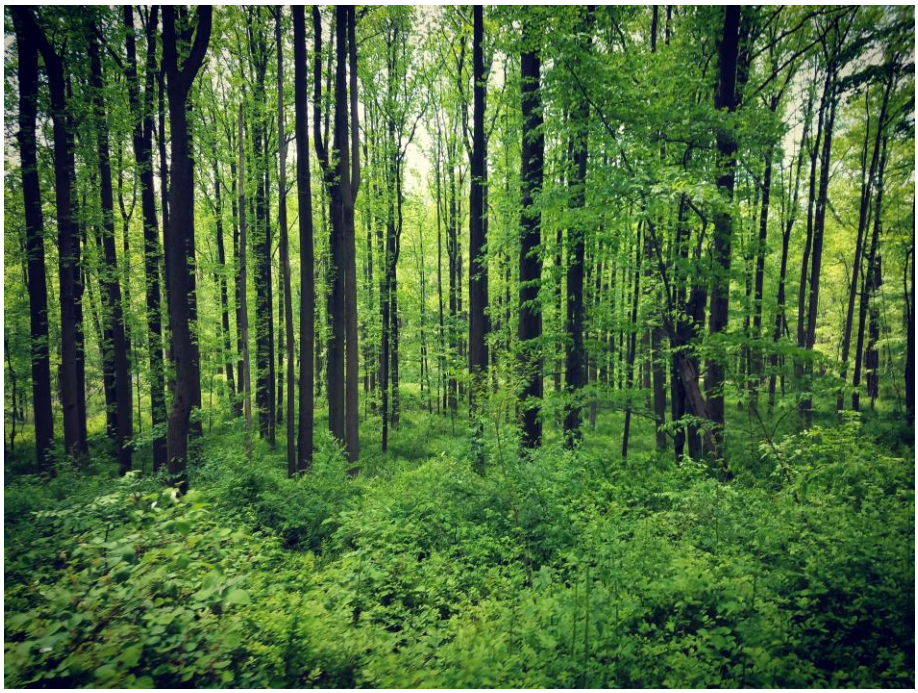
Policy Recommendations for Forest Stewardship & Preservation of New Jersey's Public Lands (2nd Edition).



(Photo Credit: Zachary Cole)

Authors: *Zachary Cole, Dr. Emile DeVito, Sue Dorward, Katherine Evans, Wilma Frey, Dr. Jay Kelly, Bill Kibler, Dr. Kristi MacDonald, Dr. Ryan Rebozo, Elliott Ruga, Silvia Solaun, Julia Somers, Dr. Sharon Wander, Dr. Sara Webb, Dr. Joseph Zurovchak*

Prologue:

The public forestlands of the New Jersey Highlands and elsewhere in northern New Jersey are some of the healthiest, most ecologically balanced and species diverse in the State, and even along the entire East Coast. These forests, with other public lands and preserves, are public trust resources that the State, in representing vital long-term public interests, must hold to the highest standards of resource protection. Significant public resource values are provided by the Highlands' public forests – most notably drinking water supply to over two-thirds of the State's population, as well as mitigation against impacts of climate change, outstanding species diversity, extensive outdoor recreation opportunities, and significant historic, archaeological and scenic resources. Moreover, our forests can offer spiritual and mental health benefits to peoples' lives. The irreplaceable public assets and values contributed by our forests must be maintained and protected by the State now and for generations to come.

Introduction:

With respect to the management of its public forest ecosystems, New Jersey cannot simply emulate other states that employ substantial timber harvest programs on public lands, due to a unique and distinct combination of circumstances and challenges. First and foremost, New Jersey's population density is the highest in the entire nation, with the majority concentrated principally in the north-eastern portion of the state. This puts immense pressure on the land and natural resources of the Highlands, particularly on the forest ecosystems and watersheds that ensure the quantity and high quality of drinking water supplied to some 6.2 million people (70% of the State's population), while keeping treatment costs low. Moreover, the continuing threat of unsustainable development and increasing impervious cover persists for unprotected private lands, where nearly half of the state's remaining and recovering forests are located. Finally, New Jersey currently suffers from a severe shortage of mature forests of high ecological integrity. These remaining forests must be protected and managed for water, the impressive biodiversity of our native animals and plants, and carbon storage. Yet current practice on public lands is to aggressively manage forests with techniques that include logging/timber harvesting to create "young forests". New Jersey has no major economic sector reliant on timber harvesting that requires public support.

It is clear that "young forest" initiatives on public lands, particularly in the Highlands, are frequently unnecessary and, worse, are likely to create unintended and undesirable consequences. Statewide, New Jersey today contains abundant post-agricultural open lands appropriate for management for early successional habitat. There is no need to carve large openings into older, intact forests. Doing so leaves these healthy forests vulnerable to a wide range of invasive plant species that invariably encroach on the forests wherever openings and edges are created.

Recently, a new Governor was elected who has committed to prioritizing action on climate change, environmental sustainability, and implementing science-based policies for positive lasting impacts. In the State Assembly, legislation has been introduced for the designation of additional Natural Heritage Priority Sites (NHPS), to move forward the state's successful Natural Heritage Program. In the interest of protecting New Jersey's precious and dwindling natural resources, in particular its mature northern forests, it is critical that more sites receive NHPS designation and that the program be more fully developed.

New Jersey has expended billions of dollars of public investment to preserve lands through the State's Green Acres program, and decades of concerted efforts by citizens have protected many forest landscapes from development. The public's vision for these protected environments is contravened by timber-harvest regimes, unsustainable forestry and other human activities that disturb the natural processes of fragile forest ecosystems.

Therefore, referencing the context described above, the New Jersey Highlands Coalition, supported by its Natural Heritage Committee, and with expert scientific input from New Jersey academic institutions, submits the following recommendations for Forest Stewardship on New Jersey's Public Lands, summarized in brief below and described more fully in the pages following.

Summary of Policy Recommendations:

1. Preserve the largest possible expanses of contiguous forest in the public domain.

2. For public conservation lands, develop and implement strict restrictions on all management activities that involve canopy removal, harvesting, or logging from large or small acreages.

3. Avoid destroying mature or maturing forests to create young forest.

4. Recognize and acknowledge that old growth forests are not created by removing forest products or performing other management activities.

5. Prioritize preservation of forest interior habitat over early successional bird species conservation, and avoid management that involves creating artificially large gaps or promoting young forest

6. Minimize forest edges and forest fragmentation.

7. Control and prevent invasive species infestations, and control deer populations.

8. Identify and protect riparian areas, wetlands, vernal pools, and steep slopes.

9. Retain harvested and fallen wood on site.

10. Restore, build, and protect healthy soils.

11. Develop and utilize accurate, site specific data regarding the age distribution of trees to inform forest stewardship plans, rather than the frequently incorrect basic assumption that forests are uniformly even-aged and lack both much older and very young trees.

12. Avoid a focus on a single species, but instead take an ecosystem approach that protects populations of a wide diversity of native species.

13. Conduct field analyses of existing conditions in the precise locations and environments where stewardship is proposed, to ensure more complete knowledge and appropriate protection of waterways, vernal pools, wetlands, soils, and biological community interactions.

14. Ensure that rare plant surveys prepared for forest management plans for public lands are comprehensive and far more rigorous than those currently accepted.

15. Develop 75-year landscape-scale plans for large, multi-unit public lands regions. The ten-year Forestry Plans for single management units currently in use are misleading, and inappropriately encompass far too short a planning time-frame to ensure sustainable management of public forest resources.

16. Integrate carbon sequestration and climate change mitigation assessments and goals into stewardship plans for all public forests, as well as publicly-approved private stewardship forests in New Jersey.

Policy Recommendations with their Rationale:

1. Preserve the largest possible expanses of contiguous forest in the public domain.

Preserve and add to large tracts of contiguous preserved forest to build resilience and to protect and support species that depend on mature forest or forest-interior habitat. Many such species across taxa are in decline. Natural-area preserves, including state Natural Heritage Priority Sites and Natural Areas, should be designated with explicit protections that further this goal. Expanses of maturing forest across the Highlands are particularly important in an era of climate change, when species of all taxa are losing habitat or, if corridors and habitat are available, shifting to new territories.

In New Jerseys' Highlands, the ecology of the forest environment effectively filters both surface and ground waters. Natural processes minimize the need for costly treatment processes to maintain water quality for the 70 % of New Jersey's population who depend on Highlands water. Research has shown the direct connection between undeveloped natural lands and ensuring both reliable quality and quantity of water supply. Data has shown that increasing impervious cover in a watershed to between 8 – 12% degrades water quality and supply. The Highlands Act rules and Regional Master Plan consider gravel roads – often constructed for forest management– to be impervious cover. Large vehicles and equipment utilized in forest management practices also compact soil, making it less pervious, thus increasing precipitation runoff sediment loads. Vehicles also introduce pollutants and spread invasive species, thus negatively impacting water quality, water supply and the biological health of the forest.

Finally, public forests in New Jersey are a treasured resource for the natural environment they provide for people to enjoy in many ways, and for essential ecosystem services they provide for protection of our water, air and a sustainable climate. Over the decades, the State has made significant financial investments in its forest land preservation programs, supported by countless

hours of work by members of the public, which has resulted in the preservation of large tracts of public forest for the benefit of communities all over the state. Any activity on these public forest lands that compromises the integrity or health of these environments undermines and contravenes those efforts.

2. For public conservation lands, develop and implement strict restrictions on all management activities that involve canopy removal, harvesting, or logging from large or small acreages.

Forests within state conservation lands in northern New Jersey should *not* be managed by removal, harvesting, or logging of mature native trees from large or small tracts. Strict restrictions should apply to all silvicultural practices including clear cutting, shelterwood, seed tree, and other systems. These types of management will not enhance or improve the integrity of the forest. Public lands where tree harvesting is *inappropriate* include Natural Heritage Priority Sites, State and County Parks, State Forests, State and County Wildlife Management Areas, Green Acres lands, lands acquired with the assistance of the N.J. Highlands Council's *Highlands Open Space Partnership Funding Program* (created in 2016), and other public preserves.

The forests of northern New Jersey do not need to be managed through traditional, production-oriented forestry activities in order to function as healthy, biodiverse, high-integrity ecosystems. Fragmentation and carving out openings within intact maturing forests will destroy habitat for forest-interior species and admit invasive species. Recent forestry activities on Weldon Brook WMA are an example of what should not be done. Moreover, the processes of tree harvesting, road building, and log removal also harm ecosystem services by damaging soil, increasing runoff rates, and thus decreasing infiltration for groundwater supply, exacerbating low and high water supply reservoir levels, and compromising water quality in downstream waterways.

Further, it is important that the Highlands Act exemption for forestry should be applicable to private lands *only*, as was originally intended in the Act as passed in 2004, to prevent "takings without just compensation" claims by private interests. Exceptions to a policy of prohibiting timber harvest on all public conservation lands should be extremely rare and subject to rigorous scientific review.

3. Avoid destroying mature or maturing forest to create young forest.

Initiatives to establish young forest and early successional habitat (ESH) should not be implemented in mature or maturing forested lands, but instead should be directed to post-agricultural lands or other formerly disturbed lands, both of which are abundant in northern New Jersey. Many such areas already support developing young forest that, with protection

from invasive species and deer, would meet this goal well. Intact mature forests are dynamic, and do not require intervention, as natural disturbances, including storms, wind, lightning, and insects create clearings that maintain diversity, structural complexity, and tree regeneration.

4. Recognize and acknowledge that old growth forests are not created by removing forest products or performing other management activities.

Within the public lands currently being considered for aggressive management including timber harvest there is extensive uneven-aged maturing forest with accumulating diversity, and progressing toward old growth forest without intervention.

In an old-growth forest, nature determines which trees live for 3 or 4 centuries despite the ravages of storms, insects, and fires. Canopy gaps are of every conceivable size, from one insect-killed standing tree trunk filled with woodpecker holes to storm blowdowns that fell dozens of trees. The trees that occupy the canopy, sub-canopy, and gaps are of high species diversity, selected by natural processes and random events. To enable an old-growth forest to evolve, trees should not be removed according to human judgments focused on aesthetic objectives, the timber market, creating habitat for specific game species, or any criteria that prioritizes any single interest (see Recommendation 12). Timber harvesting on public lands to favor one set of species over another for utilitarian or any other reasons does not produce an old-growth forest.

While it is possible that timber harvesting can result in trees of different age-classes (uneven-age), this practice does not create "old-growth characteristics" and cannot be justified in the name of old-growth. This point is particularly relevant, since **none of the current forest plans for state lands specifies that the remaining uneven-aged stand will be left alone to actually mature into old-growth forest**. Instead, the prescriptions outlined in the forest plans appear to anticipate that every tract of forest will eventually be harvested in some rotation of less than 125 years, and sometimes a much shorter period. Genuine old-growth forest is the result of natural processes over a lengthy time span, with the old-growth trees typically 300-400 years old. The term "old-growth characteristics" is misleading and its use is detrimental to the integrity of New Jersey's forests.

5. Prioritize preservation of forest interior habitat over early successional bird species conservation, and avoid management that involves creating artificially large gaps or promoting young forest.

Far more forest interior bird species are in steep decline than early successional bird species, according to independent studies. Numerous agencies assert the need to develop early

successional habitat citing the statistic that the percentage of declining early successional bird species is higher than that of forest interior bird species. However, there is a much greater number of forest interior bird species than early successional forest species - both overall and in decline, and so emphasis on the percentage statistic is misleading. **Far more forest interior species are actually in decline**. Moreover, intact maturing forested habitat is much less abundant than young forest in northern New Jersey. Many of the area's early successional bird species have much larger populations, sometimes uncharacteristically high due to an overabundance of early successional habitat. Most can take advantage of abandoned farmland, existing rights-of-way, and natural canopy gaps. Early successional species' habitats are by nature short-lived, appearing and disappearing every few decades. As a result, these species have evolved an ability to adapt to new breeding habitat patches. Thus mature forest need not be sacrificed with clear-cuts and extreme canopy removal, except in rare circumstances. Before unwisely and unnecessarily sacrificing mature forest habitat, the likelihood of harm to other rare, threatened and endangered forest interior plant and animal species must be considered.

Creating large "gaps" by cutting canopy trees removes crucial nesting habitat, and, thus, the ability to successively produce offspring. Public forest stewardship plans should anticipate and account for natural forest gaps created by blowdown or other natural causes – particularly as a result of increasing frequency of severe storms associated with climate change. Instead of proposing the creation of artificial gaps by removing the largest trees in public forests, stewardship should focus on controlling deer and invasive species populations.

6. Minimize forest edges and forest fragmentation.

Public forest lands should be managed to avoid forest fragmentation and harmful edge effects by strictly limiting timber harvest and any management practices that would create openings and expose forests to fragmentation. Openings, both large and small, create edges that promote nest predation, change microclimate conditions to the detriment of native wildlife and vegetation, expose edge trees to windthrow, and reduce the extent of already insufficient forest-interior ecosystems. Owing to their great abundance in New Jersey, invasive plant species rapidly establish along newly created edges and in openings, and continue to encroach from there further into the forest.

7. Control and prevent invasive species infestations, and control deer populations.

Forests growing on public conservation lands (and ideally on private lands as well) should be managed for biodiversity and ecological integrity. In northern New Jersey, this requires attention to genuine threats by (1) managing densities of deer, a known culprit limiting forest

structure and tree regeneration, and (2) controlling harmful invasive species. Today's epidemic of invasive trees, vines, shrubs, and herbaceous plant species has drastically reduced New Jersey's acreage of healthy forest by impairing tree reproduction, decimating native understory structure and diversity, eliminating wildlife habitat, and killing mature trees directly and indirectly. Because prevention is far less costly than control, **all forest-management efforts should seek to minimize clearings and edges**. These gaps allow the proliferation of invasive species and concentrate damage from deer, which compounds invasive species encroachment on the forest. The disturbances associated with canopy clearance and tree harvesting reduces, rather than promotes, ecological integrity in the maturing forests that are the crown jewels of our public lands.

8. Identify and protect riparian areas, wetlands, vernal pools, and steep slopes.

In order to protect riparian areas, wetlands, vernal pools and steep slopes, a concerted effort must be made to update and accurately map all streams including intermittent streams, as well as wetlands, vernal pools, steep slopes, and other critical habitats on public lands and other preserves. Recent stewardship plans have proposed aggressive management in inappropriate locations where it will impact such sensitive areas, both as a result of the activity, and through gaining access to the location with vehicles and equipment. It is essential that science-based, meaningful minimum buffer sizes must be established that are more protective than those required for private lands as a priority.

In the Highlands Region, all forest stewardship or management on public lands should comply with the Highlands Act's stringent DEP Preservation Area rules as well as goals, policies, objectives and standards set by the Highlands Regional Master Plan (RMP). ***Forestry on public lands should not be exempt from these rules or standards.*** The *Highlands Water Protection and Planning Act* provides 300-foot buffers for all Highlands Open Waters in the entire region, including both the Preservation and Planning Areas. Highlands Open Waters are defined by the Highlands Act as "all springs, streams, including intermittent streams, wetlands, and bodies of surface water, whether natural or artificial (excluding swimming pools)." Highlands Riparian Areas are lands associated with and bordering Highlands Open Waters, and which provide critical hydrologic, ecologic, and pollutant attenuation functions for the Open Waters.

In addition, a number of amphibia depend on these specific areas of the forest, in turn providing ecosystem services that are collectively critical to a forest's health (i.e. nutrient cycling, maintenance of water chemistry (nitrates/algae) and maintenance of soils). Many amphibians spend the majority of their lives as terrestrial inhabitants of upland forest. In fact some species have a range of 2,000 ft. or more from the natal vernal pools to which they migrate as early as February and during breeding season. As many lay eggs only in the pools from which they

themselves hatched, the removal of canopy and the associated temperature/humidity changes to just one pool jeopardizes all future generations spawning in that pool. Further, aggressive management of upland forest areas alters the landscape and impairs species ability to return to their pools, and soil compaction would lead to mortality of dormant species burrowed in cavities not far from the soil surface.

Category One Waters: In addition to Highlands DEP and RMP standards and policies, many streams and reservoirs in the Highlands have been designated as Category One waters. C1 Waters are "protected from any measurable change in water quality because of their exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources." Category One waters in the Highlands include all or portions of Lubber's Run, the Musconetcong River and tributaries (43 adopted river miles); the Pequannock River, Canistear and Oak Ridge Reservoirs and tributaries (26 miles - basis: Newark Water Dept. - serves 275,000 people); Pequest River and tributaries (30 miles); Ramapo River (3 miles); Wallkill River and tributaries (106 miles); and Wanaque Reservoir tributaries (24 miles - North Jersey District Water Supply Commission serves 1,000,000 people).

Vernal Pools: The *Highlands Regional Master Plan* specifies a 1,000 foot protection buffer for vernal pool critical habitat. RMP policies for Critical Habitat include prohibiting both direct and indirect impacts that will "jeopardize the continued existence of, or result in the likelihood of the destruction or adverse modification of Critical Habitat." (RMP Objectives 1F6a& b) In addition, the RMP assigns land within Critical Habitat a high priority for fee simple and/or easement acquisition "with periodic monitoring… [reviewing] any changes in land use or management practices that would impair these resources." (Policy 1F3)

Steep slopes: The *Highlands Regional Master Plan* observes that "steep slopes…play an important ecological, recreational, scenic, and functional role. The RMP and the Highlands Council's *Ecosystem Management Technical Report* state that alteration of slopes with a gradient of 10% or greater has the potential to impact adjacent water bodies, degrading water quality and silting wetlands areas. The RMP considers all lands with slopes of 20% or greater, and lands within 300 feet of a Riparian Area with slopes of 10% and greater to be Severely Constrained Slopes. RMP Policy 1E7 requires that review of applications for development involving parcels of land with slopes of 10% or greater include identification of forested lands, areas which are highly susceptible to erosion, depth to bedrock and Soil Capability Class. Data pertaining to steep slopes and the consequent impact of development on water resources is too often ignored or not given adequate weight when sites are selected for management. In short, no forest management prescription that may result in soil disturbance should be permitted on steep slopes.

9. Retain harvested and fallen wood on site.

Logs, fallen trees, and snags should be retained on site, not removed, after any tree cutting or storms. No salvage logging should take place. It is well known that dead wood must remain on site to support wildlife and biodiversity values. Removal reduces ecosystem reservoirs of water, carbon, and nutrients, to the detriment of trees and other vegetation, and eliminates essential habitat for many species, tree seedlings, other plants, and fungi. The process of removal itself causes soil erosion and compaction, as well as sediment pollution of streams.

10. Restore, build, and protect healthy soils.

Soils are both the foundation on which healthy forests rely and an integral part of the forest ecosystem. Healthy forests help build healthy soils, and healthy soils support the long-term growth and survival of forests. Soil compaction and erosion risks are high in most forested areas of northern New Jersey. Management by canopy clearance inevitably causes damage to even the most level soil formations, from road-building, from use of trails and ROWs as roads, from removal of logs, and from heavy vehicles and machinery throughout the stand.

In many ways, soil is the foundation of life on earth. Soils provide a wide variety of critical ecological functions, including, among others, storing carbon; processing and storing nutrients; filtering, infiltrating, and storing water; buffering pH; providing habitat; and providing structure for plant life. Healthy soils offer and support many essential ecosystem services including, perhaps most importantly, capturing and cleaning our drinking water.

The numerous impairments to soils in New Jersey include compaction, erosion, stripping of organic material and nutrients, contamination, mixing of soil layers, road salt, and acidification. Many of our soils in New Jersey are severely degraded due to over 350 years of unsustainable farming, logging, mining and development practices. Unfortunately, current initiatives for agriculture, forestry, and landscaping focus almost exclusively on preventing *further* degradation of soil, and do not adequately address *restoring* soil health. Management of public forests in New Jersey should focus on ecological restoration of forest ecosystems, including restoring impaired soils, rebuilding historically degraded soils, and protecting currently healthy soils.

11. Develop and utilize accurate, site specific data regarding the age distribution of trees to inform forest stewardship plans, <u>rather</u> than the frequently incorrect basic assumption that forests are uniformly even-aged and lack both much older and very young trees.

Recently, there has been a trend in the forest management plans written for public lands in the Highlands, to assert that public forests in the Highlands region are dominated by 60-99 year old

trees. While this age class might numerically dominate, it is wrong to conclude that there are fewer younger or older trees. Vast acres are uneven-aged, with complex structure and high diversity. The information that should instead inform forest management prescriptions is the age distribution of trees that *dominate the forest canopy*. Our forests are not homogeneous; legacy trees from 100 to 150 years old are common in the forest canopy of sites claimed to be only 80 years old. Tree stump ring counts of trees in harvested areas clearly show an abundance of old trees and a diversity of age classes. Our forests are not "stuck" in a competitive phase where all the trees are the same age. In fact, many forests have passed out of middle age, and are maturing to become more dynamic and resilient through their natural processes.

12. Avoid a focus on a single species, but instead take an ecosystem approach that protects populations of a wide diversity of native species.

Forest management involving tree removal should not take place to protect or benefit one species, or group of species, unless the need clearly outweighs the harm to other species and to ecosystem integrity. Careful and informed scrutiny of such proposals is necessary. For example, recent plans and actions deserving closer examination include canopy harvesting of a high proportion of intact, maturing forests across many State Wildlife Management Areas for one bird species. Another practice that should be reviewed is the selective removal of native maple, birch, beech, and tulip poplar populations in order to promote oak. Both of these actions will ultimately result in transformed and impoverished ecosystems.

13. Conduct field analyses of existing conditions in the precise locations and environments where stewardship is proposed, to ensure more complete knowledge and appropriate protection of waterways, vernal pools, wetlands, soils, and biological community interactions.

On conservation lands, forest-management activities and treatments should be preceded by, and based on, thorough field analysis of each subject site and its surrounding context. Decisions must be grounded in full ecological knowledge of all existing fauna and flora (not just trees), special-concern species, ecological communities, tree age structure, tree regeneration dynamics, and invasive species. Ecologists, and where appropriate, academic institutions, should be engaged to ensure comprehensive information.

14. Ensure that rare plant surveys prepared for forest management plans for public lands are comprehensive and far more rigorous than those currently accepted.

Forestry plans for different sites are intended to set a trajectory for a habitat over a determined amount of time. However, careful attention must be given to fully understand the diversity of

species at a site and how they will be influenced by our management actions, especially for those species that are rare in New Jersey. At a minimum, plant surveys should be conducted throughout the entire growing season at each habitat type located on the site. The surveys should be conducted over two successive seasons in order to increase the likelihood of recording rare species, where few individuals or life history traits make emergence or flowering in successive years unlikely.

When a rare species occurrence is found on a site, a review of the cause for its rarity, other occurrences of this species, and its relative abundance in the state, should be conducted to determine an appropriate strategy for protecting and maintaining the viability of the occurrence. Arbitrary buffer zones around identified occurrences disregard the dynamic nature of rare plant populations and their varying phenologies, life history traits and interspecific interactions that are associated with each rare plant species. In cases where elements of a species' life history, such as range, habitat requirements, and resiliency to disturbance, are not well documented, a conservative approach to management should be taken in the habitat where these occurrences are found. Impacts to individuals in a documented occurrence and consideration for the population's viability should be accounted for and integrated into forestry plans for a site or neighboring habitat ***before*** management prescriptions are implemented.

Every stewardship plan for public land should include this requirement and the observations recorded in a central database that links to others in New Jersey, creating a consistent state-wide plant database. Once a qualified botanist is on site conducting a rare plant survey using a recognized method, adding the requirement to list all observed species is not significant, and the additional cost would be negligible compared to the value of having this information. Repeat surveys should be included in the long-term plans.

15. Develop 75-year landscape-scale plans for large, multi-unit public lands regions. The current ten-year Forestry Plans for single management units are misleading and inappropriately encompass far too short a time-frame for sustainable management of public forest resources.

Many of the current 10-year forestry plans for state lands indicate that about 15% percent of the forest will be harvested within 10 years under the prescriptions outlined. If this is repeated every ten years, as has been stated in some plans, **in 70 years the entire forest will have been logged**. Creating early successional habitat by rotating clear-cuts through maturing forest on short rotations will devastate our landscapes when these forests are just beginning to recover structural diversity with some trees beginning to fully mature.

The first step in comprehensive forest planning for New Jersey's public lands should be to identify tracts of the land that should be set aside for preservation and allowed to mature into true "old growth," exempt from any management intervention. These lands should be intact tracts of forest, species-rich and ecologically healthy, ***not*** areas that are undesirable or inaccessible for harvesting or other management activities. The public has a right to know what percentage of our public forestlands are being set aside for preservation (old-growth) and the public should be involved in the process of determining the lands to be set aside. It is unclear why the NJDEP appears unwilling to designate new Natural Areas that would remain untouched.

Stewardship plans should be written with a minimum 75-year planning horizon, and should address planning at a broad landscape scale that takes accounts of the entire region, and is comprised of multiple units of State public lands. It is in the public's interest that a) thorough scientific inventories of state-owned forests are conducted; b) Natural Heritage Priority Site designations based on biodiversity studies be expanded; and c) at least 50% of the total public forest acreage in northern NJ should be designated as Natural Areas and Old-growth Reserves.

16. Integrate carbon sequestration and climate change mitigation assessments and goals into stewardship plans for all public forests in New Jersey, as well as publicly approved private stewardship forests.

Forest stewardship guidelines for sequestering and maintaining carbon storage on public lands that recognize the great importance of old trees and intact soils should be developed and implemented. Promoting new trees and their growth (not on openings created in established native forests) should include protection from deer and should not take place where native forests are already established. Forests' value and contribution to New Jersey's climate change mitigation efforts, through sequestration of carbon dioxide (CO2) from the atmosphere, in addition to other ecosystem services provided should be fully recognized and integrated into any management prescriptions. New Jersey is currently very well positioned, with a 7:1 ratio of carbon being sequestered by the state's forests compared to the carbon that forests are releasing. Now that the state has rejoined RGGI (the *Northeast Regional Greenhouse Gas Initiative*), New Jersey will be able to play an important role in the carbon trading market, which represents a tangible economic benefit to the State, as well as promoting sustainability within New Jersey and the northeastern United States.

We look forward to working with the New Jersey Department of Environmental Protection to plan for and implement these recommendations. Thank you for your consideration of our comments.

Authors & Contributors:
Zachary Cole, *NJ Highlands Coalition*
Dr. Emile DeVito, *NJ Conservation Foundation*
Sue Dorward, *Raritan Valley Community* College
Katherine Evans, *NJ Forest Watch*
Wilma Frey, *NJ Conservation Foundation*
Dr. Jay Kelly, *Raritan Valley Community College*
Bill Kibler, *Raritan Headwaters Assoc.*
Dr. Kristi MacDonald, *Raritan Headwaters Assoc*.
Dr. Ryan Rebozo, *Pinelands Preservation Alliance*
Elliott Ruga, *NJ Highlands Coalition*
Silvia Solaun, *NJ Forest Watch*
Julia Somers, *NJ Highlands Coalition*
Dr. Sharon Wander, *Wander Ecological Consultants*
Dr. Sara Webb, *Drew University*
Dr. Joseph Zurovchak, *SUNY Orange*

Contact Information:
Julia Somers, Executive Director
julia@njhighlandscoalition.org

Elliott Ruga, Policy & Communications Director
elliott@njhighlandscoalition.org

Zachary Cole, Outreach and Education Director
zac@njhighlandscoalition.org

New Jersey Highlands Coalition
www.njhighlandscoalition.org
508 Main St., Boonton, NJ-07005
Tel: (973) 588 7190