



Connestee Falls

Natural Resources Stewardship Plan

Version 1.0

Approved by CFPOA Board of Directors March 2024

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1. Summary

The CFPOA Natural Resources Stewardship Plan (NRSP) is a strategic framework created to promote the responsible management and conservation of Connestee Falls' natural resources. Its development has been and will continue to be a collaborative effort between the Natural Resources Stewardship Committee (NRSC) and outside experts, CF stakeholders including the Board, administration and staff, permanent committees, clubs and organizations, and members at large. This plan is intended to be a "living or dynamic document" which will be updated when a specific management program or plan is further developed and if new circumstances arise that require action.

The NRSC has taken great care to make decisions based on good data and proven science. As such, the first activity of the NRSC was to supervise a Natural Resources Inventory (NRI) that was conducted by Equinox Environmental in 2021-2022, to document the status of the natural resources on CFPOA properties. The results and recommendations of the inventory were key to identifying and prioritizing the issues and actions that are outlined in the plan.

The plan addresses the most important and impactful components of our native ecosystem such as wildlife (with particular attention given to bears and deer), water quality (lakes and streams), forests, and other native habitats. Each of the sections provides an overview of the component, a description of the current issues with an approach to address the issues, and recommended actions, including the development of a Wildlife Management Program, a Lake Management Plan and a Forest Management Plan.

Connestee Falls is home for residents and habitat for wildlife, therefore the NRSP strives to achieve a balance between human needs and the management of natural resources. The immediate and long term approach to address many of the current issues will be to educate the community about the ecology of Connestee's beautiful mountain surroundings. When people experience and learn about nature they tend to develop a connectedness to it and are more likely to help protect it.

Connestee Falls is a vital part of two larger ecosystems—of the Blue Ridge Mountains and the Appalachian Mountains. Maintaining and preserving our natural resources and emphasizing the value of those resources serves our community and reinforces Connestee's unique position within the real estate market in Western North Carolina. The NRSP provides a roadmap for all of Connestee to support the sustainable use and long term protection of our incredible natural resources for present and future generations.

Acknowledgements

This CFPOA NRSP was developed by current NRSC members Richard Bennet, Kathryn Hill, Alta Jo Longware, Graham Smith, Roger Witmer, CFPOA Board Liaison Jim Bailey, and General Manager Jim Whitmore, as well as previous NRSC members Michael Mac, Patty McGinnis, Laurel Young, and CFPOA Board Liaison Janet Saucier. The cover was designed by Janet Saucier.

2. Introduction

In the fall of 2021, the CFPOA Board of Directors established the Natural Resources Stewardship Committee (NRSC). As described in the committee charter, the NRSC was tasked with the authoring of a Connestee Falls Natural Resources Stewardship Plan. *"The Stewardship Plan will be used by the Board, management, and all committees, clubs, and organizations within the community as the basis of planning and decision making to ensure the long-term sustainability of these important resources. Natural resources include plant communities, freshwater communities, and terrestrial/aquatic wildlife"* ([NRSC Charter 2021](#)).

The purpose of this comprehensive plan is to guide the management of Connestee Falls' natural resources in a manner that is both sustainable and responsive to the needs and values of the community. The plan will be used to inform decision-making as it relates to natural resource management for the benefit of current and future generations. The plan was created via a collaborative process involving administration, staff, members, clubs, and technical experts. In addition to the input of all stakeholders, this plan was informed by research-based best practices for resource management.

The plan includes:

- (a) A description of the committee's vision and strategy for implementation and execution of the plan.
- (b) A description of the committee's values that are used in guiding decision-making as it relates to natural resource management.
- (c) A brief description of the background and history of Connestee Falls.
- (d) A summary of the community survey conducted in November 2022, which was designed to solicit owner perceptions regarding Connestee Falls' natural resources.
- (e) An explanation of the various properties contained within Connestee Falls. These include common natural areas, CFPOA unimproved lots, the golf course, parks, POA buildings, lakes and streams, roads and roadside easements, private improved lots, private unimproved lots, and utility company lots.
- (f) A description of the importance of education, outreach, and communication as it pertains to the protection of Connestee Falls' natural resources, along with a long-term plan for their continuance.
- (g) A chart of the relationship of the NRSC to other organizations, both within and outside of Connestee Falls.
- (h) An overview of the Natural Resource Inventory that was conducted by Equinox Environmental during 2021-2022.
- (i) A description of the wildlife, water quality, and forests within Connestee Falls, each with initiatives to develop long term management plans for protecting the flora, fauna, lakes, and streams.
- (j) A chart of recommendations for immediate action.
- (k) A chart of initiatives and programs, both current and immediate future.

3. Vision

The following vision, crafted by the NRSC, served to underpin the development of this stewardship plan:

Connestee Falls will continue to be an inspiring and desirable location where owners, residents and guests feel connected to the beauty and harmony of nature.

Rationale: Many homeowners are initially drawn to the natural environment surrounding Connestee Falls, which factors heavily in their decision to purchase a home here. This is supported by the Connestee Falls' *New Buyer Survey* research for the years 2014–2021. When asked “Which five community amenities and attributes were most important to your decision to buy here?,” respondents consistently reported that the “Natural Beauty of Connestee Falls” was the most important attribute (with the exception of ranking second in 2020). As such, Connestee Falls’ natural environment is a major focus of the new 2022 marketing materials designed to attract prospective purchasers who value living in western North Carolina. For example, an excerpt from the new property brochure states that “Connestee Falls’ natural mountain beauty is one of the main reasons why people decide to purchase a home here. This is what gives Connestee its sense of place. Recognizing this as a unique asset, the Connestee Falls Property Owners Association has made a formal commitment to preserving and sustaining the community’s natural surroundings.”

The committee envisions that Connestee Falls will remain attractive to both present and potential homeowners through the scientifically-based management of our natural resources. This is particularly important given the numerous challenges that our natural resources face, which include (but are not limited to):

1. The displacement of native species by invasive species.
2. The increase in development and the resultant increase in the resident human population, which place additional stress upon the natural environment.
3. The increased availability of “work from home”, which allows residents to spend more recreational time in the community, bringing with it the potential for concomitant impacts on the natural environment.
4. Balancing the need to establish forest management practices that are designed to maintain a resilient and natural forest ecosystem with the need to decrease the risk of and damage from wildfire.
5. Managing wildlife populations to decrease human-wildlife interactions and reduce stress on the local ecosystem.
6. The frequency and intensity of weather-related events associated with climate change, which has the potential to negatively impact both human structure and ecosystems through damage to property and infrastructure and increased stress to the local ecosystem.

4. Strategies

The NRSC adopted the following strategies while this plan was being developed and recommends that these strategies be adopted by future NRSC memberships as this plan is implemented over the coming years.

Strategy 1: Listen to community stakeholders and other CFPOA committees for the purpose of understanding opinions and concerns.

Rationale: The NRSC will act for the community as a whole. As such, it is necessary for the NRSC members to understand community opinions about various natural resources issues. The NRSC has and will continue to conduct Connestee member at-large surveys, meet with other CFPOA committees and community clubs regularly to gauge opinions, listen to concerns, and communicate important aspects of the NRSC's work.

Strategy 2: Secure expertise from outside organizations.

Rationale: Connestee is fortunate to have many people in the community who have expertise in natural resource topics and we will continue to solicit their assistance. However, due to the complex integrative nature of ecosystem management, it is also necessary for the committee to seek outside expertise. Such expertise ensures the use of unbiased, fact-based information that will be crucial when making recommendations related to managing the natural resources.

Strategy 3: Make data-driven and science-based recommendations.

Rationale: Individual opinions are important but opinions will not drive the NRSC's decisions. Rather, the committee will act for the whole community by making recommendations based on data and scientific study augmented by expert outside advice where appropriate.

Strategy 4: Generate support for this Stewardship Plan.

Rationale: The Stewardship Plan will form the basis for recommended actions related to Connestee's natural resources. Once approved by the Board, it will be vital to communicate the plan and its vision for protecting our natural environment to the community.

Strategy 5: Utilize effective educational programs such as *BearWise*, *Leave No Trace*, *NC Firewise*, and *Keep Wildlife Wild* programs to inspire people to protect and maintain our natural environment.

Rationale: Connestee Falls attracts residents and visitors from all over the US, some of whom have little experience or education related to the ecology of western North Carolina. By offering a variety of educational experiences related to Connestee's natural resources such as outings, presentations, and articles, residents and guests will feel more connected to nature and be more inclined to act to protect and maintain the natural environment.

5. Guiding Values

The CFPOA Strategic Plan identifies “PRESERVE our natural environment” as the third of four mission pillars with the goal “*To nurture, protect and respect Connestee Falls' natural beauty and environment as our greatest assets.*” The objective is to “Ensure the integrity of Connestee Falls' natural beauty, protecting the balance between development and preservation.”

Statement of NRSC Values

In addition to the above, the NRSC developed the following values to use as a guide for future activities during the authoring of this document.

Value 1: Identify and minimize threats to ecosystem resilience such as fire, flooding, erosion, and invasive species.

Value 2: Identify and preserve any rare, unique, or biologically important natural habitats that exist within Connestee Falls.

Value 3: Engage Connestee Falls' member volunteers whenever possible, and call on experts when necessary to assist with natural resources stewardship.

Value 4: Curate and utilize relevant research and expertise as it relates to ecosystem (forest and water) management.

Value 5: Provide educational materials and programs that will propagate these values throughout the community.

Value 6: Strive to achieve a balance between managing the natural resources found within Connestee Falls with human needs.

Rationale: Connestee Falls resides within the mountains of Western North Carolina. The natural community is a biologically diverse ecosystem consisting of trees, shrubs, wildflowers, and other herbaceous vegetation, along with unique aquatic resources and abundant wildlife. It is important to recognize that the existing ecosystem has been altered by both human and natural impact as a result of activities such as flooding, fire, drought, invasive species, land development, and logging. The additional threat of climate change makes it imperative that decisions regarding land and water management be thoughtful in nature and implemented with consideration for both natural and human systems.

A healthy ecosystem can be defined as one that “has the ability to maintain its structure and function over time in the face of external stress.” (Yonglong, et al., 2015). Ensuring a balance between the desire to maintain a resilient ecosystem with the needs of members at large is of utmost importance. As such, it is crucial to minimize threats to the surrounding ecosystem while considering homeowner needs related to recreation, safety, and infrastructure. These include considerations such as the Architecture and Environment Committee (A&EC) rules and regulations, hiking trails, lake usage, Firewise, and other development/homeowner impacts when determining issues related to the surrounding ecosystem.

6. Background and History of Connestee Falls Natural Resources

Connestee Falls is part of Transylvania County, an area that stretches about halfway between Asheville, NC and Greenville, SC. Nicknamed “Land of the Waterfalls” due to its numerous water features, Transylvania County provides easy access to Pisgah National Forest, Gorges State Park, DuPont State Forest, the Blue Ridge Parkway and Headwaters State Forest, allowing residents and visitors to enjoy a variety



of outdoor activities. Connestee Falls’ location within the Blue Ridge Mountains showcases a geologic setting of metamorphic rocks hundreds of millions of years old that have been sculpted over time into our beautiful mountain ridges, cliffs, and valleys.

Western North Carolina is biologically diverse, due to both the heavy rainfall that occurs throughout the year, as well as to the elevation changes with their corresponding changes in vegetation. Hemlocks, balsam, spruce, white pines, and a large variety of hardwoods make up the forest, while rhododendron, mountain laurel, ferns, mosses, and wildflowers shape the understory. The area is home to a variety of wildlife including mammals, birds, reptiles, amphibians, invertebrates, and insects.

The lure of the mountains, combined with easy access to activities in the culturally rich Asheville area, attracts many residents and guests to Connestee Falls. The master planned community was conceived in 1971 by Realtec, Inc., which attained what became today’s 3,900+ acre tract with the goal of developing an amenity laden gated community.

Current residents and visitors are familiar with the variety of amenities including four lakes with recreational park areas, 20+ miles of hiking trails, a clubhouse, fitness center and swimming pool, pickleball, tennis, and bocce courts, and a championship golf course. There are also two fire stations which are located just outside of the community security gates. As the development plan intentionally omitted land for retail and commercial use, the amenities and homesites have been carefully laid out to capitalize on the community’s natural resources.

The developers turned over the management of the community with the formation of the CFPOA, with residents taking an active role in governing the community and amenities. The community operates much like a small hometown with an elected board and a full time professional management staff. Connestee Falls continues to embrace that early vision and has expanded on it by establishing the Natural Resources Stewardship Plan that will guide the entire community in their stewardship of the land.

7. Community Perceptions of Connestee Falls Natural Resources

In order to obtain baseline data regarding opinions of the Connestee Falls community regarding natural resources, the NRSC conducted a member survey in the fall of 2022 (access the survey results [here](#)). Of the 713 respondents, 62.3% identified as being full time residents, 31.4% were part time residents, and 5.3% were lot owners. Years of ownership were broken into four categories, with 25% having owned 3 years or less, 23% having owned 3-5 years, 20% having owned 6-10 years, and 31% having more than 10 years of ownership in Connestee Falls.

Ninety-eight percent of the respondents agreed or strongly agreed that the natural environment is an important attribute of Connestee Falls, with 95% believing that it is important to educate members about our natural environment and the steps needed to protect it; 98% feel the natural environment (including lakes and streams) should be “sustained and preserved.” The following natural attributes were reported as being “appreciated” by over 50% of the respondents: birds, lakes and streams, mammals, trees and shrubs, and wildflowers. Lakes and streams were identified as the most important single natural attribute; trees and shrubs were identified as the second, and birds as the third, and mammals as the fourth.

In terms of wildlife interaction, several questions were asked to determine the types of interactions that community residents are experiencing with birds, deer, and bears. Over 36% of the respondents reported that they do feed birds. When asked about bear encounters, 17% of the respondents replied that they had experienced a bear encounter within the last 12 months. When asked to describe the encounter, most responses indicate that the bear was searching for human supplied food at a bird feeder, pet food dish, deck box, garbage can, or dumpster.

Survey participants were asked to reflect on deer-related interactions that they had experienced within the last 12 months. Of the respondents, 16% reported having no issues with deer and 73% reported deer having browsed of landscape plantings. Other issues included deer being perceived as “too tame” (39% of respondents), residents feeding deer (23%), and deer-vehicle collisions (3.5%). Respondents were also asked their personal attitude concerning deer; 65% reported that deer are part of what makes Connestee Falls special, 24% felt deer are a nuisance, and 11% had no opinion concerning the deer.

Participants were also invited to discuss other issues of concern via open-ended questions. A total of 244 comments were received in response to the question “If there are any current issues or concerns related to our natural resources that you would like to share with the NRSC, please comment below.”

NRSC members identified these overarching themes that surfaced as priority areas:

- (1) Keep Wildlife Wild**
- (2) Protect Water Resources**
- (3) Protect Natural Habitats**

8. Responsibilities for Property Areas Within Connestee Falls

Connestee Falls consists of both CFPOA and privately owned land. There are 11 distinct areas based on ownership and land use. Below is a description of each land designation, the primary management philosophy as it applies to land use, and the Connestee Falls governmental body that is currently overseeing or managing the area.

The NRSC will coordinate with each person or entity that is responsible for a given area to ensure that the management of that area aligns with the values and recommendations embodied in this Stewardship Plan.

Land Use Area	Responsibilities
Common Natural Areas which include the Connestee Falls Trail Network are managed by the General Manager and the maintenance staff. Historically, there has been little management attention to these areas except by volunteer Trail Builders and Trail Stewards who have constructed and maintained an extensive trail system that runs throughout the property.	The NRSC will collaborate with the General Manager and volunteer trail crews to ensure that the management of the common natural areas aligns with the values and recommendations embodied in the NRSP.
CFPOA Unimproved Lots are managed by the General Manager. Historically, there has been little management attention to these lots which have been left largely untouched for many years. Note that these unimproved lots were included in the Natural Resource Inventory (NRI).	The NRSC will collaborate with the General Manager to ensure that the management of such lots aligns with the values and recommendations embodied in the NRSP. The NRSC will make recommendations to the CFPOA Board and General Manager about lots that are of particular ecological significance and should be added to the Common Natural Areas (CNA) for conservation purposes.
Golf Course including the parking lot and accompanying green space, is overseen and managed by the golf course management and maintenance teams for the benefit of members and guests.	The NRSC will collaborate with the General Manager, the golf course management team, the leader of the tee box garden volunteers, and the Golf Club to ensure that resource management practices align with the values and recommendations embodied in the NRSP.

Land Use Area	Responsibilities
<p>Parks and Recreation Areas</p> <p>including Lake Atagahi, Lake Ticoa, Lake Tiaroga, and Lake Wanteska, the parking lots and accompanying green space. Recreation areas also include the tennis, pickleball and bocce courts, and the swimming pool. These areas are overseen by the General Manager and managed by the maintenance team as community amenities.</p>	<p>The NRSC will collaborate with the General Manager to ensure that resource management practices align with the values and recommendations embodied in the NRSP.</p>
<p>CFPOA Buildings</p> <p>Including the parking lots and accompanying green space are overseen by the General Manager and managed by the maintenance team.</p>	<p>The NRSC will collaborate with the General Manager to ensure that resource management practices align with the values and recommendations embodied in the NRSP.</p>
<p>Lakes and Streams</p> <p>and the maintenance of the water quality is overseen by the General Manager and managed by the maintenance team as community amenities.</p> <p>Lakes include CFPOA watercraft storage and access areas along the lakes that have the potential to impact water quality.</p> <p>The Fishing Club stocks the lakes with fish and provides fish food from stations.</p>	<p>The NRSC Lake Management Subcommittee (LMSC) will develop a Lake Management Plan (LMP).</p> <p>The LMP will make recommendations for lake management practices that will maximize water quality.</p> <p>The NRSC will collaborate with the General Manager to ensure that resource management practices align with the LMP of the NRSP.</p>
<p>Roads and Roadside Easements</p> <p>are overseen and managed by the CF maintenance team for the safety and day-to-day use of the community.</p>	<p>The NRSC will collaborate with the General Manager to ensure that resource management practices align with the values and recommendations embodied in the NRSP.</p>
<p>Connestee Falls Associated POAs</p> <p>include Qualla Village, Ticoa View, Indian Hill, and Lakeside Villas, which each have separate POA governing documents that fall under CFPOA rules and regulations.</p>	<p>The NRSC will collaborate with the General Manager and the Boards of the respective POAs to ensure that their resource management practices align with the values and recommendations embodied in the NRSP.</p>

Land Use Area	Responsibilities
<p>Private Improved Lots</p> <p>are those that contain privately owned homes, are overseen and managed by the A&EC according to the current CFPOA Rules & Regulations.</p>	<p>The NRSC will collaborate with the A&EC to identify and resolve discrepancies pertaining to the management of natural resources on private improved lots between the A&EC regulations and the NRSP.</p> <p>Additionally, the NRSC will coordinate with the A&EC to provide information that homeowners can utilize to steward their lots for long-term sustainability.</p>
<p>Private Unimproved Lots</p> <p>which are privately owned lots that do not have residences, are overseen and managed by the A&EC according to the current CFPOA Rules & Regulations.</p>	<p>The NRSC will collaborate with the A&EC to identify and resolve discrepancies pertaining to the management of natural resources on private unimproved lots between the A&EC regulations and the NRSP.</p> <p>The NRSC will make recommendations to the General Manager about privately owned lots that are of particular ecological significance, which if possible, should be acquired by the CFPOA and added to the Common Natural Areas (CNA) for conservation purposes.</p>
<p>Utility Company Lots</p> <p>including access roads, right of ways, and easements are owned and managed by the utility companies. It is not clear what rights the CFPOA has to enforce regulations on these lots.</p>	<p>The NRSC will collaborate with the General Manager to identify appropriate management at the utilities, to seek cooperation that the maintenance of their lots and easements aligns with the values and recommendations embodied in the NRSP.</p>

9. Education and Communication

The overarching goals of the NRSC education and communication initiative is to improve the understanding of and appreciation for the abundant natural resources within Connestee Falls. Our community attracts people from a variety of backgrounds and experiences related to their personal knowledge of Western North Carolina ecology and natural resource management. As such, it is imperative that the NRSC utilize extensive education and communication to both inform residents about the natural resources within the community and to encourage changes in behavior that is related to protecting and maintaining those resources throughout Connestee Falls.

Education and Communication Venues

- Outings and presentations are designed to inform participants about a specific natural resource. For example, past *Focus on Connestee* outings have included the topics of wildflowers, birds, ferns, trees, and geology. Presentations in the Cherokee Room have included bears, deer, hemlocks, and the Connestee Falls Natural Resources Inventory (CF NRI).
- Friday Flyer briefs such as “Did You Know?” and other relevant NRSC information articles are published regularly.
- Connestee Falls monthly e-newsletter is utilized by the NRSC for three main educational purposes:
 - To feature articles and photographs of recent outings
 - To report on NRSC activities and programs
 - To disseminate information related to CF natural resources including articles written by committee members and resident volunteers, as well as the reprinting of *BearWise*, NC Extension Service, NC Forest Management Service, and NC Wildlife Resources Commission publications.
- The CFPOA member website hosts a page with some information about the NRSC, which is accessible under the Board/Committees menu. The reader can then go to the [NRSC website](#) for more information.
- The NRSC website provides current information about the committee’s work, initiatives, educational materials, upcoming/past NRSC events, and volunteer opportunities with links to additional resources.
- The NRSC utilizes the CFPOA email system to disseminate information directly to all Connestee Falls property owners and residents.
- The NSRC can be contacted via the CFPOA email cfpoa@connesteefalls.com or cfpoanrsc2021@gmail.com. Emails are then forwarded to the NRSC chair for committee discussion and followed-up with an email reply.

Planning for Education Events

The execution of successful educational events takes careful planning and coordination, beginning with identifying a topic, then selecting a leader or speaker and a venue. During the inaugural year of the NRSC in 2021, the topics for events were driven by the need to promote the values and goals of the committee, as well as the availability of a specialist or enthusiast who was willing to lead an outing or give a presentation.

An NRSC member attends each event to introduce and assist the leader/presenter and greet attendees. A follow-up email is sent to participants, thanking both the host and the attendants for their participation. The message also includes an invitation to complete the on-line volunteer questionnaire to help the committee to recruit future volunteers.

Issues To Be Addressed

Organizing educational outings and presentations and writing effective articles takes time and energy. Therefore, it is imperative to focus on implementing events that will both serve to educate members on high priority topics and to reach out to as many people as possible. Issues related to continuing education and communication include:

1. Identifying and prioritizing topics for outings, presentations, and articles.
2. Soliciting volunteer specialists and enthusiasts to lead outings/presentations.
3. Determining the frequency and seasonal timing of events and informative articles.
4. Developing a method to measure the effectiveness of educational programs.
5. Planning for follow-up articles designed to continue the education around specific topics such as "Keeping Wildlife Wild" and creating a BearWise community.

Approach

Use the data and information gathered from the NRSC member survey, the Natural Resources Inventory, and community input to identify, prioritize, plan and execute educational events and community outreach efforts.

Recommendations

1. Create a subcommittee consisting of community volunteers to assist with education and communication initiatives, which includes organizing events, researching and developing outreach materials, and writing articles for CFPOA publications.
2. Enhance the current NRSC website to improve content and accessibility.
3. Expand the list of educational topics and reprioritize as necessary.
4. Utilize bitly links (or similar method) for accessing NRSC educational materials and follow up surveys to measure community interest.
5. Develop an electronic Natural Resources Stewardship Newsletter for direct email to all Connetsee Falls members at-large.

10. Coordination and Partnerships

The NRSC acknowledges the importance of partnering with organizations from both inside and outside of Connestee Falls when developing and making recommendations about our natural resources. The NRSC will continue to communicate, collaborate and coordinate with community stakeholders which include the following: CFPOA Management, CFPOA Board of Directors, Financial Committee (FC), Architectural & Environmental Committee (A&EC), Facilities Planning Committee (FPC), Strategic Planning Committee (SPC), Firewise Committee, Trail Builders, Trail Stewards, Fishing Club, Mountain Gardeners Club, Woodcrafters Club, and members at-large.

In addition to consulting with community stakeholders, it will be imperative to continue to communicate and collaborate with outside sources that can provide advice and/or data related to the management of natural resources. Such entities include the following: Equinox Environmental, NC State Extension (NCSE), NC Firewise, NC Forest Service (NCFS), NC Wildlife Resources Commission (NCWRC), Hemlock Restoration Initiative (HRI), and EcoForesters.

Issues To Be Addressed

Identifying and recruiting experts and volunteers from both within and outside Connestee Falls to assist with NRSC initiatives.

1. Maintaining an accurate database of contact information.
2. Maintaining a positive relationship with all partners and the members at-large.

Approach

1. Consult with Connestee Falls committees including the Finance Committee (FC) if CFPOA funds are required, clubs, and outside organizations to develop science-based policy recommendations and initiatives that address natural resource management issues while considering stakeholders' opinions.
2. Share information and resources with the CFPOA Administration, the CFPOA Board, other permanent committees, clubs/organizations and the membership at large to advance natural resource management efforts. Communications will include data, research, best practices, and other resources that can be used to inform policy development and decision-making.
3. Establish effective methods for communicating on a regular basis with Connestee Falls committees (such as the A&EC and the SPC) and clubs (such as the Trail Builders and Fishing Club) that have a related interest to ensure that natural resource management efforts are aligned and complementary.

Recommendations

1. NRSC coordination with other Connestee Falls Entities

Internal Entity	NRSC Actions
CFPOA Board	The NRSC chairperson or another committee member will attend the Board Advisory Group (BAG) meetings, which are held quarterly throughout the year.
CFPOA Management	Request that the General Manager continue to attend the regular NRSC committee meetings as a valuable conduit between the committee and Connestee's management, administration, and maintenance staff.
Connestee Falls Permanent Committees	<p>Meet with the A&EC and the SPC at least once a year to exchange views and understand important issues.</p> <p>Meet with the FC when the need arises for funds to secure a project or initiative.</p> <p>The interface to other permanent committees can be through the regular BAG meetings or upon request.</p>
Connestee Falls Clubs and Organizations	Continue to utilize opportunities to share updated summaries/presentations with Connestee Falls clubs and organizations including the Fishing Club, Trail Builders/Stewards, and Mountain Gardeners.
Members at-large	<p>Continue ongoing communication and outreach by providing educational events and programs that highlight important issues related to natural resources.</p> <p>Promote the volunteer survey to encourage residents to assist with NRSC initiatives and NRSP actions.</p> <p>Conduct a NRSC "Community Perceptions" survey periodically to determine changes in the community's actions and opinions related to Connestee Falls natural resources.</p>
Future NRSC Members	<p>Advertise opportunities for volunteers within the committee per Board Policy Manual requirements.</p> <p>Establish procedures for onboarding and training of new committee members and other volunteers.</p>

Recommendations (continued)

2. NRSC coordination with External Entities

(Note that this list focuses on the most important external entities at the time of publication. It is expected that this list will be updated by subsequent committees).

External Entity	NRSC Actions
Equinox Environmental	Maintain an on-going relationship with Equinox, which is a valuable resource to Connestee Falls due to their local knowledge, connections, and expertise. Equinox developed the Connestee Falls Natural Resources Inventory (NRI) in 2021/22.
EcoForesters	Continue to collaborate with EcoForesters (under contract) to develop a long-term Forest Management Plan (FMP).
Hemlock Restoration Initiative (HRI)	Continue to support the HRI and Connestee Falls Hemlock Friends group with efforts to protect community hemlocks.
Audubon North Carolina	Continue to collaborate with the NC Audubon Society to identify and develop bird sanctuary areas and improve bird habitat throughout Connestee Falls.
Resist Wildfire North Carolina (RWNC-Firewise)	Continue to collaborate with RWNC Firewise and the Connestee Falls Firewise Committee to develop a long-term Community Protection Plan (CPP) for Wildfire mitigation.
North Carolina Forest Service (NCFS)	Continue to collaborate with the NCFS, which has provided useful knowledge to help manage Connestee's forested areas.
North Carolina Wildlife Resource Commission (NCWRC)	Continue to collaborate with the NCWRC, which has provided useful knowledge to help manage Connestee's wildlife and habitat, and to help educate the community about that wildlife.
North Carolina State Extension (NCSE)	Initiate contact with the NCSE, to seek assistance with managing Connestee's natural resources. The NCSE offers information about soil, water and air, lawn and garden, and forest management practices.

11. Natural Resources Inventory (NRI) Report Summary

Historical Background

Connestee Falls residents have consistently rated our natural resources as the main reason that they moved to Connestee, and many residents cite our natural environment as the most enjoyable aspect of living here. In 2021, the Board of Directors decided that steps should be taken to ensure that we enhance our understanding of the local environment and the process of identifying actions necessary for caring for Connestee's natural resources.



To that end, the Board of Directors commissioned Equinox Environmental of Asheville, NC, to conduct a natural resources inventory (NRI) which would provide a snapshot of Connestee's natural areas, establish baseline data, and be used when planning for the management of our natural areas. About the same time, the Board also established the Natural Resources Stewardship Committee (NRSC) as a permanent committee whose members are tasked with assisting the Board in the identification of critical natural resource issues and stewardship strategies" (NRSC Charter, 2021).

The committee charter also states that the NRSC was tasked to "utilize the findings of the baseline resource inventory and assessment to prepare a Stewardship Plan, a "living document" which will guide integrated long-term management and monitoring of the community's natural resources" (NRSC Charter, 2021). As such, the NRSC oversaw Equinox's progress throughout their year-long inventory study, with field work occurring December 2021 through October 2022.

Structure of the NRI Report

The final [NRI Report](#) (Equinox Environmental, 2023) is divided into the following categories:

- Summary Information. Purpose of NRI, summary of natural resources, and description of the general vicinity and geological context.
- Inventory Methods. Preparer qualifications, field dates, and data collection methods.
- Description of the Property: Land use and human modifications and a discussion of the natural features which contains numerous sub-sections.



- Maps of the Property: Illustrate the diversity and locations of natural resources located within and surrounding Connestee Falls.
- Attachments: Natural heritage elements within one-mile radius of property, plant/animal status and rank, N.C. wildlife action plan priority species, and N.C. Natural Heritage Program Natural Area Site Report.

Connestee's Location

Connestee Falls is located within one mile of four significant natural areas, thirteen conservation easements, and the Headwaters State Forest, which was created in 2009. The four surrounding North Carolina Natural Heritage Significant Natural Areas (SNA) are: Dehon Mountain/Sherwood Forest; Dunn's Rock; Jim Raines Mountain/Connestee Falls; and East Fork French Broad River Slopes. The proximity of these SNAs to Connestee is of important ecological value and can serve as biological reservoirs for protected species that migrate among areas.

Natural Communities

The NRI delineates the main forested natural communities of Connestee's common areas and unbuilt lots, and provides an assessment of the vegetation composition, estimated forest age, and relative health of the natural areas within Connestee. Vegetation composition, topography, hydrology, soil characteristics and other abiotic factors were used to identify the following natural forest communities that exist within Connestee Falls: (a) acidic cove forest (typic subtype); (b) chestnut oak forest (dry heath subtype); (c) chestnut oak forest (mesic subtype); (d) montane oak-hickory forest (acidic subtype); (e) pine/oak-heath forest (typic subtype); and (f) southern Appalachian bog (low elevation subtype). The southern Appalachian bog is of particular interest due to its rarity and its age, and as a result will be a focus for protection and preservation by the NRSC. The report also contains a description of the type, quantity, and quality of stream and wetland resources. The NRI concluded that Connestee Falls contains numerous important natural resources with conservation value.

Aquatic Resources

A description of Connestee's watersheds, impoundments (Lakes Atagahi, Ticoa, Tiaroga, and Wanteska), streams, and wetlands is found in the aquatic resources section of the report. Approximately 119,685 linear feet of streams within Connestee support fish species such as rainbow trout, mottled sculpin, warpaint shiner, creek chub, and blacknose dace, as well as crayfish, salamanders, and aquatic invertebrates such as stoneflies, caddisflies, mayflies, and dragonflies.

Wildlife and Habitats

Within this section is a discussion and matrix listing amphibians, birds, mammals, and reptiles as observed by Equinox staff within Connestee's natural communities. Birds identified by sight and/or song, as well as a description of the important bird areas

surrounding Connestee Falls are included. Mammal identification was primarily done through the use of game cameras employed in different areas that photographed a variety of common species. Five rare vascular plant species, including the French Broad heartleaf and Erwin's turtlehead, were located within Connestee. There is a potential for a further 25 rare species or community types that are known to occur within one mile of the property, such as the green salamander, spotted skunk, coal skink, bald eagle, and sharp-shinned hawk.

Maps of the Property

Equinox Environmental (2023) developed the following resource maps depicting CFPOA owned tracts in relation to surrounding areas and natural resources:

1. Contextual Map Depicting Nearby Conservation Lands, managed areas, natural areas, and Audubon Important Bird Areas (IBAs)
2. USGS Topographic Map of USGS 7.5-Minute Quadrangles
3. Orthographic Map of water bodies, streams, roads, and 100' contours
4. Land Cover Map of natural community types
5. Water Resources Map of streams and surrounding watershed areas.
6. Biodiversity and Wildlife Habitat Assessment Map of waterbodies, streams, contours and Biodiversity/Wildlife Habitat Relative Conservation Value.
7. Terrestrial Network Concept ([TNC](#)) Site Resilience Map

Issues To Be Addressed

1. The field work by Equinox to develop the NRI was of limited duration and as a result, does not include some of the seasonal flora and fauna that have been recently added to the iNaturalist Connestee Falls Biodiversity Project.
2. Equinox identified four areas of concern including the protection of sensitive habitat, degradation of high use areas, control of native species, and human/wildlife relationships.

Approach

1. Continue providing programs to the community that educate residents about the value of the diversity of flora and fauna, inform them of risks to the diversity, or persuade residents to get involved and to help protect Connestee Falls' natural resources.
2. Continue to encourage residents to document local flora and fauna and add their sightings to the iNaturalist Connestee Falls Biodiversity Project.
3. Conduct targeted seasonal "[Citizen Scientist](#)" inventory events that focus on Connestee flora and fauna to collect additional information for the Connestee Falls Biodiversity Project.

Recommendations

1. Adopt the Natural Resources Inventory (NRI) as a living document and update with new information from the iNaturalist Connestee Falls Biodiversity Project and other reliable sources.
2. Continue to utilize information from the NRI Report in the development of the NRSP including the following recommendations from Equinox:
 - a. Protect Sensitive Resources
 - i. Discourage new trail development in sensitive areas.
 - ii. Promote low intensity and passive recreation to prevent overuse.
 - iii. Highlight and promote existing access points to unique natural features (rather than developing new ones).
 - iv. Monitor rare species occurrences.
 - v. Buffer sensitive areas by acquiring or placing restrictions on adjacent parcels.
 - b. Prevent/Mitigate Degradation
 - i. Encourage responsible and sustainable use of natural areas through appropriate messaging.
 - ii. Discourage destructive or exploratory activity in sensitive habitats (boulder crevices, seeps, etc.).
 - iii. Consider application of chemical dyes to mark exploited plants.
 - c. Control Exotic Invasive Species (EIS)
 - i. Take immediate action on high-risk species.
 - ii. Promote careful control around sensitive areas such as riparian zones/wetlands/intact habitats.
 - iii. Utilize volunteers and manual control where feasible.
 - iv. Establish cultural controls.
 1. Develop and utilize an EIS management plan
 2. Promote CFPOA sponsored recommended species list for landscape replacement and new construction
 3. Utilize native plants for CFPOA projects
 - d. Re-evaluate Relationships with Wildlife
3. Develop a comprehensive exotic invasive plant inventory and management plan as an integral component to future stewardship planning to mitigate degradation of the property's native natural spaces.

12. Wildlife Management

Due to the variety of habitats that exist within Connestee Falls, an “impressive variety of wildlife” can be found on the property, including deer, coyote, fox, bear, bobcat, raccoon, squirrels, and a diversity of birds and raptors (Equinox, 2023, p. 33). Additionally, eight potentially occurring rare animal species have been found within one mile of Connestee. Although these organisms were not seen during the Equinox biological inventory, species such as the coal skink may exist on Connestee property due to proximity of habitat.

Wildlife management can be defined as “applied animal ecology that benefits the habitat and both wildlife and human populations” The ultimate goal is to manage wildlife through the manipulation of habitat and/or wildlife, and by managing human behaviors. Unlike preservation, management is a form of conservation in which natural resources are maintained in a manner that ensures their availability for future generations; preservation maintains ecosystem’s as they are, generally by setting aside land that remains unaltered by humans (Yarrow, 2009).

Wildlife management is two-pronged, consisting of conducting wildlife inventories and evaluations and determining people’s values as related to wildlife. Wildlife management techniques are designed to study, reduce, increase, or maintain populations at a specific level. Such techniques can increase wildlife numbers through habitat manipulation (ie. providing nesting sites), or can act to manipulate wildlife through means such as mechanical (i.e. fencing to keep out organisms) and using behavioral deterrents for pest management (i.e. the use of scarecrows). Essential to wildlife management is knowing a population’s size and health, as well as habitat health (Saltz & Doherty, 2021).

While developing a management plan for Connestee’s wildlife, it is essential to consider both wildlife habitat requirements and the well-being of the community’s residents. As the human population at Connestee increases, so does the potential for an increase in the number of human-wildlife interactions. One of the primary goals of this NRSP is to ensure the long-term health and sustainability of Connestee’s animal populations (fauna), while also safeguarding the well-being of the community's residents. Achieving this balance can be challenging, given that there are often no simple solutions.

The NRSC established a set of principles for wildlife management to help guide research, use of task forces, and decision making. Those principles are:

Habitat Management

It is imperative that Connestee’s habitat remains conducive to the well-being of our wildlife. Future activities for the NRSC regarding habitat management are:

- Conduct and maintain information on the status of habitat health within Connestee’s common natural areas.
- Ensure the protection of habitat for rare and/or species of concern that are on Connestee property, to include following any state or federal regulations as they apply to endangered species that have been or may be found within Connestee.

- Maintain a variety of habitats via habitat management in order to attract/retain a diverse wildlife population.

Population Assessment

Understanding the nature and extent of the wildlife that exists within Connetsee is necessary for making decisions related to habitat management. Accordingly, future activities for the NRSC are to:

- Identify species of concern (i.e. pest species as well as rare, threatened, or endangered species) that may need management.
- Collect information on species of concern, to include estimates of population number and assessment of population health.
- Determine appropriate management techniques and actions.

Reduction of Human-Wildlife Interactions

The sight of a bobcat or glimpse of a bear heading into the woods are enjoyable positive “safe distance” sightings of wildlife. However, there are also negative and potentially dangerous human encounters such as approaching newborn or young wild animals and watching bears as they climb a deck to eat from a bird feeder or enter a garage to seek food from shelving or a garbage can.

The NRSC has a responsibility to protect residents and wildlife by working to minimize the frequency of close and/or potentially harmful human-wildlife encounters. To accomplish this task, the NRSC will continue to develop a plan to:

- Identify factors that are likely to increase negative human-wildlife interactions such as intentional and unintentional supplemental feeding of wildlife or excessive driving speeds.
- Monitor the frequency and types of conflicts that are potentially harmful to humans and/or wildlife.
- Identify strategies that will reduce or resolve human-wildlife conflicts.
- Develop a program to educate residents, guests, management, maintenance, and others about the hazards of habituating wildlife.

Development of Wildlife Management Programs

General Recommendations

1. Expand education and communication initiatives by the NRSC that focus on the importance of keeping wildlife wild and the hazards of feeding/habituating wildlife.
2. Promote information from the N.C. Wildlife Resources Commission (NCWRC) which recommends no feeding of wildlife.
3. Encourage the Board to enforce the CFPOA regulation that prohibits the feeding of any wild animals and to inform persons who are encouraging the presence of wild animals or the feeding of birds in ways that attract animals, that they are in violation.

12.1. White-tailed Deer

The white-tailed deer ([*Odocoileus virginianus*](#)) is native to North America and common in most US states where it is considered to be a keystone species, meaning that it has the ability to affect an entire ecosystem due to the lack of natural predators. A healthy adult male white-tail deer can consume 12 pounds of vegetation daily, including green leaves, succulent plants, tender woody vegetation, grasses, berries, and seeds such as hickory nuts and acorns.

Overbrowsing is not only a threat to seedlings and wildflowers; it also can change soil composition and negatively impact other species. Areas that have been over browsed by deer often have a distinctive browse line, in which trees lack lower leaves or branches, which can impact overall forest health. Some populations of understory plants, such as native wildflowers that deer find palatable, can be at risk due to overbrowsing.

The Connestee Falls environment consists of natural areas that are separated by homes and developed areas such as CFPOA buildings and the golf course. It is attractive to white-tailed deer due to the availability of preferred plant species including natural food supplies and landscaped gardens. The concern over the potential problem of over browsing by the white-tailed deer within Connestee Falls is not a new issue. In 2013, a deer browse study was conducted, which concluded that deer browse was not responsible for the lack of desirable understory regeneration.

One recommendation to help determine the degree of impact of deer browse was to construct fenced deer exclosures and compare the degree of browse outside of the exclosures. Three exclosures were constructed, one on each the Salola Trail, Ecusta Trail, and the Equestrian Trail. The Salola Trail and Ecusta Trail exclosures still exist but there is no documentation that any follow-up work was conducted.

The lead biologist for the NRI evaluated deer browse as part of his work on the natural resources study and concluded that browse lines are visible in places around the property, but they are not excessive such that the forest appears damaged or groomed by deer. (Equinox 2023)

In September 2022, the NRSC hosted a public presentation on white-tailed deer. The NCWRC Wildlife Biologist who is familiar with Connestee Falls, provided information about white-tailed deer habits, habitat, habituation to humans, and various methods of deer management practices. The presentation can be viewed [on-line here](#).

From the presentation in summary:

- The Connestee Falls deer population may be at their cultural carrying capacity, which the presenter explained is the number of a given species that people will tolerate over time.
- Based on observed deer browse and healthy-looking deer, the white-tailed deer population has not yet reached a biological carrying capacity. A biological carrying capacity is an equilibrium between the availability of habitat and the number of animals of a given species the habitat can support over time.
- The white-tails biological carrying capacity may be expanded through human actions such as the intentional feeding of deer and the availability of edible landscape plants.

As indicated in the NRSC member survey, over two thirds of the members who responded appreciate the presence of deer within the community. Under one third of the members responded that deer are a nuisance and the population is out of control.

Issues To Be Addressed

1. Habituation of deer that is occurring as a result of intentional and unintentional feeding of deer including the use of edible/desirable landscaping plants.
2. Perception that deer are overpopulated and unhealthy.
3. Deer impact on overall forest health.
4. Automobile accidents involving deer.

Approach

1. Educate the community about the importance of keeping wildlife wild and eliminating the intentional feeding of deer by residents.
2. Promote deer-resistant landscape plants community wide, such as those recommended in the [Connestee Falls Landscape Handbook 2020](#) (p. 8-24)
3. Preserve and expand upon the natural and native habitats for deer.
4. Monitor deer-automobile collisions and associated deer mortality.
5. Continue to monitor resident attitudes concerning deer.

Recommendations

1. Develop a Deer Management Program that focuses on educating the community about deer habits and habitats and the hazards of wildlife habituation.
2. Encourage the A&EC to modify the Landscape Installation Permit to promote the use of native deer resistant landscape plants.
3. Preserve, improve natural habitats for deer through the following actions:
 - a. Identify a professional who can recommend a process of measuring the deer population, the animals' impacts on the forest community and the possible risks that are attributable to deer.
 - b. Keep and maintain the existing deer exclosures as they may provide beneficial information in the future.
 - c. Consult with a Forest Management Specialist about identifying common areas, which are located away from residences and designating them as early-successional forests for the purpose of providing deer habitat.
4. Initiate adoption of the following process regarding the deer-vehicle incident reporting system through the General Manager to:
 - a. Maintain records on the number and type of incidents, vehicular or carcasses. Quarterly records should be provided to and maintained by the NRSC and reported to the membership.
 - b. Coordinate with maintenance to remove and preserve deer heads, then contact the NCWRS representative who will retrieve the head for analysis for [Chronic Wasting Disease](#) (CWD).

12.2. Black Bears

The American black bear (*Ursus americanus*) is a year-round resident of Connetsee Falls. Usually shy and human-avoidant, this mammal can lose its fear of humans if it begins to associate humans with food sources, thus increasing the chance of human-bear encounters. Within Connetsee Falls, anecdotal evidence suggests that black bear sightings are on the rise, with bears being seen not only along roadways and wooded areas, but also in residents' yards and on decks. In many of these instances, black bears appear to have been drawn to an area in search of easily obtainable food resources such as bird feeders, garbage cans, and construction dumpsters. In the NRSC community survey, 17% of the respondents reported having experienced a bear encounter that concerned them.

As with other wild animals, habituation through feeding (even inadvertently) can change bear behavior. Habituated bears can become unpredictable and dangerous (National Park Service, 2021). The NCWRC recommends that bears should "never have access to human foods, garbage, pet food or bird food" to protect both bears and people, since bears that are too comfortable around humans are often euthanized.

Issues To Be Addressed

1. Habituation of bears. Bears that are comfortable around construction sites, humans and homes are a potential safety concern for humans, pets and bears.
2. Accessibility of unnatural food items. Bears are attracted to easily accessible food such as bird seed, pet food, unsecured garbage, and construction dumpsters.

Approach

1. Educating residents, guests and contractors is critical to emphasize the importance of keeping wildlife wild and preventing bears from becoming habituated to human activities.

Recommendations

1. Expand education and outreach events and programs that will help transform Connetsee Falls into a BearWise community.
 - a. Continue to disseminate BearWise information.
 - b. Include "[Becoming BearWise](#)" and "[Be BearWise at Home](#)" information in new homeowner information, rental homes/packages.
 - c. Include "[Be BearWise Outdoors](#)" information in new homeowner information, and rental homes/packages, hiking trail booklets, and in trailhead interpretive information.
2. Encourage the use of bear-proof bird feeders and poles.
3. Encourage the use of bear-proof trash cans for curbside trash pickup and/or whenever storing garbage outside.
4. Encourage contractors to eliminate the disposal of household garbage in construction dumpsters.

12.3. Other Mammals

In addition to deer and bear, Conneestee Falls is home to a wide variety of other mammal species including red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), gray (and white) squirrel (*Sciurus carolinensis*), chipmunk (*Tamias*), groundhog (*Marmota monax*), eastern coyote (*Canus latrans*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), mice (*Mus musculus*), opossum (*Didelphidae*), river otters (*Lontra canadensis*), beaver (*Castor canadensis*), eastern cottontail (*Sylvilagus floridanus*), bats (*Chiroptera*), flying squirrels (*Pteromyini*), and nine-banded armadillos (*Dasypus novemcinctus*) can be found within Conneestee Falls. (Equinox, 2023). Most recently the American River Otter (*Lontra canadensis*), has taken up residence on Conneestee lakes. (Photo credits NCWRC)



Additionally, due to the suitable habitat that is found within Conneestee, the NRI (Equinox 2023) highlights the possible presence of the rare to uncommon spotted skunk (*Spilogale putorius*). Detailed information about these species and information about State regulations as well as suggested management practices, can be found on the [NCWRC website](#).

The critical component for ensuring that a healthy population of mammal species continue to exist on Conneestee property is the maintenance of suitable habitat. Important management practices include ensuring a diversity of shelter (brush piles, snags or dead/partially dead trees, nest boxes) is available, as well as a variety of food sources (fruiting trees, shrubs and vines, nut trees, conifers, grasses and wildflowers).

Management of invasive species (such as noxious weeds), improving forest edges, and ensuring a diversity of habitat (such as creating herbaceous forest openings) all contribute to attracting and retaining wildlife. Lastly, ensuring that temporary pools (such as vernal pools) and seeps (natural water sources where fresh water from below the ground flows to the surface to form small streams or small bodies of water) are maintained is essential for many types of wildlife (Brittingham, 2016).

Several resident mammal species warrant special discussion due to either their numerous negative human-wildlife interactions, their tendency to negatively impact an ecosystem, and/or the fact that they serve an important role in the ecosystem. Deer and bear, organisms that contribute to negative human-wildlife interactions, are discussed in previous sections of this plan. Below is an overview of concerns related specifically to river otters, beavers, bats and armadillos.

American River Otter

Otters occasionally make their way into Connestee lakes and in February 2023, a pair of otters were documented as living in both Lake Ticoa and Lake Atagahi. Although playful in nature and enjoyable to watch, “river otters are important predators; they can reduce undesirable fish populations that compete for food with cold-water game fish” (Sumner, Carraway Williams, 2018). There is some concern that the presence of river otters will negatively impact populations of stocked fish within Connestee lakes.



Beaver

Historically, the beaver was extirpated within North Carolina, with the last one trapped in 1897. Since their reintroduction in the 1930s, beavers have flourished. Occasionally beavers make their way to Connestee, which can be a concern due to the potential for damage to the forested areas adjacent to the lakes and the streams. They can destroy trees via chewing on or felling the trees in an effort to eat leaves, twigs, and bark (McGrath, Olfenbuttel, & Sumner, 2018). However, beavers can also help to prevent erosion and sedimentation of ponds, as well as provide habitat for species such as wood ducks.

Bats

North Carolina has 17 species of bats, three of which are federally endangered and one of which is federally threatened. Bats commonly found in this area include the big brown bat (*Eptesicus fuscus*), which roost primarily in trees or manmade structures; the eastern red bat (*Lasiurus borealis*), which roost primarily on the ground under leaf litter and at bases of trees; and the small-footed bat (*Myotis leibii*), which roost primarily in crevices in bedrock ledges, mature trees with platy bark.

Bats play a vital role in the ecosystem by controlling pests, pollinating plants, and dispersing seeds. Bat populations, however, are in serious decline due to a disease called white-nose syndrome, a fungus that is passed from bat to bat. Planting native flowers, erecting bat houses, and reducing pesticides and herbicides all benefit bat populations. Due to their decline, six bat species are protected by federal law.

Armadillo

The nine-banded armadillo originated from South America and crossed from Mexico into the U.S. in the late 19th century. It has successfully moved into areas of the U.S. due to its high reproductive rate and the lack of natural predators. Although uncommon in North Carolina, it is expanding its range and the State has identified it as having the potential for becoming invasive. Armadillos can cause property damage and damage to trees as a result of their foraging behavior, digging holes up to three inches deep and 5 inches wide. In addition, the species can carry the bacteria that causes leprosy, although the Center for Disease Control (CDC) indicates that the risk of infection from armadillos is low.

Coyote

The coyote is native to the U.S. and is common to areas of North Carolina. It is an opportunist that will eat a variety of foods, including road-kill, human garbage, pet food that has been left outside, and possibly unleashed outdoor pets such as cats and small dogs.

Other Mammal Issues To Be Addressed

1. The degradation and destruction of natural habitat that often accompanies building and construction activities is a concern. Maintaining habitats where animals have access to clean water along with a diversity of shelter and food is critical to ensuring healthy mammal populations.
2. Mammals are especially susceptible to human habituation including intentional and unintentional supplemental feeding. As a result, squirrels, raccoons, foxes, coyotes, deer, and bears are all frequent visitors to bird feeders to feed directly and/or to prey on other smaller mammals and reptiles.
3. The use of chemical pesticides, herbicides, and fertilizers ultimately ends up in the water supply and can therefore have a negative impact upon mammal and other animal populations, which rely on access to clean water.

Approach

1. Continue to provide ongoing opportunities through a variety of communication venues to educate the community about mammals and their specific habitat needs, as well as the importance of wildlife management.
2. Conduct the studies that are necessary for collecting data and establishing a scientific basis for managing mammal species of concern.
3. Promote the use of NCWRC suggested methods to address problematic species.

Recommendations

1. Expand education and outreach events and programs to promote the following:
 - a. Understanding of the various mountain wildlife, habits and habitats.
 - b. Maintenance of suitable habitat for critical mammal populations.
 - c. Support for the NRSC wildlife management programs.
2. Identify a professional to assist with the following:
 - a. Develop a process to conduct measurement studies for mammal populations.
 - b. Assess the impact of the potentially problematic native plant and animal species (i.e. otters, beavers, and armadillo) to determine their populations and impacts on the forests and surrounding natural areas.
3. Investigate the use of chemical controls (particularly mosquito spraying) within Connestee (by professionals, maintenance, and landowners) and determine its potential for negative effects on the wildlife food-chain and populations.

12.4. Birds

Western North Carolina is home to a diversity of year round "resident" and migrating birds that benefit from the varied microclimates such as coniferous forests and high mountain meadows. Connestee Falls lies within moderate proximity to four Important Bird Areas (IBAs) that are designated by the Audubon Society as sites that provide essential habitat for one or more species of birds having conservation significance which includes Caesars Head State Park (Equinox Inventory, 2023).

Equinox staff identified the following birds either in flight or via bird song: American crow, red-tailed hawk, broad-winged hawk, sharp-shinned hawk, and turkey vultures. Other birds seen and heard during field assessments include barred owl, blue jay, cardinal, American robin, catbird, nuthatch, tufted titmouse, dark-eyed junco, Carolina chickadee, Eastern towhee, pileated and downy woodpeckers, and northern flicker. Several unidentified species of sparrow and warbler were also observed/heard.

It is not surprising that of the 713 members who completed the 2022 NRSC Member Survey, 75% responded that they appreciate birds and 35% responded that they feed birds. However, bird populations can be negatively impacted by eating at bird feeders. Birds feeding at feeders are easy prey for hawks and owls. The top four causes of bird mortality are human related including feral and domesticated cats, building glass, vehicles, and poisoning from insecticides and pesticides. (US Fish & Wildlife Service Report, 2017)

The NCWRC identifies hazards to feeding wildlife include an increased chance of disease transmission to wildlife people and pets, increased conflicts with humans as a result of wildlife losing fear of humans, degradation of the natural habitat, and alteration of animal diet that can negatively impact their health.

The NCWRC opposes feeding wildlife, stating that "the best thing you can do to care for the wild animals on your property is to give them habitat, not handouts." The NC State Extension recommends "naturescaping" or landscaping using native plants for the purpose of attracting beneficial insects and birds as an alternative to feeders.

Naturescaping allows bird enthusiasts to enjoy wildlife on their property in a manner that allows humans and wildlife to coexist through thoughtful landscaping.

Canada Goose

Connestee Falls lakes attract a number of waterfowl, including the Canada goose (*Branta canadensis*). Although most bird species are not inherently problematic for humans, the Canada goose is often considered a nuisance. The geese feed on lawns and golf courses, with each individual consuming up to four pounds of vegetation daily and producing up to three pounds of waste on a daily basis. Their numerous droppings act as fertilizer, which can cause algae blooms or excessive plant growth in lakes. Geese "droppings" are not only unsightly and inconvenient, the fecal matter can also contaminate lake water by increasing the levels of *E. coli* to the point that a lake must be closed for swimming.

Because the Canada goose is protected by the Migratory Bird Act, it is unlawful to hunt or kill them out of season. However, NC does allow hazing, installing barriers, repellants and habitat modification. Recommended hazing techniques include using herding dogs, predator decoys, and toys such as remote controlled boats to scare the geese. Habitat modification, such as the installation of low fences that prevent geese from accessing water from land and curtailing mowing so as to prevent new growth from emerging, are also recommended.

Issues To Be Addressed

1. The use of bird feeders, which promote habituation and can cause disease transmission among birds and other animals that will take advantage of the unnatural food source.
2. A large Canada goose population can contribute to messy/unsightly lake recreational areas, lake water eutrophication due to excess nutrients, and dangerous *E. coli* levels.
3. The need for protecting and enhancing natural bird habitat while balancing the needs of the community surrounding lakes and ponds.

Approach

1. Continue education about the hazards of feeding wildlife, including birds.
2. Encourage safer alternatives to feeding birds such as naturescaping with native plants that provide birds with natural food sources and shelter.
3. Designate community areas specific for bird viewing.

Recommendations

1. Encourage the Board to enforce the CFPOA regulation that prohibits the feeding of wild animals and to inform persons who are encouraging the presence of wild animals or the feeding of birds in ways that attract animals, that they are in violation.
2. Promote BearWise practices including "[Attract Birds, Not Bears](#)."
3. Promote the NC State Extension publication "[Managing Backyard Habitats for Birds](#)" to promote the use of natural habitats, which provide food and cover that birds need to thrive.
4. Promote the NCWRC recommendations and practices for [managing conflicts with Canada Goose](#), which includes legal and humane "hazing techniques" to reduce Canada goose population.
5. Develop [Audubon approved bird sanctuary areas](#) to provide a rich bird habitat and viewing areas including American with Disabilities Act compliant birding trails/walks that would provide easy access by all users.
6. Encourage "Night Lights Out" practices during bird migration seasons.
7. Encourage residents and visitors to use [Merlin Bird ID](#) to identify birds and add their sightings to the CF Biodiversity Project through [iNaturalist](#).

12.5. Amphibians and Reptiles (Herps)

Amphibians

Although often unseen, amphibians and reptiles, both of which exist within Connestee Falls play an important role in the ecosystem, serving as both predator and prey.

Amphibians, such as frogs, toads, and salamanders, have permeable skin which is their major organ for obtaining oxygen. Amphibians require a moist environment to survive; many live part of their life in water and part on land, returning to water to breed and lay eggs. Vernal pools are small, shallow temporary pools that occur in the spring. The pools are an essential breeding habitat for frogs and salamanders as well as insects upon which the amphibians feed.

(Wood Frog photo compliments of NCWRC)



Species of amphibians documented by the NRI as occurring within Connestee include the seal salamander (*Desmognanthus monticola*), the dusky salamander (*Desmognathus fuscus*), the Blue Ridge two-lined salamander (*Eurycea wilderae*), the eastern newt (*Notopthalmus viridescens*), and the mud salamander (*Pseudotriton montanus*). Residents documented the presence of the slimy salamander (*Plethodon glutinosus* complex) and the endangered green salamander (*Aneides aeneus*) and added both to the Connestee Falls Biodiversity Project through iNaturalist.

(Green Salamander photo compliments of NCWRC)



Reptiles

Unlike amphibians, reptiles breathe through their lungs, can live all of their life on land, and do not require a moist environment for laying their eggs. Reptiles include turtles and tortoises, snakes, and lizards. Because they are ectothermic, with their bodies taking on the temperature of their surroundings, reptiles require access to places where they can bask in the sun to absorb heat such as the many rock outcroppings and stone walls here in Connestee. The NRI Report (2023) identified the following reptile species present with Connestee: the eastern copperhead (*Agkistrodon contortrix*), the worm snake (*Carphophis amoenus*), the eastern box turtle (*Terrapene carolina*), and the eastern garter snake (*Thamnophis sirtali*). Connestee Fall residents' reports to the iNaturalist project include the ring necked snake (*Diadophis punctatus*), the eastern fence lizard (*Sceloporus undulatus*), and the eastern rat snake (*Diadophis punctatus*). Although not seen, it is probable that the coal skink (*Plestiodon anthracinus*) may also be present in Connestee as it is known to exist in close proximity.. (Equinox, 2023).

Threats to Amphibians and Reptiles

Amphibian populations around the world have been in decline for over 20 years. Currently, about one third of the amphibian species worldwide are at risk of extinction due to a number of factors including habitat fragmentation/loss, disease, invasive species (such as bullfrogs), overexploitation (collection for food and pet trades), and chemical pollution. Given that amphibians easily absorb chemicals across their skin, they are considered to be a bioindicator of water quality; their absence can be an indication of polluted or contaminated water (Zaghoul, Saber, Gadow, & Awad, 2020).

Although the eastern box turtle is not listed in a category of special protection in North Carolina, they are listed as a priority species in the NC Wildlife Action Plan. A law passed in 2003 prohibits the commercial collection of this species and other turtles from the family Emydidae.

(Eastern Box Turtle photo compliments of NCWRC)



Issues To Be Addressed

1. Lack of knowledge about the current amphibian and reptile populations and the issues that they may be facing on a local level.
2. Depletion of critical habitats due to factors such as chemical pollution (ie. pesticides and herbicides), drought, habitat destruction due to construction and paving (which increases erosion and sedimentation), and disease.
3. Identification and protection of endangered, threatened, and species of concern as well as critical habitat areas.
4. Identification and mitigation of invasive species that negatively impact amphibian and reptile populations.

Approach

1. Educate the community about the role that amphibians and reptiles play in the ecosystem and the necessity of protecting and restoring critical habitat.
2. Monitor amphibian populations through protocols such as egg mass identification and/or frog call monitoring by utilizing protocols established by Calling Amphibian Survey Program ([CASP](#)) of the North Carolina Partners in Amphibian and Reptile Conservation ([NCPARC](#)).

Recommendations

1. Identify a professional who can assist the launch of an initiative to better understand the diversity of the amphibian and reptile populations/habitats and to develop a Herp Monitoring Program.
2. Identify, restore, and protect critical wetland habitats to support reptile and amphibian reproduction and promote larval development under variable rainfall regimes.

12.6. Arthropoda

The phylum Arthropoda is made up of invertebrates (organisms that lack a backbone) that have jointed legs. This incredibly diverse group makes up about 75% of all animal nutrients, serving as both predator and prey. Arthropods are subdivided into four major groups; insects, myriapods (centipedes and millipedes); arachnids (spiders, mites, and scorpions), and crustaceans (crayfish, crabs, shrimp).

Maintaining healthy arthropod populations, specifically insect populations, is vital to the health of ecosystems and to human survival for several reasons:

- Insects aid in the production of fruits, seeds, and vegetables through pollination. Seventy-five percent of the world's crops (for food, beverages, fiber, medicine, and spices) and up to 30% of the American diet are the direct result of insect pollination, including many fruits and vegetables.
- Insects improve the soil's physical condition by burrowing throughout the surface layer. The dead bodies and droppings of insects serve as fertilizer by adding nutrients to the soil. Insects consume dead plant and animal matter, joining fungi and bacteria in recycling waste in our environment.
- Some insects parasitize or prey on harmful insects, or feed on weed plants and seeds, keeping populations low.
- Insects serve as food for native birds, fish, mammals, reptiles, and other animals.
- Some insects produce products humans use, such as honey, wax, silk, and dyes.
- Insects such as bumblebees, butterflies, moths, damselflies, and dragonflies add beauty to a garden.

Rare Species Within Connestee Falls

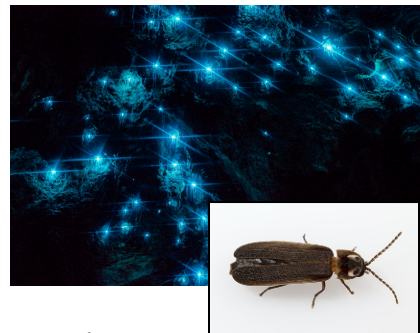
Blue Ghost Firefly

Legend is that the blue ghost fireflies are the ghosts of Confederate soldiers. Western North Carolina, and specifically Connestee Falls is one of few places in the world where the tiny ($\frac{1}{4}$ " length) blue ghost firefly (*Phausis reticulata*) thrives, as they are attracted to and thrive in the moist forest environment.

The blue ghost fireflies' ideal conditions for mating season (early May to early June) include warm and moist forest areas that are surrounded by spongy leaf litter. Both the male and female emit a blue-white hue. When a male sees a female, he lands near her and flashes his light in a specific pattern. If the female is interested, she will flash her light back. Once they have matched patterns, they will mate.

Some NC state parks close their trails during blue ghost mating season to avoid crushing the wingless female insect or disturbing their mating ritual with lights from phones or flashlights.

(Enlarged blue ghost firefly photo compliments of Wikipedia.)



Potentially Rare Arthropod Species

Several potentially occurring rare insect species were identified in the NRI as existing within one mile of Connestee. Those species include rusty-patched bumblebee (*Bombus affinis*), the green comma butterfly (*Polygonia faunus*), and the French Broad River crayfish (*Cambarus reburus*).

Invasive Insects

Hemlock Woolly Adelgid

At present, the only known invasive insect species found within Connestee Falls is the Hemlock Woolly Adelgid (HWA) (*Adelges tsugae*). The HWA is an aphid type of insect only 1.5 mm in size, which kills hemlocks by sucking the plant sap from the tree.

Under the guidance of the Hemlock Restoration Initiative (HRI), hemlocks within Connestee are being treated with good results by a group of trained resident volunteers. Treatment of young and mature hemlocks includes those on Connestee Falls trails, parks, and roadways. CFPOA members can request assistance from the NRSC with treating hemlocks on their private property.

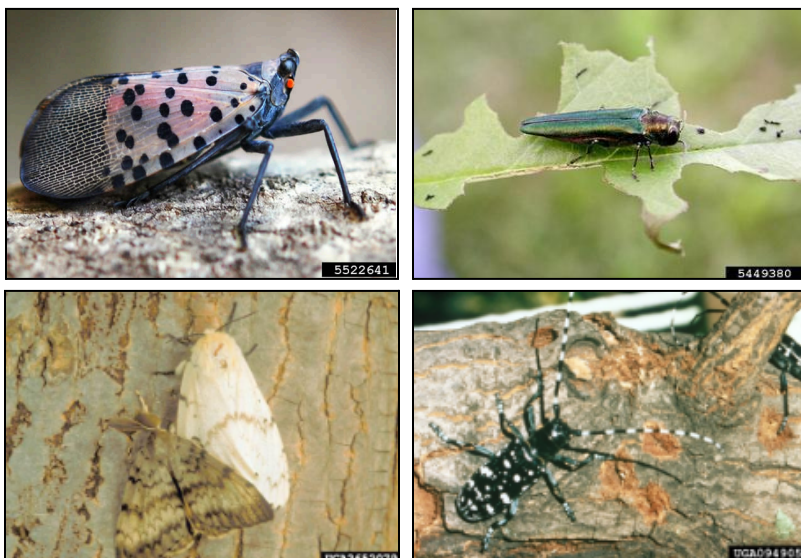


Other Potential Invasive Species of Concern

Given that Connestee is surrounded by a variety of both hardwoods and softwoods, threats from other non-native invasive species are a concern because they have been identified in other parts of NC and/or adjacent states. The community must be on the lookout for signs of any invasive insect species. (Photos compliments of the USDA)

Pictured to the right are four species of immediate concern in North Carolina. Clockwise are the spotted lanternfly (*Lycorma delicatula*), emerald ash borer (*Agrilus planipennis*), Asian long horned beetle (*Anoplophora glabripennis*), and European gypsy moth (*Lymantria dispar*).

NC Extension has asked that all sightings of the spotted lanternfly be photographed and reported immediately through their [web site here](#).



Issues To Be Addressed

1. Lack of baseline data about arthropod species that are within Connestee Falls:
 - a. diversity, distribution, or populations
 - b. availability of habitats necessary to sustain healthy populations
 - c. degree of habitat loss due to construction, development, and erosion
2. Lack of information about how arthropod populations affect other species that rely on them for survival (e.g. bats, moths, and birds).
3. Lack of information concerning the types and impacts of chemicals used to control arthropods on CFPOA properties including the golf course, or on private properties.
4. Lack of a mechanism to monitor the general use of insecticides or other chemical treatments within the community for controlling arthropods that are considered pests such as spiders, wasps, hornets, grubs, and termites.
5. Lack of a mechanism to monitor or control invasive arthropods other than the HWA.

Approach

1. Identify the presence, location and populations of endangered, critical, unique and/or invasive arthropod species populations.
2. Educate the community about the critical aspects of a healthy arthropod population and the importance of protecting and maintaining that population as part of the natural food chain and a healthy ecosystem.
3. Gather information about existing practices for the use of chemicals by POAs, maintenance, landowners, and contractors within Connestee.
4. Evaluate how pesticides and herbicides may negatively be impacting beneficial arthropods as well as species higher on the food chain.
5. Identify problems or potential problems with current pest management practices.

Recommendations

1. Expand education and outreach programming to include information about the value of arthropods and their ecological role in the natural environment.
2. Identify a professional who can assist the launch of an initiative to better understand the diversity of arthropod species populations and habits and develop an arthropod monitoring program.
3. Promote the use of [Integrated Pest Management](#) (IPM), an EPA science-based decision-making process that combines tools and strategies to identify and manage pests safely, using non-chemical and chemical practices.
4. Encourage the expansion of native garden plantings and naturescaping practices that attract beneficial insects such as pollinators in conjunction with the Mountain Gardeners and organizations such as [Pollinator Partnership](#) and [Homegrown National Park](#).
5. Continue the treatment of hemlocks for the HWA throughout Connestee Falls.

13. Water Quality-Lakes and Streams

According to the NRI Report, the water resources found on the property are significant both in terms of amount and quality, containing an abundance of headwater streams* and seeps, open water habitats, and a bog. Indeed, the nearly 23 miles of streams, coupled with the community's four man made lakes, are an integral part of Connestee Falls and serve as high-quality habitats that support "stream-dwelling macro- invertebrates, many of which require clean, cold, sediment-free water to survive" (Equinox, NRI 2023)

**Note that "headwaters" is defined as the source of a stream or river; "seeps" are moist or wet places where water, usually groundwater, reaches the earth's surface from an underground aquifer; a "bog" is a freshwater wetland of soft, spongy ground consisting mainly of partially decayed plant matter.*



Headwaters play an important role in distributing nutrients downstream, filtering out pollutants and silt, and supporting biological communities in Connestee lakes and rivers that are downstream from them.

Lakes of Connestee Falls

Connestee contains four man made mountain lakes of varying sizes as shown in the table below. These lakes primarily serve recreational purposes such as boating, swimming, paddling, and fishing. The Fishing Club currently stocks the lakes annually with financial support from the Connestee Falls POA.

Lakes are classified based on a number of factors including origin, size, depth, location, water chemistry, and ecology. Connestee's lakes mirror our local topography with steep slopes, and limited flat shallows.

Lake Name	Total Acres	Volume of Water in Acre-Foot (AF)	Volume of Water in Gallons (gal)
Atagahi	81 Acres	2200 AF	718 Million gal
Ticoa	75 Acres	1850 AF	604 Million gal
Wanteska	46 Acres	1700 AF	555 Million gal
Tiaroga	32 Acres	820 AF	268 Million gal

Lake Characteristics

Connestee lakes are considered oligotrophic, which are characterized by cold, clear, water of low pH, low conductivity, and hence low productivity. Although upstream influences are of minimal concern, there is still the potential for water quality problems to emerge that must be addressed. Atmospheric sources, historical land use, infrastructure (i.e. septic) failures, and management practices for construction and development all have the potential to compromise the quality of Connestee's lakes and streams. Additionally, point and nonpoint pollution, deforestation, and destruction of riparian areas (areas that occur along the edges of streams and other water bodies) are detrimental to headwaters and the streams and rivers that they feed (River Keepers, 2005).

Lack of Water Quality Data

Important scientific measurements of water quality including chloride, phosphorus, dissolved oxygen, turbidity and salinity have not been made. Testing of heavy metals and other pollutants that negatively impact humans through exposure or consumption of fish has also not been conducted.

Dredging

Although Connestee's lakes are not natural lakes, they do act in some ways like natural lakes that are influenced by time. Leafy materials are dropped or blown into the lake and decompose. Additionally, sediment is carried into the lake so over time the lake becomes shallower. Connestee maintenance currently dredges the perimeter of the lakes periodically to help mitigate the aging process.

Fecal Coliform

To ensure that individuals can safely participate in recreational activities in and around the lakes, Connestee Falls maintenance staff tests the swimming sites weekly (including the dam areas and boat access/swimming areas) for the presence of fecal coliform. Fecal coliform levels, a measurement of the amount of bacteria found in the digestive system of humans and animals, is an indicator of possible contamination by disease-causing organisms.

Fecal coliform numbers can increase due to factors such as a sewer line break or too numerous Canada geese that defecate in the water and along the shoreline. There are times during the year when sizable geese flocks are present and droppings contaminate the lake verges and the lakes. Additionally, the location of the sewer line for lakeside properties follows the berms around the lakes and on occasion, is a source of contamination. Carolina Water tests the water after a sewer system failure/leak for the presence of fecal coliform.

Lake Management

Historically, little attention has been paid to the holistic management of the lakes. Connestee management and maintenance oversee actions such as weekly coliform testing, occasional dredging of the lakes, and mitigation of problematic water plants. Typical of oligotrophic lakes like Connestee's man-made lakes, low productivity

complicates their management due to the sparse growth of algae and other organisms. The lakes cannot naturally support large fish populations which would normally rely on algae, grasses, and invertebrates for food. As a result, significant resources are invested annually to stock fish and to provide supplemental food at feeding stations in each lake. However, a comprehensive analysis of the overall value of the past/current fish stocking practices and the overall impact(s) on lake function has not been performed.

Issues To Be Addressed

1. Water bodies that are used for swimming should have the highest of water quality standards, yet currently only fecal coliform is measured. Other contaminants, such as heavy metals and cyanobacteria, should also be considered in order to better inform the community about the safety of both swimming and the consumption of lake fish.
2. The introduction of invasive plant and animal species by imported water craft, wild animals, birds, and residents.
3. Excess sediment from erosion, which washes into the streams and lakes from a variety of sources can damage aquatic organisms and their habitats. Although there are some regulations in place for controls to prevent erosion, a more comprehensive approach is needed.
4. The lakes are dredged periodically and there is a need to determine and evaluate the necessity as well as the environmental effects of the process.
5. Application of chemicals such as herbicides, pesticides and fertilizers applied to the land can act as a non-point source of pollution as the chemicals make their way into the lakes and streams following significant rain events.
6. Impacts of the chemicals that are used to maintain the golf course. A process should be established to assess the type, quantities, and timing of application of chemicals to assure that they are not negatively impacting Connetsee's aquatic ecosystems.
7. Lack of policy, restrictions, or guidance provided to lakeside homeowners on what chemicals should or should not be used as well as when or when not be applied on lakeside lots.
8. Watercraft storage areas as a source of water contaminants particularly from chemicals in fungicides, cleaning agents, and batteries.

Approach

1. Collect measurements of water quality indicators including, but not limited to, chloride, phosphorus, dissolved oxygen, turbidity, salinity, toxic metals, etc. in order to establish a baseline and to inform future decisions regarding lake management.
2. Conduct a comprehensive analysis of seasonal trends in water quality (e.g. temperature, dissolved oxygen, conductivity, pH, chlorophyll and alkalinity) and physical habitat (e.g. submerged aquatic vegetation, coarse woody debris, man made structures) in the mountain lakes.
3. Collaborate with the General Manager, maintenance, and A&EC to better control erosion and sedimentation during work projects.

4. Collaborate with the General Manager and maintenance to minimize the use of chemicals in and around the lakes.
5. Educate the community utilizing [NC DEQ](#) and about the potential harmful effects of the application of chemicals such as herbicides, pesticides, fungicides, and fertilizers as non-point source pollutants on aquatic habitats and water quality.
6. Promote the use of [Integrated Pest Management](#) (IPM), an EPA science-based decision-making process that combines tools and strategies to identify and manage pests safely, using non-chemical and chemical practices.
7. Collaborate with community stakeholders, particularly the Fishing Club to develop a comprehensive Lake Management Plan.

Recommendations

1. Create a Lake Management Subcommittee (LMSC) consisting of representatives from the NRSC, Maintenance, the Fishing Club, and the community. The LMSC Charge is to determine the necessity of conducting a Fish Management Study and/or the development of a Lake Management Plan with the following guidance:
 - a. Review and analyze the June 2023 baseline lake water quality test results conducted by Pace Analytical Labs. (e.g. dissolved oxygen, turbidity, salinity, toxic metals, etc.)
 - b. Test and analyze seasonal trends in lake water quality as deemed necessary. (e.g. temperature, dissolved oxygen, conductivity, pH, chlorophyll, and alkalinity)
 - c. Review relevant historical information pertaining to lake water quality.
 - d. If deemed necessary, seek/recommend a provider to conduct a Fish Management Study to:
 - i. Assess the fish community in each of the four lakes and determine community composition, fish size structure and condition, species-specific abundance, and balance of predator and prey species.
 - ii. Develop a Fish Management Plan with specific strategies for Connetsee lakes aimed at achieving desired outcomes identified by the Lake Management Plan.
 - e. If deemed necessary, seek/recommend a provider to develop a Lake Management Plan to:
 - i. Make recommendations regarding water quality preservation to improve and/or maintain lake and stream water quality such as managing activities that impact water quality, managing problematic and/or invasive plant and animal species, and educating the community about man-made lakes and appropriate lake management practices.
 - ii. Educate the community about man-made lakes and lake habitat.
 - iii. Opportunities to educate the Community about man-made lakes, lake habitat and appropriate lake management practices.

14. Forest Management

Connestee Falls lies within the southern Appalachian mountain range, which is considered to be one of the most biologically diverse areas in the world due to factors such as latitude, elevation, and soil type. The plants that make up the forested areas, including trees, shrubs, ferns, and wildflowers, are diverse due to both heavy rainfall and the impacts of varying elevation (Hike WNC, 2023). Forests contribute to cleaning air, filtering water, controlling for floods and erosion, providing animal habitat, and opportunities for recreation.

Threats to southern Appalachian forests include large-scale clear cutting, urbanization and forest fragmentation, global warming, the spread of invasive, exotic plants, and destructive forest pests and diseases (Ecoforesters, 2023). In particular, threats from pests and diseases (eg. emerald ash borer, gypsy moth, thousand cankers disease, and oak decline) will have serious impacts on southern forests over the next 50 years. The spread of harmful insects and diseases is anticipated to be aggravated by climate change, which will bring warming temperatures and changes in precipitation patterns (Wear & Greis, 2013).

Health of Natural Forest Communities

The [NRI report](#) identified a total of six ecological communities via vegetation composition, topography, hydrology, soil characteristics and other abiotic factors. See the full report for a detailed description and location of each forest community. It should be noted that the boundaries of these natural communities are usually not distinct lines as symbolized on the Natural Communities Map found in the NRI report; the change from one community to another is gradual and the boundaries are approximations.

Similar to other areas of the southern Appalachian mountains, Connestee's natural communities "exhibit varying degrees of intactness based on historic disturbances such as logging, excessive fragmentation from road and home construction and utility rights-of-way, and natural regime shifts such as the decline of hemlocks. As such, only a few areas within these communities would be considered exemplary" (Equinox, 2023)

That said, Connestee's geographic size and variety of habitats, which include forests, gorges, outcrops, streams, and wetlands, is responsible for a rich diversity of both plants and animals. Additionally, in close proximity and contiguity are several other largely undisturbed, protected properties that add to our property's biological significance. Connestee's forest areas are filled with numerous plants, including five rare plant species: the small spreading pogonia (*Cleistesiosis bifaria*), Erwin's turtlehead (*Chelone obliqua* var. *erwiniae*), French Broad heartleaf (*Hexastylis rhombiformis*), Pygmy pipes (*Monotropis odorata*), and American ginseng, (*Panax quinquefolius*) (Equinox, 2023).

Table 1. *Health Assessment and Threats to Connestee's Natural Forest Communities*

Natural Forest Community	Health Assessment From the NRI Report	Threats
Acidic Cove Forest	Generally in good health	Hemlocks have been partially preserved through chemical treatment to reduce and prevent infestation by the hemlock woolly adelgid.
Chestnut Oak Forest (Dry Heath Subtype)	No assessment made	Overcrowding of shrub layer due to fire suppression is inhibiting the establishment and development of canopy tree seedlings.
Chestnut Oak Forest (Mesic Subtype)	In good condition	Previous disturbances (most likely fire) have allowed seedling regeneration of oaks and other canopy hardwoods.
Montane Oak-Hickory Forest	In good health, with interior areas exhibiting good structure and lacking observable disease	Dense with laurel and huckleberry, limiting the reproduction of canopy tree seedlings. Continued fire suppression may impact the succession of trees such as oaks and hickories and favor species such as red maple.
Pine - Oak/Heath Forest	Mature forests are in very good health	Poor seedling recruitment of natural pine and hardwoods, perhaps due to historic fire suppression.
Southern Appalachian Mountain Bog	Moderately healthy, although there are many unnatural factors currently affecting its vegetative diversity and overall integrity	Threats to the bog include exotic invasive plants, impervious road surfaces that carry pollutants into the bog, and any future construction that may occur on adjacent unimproved lots.

The Role of Fire in Southern Appalachian Forests

Historically, fire has played an important role in the ecology of the southern Appalachian forests. In addition to natural fire events caused by lightning, Native Americans used fire to establish open areas as a way of providing habitat for elk and deer, which were used as food sources. Many native plant species co-evolved with fire and are dependent upon it for regeneration.

As a result of last century's intense logging that left behind debris, catastrophic wildfires occurred; this eventually led the U.S. Forest Service to deter fire through a campaign of prevention and suppression. Fire exclusion has been extremely successful, but has given rise to other issues. Some trees are failing to reproduce and are being replaced by other species. Desirable plants for animal habitat (such as blueberries) are lost as mountain laurel (*Kalmia latifolia*) and rhododendron (*Rhododendron maximum*) expand their territory. It should be noted that mountain laurel has a high flammability and rhododendron has a medium flammability rating.

The 2016 wildfire outbreak in South Carolina "demonstrates the potential for large regional fire events in the southern Appalachians and is consistent with expectations for more wildfire from a warming climate and more frequent droughts" (Reilly, Norman, O'Brien, & Loudermilk, 2022).

Assessment of Conneestee's natural forested communities led Equinox to state that "the forests contained within the Property are largely fire-dependent and have been entirely fire suppressed," which has led to reduced plant and animal diversity, dense understories, and high fuel loads (Equinox, 2023, p. 9), which increases the chances of severe wildfires.

Managing Conneestee's Natural Forested Areas

Similar to threats impacting southern Appalachian forests, threats to Conneestee's natural forested areas include fire suppression, invasive species, fragmentation of habitat, and climate change. Historically, the natural forest communities found within CF were subject to clearcutting prior to the development being established. As far as is known, there has been no attempt to actively manage the forests within Conneestee since it was established as a community over 50 years ago.

When considering forest management practices, other than fire mitigation, it will be crucial to assess and control the impact that invasive plant and animal species have on our forests. Additionally, protecting rare species and their habitats as identified in the NRI will be crucial, as will ensuring that a diversity of species can be maintained for ecological balance and resilience.

Of unique significance is Conneestee's large network of well-maintained and regularly used trails, including stairs, bridges, and signage. The trail system has been consistently ranked as one of Conneestee's most popular amenities and tops the list of amenities that buyers regularly use or plan to use. Due to the perceived value of the trail system, any future forest management plan will need to take the trail system into account.

Issues To Be Addressed

1. Understanding how susceptible our forests are to catastrophic fire and the actions that should be taken to mitigate wildfire risk.
2. Determining the impact that deer have on Connestee's forests.
3. Mitigating the spread of invasive exotic species, both plants and animals, within Connestee including within the natural forest communities.
4. Ensuring that our forests remain as healthy and biologically diverse as possible.
5. Balancing the recreational desires of the residents with forest health since the number, location, and use of trails by hikers may negatively impact the forest environment. Additionally, there have been instances of hikers trampling and/or stealing plants as well as defacing trees with marks and initials.

Approach

1. Our community is in need of independent, professional advice on how to manage the forest environment, which is likely to be a multi-decade endeavor.
2. Create educational programs and promote volunteer opportunities that will engage residents in assisting with appropriate forest management practices.
3. Collaborate with the Connestee Falls Firewise Committee to balance Firewise recommended protections in residential areas with fire risk reduction in adjoining forestland.
4. Continue to utilize iNaturalist to document species found within Connestee's natural forest communities.
5. Promote the use of integrated pest management strategies to mitigate the spread of invasive species and to minimize the use of herbicides as a control.

Recommendations

1. Identify and recommend a professional forestry organization that can evaluate our forests and propose a long-term Forest Management Plan (FMP) that addresses fire and fire mitigation, biodiversity, invasive species, and the long-term sustainability of our natural forest communities.
2. Continue to collaborate with the A&EC to coordinate efforts and encourage fire mitigation on private properties through the adoption of Firewise practices.
3. Collaborate with the Trail Builders about plans to reroute old or build new trails to align with the need for fire mitigation as defined in the FMP.
4. Expand the NRSC Education program to include events and programs about the importance of forests, how forests evolve, and how to care for them.
5. Install interpretive signs at the major trailheads for the purpose of informing hikers about trail etiquette, safety, and the natural history of Connestee Falls.
6. Continue to promote iNaturalist to document species found with Connestee Falls, while ensuring that the exact locations of rare and delicate species are concealed.
7. Identify and institute volunteer opportunities (similar to Trail Builders/Stewards and Hemlock Friends) to assist in caring for our forests.

15. Protecting Native Habitats

Connestee's native habitats, ecosystems, and landscapes are home to a diverse array of plant and animal species as described in the Natural Resources Inventory Report (NRI). By protecting these habitats, we contribute to the preservation of biodiversity and help to maintain a healthy and balanced ecosystem both inside and outside of Connestee's property boundaries. This, in turn, can lead to increased resilience and stability of the property's natural environment, including benefits such as improved soil quality, increased water retention, and enhanced pollination services.

Healthy native habitats are important because they provide the community with the following:

Educational, Recreational and Aesthetic Value: Native habitats provide opportunities for natural history education, recreational activities and aesthetic enjoyment. By preserving our natural landscapes, we continue to create spaces for activities like birdwatching, hiking, nature photography, and wildlife observation.

Stewardship and Legacy: Preserving native habitat demonstrates a commitment to environmental stewardship and leaves a lasting legacy for future generations. For example, forests act as natural carbon sinks, helping to mitigate climate change and our streams are the headwaters for the French Broad River. Maintaining the cleanliness of our water helps to protect downstream environments. This action will inspire others and set an example for responsible land management practices, creating a positive impact beyond our property boundaries.

Property Value and Marketability: In an increasingly "built-up" world, Connestee is unique. Most homebuyers appreciate the beauty and environmental benefits associated with natural landscapes, therefore preserving Connestee's native habitat will make the community attractive to potential future owners.

The Southern Appalachian Mountain Bog

As described in the NRI Report, within the far southeastern extent of our property lies a rare Southern Appalachian Mountain Bog habitat. This rare and unique wetland type exists within the footprint of several CFPOA owned lots. Any changes to the lots, including removal of vegetation, construction, or the addition of impervious surfaces are threats to the bog's integrity. Preservation of the hydrologic integrity of the bog is important, as it is a critically imperiled ecosystem that is known to support at least one rare plant (Erwin's turtlehead) and changes to or disruption of the bog hydrology can severely degrade or eventually eliminate the habitat. At present, the bog is moderately healthy, but exotic invasive plants (EIP) threaten the native flora, as does roadway runoff, which carries pollutants (Equinox, 2023).



Issues To Be Addressed

1. The Southern Appalachian Mountain Bog was only recently identified during fieldwork for the NRI. Currently, the lots that make up the bogshed have been taken off the market, but there is at present no formal status associated with the bog or surrounding properties.
2. The NRI also identified several rare species that are known to exist in Connestee, as well as rare species that may potentially exist but have not yet been positively identified. There is a need for a comprehensive list of all the species in Connestee and the continued identification of their critical natural habitat.
3. There is at present no formal mechanism for protecting critical natural habitat areas from encroachment.

Approach

1. Continue to collaborate with the Board and the General Manager to ensure that "The Bog" and other critical habitat areas are protected.
2. Utilize the NRI species inventory for the purpose of better understanding the species present at Connestee and the habitat those species occupy.
3. Investigate the "Homegrown National Park" program and other habitat restoration programs and if appropriate, put together an initiative for educating and involving the community.

Recommendations

1. Formalize a process for the identification and protection of habitat or potential habitat for rare species as identified in the NRI.
2. Encourage the Board to convert the CFPOA unbuilt lots in the bogshed into a protected area. Eventually there could be an interpretive nature park containing interpretive signs. It is recommended that physical impediments to foot traffic be incorporated within the nature park to prevent degradation of the bog.
3. Promote the importance of adding to the Connestee Falls Biodiversity Project natural species inventory to better understand the diversity of species present within Connestee and the habitat those species occupy.
4. Discuss the value of establishing a CFPOA "Permanent Conservations Easement" for protecting critical habitat areas.

Control of Native Invasive and Exotic Invasive Plants (EIP)

Although CFPOA property is in relatively natural condition, there are several populations of exotic invasive plants (EIPs) that are of concern. These include Japanese spiraea (*Spiraea japonica*), Chinese silvergrass (*Miscanthus sinensis*), autumn olive (*Elaeagnus umbellata*), Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera*

japonica), oriental bittersweet (*Celastrus orbiculatus*), and multiflora rose (*Rosa multiflora*). Other species, such as Japanese stiltgrass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), and shrubby lespedeza (*L. bicolor*), are widely dispersed across the property, occurring along roadsides, trailheads and trails, disturbed areas, and other actively managed zones within the Property.

Japanese spiraea and silvergrass infestations appear to have originated from private landscape plantings throughout the community, whereas the other exotic invasive species are artifacts from outside infestations brought in by vehicles, wildlife, or wind. Fortunately, exotic invasive plant recruitment from these marginal sources into undisturbed woodlands is limited due to the extreme acidity that is exhibited across most of the property's natural areas (Equinox, 2023, p. 39).

Issues To Be Addressed

1. Lack of comprehensive data about both native and exotic (non-native) invasive plant species (EIP) that are located on CFPOA properties and right of ways.
2. Preventing the introduction of other EIP shrubs, vines and trees such as Bradford pear (*Pyrus calleryana*), porcelain berry (*Ampelopsis brevipedunculata*), kudzu (*Pueraria montana* var. *lobata*), and English ivy (*Hedera helix*).
3. Removing invasive plants from CFPOA properties and right of ways.
4. Determining an approach to mitigating invasive plants that are on private properties, which have spread or have the potential to spread onto CFPOA properties.

Approach

1. Identify and assess the location and population of invasive species on CFPOA properties and right of ways.
2. Identify and utilize the most safe and effective procedures following federal and state recommendations for IPM to mitigate terrestrial and aquatic exotic invasive plants for use by maintenance, contractors, and landowners.
3. Solicit volunteers task forces to mitigate invasive species as needed.

Recommendations

1. Establish an Invasive Species Subcommittee to address the above issues and approaches.
2. Continue education programs that inform residents about the types and negative impacts of invasive plants, and what they can do to help eliminate invasive plants from Connestee.
3. Encourage the use of IPM to manage invasive plants.
4. Offer landowners assistance (professional and/or volunteer) with the identification and removal of invasive plants and provide information about native species alternatives.

Discussion about Conservation Easements

The question as to whether there should be a permanent conservation easement on portions of CFPOA common natural areas is raised by residents on a regular basis. Conservation easements are legal agreements between landowners and conservation organizations or government entities to protect and preserve land for its natural, cultural, or historical values. At present, the committee has not yet decided whether to make a recommendation about this topic. It should be noted that any recommendation to create a conservation easement within Conneestee would very likely require a vote of the membership. While conservation easements can offer several benefits, they also have potential drawbacks.

Possible Advantages of conservation easements include:

- Permanent protection of habitat.
- Flexibility can allow tailoring of an easement to meet the specific needs and goals of Conneestee as stated in the NRSP.
- Possible Financial incentives (these may not be applicable to Conneestee because of Conneestee's agreement with Transylvania County).
- Stewardship support by conservation organizations and government entities.
- Conservation legacy. Preservation of natural and cultural resources for future generations, ensuring that the land's unique values are protected and enjoyed by the community.

Possible Disadvantages of Conservation Easements include:

- Loss of control by the community over how the land is used.
- Financial implications due to the cost involved in creating the easement.
- Limited financial returns due to restriction on the land's development potential.
- Regulatory burdens.
- Changing circumstances and constraints on actions that future Boards can take with the properties.

16. Professional Resource Management

The culture of Connestee Falls is one of volunteerism; the 2021 CFPOA Comprehensive Management Plan estimated that residents contribute 1,300 plus hours per month in support of community work within Connestee. The CFPOA benefits enormously from this level of community spirit.

For example, the 20+ miles of hiking trails that lie within Connestee have all been built and maintained by the Trail Builders and Trail Stewards. While many people in Connestee relish the opportunity to volunteer to work in the outdoors to enhance and maintain our natural resources, there is a limit as to how much time volunteers can give and how much they can achieve. Not all aspects of maintaining and enhancing community amenities can be done solely by volunteers.

Connestee employs a number of individuals whose job it is to manage and maintain the amenities and common areas. However, Connestee does not currently have an employee to “manage” the natural resources and coordinate all of the recommendations within the NRSP. The NRSC suggests that there be a discussion about the possibility of hiring a professional who will be responsible for the management of the communities natural resources.

Issues To Be Addressed

1. There is a need for consistent and continuous management of our natural resources, which is far beyond what can be expected from volunteers.
2. There is a need for accurate record keeping that can be accessed when making decisions related to natural resource management. For example, volunteers treated Connestee’s hemlocks several years ago for woolly adelgid. However, the records are missing, which makes it impossible to measure the long term efficacy of the original treatment program.
3. There is a need and community desire for expanded educational programs that focus on Connestee’s natural resources. Such programs would benefit residents, their children, grandchildren, and guests.

Recommendation

The CFPOA hires a Natural Resource Ranger to manage and enhance our natural resources, coordinate with volunteers and clubs with missions that align to natural resources. The ranger would work in conjunction with the NRSC to expand and lead natural resources education programs for community members at-large.

Natural Resource Ranger – Sample Job Description

The Natural Resource Ranger will be responsible for managing forests, wildlife habitats, and other natural resources in the common natural areas within Connetsee. The successful candidate will have an excellent knowledge of forestry and environmental conservation principles and practices as well as a strong educational experience that promotes environmental conservation, natural resource management and sustainability practices. Duties may include:

- Implementation of approved forest management plans and strategies to sustain and improve forest resources, including wildlife habitats and water resources.
- Conducting regular surveys to monitor and evaluate forest health and environmental conditions.
- Enforcing forest management recommendations, regulations and policies, including fire safety protocols and wildlife protection measures.
- Maintaining accurate records and documentation of forest activities, including data on timber felling, wildlife population, and visitor statistics.
- Developing and implementing educational programs and events related to natural resource management, environmental conservation, and sustainability practices.
 - Using a variety of teaching methods and technologies, including hands-on activities, multimedia presentations, and online learning tools, to engage learners of all ages and backgrounds.
 - Monitoring and evaluating the effectiveness of educational programs and modifying as needed.
 - Coordinating with volunteers and clubs whose mission aligns to natural resources.
- Staying up to date on current research and trends in natural resource management, environmental science and education, and integrating this knowledge into forest management practices and educational programs.
- Assist management in the development of appropriate statements for the scope of work when external contractors are required for professional services and provide supervision of those contractors during their work.

17. Recommendations for Immediate Action

Goal #1 - Keep Wildlife Wild
<i>Habituation of wildlife is the primary reason for problems such as Connestee's contentious deer dilemma and frequent human-bear encounters. To reduce wildlife habituation throughout the community the NRSP recommends that:</i>
The Board enforces the CFPOA regulation that prohibits the feeding of any wild animals and to inform persons who are encouraging the presence of wild animals or the feeding of birds in ways that attract animals, that they are in violation.
The A&EC encourages the use of deer resistant native landscape plants as identified in the Connestee Falls Landscape Handbook 2020 .*
Goal #2 - Protect Native Habitats
<i>The threat of wildfire is serious and real and it must be reduced to protect both human and wildlife habitats. To reduce the threat of wildfire the NRSP recommends that:</i>
The A&EC encourages wildfire mitigation through the adoption of Firewise practices for the use of Fire Resistant Approved Landscaping recommendations.* *Note-The Connestee Falls Landscape Handbook and the Fire Resistant Landscaping in NC guide published by the NC State Extension are being cross referenced and combined to develop a list of suggested deer resistant/fire resistant plants.
<i>Maintaining CFPOA properties, roadsides and right of ways is important but the methods used, degree of disturbance, and timing can have negative impacts on native flora and fauna including disrupting life cycles and depleting the food chain. To reduce the negative impacts of maintenance practices the NRSP recommends that:</i>
The General Manager reviews roadside maintenance practices with the maintenance team and subcontractors to ensure that their practices (scheduled mowing, leaf blowing, and shrub/tree trimming) align with NC State Guidelines, and with the values and recommendations embodied in the NRSP.
<i>Erosion is one of the most serious environmental issues in our community. Most erosion is the result of new home construction/renovation, CFPOA building construction/road maintenance, and utility company work. To reduce the potential negative impacts from erosion during construction projects, the NRSP recommends that:</i>

The Board approves a Conservation Area designation for undeveloped CFPOA lots that the Common Natural Area Task Force has identified as critical native habitat or if developed, would negatively impact critical native habitats. This designation would apply to the Southern Appalachian Mountain Bog and Bogshed area.

The A&EC enforces [Rules and Regulation](#), Article XVIII.8.B. Erosion Control Plan (p.53) that recognizes the importance of proper erosion control on construction sites and specifies erosion control measures, which must be taken prior to start, during, and after construction project completion.

The General Manager reviews current erosion control practices with maintenance and subcontractors to ensure that their practices align with NC State Guidelines and with the values and recommendations embodied in the NRS Plan.

The unmonitored use of chemicals on both POA and private properties has unintended negative impacts such as water pollution, depletion of natural habitats, and the extermination of necessary pollinator species as well as negative impacts on the health of humans and wildlife.

To reduce the adverse consequences due to the unnecessary or improper use of chemicals the NRSP recommends that:

The General Manager and residents utilize [Integrated Pest Management](#) (IPM) practices as recommended in the NC State Extension Gardener Handbook for preventing and mitigating pests.

The General Manager and residents follow [General Pesticide Safety Guidelines](#) as recommended in the NC State Extension Gardener Handbook.

18. NRSC Initiatives

The preceding sections of the NRSP contain recommendations for actions to be taken to further develop and fully implement it. The primary challenge for the NRSC has been recruiting professionals and volunteers who are willing and able to commit to committee, sub-committee, and task force responsibilities.

Several of the initiatives are currently underway or planned for the near future. This is a living document and future NRSC responsibilities will be to update the list to reflect current priorities and/or new projects as they arise.

Status Key:

Launched - The goal of the activity has been decided and that energy has been expended to start the activity.

In Progress - The activity has reached steady-state.

Start/End - 1st, 2nd, 3rd, or 4th Quarter, Year

Project	Status	Start	End	Notes
Organize an Education and Communications Subcommittee	Launched ▾	3Q23	On-going	Recruited volunteers to assist with regular and special tasks to expand outreach.
Expand "Keep Wildlife Wild" Education Program	Launched ▾	1Q22	On-going	Articles published weekly/monthly.
Develop a Deer Management Program (eg. educate, analyze, mitigate, evaluate)	Launched ▾	3Q22	On-going	Requires professional assistance. Deer talk w/NCWRC J. McVey, 09.22
Expand "Creating A BearWise Community" Education Program	Launched ▾	2Q22	On-going	Articles published weekly/monthly. Bear talks w/Dr. Dave, 06.22, 08.23
Develop Audubon approved Bird Sanctuary Areas	Launched ▾	1Q23	4Q24	NRSC is working in conjunction with Audubon NC.
Develop an Amphibian and Reptile (Herp) Monitoring Program	Not started ▾	TBD	On-going	Requires professional assistance.
Develop an Arthropod Monitoring Program	Not started ▾	TBD	On-going	Requires professional assistance.

Project	Status	Start	End	Notes
Conduct a Baseline Evaluation of Water Quality	In progress ▾	2Q23	4Q23	Initial tests (phase one) completed in June 2023.
Establish a Lake Management Subcommittee (LMSC)	In progress ▾	4Q23	4Q25	Charge is written. Committee is meeting.
Conduct a Lake Management Study. (LMSC to identify a contractor.)	Launched ▾	4Q23	2Q24	LMSC will make a recommendation to the NRSC. (Board action needed for funding.)
Prepare a Lake Management Plan (LMSC to identify a contractor.)	Not started ▾	3Q24	4Q26	LMSC will make a recommendation to the NRSC. (Board action needed for funding.)
Prepare a Forest Management Plan	Launched ▾	3Q23	4Q24	Contracted with EcoForesters 1.2024
Establish an Invasive Species Subcommittee and a Mitigation Volunteer Program.	Launched ▾	3Q23	On-going	NRSC volunteers are currently working in conjunction with the Trail Stewards.
Map POA properties and evaluate for future Common Natural Area Designation (CNA)	In progress ▾	4Q23	1Q24 Ongoing	Mapping is completed. Established a CNATF which is reviewing CFPOA undeveloped properties.
Establish the Southern Appalachian Bog Nature Preserve Area	Launched ▾	1Q24	3Q24	Bog area is defined in the NRI. CNATF will identify the Bogshed area. (Conservation status will require Board action.)
Recruit/Hire a Professional Natural Resource Ranger (NRR) to lead Education & Forest Management Programs.	Not started ▾	1Q25	1Q 2025 On-going	A sample job description is complete (Board action needed for funding.)