CHAPTER ONE

What is the Taghkanic Headwaters and how was the plan created?

The Taghkanic Headwaters and this Conservation Plan

Purpose

Sharing a special place with others. Being part of a rural community. Safe and abundant drinking water. Creeks full of fish. Forests home to healthy habitats that support wildlife.

A community of volunteers worked with the Columbia Land Conservancy (CLC) to create this plan, driven by their shared values of care for this landscape and for community. Grounded in scientific data and guided by their vision for the future, they shaped a list of goals, actions, and strategies that, taken together, provide a framework for a Taghkanic Creek Headwaters that builds community.

What is in the Taghkanic Headwaters Conservation Plan?

Chapter 1: What is the Taghkanic Headwaters and how was the plan created?

Chapter 1 is an introduction to the Taghkanic Headwaters region and the conservation planning process. Key terms and concepts are defined, and the stakeholder process is described, as are the shared values that became the plan's vision.

Chapter 2: Why is it important to protect the Taghkanic Headwaters?

Chapter 2 describes the forests, wetlands, and water of the Taghkanic Headwaters region. It is based on a compilation of existing information about these resources. It also identifies specific forests, wetlands, and natural areas that are especially important for protecting water quality and providing corridors for wildlife within the watershed.

Chapter 3: How do we achieve a connected Taghkanic Headwaters?

Chapter 3 offers a roadmap to achieving the Taghkanic Headwaters vision. It includes three goals, which are steps toward implementing the vision for forests, water, and community. Each goal includes specific actions and outcomes that can be assessed to show progress.

Chapter 4: How do we protect this important place for people and wildlife?

Chapter 4 describes a selection of tools that residents and landowners, local governments, and community organizations can use to implement the goals and actions. Tools include education, community science, land protection, municipal land-use planning and decision-making, and land management. Each tool description includes relevant examples from the Hudson Valley region and resources for more information.

Appendices include more detailed information on water quality, rare species and unique habitats, and a glossary.

What is the Taghkanic Creek Headwaters?

The Taghkanic Creek is a stream in Columbia County that eventually flows into the Hudson River Estuary by way of the Claverack and Stockport Creeks. The Creek's headwaters begin in the central hills of Columbia County in Hillsdale. From there, the Taghkanic Creek flows generally east to west through the Towns of Copake, Taghkanic, Livingston, Greenport, and Claverack until it meets the Claverack Creek just west of the hamlet of Claverack. The Taghkanic Creek **watershed** includes all the land that drains into the Taghkanic Creek, which is shown in Figure 1. This plan is focused on the Taghkanic Creek Headwaters watershed, which includes the lands and waters that flow into the creek upstream of New Forge State Forest, shown outlined in orange in Figure 1.

The Taghkanic Headwaters watershed is a 50 square mile mosaic of woods, fields, farms, and wetlands. The region contains low-density development and includes portions of the Towns of Hillsdale, Copake, Taghkanic, and Claverack. Throughout this plan, the watershed outlined in orange in Figure 1 is referred to as the "Taghkanic Headwaters." Though we are using the watershed to define the geographic scope of the conservation plan, it is a plan for land as well as water.

Why is the Taghkanic Headwaters region important?

The Taghkanic Headwaters has numerous large, forested areas that provide many benefits to the community. Forests help maintain water quality and quantity in the Taghkanic Creek, which in turn supports clean drinking water in Taghkanic, Hillsdale, Claverack, and Copake, as well as the City of Hudson. Within the Taghkanic Headwaters, there are currently some larger forested areas that support varied wildlife habitats, including healthy forested wetlands and habitat for rare species. Taghkanic Headwaters' forests are part of a larger corridor that extend across multiple states, playing an important role in maintaining regional **forest connectivity**, as part of a crucial wildlife linkage that connects the Hudson Highlands, the Catskill Mountains, the Green Mountains in Vermont, and beyond (Figure 4). This corridor will only become more important as the climate changes.

The Taghkanic Headwaters watershed is a 50 square mile mosaic of woods, fields, farms, and wetlands.

The region's forests are not as healthy as they used to be. Though forests still cover 75% of the watershed, forest loss, overabundant and hungry deer, and invasive forest pests are causing serious injury. These harms to the forest are having ripple effects on wildlife, streams, wetlands, and our own health. The right actions are vital to ensure the forest is healthy and resilient, and able to keep all of us healthy.

As stewards of the watershed, we all have a responsibility to care for forests, wetlands, and streams and keep them healthy for future generations. Actions taken by the four towns and thousands of landowners today can improve the health of the forests and streams and make sure we pass on our world in good condition to those who follow.

What happens on the land affects the water

A watershed is made up of all the lands and waters that flow to a specific place. Watersheds come in all sizes - from the small area that flows to a backyard pond to the 13,400 square miles of land and water that drains to the Hudson River. Because water always flows downhill, the edges of a watershed are typically defined by ridges and hills.

No matter where you go, you are in a watershed. That includes natural areas as well as agricultural fields, parking lots, businesses, roadways, and neighborhoods. What we do on the land can affect streams

Figure 1. The Taghkanic Creek Watershed

Sources: Watershed sub-basins from the Natural Resources Conservation Service's Watershed Boundary Dataset, available from datagateway.nrcs.usda.gov. Streams and waterbodies data from the National Hydrograhy Dataset, US Geological Survey, 2013, available from nhd.usgs.gov. Roads and boundaries created by NYS Office of Information Technology Services, 2017, available from gis.ny.gov. Basemap from Esri, USGS, NOAA.

Map created Nov. 2021 by Arianna Ferrario, Columbia Land Conservancy

and wetlands, even when activities take place far away. Just as parts of the body are interconnected and dependent on one another, forests, streams, and wetlands in the Taghkanic Headwaters watershed play a vital role in regulating the health of the water and wildlife in our region.

The Taghkanic Headwaters Conservation Plan – a collaborative, community-based plan

Forests and streams cross political and property boundaries, so planning for forests and streams provides an opportunity for town leaders and residents to think across borders at a watershed and regional scale. That is why CLC reached out to leaders in Claverack, Copake, Hillsdale, and Taghkanic, and the City of Hudson before starting the plan.

The conservation planning process

Once awarded a grant from the New York State Department of Environmental Conservation (NYS DEC) Hudson River Estuary Program, CLC consulted with leaders in Claverack, Copake, Hillsdale, Taghkanic, and Hudson to identify local stakeholders to guide the creation of the plan. Together, the staff, volunteers, and consultants worked through an unprecedented time of challenges at both the personal and collective level to create this plan. The committee met remotely via Zoom eight times from December 2020 to November 2021. Stakeholders reviewed information, shared their knowledge and ideas, and identified what would help their communities maintain forests, streams, and wetlands in the headwaters of the Taghkanic Creek watershed. The group met outdoors in person once in April of 2021 to experience the watershed together and to learn about some of the different ways people manage the lands and waters.

Figure 2: Three ways healthy forests support clean water. Diagram used without modification. Source: "3 Surprising Ways Water Depends on Healthy Forests," Insights. By Katy Lyons and Todd Gartner, March 21, 2017. World Resources Institute.

Key watershed features

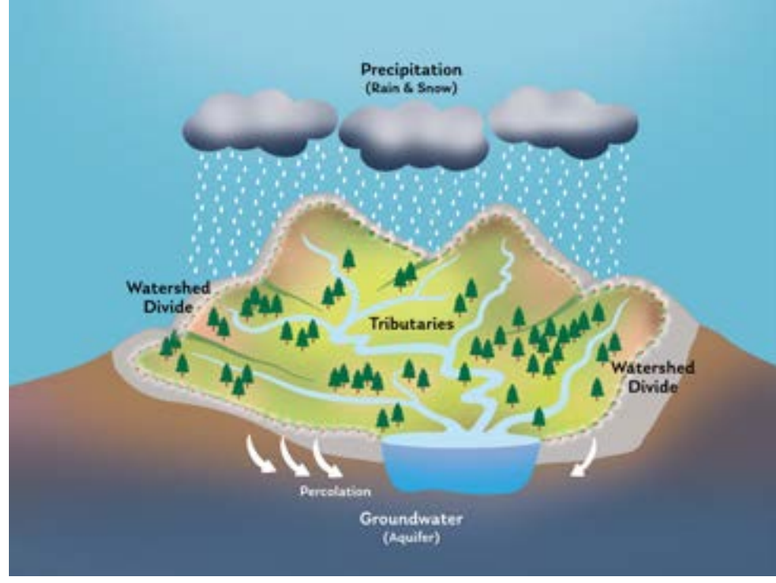


Figure 3: Diagram of a watershed. Source: Hudson River Watershed Alliance

Headwaters refer to the upper reaches of a stream, near the stream's origin. Many streams and associated wetlands in headwaters are small and do not appear on maps, yet are vitally important to the health of the larger stream system.

Forests are areas of land covered with trees. Watersheds with more forested land tend to have better water quality.* Healthy forests act as a filter to keep pollution out of water. Strong roots hold soil in place as it rains. Healthy soils provide a place for rain and melting snow to soak into the ground, slowing the flow of runoff and absorbing pollution carried in the water. When forests are disturbed and degraded by clearing, excessive browsing by deer, or forest pests, it is easier for sediment, nutrients, and other pollutants to flow into streams and harm water quality.

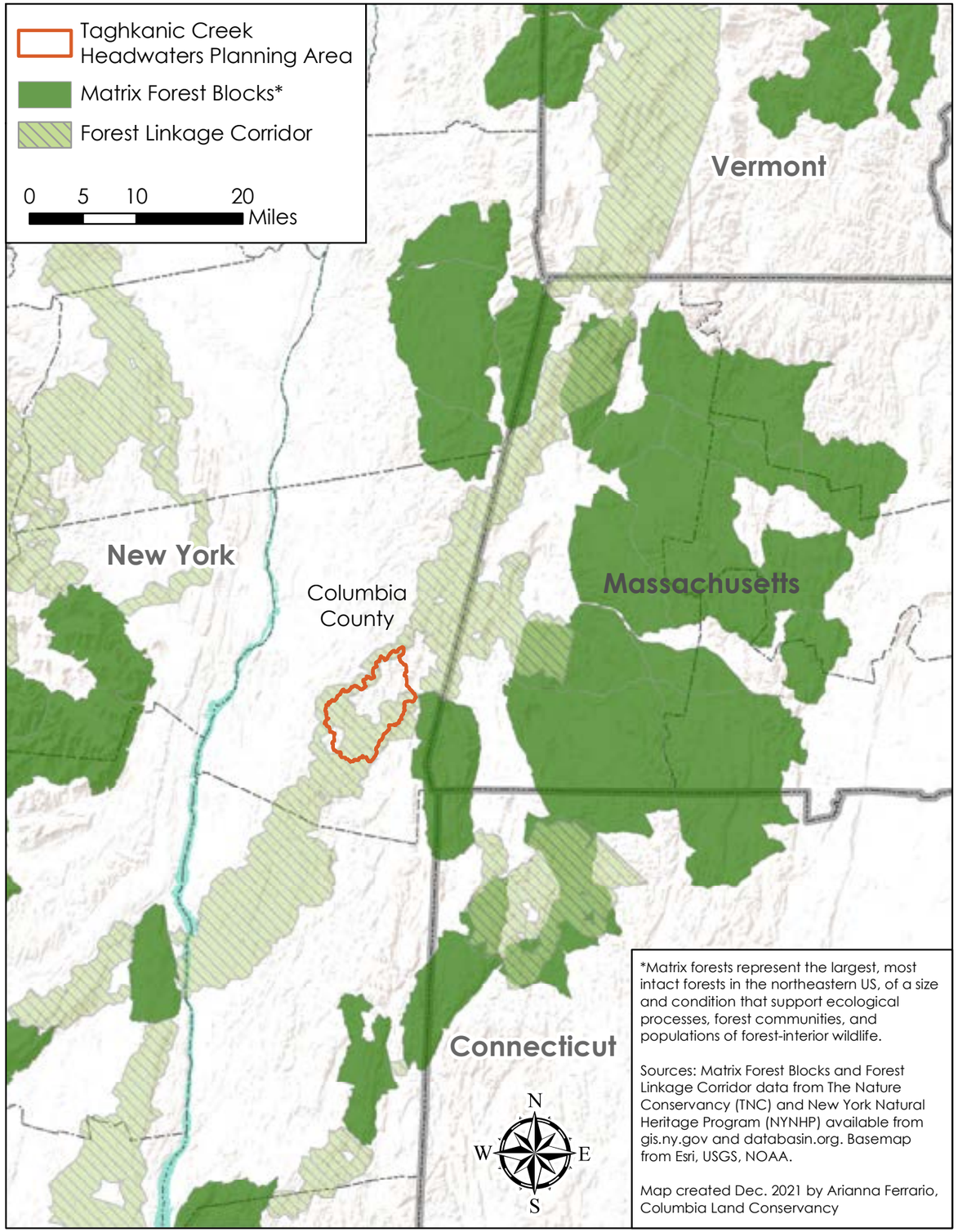
Streamside areas are an important part of stream systems and are sometimes called stream or riparian buffers. Streamside areas with a healthy mix of trees and shrubs support stream health and clean water by slowing runoff, filtering pollution, preventing soil erosion, and shading the stream to keep waters cool for fish. These areas can also absorb and slow flood waters, which protects property and human safety. Forested streamsides play an important role in maintaining clean water, even in watersheds that are mostly forested.+

Wetlands (swamps, marshes, bogs, and similar areas) are transition areas where the water table sits at or near the ground surface and which have plants adapted to the soggy conditions. Wetlands slow the flow of water and temporarily store it before releasing it downstream. Wetlands can hold a lot of water, which is why they help reduce flood risk. Wetlands also play an important role in recharging groundwater and maintaining stream flows during droughts.

Streams and rivers are natural waterways with a detectable current and a defined channel. Streams may flow year-round, seasonally, or only during times of heavy rain or snow melt. Water that ends in streams comes from runoff from the land as well as groundwater. Streams and rivers move water and sediment across a watershed. A stream is a dynamic system, shaped by water, the organisms that live in it, and the sediment it carries.

*Morse, J., J.N. Welch, A. Weinberg, and P. Szabo. 2018. Literature review: Forest cover & water quality – implications for land conservation. Open Space Institute Report. Retrieved online on November 4, 2021
+Morse et al. 2018

Figure 4. Regional Forest Linkages



Resource values

Because a successful conservation plan builds on shared values and recognizes competing interests, conservation planning typically starts with a discussion of values. The stakeholders shared both community and resource values that guided the development of the vision. The values are described in this chapter. Values were also part of the conversations about data, goals, outcomes, and tools.

Review data

There are abundant natural resource data and spatial analyses available for the Taghkanic Headwaters and larger region. CLC compiled existing data on forests, water, and wildlife, for an inventory based on the vision developed by the stakeholders. Stakeholders informed what data were included and identified where additional information was needed.

Figure 5. The conservation planning process used by the stakeholders. Though the graphic shows a linear process, there were times when the stakeholders re-evaluated their understanding and adjusted the path forward.

Goals and outcomes

There are many actions people can take to support forests, water, and wildlife in the Taghkanic Headwaters. Stakeholder discussions about goals focused on what they hoped would happen because of this plan. This plan's goals help focus the work and prioritize implementation of those actions that will best implement the vision.

Tools and strategies

Numerous programs and resources are available for people seeking support in stewarding forests and waters that could help implement the goals, outcomes, and actions. Chapter 4 of this plan focuses on tools and examples that will best implement the goals and were informed by stakeholder input on what would work in their communities.

Make it happen

The plan was developed with the idea that many people, as individuals or working together in groups large or small, would be engaged in implementing the recommended actions. How the plan is implemented depends on the stakeholders, the towns, and CLC. Different people and organizations will pursue actions that align with their interests and energy. CLC will use this plan to guide its conservation work in the watershed, which encompasses education programs for landowners and residents, working with landowners to support active forest management, and partnering with municipalities.

Creating a vision based on shared values

To support the plan's focus on forests for water, wildlife, and people, stakeholders identified the natural resource values that were most important to them. These values were distilled into *primary conservation values* and co-benefits based on the purpose of the plan. The primary conservation values are the focus of the plan's vision and are reflected in Goals 1 and 2.

Table 1. Primary conservation values identified to guide the plan.	
Clean water for people and wildlife	Forests for plant and animal habitat connectivity
Clean drinking water for people in the City of Hudson and those on wells	Large forests
Supports habitat for eastern brook trout and other species	Forest connectivity
Stream buffers and floodplains along forests are protected	Resilient forests
Rich, diverse habitats including healthy wetlands	Supports native plants
Abundant and sufficient water supply	Supports ecosystem recovery
	Healthy wildlife

What is forest connectivity?

In this plan, forest connectivity refers to the degree to which forest patches are connected to each other to facilitate the movement of wildlife and other ecological processes.* Some animals spend their whole lives in a very small area, while others need to travel across the landscape to get to wintering, breeding, or feeding habitats in different seasons. The ways people have altered habitats and developed the landscape limits many animals' abilities to move safely – effects evident in roadkill and deer-motor vehicle collisions.

This plan focuses on physical features in the landscape that allow wildlife to move more easily, particularly forests. Forest connections were estimated through computer modelling and mapping.

Think of forest connectivity like a strand of lights. When every bulb is intact, the whole strand lights up. Break a bulb, though, and you may not see a single twinkle. In the landscape, breaking a bulb might look like paving a new road or a long driveway, draining a wetland, or building a house. Once broken, the habitat simply cannot function for much of the wildlife that call it home. Large blocks of land, especially forests, benefit people, too–filtering drinking water, storing carbon, and providing us with places to recreate. As the climate warms, these connections will become even more important as some species will need to move northward and higher in elevation to remain in a suitable temperature range.

*Definitions adapted from NYS Department of Environmental Conservation. 2020. NYS Forest Action Plan, Albany, NY and Staying Connected Initiative Website: www.stayingconnectedinitiative.org/our-region/geography/

The *co-benefits* are other resources of concern to stakeholders that may be addressed but are not the focus of the plan. For example, one co-benefit was accessible open spaces, such as Public Conservation Areas. One likely outcome for this plan is that additional areas will be protected from future development. These areas may provide recreational opportunities for the community; however, the plan does not assess the accessibility of these open spaces.

Co-benefits

- Support small farms and agricultural diversity
- Promote sustainable, regenerative agriculture in the watershed
- More natural, less "tidy" landscapes
- Accessible open space
- Peaceful rural character of the community

The stakeholders shared many personal, natural resource, and community values throughout the planning process. They started with values that guided the process and plan that emphasized community, care for the region, collaboration, learning, and sharing this work with others. These community-based values brought a shared sense of purpose for the project and are reflected in Goal 3.

A Vision for the future of Taghkanic Headwaters

The stakeholders adopted a long-term vision based on their values that represents what they hope to see in the watershed many years in the future:

This vision for the future is the core of the plan and affects everything that came afterward: including what data were included in the inventory (Chapter 2), the focus of the goals and actions (Chapter 3), as well as the tools for implementation (Chapter 4).

Vision Statement

The Taghkanic Headwaters and the lands that surround it support clean water for people, plants, and animals, and provide vital wildlife habitat connections between New York and New England.

We envision a future Taghkanic watershed that is cared for by local communities and landowners to protect clean water and the ability of fish and wildlife to move across the landscape.