About the Nashua River Communities Resilient Lands Management project:

The Towns of Clinton and Bolton, Massachusetts are working together with residents and landowners to define ways to care for and steward forests, open space, and wetlands. The Nashua River project is developing place-based land use and land management strategies and policy that can enhance the potential of forests, open spaces, and wetlands to contribute to healthy, equitable, and thriving communities.

The Nashua River project is funded through the Massachusetts Municipal Vulnerability Preparedness (MVP) Action Grant program, with consulting support from Linnean Solutions, Regenerative Design Group, and BSC Group.

Nashua River Communities

Lawn and Landscape Pocket Guide

For Municipal Staff

About the Guide

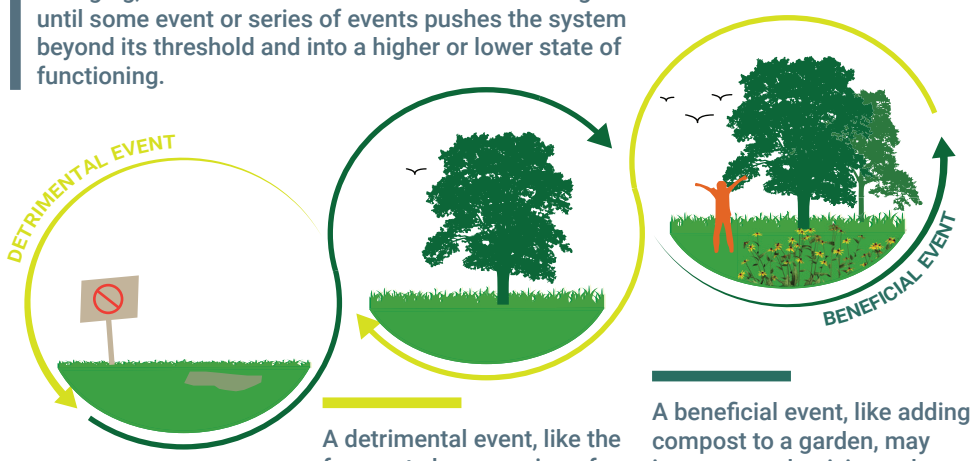
As **municipal staff** *you* are uniquely positioned to affect positive change in the lawns and landscaped areas that you use and manage.

The lawns, gardens, parks, and other landscapes that you interact with on a daily basis — around our homes, businesses, roadways, and schools — have tremendous potential to help our communities and ecosystems thrive, support climate mitigation, and enhance resilience.

This guide is meant to help you incorporate regenerative practices that improve the health, wellbeing, beauty, functionality, and resilience of the landscapes you interact with based on your relationship to the land, and the resources you have available.

Landscapes as Living Systems

Like all living systems, landscapes are constantly changing, but tend to function within a "normal range" until some event or series of events pushes the system beyond its threshold and into a higher or lower state of functioning.



A detrimental event, like the frequent close mowing of a lawn, may over-stress the grass, causing root loss and poor performance.

A beneficial event, like adding compost to a garden, may improve productivity and water holding capacity. Small "beneficial" changes can have compounding positive impacts.

Guiding Principles

The actions in this guide are informed by a set of community-created principles. For more information, visit "Project Story" on the project website (climateresilient.wixsite.com/nashuariver/projectstory).

1) Health and well-being
2) Interdependence
3) Reciprocal relationships
4) Accessibility
5) Curiosity
6) Valuing the small

Action Framework

Actions are organized into three categories. Actions in all categories can help transform sites into powerful sources of climate mitigation and resilience.

Stabilize: Address active problems like soil erosion, water pollution from over fertilization, or pest infestations.

Improve: Incrementally increase the health and resilience of landscapes, while decreasing inputs (like fertilizer).

Regenerate: Restore the health and ecological function of the landscape to such a degree that the landscape can maintain (regenerate) itself and contribute to resilience at broader scales.

For example!
Switch to an electric mulching mower, which is healthier for the person mowing and helps build organic matter in the soil.

For example!
Transition lawns into pollinator meadows to reduce watering and air pollution (from mowing), while improving wildlife diversity.

Observe

The most crucial step in caring for a landscape is taking the time to observe it in action. Because landscapes are ever-changing living systems, observation can help identify where we need to stabilize active problems, improve the function of the landscape, and regenerate the landscape's capacity to support itself.

As you reflect on the following factors, resist the urge to find the "right" answer, and rather, allow connections and insights to emerge. Remember that this phase is iterative: after each intervention, it is just as important to observe the impacts and course-correct as necessary.

Observation Prompts

Patterns of use: How are people using this area? How is this use shaping the landscape? How are buildings or infrastructure impacting the landscape? What's working, and what is not?

Patterns of care: What is being done to care for this landscape (i.e. mowing, watering, weeding, fertilizing)? How is the landscape responding to that care?

Weather patterns: Where are shady/sunny spots? How is the site affected by wind? What happens when it rains? Are there negative impacts from water flows? Have these weather patterns changed over time? Has the landscape changed in response?

Quality of vegetation: Are there areas where plants are showing signs of stress (stunted growth, chewed leaves, etc.)? Are there areas where plants seem to be really thriving? Why might that be?

Access to the site: Who has access to this space? Who does not? Who feels welcome and who does not? How can access be improved?

Relationship with the site: How does the space look aesthetically? How do you feel being there? How does the site affect your health or the health of others who use the site?

Nashua River Lawn and Landscape Action Matrix: Municipal Staff

For an online version with hyperlinked resources, visit the project website (climateresilient.wixsite.com/nashuariver/turf).

Strategy	Stabilize	Improve	Regenerate
General Maintenance	• Increase mowing height to 3-4 inches and leave grass clippings. • Mulch with organic matter (duff). Avoid the common mistake of 'mounding' around plants/ trees and instead ensure mulch is at least 5 inches away from the trunk and no more than 3 inches deep. • Avoid destabilizing activities such as clearing, grubbing, excavation, plowing, mowing, burning, transporting, paving, and sloping.	• Switch from gas-powered to electric mowers with mulching capabilities and decks that can be raised to 4 inches or more. Electric mowers are better for lowering carbon emissions and improving air quality and human health. • Establish municipal rebate and/or procurement programs that enable residents to make the switch to electric mowers. • Implement no-mow buffers in areas where lawn isn't actively used. • Consider grazing animal services to replace mowing.	• Invest in staffing and training to regularly test and inspect managed and less-managed sites and systems to inform management practices. • Expect landscapes to serve many purposes: The roadside can be a stormwater filter, edge habitat, and an early warning system for emerging pest, disease, or other landscape stressors. Include habitat plantings in marginal land. • Identify areas of active lawn, decrease mowing to active lawn, and replace the rest with living landscape (shrubs, no-mow buffers, forest).
Nutrient Management	• Begin testing soil for composition, texture, pH, fertility, and drainage class. Check out UMass Soil and Plant Nutrient Testing Lab for inexpensive testing. Recommendations are provided with results. • To the extent possible, minimize fertilizers and use them responsibly. Fertilize based on testing results, and only after using "feeding" techniques such as applying organic compost.	• Take a tailored approach to soil care by collecting data, tracking soil health over time, and adjusting amendment practices over time. • Top dress lawn with organic compost.	• Create an onsite compost system for food waste and lawn scraps like leaves and other organic debris. • Apply site-created compost to all landscapes, subject to test results, over several years to improve soil organic carbon levels.
Pest Control	• Prevent spread of invasives by avoiding, minimizing, and mitigating land disturbance. • Protect borders of natural plant populations. • Create control zones at pinch points where you can monitor and control movement of invasives.	• Identify opportunities to reduce the application of herbicides/pesticides by incorporating a native competitor species.	• Observe and identify individuals or groups of pest-prone species that exhibit resistance to pests/disease complexes, e.g. persistent ash trees. Support and propagate these individuals to help develop resistant local populations. • Promote bird and predatory wasp populations as general insect management.
Promote Functional Plant Communities	• Avoid disturbing or damaging native plant groups so that they can better hold territory against invasives. • Actively replant disturbed areas with a variety of desired species at a high density to reduce re-infestation. Don't leave soil openings for invasives to take hold. • Minimize chemical use. For example, for the control of Japanese Knotweed, a combination of cutting and painting with herbicides is effective and uses less herbicides.	• Identify why the invasives have taken hold and what they are providing or inhibiting. Design a holistic replanting strategy to address what you have learned. • Plant a variety of native plants or trees to attract and support pollinators. Examples include native canopy trees, shrubland, ground cover, meadow, pasture grasses, and mixed grasses (clover, etc.). Native plants and trees generally require less maintenance and are able to provide more benefits.	• Plant and support groups of future-climate-adapted plants that mimic the structure and function of regional ecosystems. Include heat and drought adapted native species like hickory, less common native species like tulip poplar, and 'near natives' from adjacent bioregions. Hybrid chestnuts, resistant to the chestnut blight, but exhibiting strong similarities to the American Chestnut, are a good example of non-native, but valuable plant addition.
Managing Water	• Stop scheduled watering. Native turf grass can endure several weeks without watering. Instead, water infrequently with a low and deep soak. Use a rain gauge to water about 1" - 1.5" in the morning or late evening.	• Create a landscape that requires no watering at all. Adapt your landscape to your soil types and rainfall patterns. • Install rain harvesting systems to capture roof runoff and connect it to a drip irrigation system. • Plant buffer strips along any waterway. Buffer strips can be done with densely planted grasses or more woody trees and shrubs. • Replace asphalt with pervious pavement with infiltration. • Sloped areas are not great places for turf or grass. Plant native groundcovers in these places to capture more water, stabilize the slope, and reduce mowing.	• Build up soil organic matter to help capture and hold water. For every 1% increase in organic matter content, soil water holding capacity can increase up to 20,000 ga/ac. This can be done with regular organic compost amendments, planting deeper rooted species, and planting trees. • Identify parts of the landscape that can flood and infiltrate water when it's wet and be useful when it's dry. • Plant large canopy trees to build organic matter, provide soil shading, and intercept large quantities of stormwater, all of which improve onsite and watershed water dynamics.
Land Use	• Reduce conflicts between land uses next to each other, such as a fertilized lawn next to a wetland or stream, by putting in buffers or moving uses to better locations. • Make sure that land uses and planting types work together. Examples of mismatched uses and plantings include parking on turf, unused impervious surface, picnic tables in/near tall grasses, or expansive unused turf areas that could support more ecosystem functions. Adjust plantings to reestablish healthy, functional ecosystems.	Convert land use to contribute to the health of the lifeshed: • Transition unused lawn to pollinator meadow, shrubland, or forest. • Plant trees; reduce grassy area. • Remove paved surfaces. Reduce the impact of remaining impervious surfaces with features like planter boxes, green roofs, and rain gardens. • Establish functional plantings like food forests, hedge rows, frog ponds, pocket forests, or pollinator gardens. • Identify opportunities to develop universally accessible trail networks.	Partner with local Indigenous leaders to help with caring for land. Some steps you can take to enable local tribal land stewardship include: • Work with local, state, and federal land management agencies to identify public lands that are valuable to the tribes. • Foster partnerships and collaborations with tribal and non-tribal organizations to support tribal stewardship efforts. • Establish legal frameworks that support tribal stewardship initiatives and provide access to resources, funding, and land. • Provide permanent access to land once current ownership ends.
Policy and Public Safety	• Work with police, fire, and public works departments to ensure that new plantings will not conflict with public safety considerations, such as line-of-sight for police monitoring or access for emergency response. • Ensure that there are not existing bylaws or policies that prevent the transition of lands to more ecologically rich land cover types or uses.	• Establish policies that allow the transition of underused lands to higher ecological value cover types, such as reduction of minimum parking requirements, tree-protection bylaws, conservation zoning, and minimum post-construction soil performance standards. • Require new purchases of landscaping equipment to be electric, low emissions, quiet, and allow for mulching and higher mowing.	• Establish policies that require high ecological and social performance for new construction and restoration projects, such as high-performance soil specifications and reforestation targets. • Ensure all public open spaces are ADA compliant.
Programming	• Establish educational programming (e.g., on invasive species) to inform the public about issues related to improving lawn and landscape care. • Offer mulch for free as a byproduct of regular maintenance tasks.	• Establish municipal rebate and/or procurement programs that enable residents to make the switch to electric (and adjustable) lawn care equipment. • Develop "climate-smart landscape" programs that provide material and educational support for soil testing, tree planting, and switching to electric lawn equipment. • Provide on-going training to municipal maintenance staff in ecological and climate-smart landscape management. Include acquisitions and senior staff.	• Establish programming to steward "edges" and monitor for species presence/absence. • Provide pay or other incentives to maintenance staff who demonstrate ecological expertise and capabilities.

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Nashua River Communities

Lawn and Landscape Pocket Guide

For Landscape Professionals

About the Guide

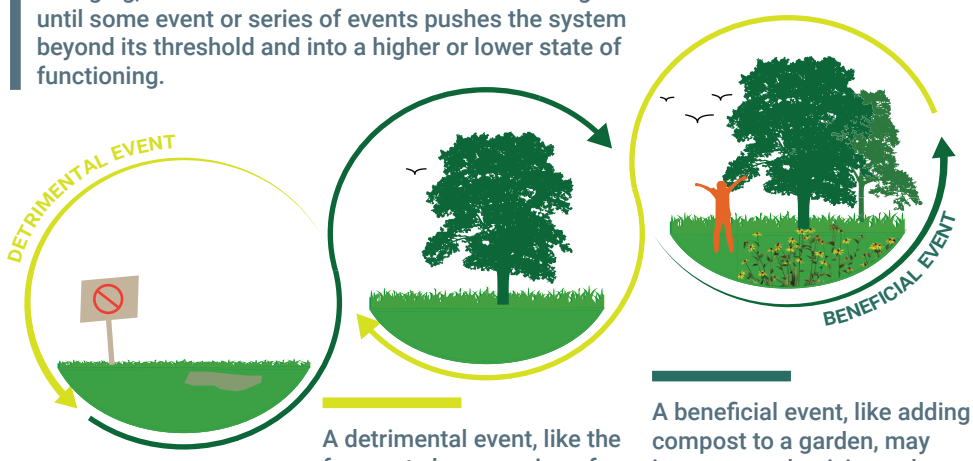
As a **landscaping professional** or someone directing the work of landscape professionals, *you* are uniquely positioned to make positive changes in lawns and landscapes, because you are most closely connected to their management and care.

The lawns, gardens, parks, and other landscapes that you interact with on a daily basis — around homes, business, roadways, and schools — have tremendous potential to help our communities and ecosystems thrive. They also hold powerful potential as sites for climate mitigation and resilience.

This guide is meant to help you explain landscapes as living systems and teach clients and your team how to incorporate regenerative practices that improve health, wellbeing, beauty, functionality, and resilience.

Landscapes as Living Systems

Like all living systems, landscapes are constantly changing, but tend to function within a "normal range" until some event or series of events pushes the system beyond its threshold and into a higher or lower state of functioning.



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The most crucial step in caring for a landscape is taking the time to observe it in action. Because landscapes are ever-changing living systems, observation can help identify where we need to stabilize active problems, improve the function of the landscape, and regenerate the landscape's capacity to support itself.

As you reflect on the following factors, resist the urge to find the "right" answer, and rather, allow connections and insights to emerge. Remember that this phase is iterative: after each intervention, it is just as important to observe the impacts and course-correct as necessary.

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Patterns of use: How are people using this area? How is this use shaping the landscape? How are buildings or infrastructure impacting the landscape? What's working, and what is not?

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Access to the site: Who has access to this space? Who does not? Who feels welcome and who does not? How can access be improved?

Relationship with the site: How does the space look aesthetically? How do you feel being there? How does the site affect your health or the health of others who use the site?

Nashua River Lawn and Landscape Action Matrix: Landscape Professionals

Strategy	Stabilize	Improve	Regenerate
General Maintenance	• Increase mowing height to 3-4 inches and leave grass clippings. • Mulch with organic matter (duff). Avoid the common mistake of 'mounding' around plants/ trees and instead ensure mulch is at least 5 inches away from the trunk and no more than 3 inches deep. • Avoid destabilizing activities such as clearing, grubbing, excavation, plowing, mowing, burning, transporting, paving, and sloping.	• Switch from gas-powered to electric mowers with mulching capabilities and decks that can be raised to 4 inches or more. Electric mowers are better for lowering carbon emissions and improving air quality and human health. • Implement no-mow buffers in areas where lawn isn't actively used. • Consider grazing animal services to replace mowing.	• Invest in staffing and training to regularly test and inspect managed and less-managed sites and systems to inform management practices. • Expect landscapes to serve many purposes: The roadside can be a stormwater filter, edge habitat, and an early warning system for emerging pest, disease, or other landscape stressors. Include habitat plantings in marginal land. • Identify areas of active lawn, decrease mowing to active lawn, and replace the rest with living landscape (shrubs, no-mow buffers, forest).
Nutrient Management	• Begin testing soil for composition, texture, pH, fertility, and drainage class. Check out UMass Soil and Plant Nutrient Testing Lab for inexpensive testing. Recommendations are provided with results. • To the extent possible, minimize fertilizers and use them responsibly. Fertilize based on testing results, and only after using "feeding" techniques such as applying organic compost.	• Take a tailored approach to soil care by collecting data, tracking soil health over time, and adjusting amendment practices over time. • Top dress lawn with organic compost.	• Create an onsite compost system for food waste and lawn scraps like leaves and other organic debris. • Dress all landscapes with onsite compost following testing to optimize nutrients and improve soil organic carbon content of soil.
Pest Control	• Thoroughly identify the spatial extent and variations in impact of any pests. Do sunlight, moisture, or other conditions naturally limit the spread of said pest? • Create control zones at pinch points where you can monitor and control movement of invasives. • Assess cultural control options including shade, flood, fire, and timed mowing. Target seed and root stock but retain biomass where possible, while reducing effort.	• Identify opportunities to reduce the application of herbicides/pesticides by incorporating a native competitor species. • Protect borders of natural populations (and ensure rare natives get space to propagate, preserving population viability until the threat passes).	• Observe and identify individuals or groups of pest-prone species that exhibit resistance to pests/disease complexes, e.g. persistent ash trees. Support and propagate these individuals to help develop resistant local populations. • Promote bird and predatory wasp populations as general insect management.
Promote Functional Plant Communities	• Before initiating a control program, try to understand why the unwanted species is there and what ecosystem functions it is providing or inhibiting. Design a holistic control and replanting strategy to address these dynamics. • Actively replant disturbed areas with a variety of desired species at a density or with a competitive advantage over locally prevalent invasive species to reduce re-infestation. • When actively managing against unwanted expansive species, use a combination of proven methods that minimize chemical exposures in the environment and to land managers. For example, for the control of Japanese Knotweed, a combination of cutting and painting with herbicides is more effective and results in less collateral damage than foliar application of herbicides.	• Plant a variety of native plants or trees to attract and support pollinators. Examples include native canopy trees, shrubland, ground cover, meadow, pasture grasses, and mixed grasses (clover, etc.). Native plants and trees generally require less maintenance and are able to provide more benefits, including habitat or food for other wildlife, including bees, butterflies, and birds.	• Plant and support groups of future-climate-adapted plants that mimic the structure and function of regional ecosystems. Include heat and drought adapted native species like hickory, less common native species like tulip poplar, and 'near natives' from adjacent bioregions. Hybrid chestnuts, resistant to the chestnut blight, but exhibiting strong similarities to the American Chestnut, are a good example of non-native, but a valuable plant addition. • Preserve and protect existing trees. The ability of a tree to provide habitat, hold water, and sequester carbon increases with tree size. • Plant trees at edges of playing fields, parking lots, or in marginal spaces around campuses to improve soil carbon levels and provide shade.
Managing Water	• Stop scheduled watering. Native turf grass can endure several weeks without watering. Instead, water infrequently with a low and deep soak. Use a rain gauge to water about 1–1.5 inches in the morning or late evening.	• Create a landscape that requires no watering at all. Adapt your landscape to your soil types and rainfall patterns. • Install rain harvesting systems to capture roof runoff and connect it to a drip irrigation system. • Plant buffer strips along waterways. Buffer strips can be done with densely planted grasses, or more woody trees and shrubs. • Replace asphalt with pervious pavement with infiltration. • Sloped areas are often difficult areas on which to manage turf or grass and are often not ideal for conventional turf uses like playing sports or picnicking. Planting native groundcovers in these areas captures more water, stabilizes the slope, and reduces the amount of mowing maintenance required for the lawn as a whole.	• Build up soil organic matter to help capture and hold water. For every 1% increase in organic matter content, soil water holding capacity can increase up to 20,000 ga/ac. This can be done with regular organic compost amendments, planting deeper rooted species, and planting trees. • Identify parts of the landscape that can flood and infiltrate water when it's wet and be useful (such as a public gathering space) when it's dry. • Plant large canopy trees to build organic matter, provide soil shading, and intercept large quantities of stormwater, all of which improve onsite and watershed water dynamics.
Land Use	• Identify uses that are impacting the landscape and consider changes that will allow regrowth. Examples include fertilized lawns next to a wetland or stream, compaction from high traffic areas, or unused impervious surfaces. • Make sure that land uses and planting types work together. Examples of mismatched uses and plantings include parking on turf, picnic tables in/near tall grasses, or expansive unused turf areas that could support more ecosystem functions.	• Consider reseeding to promote dense turf. Prioritize selection of grasses that are drought tolerant, and ideally native varietals. For added benefit, mix in clover with grass seed (legumes fix nitrogen). • Consider reducing lawn area. This can be done in several ways including allowing problem areas to convert to another cover type, installing features such as gardens, or changing management approaches to create buffer zones between a lawn and adjacent areas. • Reduce easily managed impervious surface, and ensure a vegetated buffer along any sidewalks/ patios/driveways to capture and filter the runoff. • Reduce frequency of mowing of banks and marginal areas. Consider meadow, shrubs, or reforestation instead.	Convert land use to contribute to the health of the lifeshed: • Transition unused lawn to pollinator meadow, shrubland, or forest. • Plant trees; reduce grassy area (i.e., transition to another cover type). • Remove paved surfaces. Reduce the impact of remaining impervious surfaces with features like planter boxes, green roofs, and rain gardens. • Establish functional plantings like food forests, hedge rows, frog ponds, pocket forests, or pollinator gardens. • Identify opportunities to develop universally accessible trail networks. • Ensure all public open spaces are ADA compliant.

The **online version of the matrix** includes additional hyperlinked resources to learn more! Access the online version using the QR code, or visiting the project website (climateresilient.wixsite.com/nashuariver/turf).

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Nashua River Communities

Lawn and Landscape Pocket Guide

For Homeowners and Recreational Gardeners

About the Guide

As **someone who takes care of a landscape**, *you* are uniquely positioned to affect positive change in your yard, gardens, and in the grassy areas where you live, work, and play. These spaces have tremendous potential to help our communities and ecosystems thrive, support climate mitigation, and enhance resilience.

This guide is meant to help you incorporate regenerative practices that improve the health, wellbeing, beauty, functionality, and resilience of the landscapes you interact with based on your relationship to the land, and the resources you have available.

One person alone cannot protect or regenerate the health of a whole ecosystem, but by working together and raising these issues in places like community meetings and neighborhood groups, residents can build local culture and resources to support everyone in connecting with and caring for local landscapes.

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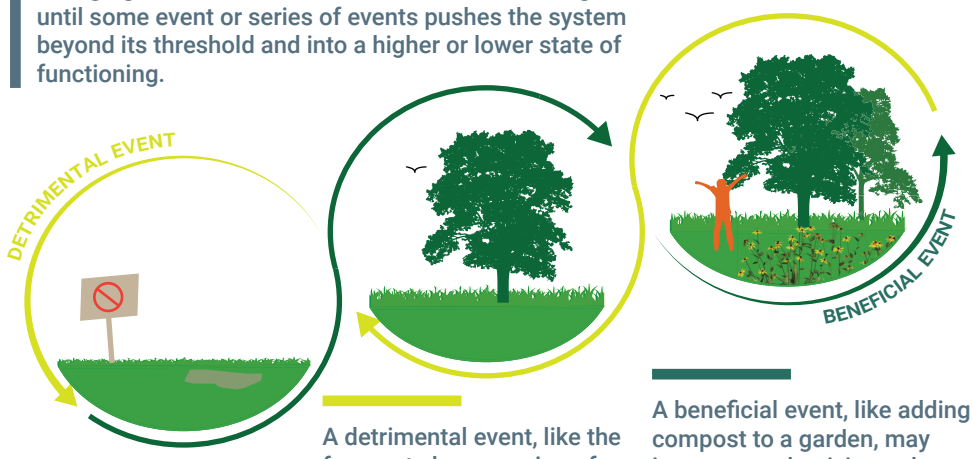

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Nashua River Lawn and Landscape Action Matrix: Recreational Gardeners

Strategy	Stabilize	Improve	Regenerate
General Maintenance	• Increase mowing height to 3-4 inches and leave grass clippings. • Mulch with organic matter (duff). Avoid the common mistake of 'mounding' around plants/trees and instead ensure mulch is at least 5 inches away from the trunk and no more than 3 inches deep. • Avoid destabilizing activities such as clearing, grubbing, excavation, plowing, mowing, burning, transporting, paving, and sloping.	• Switch from gas-powered to electric mowers with mulching capabilities and decks that can be raised to 4" or more. Electric mowers are better for lowering carbon emissions and improving air quality and human health. • Investigate whether your municipality offers a rebate and/or procurement program to support the switch to electric mowers. • Implement no-mow buffers in areas where lawn isn't actively used. • Consider grazing animal services to replace mowing.	• Evaluate the motivation, effects, and necessity of your management work for yourself, family, property, watershed, and region. Ask yourself, is this necessary? Does it contribute to the health of the systems I am part of? If the answer is no, consider establishing a more species-rich or lower-input system. • Identify areas of active lawn, decrease mowing to active lawn, and replace the rest with living landscape (shrubs, no-mow buffers, forest).
Nutrient Management	• Begin testing soil for composition, texture, pH, fertility, and drainage class. Check out UMass Soil and Plant Nutrient Testing Lab for inexpensive testing. Recommendations are provided with results. • To the extent possible, minimize fertilizers and use them responsibly. Fertilize based on testing results, and only after using "feeding" techniques such as applying organic compost.	• Take a tailored approach to soil care by collecting data, tracking soil health over time, and adjusting amendment practices over time. • Top dress lawn with organic compost.	• Create an onsite compost system for food waste and lawn scraps like leaves and other organic debris.
Pest Control	• Prevent spread of invasives by avoiding, minimizing, and mitigating land disturbance. • Protect borders of natural plant populations. • Create control zones at pinch points where you can monitor and control movement of invasives.	• Identify opportunities to reduce the application of herbicides/pesticides by incorporating a native competitor species.	• Observe and identify individuals or groups of pest-prone species that exhibit resistance to pests/disease complexes, e.g. persistent ash trees. Support and propagate these individuals to help develop resistant local populations. • Promote bird and predatory wasp populations as general insect management.
Promote Functional Plant Communities	• Avoid disturbing or damaging native plant groups so that they can better hold territory against invasives. • Actively replant disturbed areas with a variety of desired species at a high density to reduce re-infestation. Don't leave soil openings for invasives to take hold. • Minimize chemical use. For example, for the control of Japanese Knotweed, a combination of cutting and painting with herbicides is effective and uses less herbicides.	• Identify why the invasives have taken hold and what they are providing or inhibiting. Design a holistic replanting strategy to address what you have learned. • Plant a variety of native plants or trees to attract and support pollinators. Examples include native canopy trees, shrubland, ground cover, meadow, pasture grasses, and mixed grasses (clover, etc.). Native plants and trees generally require less maintenance and are able to provide more benefits.	• Plant and support groups of future-climate-adapted plants that mimic the structure and function of regional ecosystems. Include heat and drought adapted native species like hickory, less common native species like tulip poplar, and 'near natives' from adjacent bioregions. Hybrid chestnuts, resistant to the chestnut blight, but exhibiting strong similarities to the American Chestnut, are a good example of non-native, but valuable plant addition.
Managing Water	• Stop scheduled watering. Native turf grass can endure several weeks without watering. Instead, water infrequently with a low and deep soak. Use a rain gauge to water about 1–1.5 inches in the morning or late evening.	• Create a landscape that requires no watering at all. Adapt your landscape to your soil types and rainfall patterns. • Install rain harvesting systems to capture roof runoff and connect it to a drip irrigation system. • Plant buffer strips along any waterway. Buffer strips can be done with densely planted grasses, or more woody trees and shrubs. • Replace asphalt with pervious pavement with infiltration. • Sloped areas are not great places for turf or grass. Plant native groundcovers in these places to captures more water, stabilize the slope, and reduce mowing.	• Build up soil organic matter to help capture and hold water. For every 1% increase in organic matter content, soil water holding capacity can increase up to 20,000 ga/ac. This can be done with regular organic compost amendments, planting deeper rooted species, and planting trees. • Plant large canopy trees to build organic matter, provide soil shading, and intercept large quantities of stormwater, all of which improve onsite and watershed water dynamics.
Land Use	• Reduce high-touch lawn and paved areas to a size you use regularly.	Convert land use to contribute to the health of the lifeshed: • Transition unused lawn to pollinator meadow, shrubland, or forest. • Plant trees; reduce grassy area (i.e., transition to another cover type). • Remove paved surfaces. Reduce the impact of remaining impervious surfaces with features like planter boxes, green roofs, and rain gardens. • Establish functional plantings like food forests, hedge rows, frog ponds, pocket forests, or pollinator gardens.	• Partner with local Indigenous leaders to enable land stewardship that can support the health and resilience of our landscapes. In exchange for access to parts of your property, tribal leaders can monitor and care for the health of the land in a way that prioritizes and supports mutually beneficial goals as outlined in this guide. • Establish legal frameworks that support tribal stewardship initiatives and provide access to resources, funding, and land. Cultural easements are voluntary agreements between a landowner and a tribe that allows access and use for cultural and traditional purposes while maintaining private ownership of the land itself.

The **online version of the matrix** includes additional hyperlinked resources to learn more! Access the online version using the QR code, or visiting the project website (climateresilient.wixsite.com/nashuariver/turf).