to meet their needs.
* Build local capacity through training of volunteers and funding of professional assistance to identify and survey wildlife habitat for SGCN.
* Evaluate properties for SGCN and habitats in WAP and CFAs.
* Incorporate survey data and reports in state resource agency databases, conservation plans, and maps.

MEASURING PROGRESS:

Outputs:

* Report on Piscataqua Region Watershed areas in need of wildlife and habitat surveys and monitoring, with a focus on highest priority species and habitats
* Training materials for volunteer participation in monitoring and mapping
* Survey data and reports on wildlife and habitat distribution

Outcomes:

Greater understanding of populations, distribution, and habitat for species and habitats of concern

Implementation Metrics:

None

Issues Addressed:

* Land Protection
* Wildlife

Leads:

* MDIFW
* ME Natural Areas Program
* NH Natural Heritage Bureau
* NHFGD
* UNH-CE

Cooperators:

* GBNERR
* Land Owners
* Land Protection Organizations
* ME Audubon
* ME Coastal Program
* Municipalities
* NH Audubon
* NROC
* PREP
* TNC
* USFWS
* Watershed Organizations
* WNERR

Funding:

* MDIFW
* Municipalities
* NHFGD
* NOAA
* PREP
* Private Donors
* State Wildlife Grants (Teaming with Wildlife Funds)

LU-17

Develop and implement source water protection for current and future community and public water supplies

High

Approaches to source water protection include limiting development, minimizing impervious surfaces, removing or managing pollutant sources in water supply buffer areas and wellhead protection areas, properly managing stormwater and nutrient sources, and permanently protecting water supply lands, such as public water supply wells (wellhead protection), specific groundwater aquifers (aquifer protection), and surface waters (watershed protection).

Often water resources span several municipal or state boundaries, therefore coordination is needed to apply consistent protections. New Hampshire and Maine encourage source water protection by providing funding and technical assistance to municipalities and water districts.

Some assistance for water supply-related land conservation is currently available through the NHDES Water Supply Land Protection Grant program and the Land Acquisition Loan Program from Maine CDC Drinking Water Program. New Hampshire’s water supply land protection grant does not have a dedicated funding source and is subject to state budget limitations. Developing a permanent funding source for both New Hampshire and Maine will better protect current and future water supply lands.

ACTIVITIES:

* Provide assistance to identify likely future water supply sources, analyze current protection status of water supply lands, and prioritize water supply lands (existing and future) in greatest need of protection.
* Promote integration of priority source water supply lands into local and regional source water protection plans, land conservation plans (LCP-NH and LCP-ME), watershed plans, and municipal regulations.
* Provide assistance to develop and implement source water protection plans to owners/operators of community water systems.
* Advocate for funding of state-funded conservation grant programs, such as LCHIP or NHDES Source Water Protection grants.

MEASURING PROGRESS:

Outputs:

* Report on future water supply sources, current protection status of water supply lands, and current and potential water supply lands in greatest need of protection in the Region
* Outreach campaign to resource management organizations and municipalities on integrating protection of priority source water supply lands in resource management plans, such as LCP-NH and LCP-ME
* Advocacy campaign to policy makers on dedicating state funding for drinking water land protection programs
* Source water protection plans

Outcomes:

Sustained water quality and quantity for drinking water supplies in the Piscataqua Region

Permanent protection of water supply lands

Preservation of future growth opportunities for the Region by ensuring the availability of additional future water sources

Implementation Metrics:

Municipality drinking water source plans

Issues Addressed:

* Drinking Water
* Groundwater
* Land Protection
* Land Use

Leads:

* ME CDC
* NHDES – Drinking Water Source Protection Program

Cooperators:

* Drinking Water Providers
* Granite State Rural Water Association
* Land Protection Organizations
* ME Rural Water Association
* Municipalities
* SPNHF
* State Legislators
* Water Districts
* PREP

Funding:

* ME CDC – Drinking Water Program
* Municipalities
* NHDES – Drinking Water State Revolving Fund
* NHDES – Local Source Water Protection Grant Program
* Water Districts

LU-18

Promote the use of living shorelines to manage erosion and restore shorelines with nature-based solutions

High

Living shorelines are defined as a management practice that provides: erosion control benefits; protects, restores, and/or enhances natural shoreline habitat; and maintains coastal processes and the continuity of the natural land-water interface. These shoreline management approaches promote ecosystem functions and increase coastal resilience.

There has been a significant and increasing effort among partners in the Piscataqua Region Watershed, collaborating with stakeholders throughout New England, to better understand, regulate, and implement living shorelines.

ACTIVITIES:

* Support research including beach profiling and living shoreline pilot project monitoring.
* Create standardized guidance and protocols for the assessment, development, and monitoring of living shorelines in the Piscataqua Region.
* Identify and assess sites suitable for living shorelines, including sites where hardened shorelines can be removed or restored to better utilize nature-based solutions, and promote the implementation of living shoreline projects at these sites.1 These projects should be monitored for engineering and ecological effectiveness and adaptively managed whenever possible.
* Support stakeholders – including coastal landowners, developers, engineers, regulators, and town boards – with technical assistance and outreach to help better understand when and where living shorelines can be used as a management approach.

MEASURING PROGRESS:

Outputs:

* Living shoreline projects
* Guidance documents for living shoreline implementation and monitoring
* Technical assistance programs for providing guidance on living shorelines and coastal management options

Outcomes:

Increased coastal habitat with higher function and value

Decreased linear amount of hardened shoreline

Better informed local decision makers, developers, and residents

Policy that facilitates the use of coastal nature-based solutions

Improved understanding of methods from pilot and demonstration sites

Implementation Metrics:

Length of restored shoreline

Area of restored coastal wetlands

Area of restored coastal dunes

Issues Addressed:

* Buffers
* Habitat
* Land Protection
* Resilience
* Water Quality

Leads:

* GBNERR
* ME Sea Grant
* NH Coastal Program
* NH Sea Grant
* NROC
* PREP
* TNC
* UNH
* WNERR

Cooperators:

* Conservation Commissions
* Environmental Consultants
* Landscaping Organizations
* Municipalities
* NHDES – Wetland Bureau
* Shoreland Owners

Funding:

* NFWF
* NHDES ARM
* NHFGD
* NHDES – 319 Grants
* NOAA

Critical Guidance:

1Balasubramanyam & Howard. 2019. New Hampshire Living Shoreline Site Suitability Assessment: Technical Report.