

PUBLIC COMMENTS SUBMITTED AT  
HIGHLANDS COUNCIL MEETING  
DECEMBER 14, 2023

**TOWNSHIP OF LEBANON  
COUNTY OF HUNTERDON  
STATE OF NEW JERSEY**

**RESOLUTION NO. 145-2023**

**RESOLUTION OPPOSING NEW JERSEY HIGHLANDS COUNCIL DRAFT BEST  
MANAGEMENT PRACTICES FOR FORESTRY IN THE NEW  
JERSEY HIGHLANDS REGION**

**WHEREAS**, over 950,000 acres of forest land are owned by private landowners and 280,000 acres of forest land are owned by local counties and municipalities in New Jersey; and

**WHEREAS**, Lebanon Township has a population of approximately 6,200 and is comprised of 20,275 acres, divided into 3,061 separate parcels of land, with over 11,400 acres, or 56% of the Township, is forested within 75% of the land parcels within the Township; and

**WHEREAS**, all forestry activities conducted on public or private lands in accordance with an approved woodland management plan or forest management plan (Forest Plan) are exempt under the Highlands Preservation and Planning Act (Highlands Act; N.J.S.A. 13:20-28) and Highlands Region Preservation and Planning Act Rules (N.J.A.C. 7:38-2.3); and

**WHEREAS**, all forestry activities conducted on public or private lands in accordance with an approved Forest Plan are exempt from the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-4); and

**WHEREAS**, all forestry activities conducted on public or private lands in accordance with an approved Forest Plan and the New Jersey Forestry and Wetlands Best Management Practices Manual (BMP Manual), are exempt via Permit-by-rule 26 from the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-7.26); and

**WHEREAS**, the New Jersey Farmland Assessment Act of 1964 (Farmland Assessment Act; N.J.S.A. 54:4 et. seq.) permits woodland owners to manage forests actively devoted to an agricultural or horticultural use under an approved Forest Plan to be assessed at their productivity value provided the resulting wood products are sold to meet a minimum income requirement; and

**WHEREAS**, the New Jersey Forest Stewardship Program (Forest Stewardship Program; N.J.S.A. 13:1L-31) permits woodland owners to actively manage their forests under an approved forest stewardship plan to receive farmland assessment without an income requirement; and

**WHEREAS**, the New Jersey State Forest Action Plan identifies the Farmland Assessment Act and Forest Stewardship Program as important for promoting sustainable forest management, preventing conversion of forest to development, and conserving forests for water quality, wildlife habitat, and recreational opportunities; and

**WHEREAS**, the Highlands Act (N.J.S.A. 13:20-1 et. seq.) was created to protect the water and natural resources in the Highlands Region from major development; and

**WHEREAS**, the Highlands Region includes over 400,000 acres of forest land encompassing 88 municipalities in seven counties in the northwestern part of the state; and

**WHEREAS**, in Lebanon Township, there are 116 landowners having over 2,600 forested acres approved or awaiting approval for farmland assessment; 107 landowners have approved woodland management plans, 19 landowners have approved forest stewardship plan; and 2 landowners have both an approved woodland management plan and forest stewardship plan; 7 landowners own 10 parcels totaling almost 60 acres of land in adjacent municipalities that are also enrolled in farmland assessment with approved woodland management plans; and an additional 222 parcels, comprising approximately 6,000 forested acres in Lebanon Township meet the minimum acreage requirements for farmland assessment under an approved forest plan; and

**WHEREAS**, the BMP Manual, created by the New Jersey Forest Service, is a practical, science-based, comprehensive guide outlining the best methods for implementing forest management in New Jersey and has been implemented with approved Plans since 1995 to protect, maintain, and preserve water quality; and

**WHEREAS**, the Report of the Sustainable Forestry Technical Advisory Committee to the Highlands Water Protection and Planning Council (Report) found that the BMP Manual, when implemented, is successful at protecting water quality, and sustainable forest management can increase water yield and biodiversity; and

**WHEREAS**, the Report also found that additional regulations above and beyond the current BMP Manual are unnecessary and would neither be supported by science nor have a legal basis according to the Act (N.J.S.A. 13:20-28); and

**WHEREAS**, the New Jersey Highlands Council staff, under the new Executive Director, created new draft Best Management Practices for Forestry in the New Jersey Highlands Region (Highlands BMPs) that are above and beyond the current BMP Manual; and

**WHEREAS**, at the expense of the landowner, the Highlands BMPs will require separate plans for deer and invasive species control in addition to soil testing and obtaining a Letter of Interpretation to confirm wetland boundaries on properties; and

**WHEREAS**, at the expense of the landowner, the Highlands BMPs will require active deer management for all properties with Forest Plans, including the installation of deer exclusion fences in areas with >50 deer per square mile; and

**WHEREAS**, at the expense of the landowner, the Highlands BMPs will limit the removal of all wood products to when the ground is frozen; and

**WHEREAS**, regardless of forestry exemptions, the Highlands BMPs will add restrictions to forestry activities in core forests in the Highlands Region and require approval from the Highlands Council staff on the creation of forest canopy gaps greater than one half (1/2) acre; and

**WHEREAS**, regardless of forestry exemptions, the Highlands BMPs will add restrictions to forestry activities in the Highlands Region within 300 feet of all wetlands and open waters, 984 feet of all vernal pools, and within all Natural Heritage Priority Sites; and

**WHEREAS**, regardless of forestry exemptions, the Highlands BMPs will add restrictions to forestry activities to prohibit the disturbance of primary forest soils except in the incidences of the removal of hazard trees; and

**WHEREAS**, there is no supporting scientific justification offered for any added restrictions to forestry activities in the Highlands Region; and

**WHEREAS**, the Highlands BMPs are unclear as to whether all the restrictions are limited to only forested land; and

**WHEREAS**, Lebanon Township is entirely within the Highlands Region and had its Plan Conformance approved in 2011 for both the Preservation and Planning Areas, that includes an exemption certification authorized by the Highlands Council to determine certain exemptions that would necessarily exempt the proposed requirements in the Highlands BMPs and the requirements being added by the Highlands BMPs will necessarily conflict with the Lebanon Township's authorization to determine Highlands Acts exemptions, including Exemption #7; and

**WHEREAS**, the Highlands BMPs will cause forest landowners in the Highlands Region, including those in Lebanon Township, financial harm by preventing them from meeting the requirements of the Farmland Assessment Act and/or Forest Stewardship Program; and

**WHEREAS**, regardless of forestry exemptions, the added restrictions in the Highlands BMPs will result in an uncompensated taking of almost 600,000 acres within 331,000 parcels, 355,000 acres and 108,000 parcels of which are forested, including over 2,600 parcels and 11,600 acres in Lebanon Township, 8,000 acres and 2,100 parcels of which are forested; and

**WHEREAS**, the Highlands BMPs constitute an unfunded mandate that exceed the minimum criteria for forest stewardship plans by requiring such additional items, including surveys/inventory plans and deer fencing, all at the expense of the property owner; and

**WHEREAS**, the Highlands BMPs will cause property owners who are currently enrolled or awaiting to be approved to be enrolled in farmland assessment with approved forest plans, severe financial hardship by prohibiting forestry activities necessary for meeting the requirements of the New Jersey Farmland Assessment Act and/or Forest Stewardship Program and by mandating the additional requirements at the time and expense of the landowner.

**NOW, THEREFORE, BE IT RESOLVED** by the Township Committee of the Township of Lebanon, County of Hunterdon, State of New Jersey that for the reasons set forth

herein above and in the interest of protecting the Township of Lebanon's residents, businesses, and the rights of landowners to manage their properties for their own values in accordance with the legal exemptions currently afforded to them in the Highlands Act and elsewhere, that it does hereby strongly oppose the New Jersey Highlands Council Draft Best Management Practices for Forestry in the New Jersey Highlands Region and urges the Highlands Council to against furthering the development of and/or finalizing the New Jersey Highlands Council Draft Best Management Practices for Forestry in the New Jersey Highlands Region.

**BE IT FURTHER RESOLVED** that copies of this Resolution shall be forwarded to the following:

- Governor Phil Murphy
- Commissioner of the NJ Department of Environmental Protection
- New Jersey Highlands Council
- New Jersey Forestry Association
- State Senator Bob Smith
- State Assembly Speaker Craig Coughlin
- State Senator Doug Steinhardt
- State Assemblyman John DiMaio and State Assemblyman Erik Peterson
- Hunterdon County Board of Commissioners of the Municipality
- New Jersey League of Municipalities

Dated: December 6, 2023

ATTEST:

  
Carolynn Budd, RMC  
Township Clerk

#### CERTIFICATION

I, Carolynn Budd, Township Clerk of the Township of Lebanon, County of Hunterdon, State of New Jersey, do hereby certify that the foregoing is a true and correct copy of a Resolution adopted by the Lebanon Township Committee at a meeting held December 6, 2023.

  
Carolynn Budd, RMC  
Township Clerk





# NEW JERSEY FOREST WATCH

*Preserving and Protecting Our Public Forests*

2 Main Street #1443  
Sparta, NJ 07871  
973-910-2350  
njforestwatch@gmail.com  
www.savespartamountain.org

December 14, 2023

Dear Highlands Council Members,

Protecting and preserving our Highlands forests are of utmost importance to our group and we appreciate the efforts that the Council has been making in these protections. Private interest groups like the Forestry Association and even NJ Audubon who profit from logging, should not dictate how public lands that taxpayers paid to protect, should be “managed”.

Since 2016, our group has documented the damage that logging has done in various public lands, like Weldon Brook, Berkshire Valley, Sparta Mountain, Glassboro, just to name a few. In fact, for the last 10+ years logging has occurred on our public lands throughout the state with **no** supporting legislative policies or DEP regulations and no environmental impact assessments including water impacts. This is unacceptable in today's climate crisis, and it should not continue as the 1995 BMP's that the DEP & Forestry Association are using are outdated and inadequate in protecting our water, climate and the environment.

Logging in sensitive areas in the Highlands runs counter to good water quality management and puts our water supply at risk to the over 7M residents who rely on potable water from the Highlands region. (see the USGS info as the science that proves this)

Our public lands need tighter regulations, not less. Below we have listed our science-based recommendations:

- No heavy machinery should be allowed in the severe sloped constrained areas of the Highlands, due to soil compaction, soil turnover and soil degradation that is caused by heavy machinery.
- Multi seasonal surveys done prior to any proposed activity that earmark vernal pools, steep slopes, rare plant communities, etc.,
- Enforcement of a minimum 1000 ft buffers surrounding all vernal pools (currently this is being ignored and the forestry organization uses the old 1995 BMP's, that state 400 ft is adequate) However on Sparta Mountain, where logging is occurring, for example, on the path to the log site, vernal pools are found within 2- 25 ft of the access road. These vernal pools are being negatively impacted by the soil compaction and severe rutting the trucks cause. This should be forbidden in the Highlands(please see attached photos).
- No heavy commercial logging equipment to be used in the Highlands to remove timber harvest. This will also prevent the subsequent problems of increased ATV activity in these logging roads, which has negative effects on the ecosystem services our forests provide.
- Building on the above, we should not allow a forestry plan that includes timber removal, unless absolutely required for pathogens or invasive species management for our Highlands forests. Healthy wood should remain in the forest.

As part of the forestry taskforce, proposals from PhD Forest ecologist, Sharon Wander and wildlife restoration expert, Leslie Sauer provide great resources on how ecological ecosystem services can be maintained on public lands without the use of heavy equipment and without removing timber.

With regards to the protection of our water supply, I am including the information from the USGS study of the Catskills and the impacts of logging to the water supply. Here are some scientific quotes:

“Clearcutting caused a large release of nitrate (NO<sub>3</sub>-) from watershed soils and a concurrent release of inorganic monomeric aluminum (Alim), which is toxic to some aquatic biota. The increased soil NO<sub>3</sub>- concentrations measured after the harvest could be completely accounted for by the decrease in nitrogen (N) uptake by watershed trees, rather than an increase in N mineralization and nitrification. The large increase in stream water NO<sub>3</sub>- and Alim concentrations caused 100-percent mortality of caged brook trout (*Salvelinus fontinalis*) during the first year after the clearcut and adversely affected macroinvertebrate communities for 2 years after the harvest.”

Source: <https://www.usgs.gov/publications/effects-forest-harvesting-ecosystem-health-headwaters-new-york-city-water-supply>

“Results of this study indicate that brook trout and macroinvertebrates in many Catskill streams, particularly in the highly acidic Neversink River basin, are likely to be adversely affected by clearcutting. Further research is needed to define the harvesting threshold below which soil nutrient loss is minimized to limit the adverse effects of logging on stream-water quality and aquatic biota.”

Source: <https://pubs.usgs.gov/sir/2008/5057/SIR2008-5057.pdf>

Our group has documented the egregious environmental impacts that logging has done on several of the WMA's in NJ and we are adding some pictures for you all to have as proof. Our Highland forests are under attack, and based on the Forestry Task Force proposed recommendations that was shared several months ago, we could soon find ourselves with statutes and regulations supporting the type of logging that is taking place on Sparta Mountain. This is unacceptable and we hope you can help protect our Highland forests from future logging activities.

Thank you for your hard work and dedication. We look forward to continuing the conversation. Please reach out to us to assist in the protection and preservation of our Highland forests.

Sincerely,

Silvia Solaun, Executive Director

Ken Dolsky, Vice President

Katherine Evans, Director

NJ Forest Watch

Photos: proof of destruction

*Njforestwatch@gmail.com*



## Heavy equipment substantially and permanently widens historic dirt forest roads, causes severe soil compaction, deep ruts and major soil disturbances

Ruts so deep, they can enclose a person



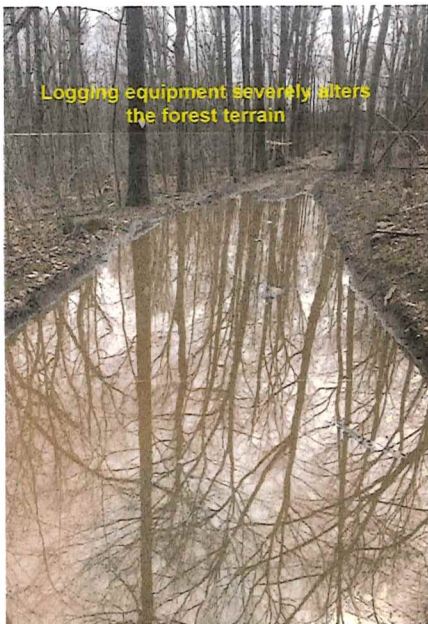
Heavy machinery to cut trees



18-Wheeler logging truck and Grapple Skidder loading logs harvested from a NJ public forest land (SMWMA) March 2020



## Heavy logging equipment causes irreparable harm to the forest terrain which severely impacts the forest ecosystem, especially the vernal pool species



Logging equipment severely alters the forest terrain



Stand 8 Pictures taken Spring 2020



More pooling of water in ruts caused by logging equipment

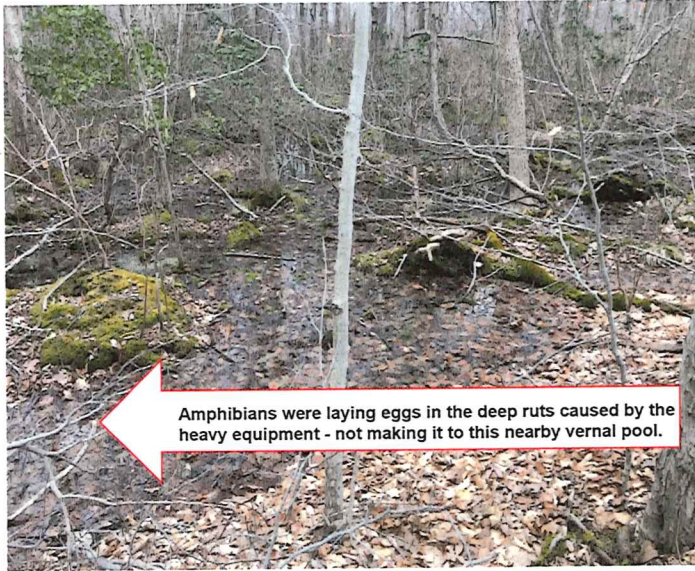


## Heavy equipment has irreparably harmed fragile ecosystems

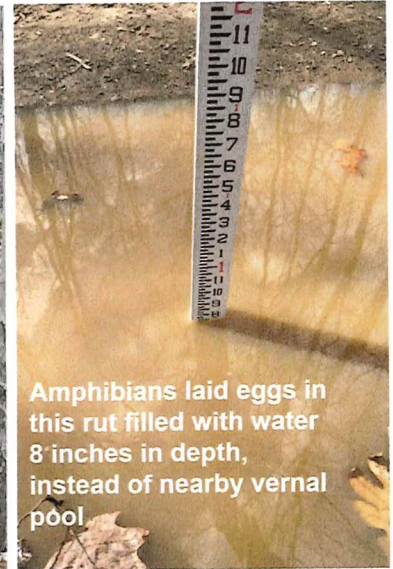
Amphibians have laid their eggs in the deep ruts, created by the heavy logging equipment, instead of in the nearby vernal pool, thus harming both current vernal pool inhabitants and future generations. This failure of the current Best Management Practices(BMPs) to protect our public trust resources demonstrates how inadequate and antiquated they are.



Spotted Salamander/  
Wood Frog Eggs

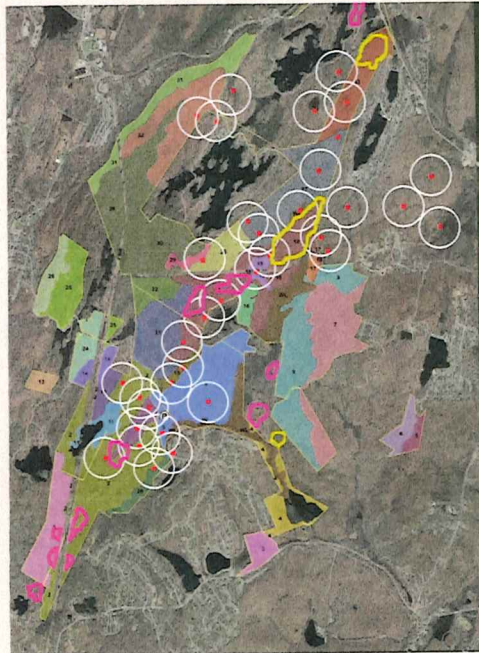


Amphibians were laying eggs in the deep ruts caused by the heavy equipment - not making it to this nearby vernal pool.



Amphibians laid eggs in this rut filled with water 8 inches in depth, instead of nearby vernal pool

## Ecological resource values are diminished by the heavy equipment & removal of timber



Vernal Pools delineated  
by white circles with  
buffers





## Sensitive Trout Producing Streams are Negatively Impacted

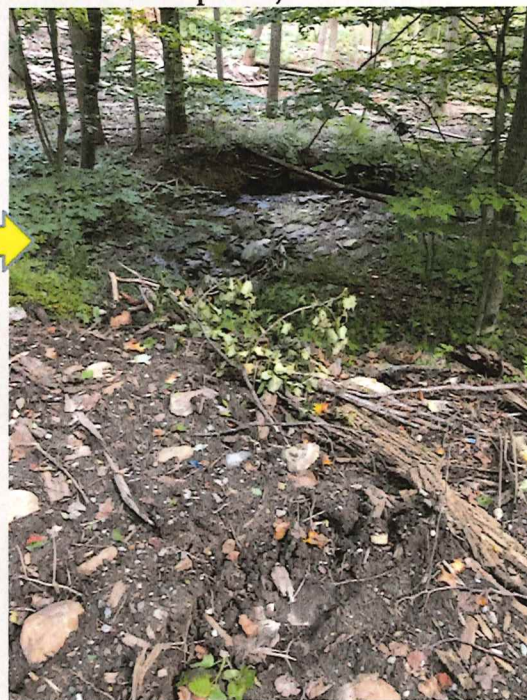
Logging activities were too close to trout producing waters.

(sensitive, fragile ecosystem services that have been impacted)



Green Acres  
Roaring Rock Park  
2021

Sensitive Trout  
producing streams  
were not protected  
adequately.



### Water Impacts

## What about the water impacts?

What about the fact that our Highlands & Pinelands forests provide the drinking water to more than 85% of the State?

*"The economic value of watersheds is almost always under-estimated or unrecognized."*

- THE WORLD BANK

Maintaining healthy forested watersheds to prevent water contamination in the first place can be massively more cost-effective than treating water post-contamination. New York City, for instance, has calculated a savings of \$6-8 billion in water treatment plant startup costs plus \$300-500 million per year in operating costs by instead choosing to protect forests in its upstate source watersheds at a cost of \$1-1.5 billion over ten years.

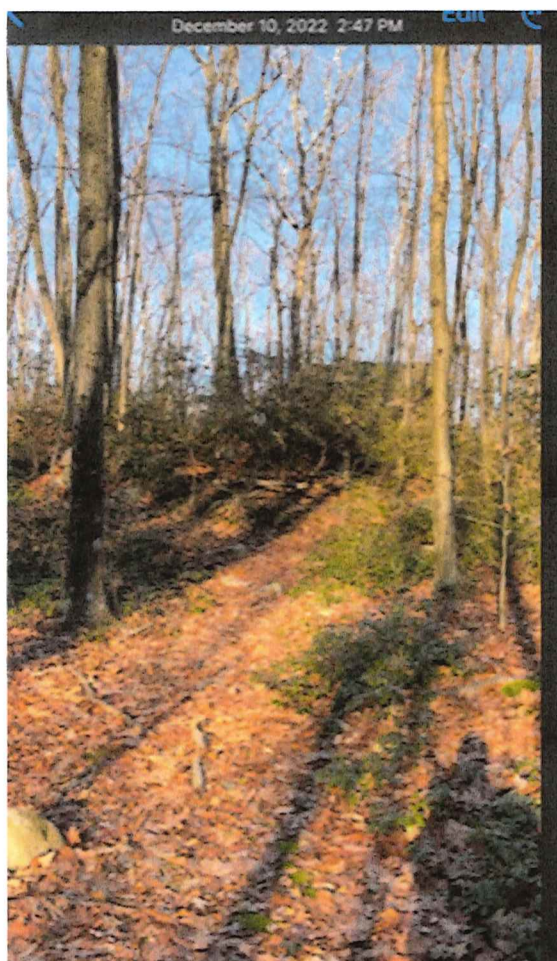
Preserving source watershed forest land is a wise and cost-effective investment when considering the alternatives. A study conducted by the Trust for Public Land and the American Water Works Association found that the more forest cover there is in a watershed, the lower the water treatment costs will be.

**This study found that for every 10% increase in forest cover in the source area, water treatment costs decreased by about 20%.**

Source Pinelands Preservation website and document on "Forests: Critical Sources of Drinking Water"



**This is the healthy understory of the laurel forest on Stand18 before the loggers came**



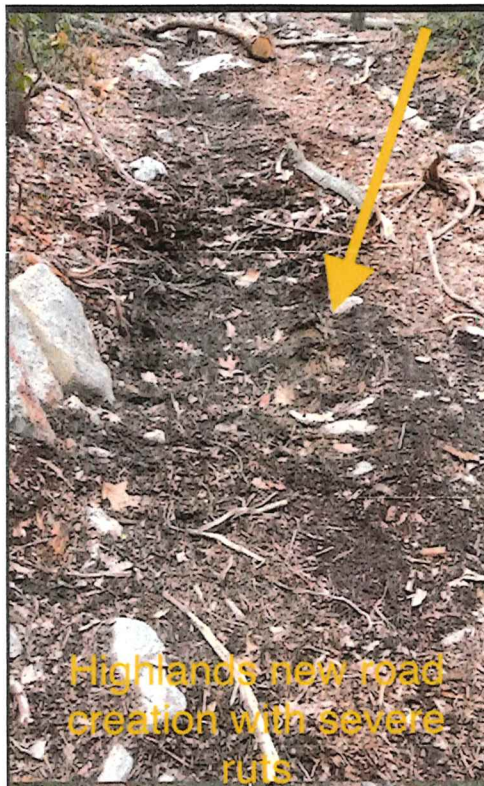
**Here's the road that was created by the logger**



The heavy logging equipment was brought in and caused severe rutting, soil compaction, soil degradation, soil turnover. In fact in the photos below, you can clearly see the subsoil (lighter in color) was brought up from the below layers and will now alter the ph. of the soil, making it more susceptible to invasive species, and there is a loss of carbon sequestration from the soil disturbance.

Not only is the severe rutting an issue, but afterwards these areas are prone to ATV/ORV vehicles which cause further environmental harm. Although they are "banned" on for example. Sparta Mtn WMA, in the Highlands, since the recent 7 years of logging, there has been a substantial increase in illegal ATV/ORV activity on Sparta Mtn. While we and others report on this issue, the DEP does nothing to prevent or enforce. This is unacceptable for our public lands where NJ taxpayers paid to protect these lands for their full ecosystem services, and these logging roads promote more illegal ATV/ORV activity.







## Scientific Peer Reviewed Documentation supporting our stance that Highland public forests need protection not further logging:

### References

1. Stephensen NL et al. 2014. Rate of Tree Carbon Accumulation Increases Continuously with Tree Size. *Nature*. doi:10.1038/nature12914
2. Maxwell SL, Evans T, Watson JEC, Morel A, Grantham H, Duncan A, Harris N, Potapov P, Runting RK, Venter O, Wang S, Malhi Y. 2019. Degradation and Forgone Removals Increase the Carbon Impact of Intact Forest Loss by 626%. *Science Advances* 2019 (5): 1-11. Eeax2546. <http://advances.sciencemag.org/>
3. Moomaw WR, Masino SA, Faison EK. 2019. Intact Forests in the United States: Proforestation\* Mitigates Climate Change and Serves the Greatest Good. *Frontiers in Forests and Global Change*. doi: 10.3389/ffgc.2019.00027  
<https://doi.org/10.3389/ffgc.2019.00027>  
*\*Proforestation: growing existing forest to their ecological potential, without timber harvesting*
4. Haddad NM, et al. 2015. Habitat Fragmentation and Its Lasting Impact on Earth's Ecosystems. *Science Advances* 2015:1-9. 1:e1500052
5. Letter to EU from Global Scientists Re: Forest Policy & Legislation in the EU  
<https://sites.tufts.edu/gdae/files/2020/05/EU-Forest-Letter-3.pdf>
6. World Scientists Warn of Climate Emergency: <https://doi.org/10.1093/biosci/biz088>
7. IPCC report on Land Deregulation: <https://www.ipcc.ch/srccl/chapter/chapter-4/>
8. Kellett, M. J., Maloof, J. E., Masino, S. A., Frelich, L. E., Faison, E. K., Brosi, S. L., and Foster, D. R. (2023). Forest-clearing to create early-successional habitats: Questionable benefits, significant costs. *Front. For. Glob. Change*. <https://doi.org/10.3389/ffgc.2022.1073677>  
<http://journal.frontiersin.org/article/10.3389/ffgc.2022.1073677/full>
9. Hudiburg TW, BE Law, WR Moomaw, ME Harmon, JE Stenzel. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions. *Environmental Research Letters* 14 (2019) 095005. <https://doi.org/10.1088/1748-9326/ab28bb>
- 10: Over 200 Top U.S. Climate and Forest Scientists Urge Congress: Protect Forests to Mitigate Climate Crisis  
<PressReleaseANDClimateANDForestScientistLetterMay2020.pdf> ([johnmuirproject.org](http://johnmuirproject.org))



## NEW JERSEY LEGISLATURE

### LEGISLATIVE OFFICES

#### 24TH DISTRICT

SUSSEX - WARREN - MORRIS

STEVEN V. OROHO  
SENATOR  
SenOroho@njleg.org

PARKER SPACE  
ASSEMBLYMAN  
AsmSpace@njleg.org

HAROLD J. WIRTHS  
ASSEMBLYMAN  
AsmWirths@njleg.org

ONE WILSON DRIVE, SUITE 2B  
SPARTA, NJ 07871  
(973) 300-0200  
FAX (973) 300-1744

1001 ROUTE 517  
PO BOX 184  
ALLAMUCHY, NJ 07820  
(908) 441-6343

facebook.com/nj24th

The New Jersey Highlands Council  
100 North Road  
Chester, NJ 07930

Carl Richko, Chairman  
Kurt W. Alstede  
Timothy P. Dougherty  
Michael R. Dressler  
Michael Francis  
Robert Holtaway  
Bruce James  
Michael Sebetich  
Dan Van Abs  
James A. Visioli  
Richard Vohden

December 6, 2023

Dear Members of the Highlands Council:

We are writing regarding the Best Management Practices for Forestry in the New Jersey Highlands Region (the "BMPs") being developed by the Highlands Council, and our concern over the impacts of the BMPs on public and private lands and their owners in the Highlands Region.

We are concerned that the BMPs may, among other things, impact the activities permitted by enumerated exemptions to the Highlands Act, affect property values, and impair compliance with and eligibility under the Farmland Assessment Act.

We note that the Highlands Act includes seventeen specific exemptions, under C.13:20-28, which provides, "The following are exempt from the provisions of this act, the regional master plan, any rules or regulations adopted by the Department of Environmental Protection pursuant to this act, or any amendments to a master plan, development regulations, or other regulations adopted by a local government unit to specifically conform them with the regional master plan." It is our understanding that Exemption 7 exempts "an activity conducted in accordance with an approved woodland management

(Continued)





## NEW JERSEY LEGISLATURE

LEGISLATIVE OFFICES  
24TH DISTRICT  
SUSSEX - WARREN - MORRIS

STEVEN V. OROHO  
SENATOR  
SenOroho@njleg.org

PARKER SPACE  
ASSEMBLYMAN  
AsmSpace@njleg.org

HAROLD J. WIRTHS  
ASSEMBLYMAN  
AsmWirths@njleg.org

ONE WILSON DRIVE, SUITE 2B  
SPARTA, NJ 07871  
(973) 300-0200  
FAX (973) 300-1744

1001 ROUTE 517  
PO BOX 184  
ALLAMUCHY, NJ 07820  
(908) 441-6343

facebook.com/nj24th

plan pursuant to section 3 of P.L.1964, c.48 (C.54:4-23.3) or a forest stewardship plan approved pursuant to section 3 of P.L.2009, c.256 (C.13:1L-31), or the normal harvesting of forest products in accordance with a forest management plan or forest stewardship plan approved by the State Forester."

We want to be sure that the Council is considering all relevant information, including, for example, legal authority for the BMPs, potential conflicts between the BMPs and existing regulation and law, the extent of parcels and acres affected, science-based sustainable forest management principles and processes, as well as forest management activities under the plans identified in Exemption 7, which are intended to be limited and/or for which approvals will be required by the BMPs, impacts upon wildfire resistance, and the need for forest diversity to build forest resiliency, animal habits, and resilient carbon sequestration and storage, as well as any comments received.

We request that you confirm our understanding that the BMPs apply exclusively to forest land, are suggested - not required - guidance only, and will not affect the rights of public and private landowners in the Highlands Region to rely upon and conduct activities under law, including the Highlands Act and the exemptions thereto, and the Farmland Assessment Act, and that no new or additional applications or approvals will apply to the plans listed in Exemption 7.

Thank you for your consideration and cooperation.

Sincerely,

Handwritten signature of F. Parker Space in black ink.

F. Parker Space  
Assemblyman

Handwritten signature of Steven V. Oroho in black ink.

Steven V. Oroho  
Senator

Handwritten signature of Harold J. Wirths in black ink.

Harold J. Wirths  
Assemblyman

FPS/SVO/HJW:bpc



NEW JERSEY SENATE

DOUGLAS J. STEINHARDT

SENATOR, 23<sup>RD</sup> LEGISLATIVE DISTRICT

127 BELVIDERE AVENUE

SECOND FLOOR

WASHINGTON, NJ 07882

SenSteinhardt@njleg.org

TEL. 908-835-0552

FAX. 908-835-8570

December 7, 2023

The New Jersey Highlands Council

Att: Carl Richko, Chairman

100 North Road

Chester, NJ 07930

Dear Chairman Richko,

It has come to my attention that the NJ Highlands Council (the "Council") is developing what are being called Best Management Practices (BMP) for Forestry in the New Jersey Highlands Region. I am writing to express some of my concerns regarding the potential impact of the BMPs on private properties, as well as on publicly owned lands, within the Highlands Region.

I am concerned that the BMPs may further materially depress land values in the Highlands Region by limiting a broad spectrum of activity and land use, including, but not limited to, forestry practices, agricultural and horticultural activity, and other forms of land use, within both the preservation and the planning areas. The Highlands Act includes four waivers ("Waivers") and seventeen (17) exemptions ("Exemptions"). I am concerned that the BMPs, as presently drafted, may also limit or preclude the exercise of rights created under some or all of the Waivers and the Exemptions, and, in particular, Exemption 7, which provides:

"(7) an activity conducted in accordance with an approved woodland management plan pursuant to section 3 of P.L.1964, c.48 (C.54:4-23.3) or a forest stewardship plan approved pursuant to section 3 of P.L.2009, c.256 (C.13:1L-31), or the normal harvesting of forest products in accordance with a forest management plan or forest stewardship plan approved by the State Forester"

Also concerning is that many properties within the Highlands Region are eligible for, and participate in, Farmland Assessment, established under the NJ State Farmland

Carl Richko, Chairman  
December 7, 2023  
Page 2

Constitution, and that compliance with activities required pursuant to the Assessment Act, including Woodland Management and Forest Stewardship plans, as well as income and activity requirements for agricultural and horticultural lands (including forestlands), may be materially impaired by the BMPs, exposing participants to roll back taxes, disqualification, and potential forced sale of their properties.

Please confirm that prior to any formal publication for comment or any consideration of the BMPs for approval by the Council, each member of the Council will be provided with all relevant information. I respectfully suggest that such information will include: the details underlying legal authority and proposed text of the BMPs; potential conflicts with existing law and regulations; activities required, prohibited, or limited by the BMPs; approvals and procedures required or implemented by the BMPs; maps reflecting the land areas impacted by the BMPs; data regarding the number of acres and the properties impacted by the BMPs; the BMPs' impacts upon property values; information on various factors, including, for example, the role of active forest management in reducing fuel load and creating fire breaks to limit the risk of spreading wildfires, and injury to persons and property; the need for young, successional forests to promote animal habitats, higher rates of carbon sequestration, and establish uneven-aged forests of diverse, resilient species; actively managing forests for biodiversity and water collection, while reducing forest overstocking; actively managing forests to promote resilient carbon storage; the Report of the Sustainable Forestry Technical Advisory Committee to the Highlands Water Protection and Planning Council (2006); and any supporting and objecting comments regarding the BMPs submitted to the Highlands Council and staff.

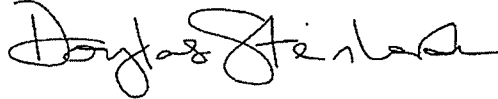
I am requesting confirmation that based upon the text of the "Abstract" included in a recent draft of the BMPs, that the BMPs, if issued, will be "to assist all owners of property (state, local, public/private) containing forest as well as licensed consulting foresters working in the Highlands Region, with guidance outlining best management practices (BMPs) for Highlands forest resources." That is, confirmation that the BMPs apply exclusively to and within forest land; are suggested, non-mandatory, guidance only; will not affect, alter or limit the rights of any and all landowners (public or private) in the Highlands Region to rely upon and conduct activities under law, the Farmland Assessment Act, the Highlands Act, the Waivers, and the Exemptions; and that with respect to Exemption 7, the BMPs neither propose nor require additional applications or approvals for the plans listed therein.



Carl Richko, Chairman  
December 7, 2023  
Page 3

Thank you for your time and consideration. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas J. Steinhardt". The signature is fluid and cursive, with the first name "Douglas" being more prominent.

Douglas J. Steinhardt  
Senator District 23

DJS/pb

cc: Kurt W. Alstede  
Timothy P. Dougherty  
Michael R. Dressler  
Michael Francis  
Robert Holtaway  
Bruce James  
Michael Sebetich  
Dan Van Abs  
James A. Visioli  
Richard Vohden



## New Jersey Forestry Association

PO Box 367  
Flemington, NJ 08822  
908-832-2400 Phone/Fax  
[www.NJForestry.org](http://www.NJForestry.org)

Via email and USPS

October 16, 2023

New Jersey Highlands Council, Members and Staff  
c/o Ben Spinelli, Executive Director  
100 North Road  
Chester, NJ 07930  
[ben.spinelli@highlands.nj.gov](mailto:ben.spinelli@highlands.nj.gov)  
cc: Gabrielle Gallagher, Esq., Chief Counsel  
([gabrielle.gallagher@highlands.nj.gov](mailto:gabrielle.gallagher@highlands.nj.gov))

Re: New Jersey Forestry Association Comments  
Regarding New Jersey Highlands Council's Draft  
"Best Management Practices for Forestry in the New  
Jersey Highlands Region"

To All Members of the New Jersey Highlands Council:

The New Jersey Forestry Association, Inc. (the "NJFA")<sup>1</sup> is very concerned about the New Jersey Highlands Council's draft, identified as "BMPs<sup>2</sup> for Forestry in the New Jersey Highlands Region" and hereby voices its opinion, as follows, objecting thereto.

In our view, these BMPs are devastating to virtually all landowners in the Highlands Act geography, are in contravention of the Highlands Act, violative of science-based principles and practices of responsible sustainable forestry, potentially force violation of the Farmland Assessment Act by thousands of property owners, render properties in the Highlands Act geography valueless, and constitute a taking without just compensation.

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<sup>1</sup> The NJFA, a 501(c)3 organization, founded nearly fifty years ago (with historic roots extending back to 1895, with the launch of the publication, *The New Jersey Forester*), is dedicated to the wise use, conservation and scientific management of the private and public forest resources of New Jersey, now and for future generations.

<sup>2</sup> BMP is the abbreviation for Best Management Practices. We refer to them as "identified as," since, in our opinion, they do not reflect (and ignore) the input of many trained, credentialed, experienced, forest management professionals and recognized organizations.

The New Jersey Highlands Council  
October 16, 2023

In summary, these BMPs ignore and for practical purposes virtually prohibit the employment of recognized, accepted and proven science-based forest management practices – thereby damaging the long-term resiliency and sustainability of forests within the Highlands Act geography. The BMPs will impinge upon forestry activities, agricultural and horticultural non-forestry activities, as well as non-farming activities, including many which fall within the express exceptions and waivers to the Highlands Act.

In our opinion, these so-called BMPs effectuate the desires of special interests and ignore virtually all of the core findings of the Report of the Sustainable Forestry Technical Advisory Committee to the Highlands Water Protection and Planning Council, dated March 28, 2006 (the “Highlands Forestry Report”), and years of input from the science-based forest management community, including the input recently provided to representatives of the Highlands Council.

The document which is the subject of this letter is referred to by the Highlands Council as “Section 3. Highlands Region BMPs and New Jersey Statewide Guidance,” and is apparently a section of a broader BMP document which has not yet been disclosed.<sup>3</sup>

### **Forced Violation of the Farmland Assessment Act**

It is our view that these and related BMPs will impact compliance by landowners with the Farmland Assessment Act (the “FAA”), both agricultural and horticultural, which include all forms of farming, forest management and forest stewardship. We believe that these and related BMPs will compel landowners (including landowners of adjacent or local properties) operating under the FAA to limit or curtail their activities so as to unjustly force their violation of the provisions of the FAA, expose them to disqualification for not meeting income requirements under the FAA and/or failing to conduct required, state-approved activities under the FAA, and expose them to roll-back taxes under the FAA.

### **Prohibition on Science-Based Forest Management**

Despite the Highlands Council having received prior input from credentialed, experienced and recognized forest experts and professionals, and recognized organizations prior to drafting the BMPs, as well as the Highlands Forestry Report, the BMPs ignore and effectively prohibit proven, accepted, time-tested, science-based, responsible forest management and stewardship practices. Those generally accepted, science-based practices are intended to improve forest resiliency and sustainability,

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<sup>3</sup> The Highlands Council has indicated that they will be circulating sections 1 and 2 in the future. We do not understand how sections of such a potentially impactful and devastating document can be selectively circulated and commented upon piecemeal. As discussed below, we are extremely concerned with the selected and limited circulation of the draft BMPs and the failure to provide copies of the draft to key organizations and persons for review and comment.



The New Jersey Highlands Council  
October 16, 2023

while fulfilling a range of goals, including water protection, fire resistance and resilience, storm resilience, resistance to disease and insect damage, invasive species management, animal habitats, carbon sequestration, recreation, deer management, and other goals, without the risk of the monolithic, special interests approach of the BMPs.

The proposed BMPs will force non-compliance with proven, accepted, science-based management practices, without regard to the negative long-term forest impacts due to lack of effective management. The BMPs also effectively force upon landowners an obligation to conduct affirmative deer management, because for most landowners and properties, fencing for passive deer management is cost and maintenance prohibitive. Hence, the BMPs are imposing on landowners the conduct of mandatory hunting, culling and killing of deer and the risks, liabilities and costs of such activities.

Moreover, an overlay of the implementation of the “BMPs” on forest parcels within the Highlands Act geography reveals that responsible, science-based, forest management and stewardship would be effectively prohibited on the majority of the acreage of those forestlands.<sup>4</sup>

### **Taking Without Just Compensation**

The BMPs put into effect a taking without just compensation because they will effectively prohibit economically viable use of land, and render land valueless, consistent with the Supreme Court’s recent summary and discussion of compensable takings in Cedar Point Nursery v. Hassid, 923 F.3<sup>rd</sup> 524 (2021) and analysis under previous precedent.

### **BMP Impacts Extend Far Beyond Forest Management**

A careful reading of the BMPs reveals that they are not limited to forestry activities or forest properties and can be employed to impact a broad range of property types and activities. For example, and without limitation, the Highlands Act contains fourteen (14) express exemptions (P.L. 2004, c.120, C.13:20-28) and four (4) express waivers (N.J.A.C 7:38-6.4)<sup>5</sup> that were material in the adoption of the Highlands Act into law. These and future related BMPs will impact many activities within the exemptions and waivers and may *de facto* eliminate or severely limit the future implementation of

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<sup>4</sup>We understand that the BMP’s, as proposed, will materially impact approximately 75,000 forest properties comprising approximately 250,000 acres which fall within the proposed BMPs buffers. The application of the proposed BMPs would preclude virtually all science-based forest management on those lands, weakening forest resiliency and sustainability, water protection, animal habitats, fire resistance and resiliency, carbon sequestration, and resistance to disease and invasive plants and insects.

<sup>5</sup>We suggest that the potential nullifying impacts of these BMPs on each of the express exemptions and waivers in the Highlands Act must be reviewed and considered, and we do not limit our comments herein to forests and farmland, or forest management/forest stewardship activities.

exempted activities and issuance of waivers - effectively rendering a broad range of those exemptions/waivers null and void.<sup>6</sup>

### **Parallel Activities Produce Conflicts**

We do not understand the sudden rush to draft and implement these monolithic, special interest restrictions in the name of “best management practices.” (See Selected Distribution of BMP Document for Comment, below.) Our concerns are heightened by the various pieces of forest management legislation and regulation occurring in parallel, as well as the effective transference of “recommendations” into “regulations” within the BMPs and the potential for conflicts going forward. For example, we note the potential conflicts between the BMPs and their application with the ongoing oversight and existing regulations of New Jersey’s public and private forests by the New Jersey Forest Service, the provisions of the Farmland Assessment Act (including the woodland management plans and forest stewardship plans required thereunder<sup>7</sup>), generally accepted best management practices in forest management, as well as the proposed legislation regarding New Jersey’s public forests based upon the holistic report and recommendations of the New Jersey Forest Task Force. A race to produce conflicting law and regulation does not benefit New Jersey, but rather may run to the benefit of special interests, while harming the long-term future of our forests, and the interests of individuals, including property owners.

### **Selected Distribution of BMP Document for Comment**

It is our understanding that the Highlands Council elected to not include on their distribution list many significant, recognized, experienced and important professionals and organizations who are generally acknowledged for their science-based forest and wetland expertise and qualifications, even though some had been previously requested to provide input to the Highlands Council, or have extensive knowledge and/or important interests in the region - particularly with respect to forestland and farmland. Although the Highlands Act was adopted in 2004 and the Highlands Forestry Report was delivered in 2006, we also understand that the Highlands Council allowed only a very small window for line-by-line comments to these BMPs (and then only by a limited group). We are perplexed by this approach to circulation and comment on the BMPs, and why comments from such professionals and organizations were not sought at this juncture.

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<sup>6</sup>See <https://www.nj.gov/njhighlands/act/exemptions/> for a list of the express waivers and exemptions under the Highlands Act.

<sup>7</sup> It is estimated that approximately 1,500 forest properties within the Highlands Council’s geography are subject to state-approved woodland management and forest stewardship plans, all prepared and annually reviewed by foresters approved under N.J.A.C. 7:3-2, employing generally accepted best management practices, and virtually all of which will be adversely affected, materially limited, or nullified by the BMPs.

The New Jersey Highlands Council  
October 16, 2023

### **Specific Comments**

Line-by-line comments will be separately provided by the NJFA, as appropriate.

### **Requested Action**

We respectfully request that the Highlands Council members commence a review of the BMP development process, the BMPs, the BMP review and comment process, all submitted comments, and the contents of this letter.

In your review, we urge you to consider not only the well-established body of science-based forest management, but also the interests of landowners, including, without limitation, owners of farms, forests and other lands, including lands subject to the Farmland Assessment Act, and those operating under state approved woodland management and forest stewardship plans.

We have delivered this letter to Executive Director Spinelli and Chief Counsel Gallagher, for distribution to all Members of the New Jersey Highlands Council and appropriate Highlands Council staff. We would be pleased to meet with you and your staff at your convenience to discuss our concerns and thank you for your attention in this important matter.

Respectfully,

*Elmer Platz*

Elmer Platz, President

101623R



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Benjamin Spinelli, Executive Director  
New Jersey Highlands Water Protection and Planning Council  
100 North Road  
Chester, NJ 07930

Sent via email to: [carolyn.klaube@highlands.nj.gov](mailto:carolyn.klaube@highlands.nj.gov); [Alexander.Hascha@highlands.nj.gov](mailto:Alexander.Hascha@highlands.nj.gov);  
[Kelley.Curran@highlands.nj.gov](mailto:Kelley.Curran@highlands.nj.gov); [Ben.Spinelli@highlands.nj.gov](mailto:Ben.Spinelli@highlands.nj.gov); [James.Humphries@highlands.nj.gov](mailto:James.Humphries@highlands.nj.gov)>

October 2<sup>nd</sup>, 2023

Dear Mr. Spinelli,

On behalf of New Jersey Audubon, I offer the following comments regarding the New Jersey Highlands Water Protection and Planning Council's Draft Best Management Practices for Forestry in the New Jersey Highlands Region manual. New Jersey Audubon staff have reviewed the document, and the following reflects that collective review.

New Jersey Audubon is one of the state's largest and oldest conservation organizations and seeks to connect people with nature while stewarding the nature of today for all people of tomorrow. Founded in 1897 and with over 18,000 members, New Jersey Audubon is one of the only non-profit organizations engaged in active, science-based, ecological forest stewardship. Our focus is to create healthy and resilient forests that provide critical resources to people and wildlife, particularly rare and declining species. Our comments in response to this draft reflect that long-standing history and expertise in wildlife conservation and forest stewardship.

### General Comments

New Jersey Audubon appreciates the Council's dedication to protecting critical resources in the New Jersey Highlands; however, we have serious concerns regarding the effectiveness and practicality of the BMPs as they are described. Many of the recommendations conflict with one another and are not aligned with state-wide and regional plans, including the NJ State Wildlife Action Plan, the NJ State Forest Action Plan, the NJ Strategic Climate Action Plan, federal species recovery plans, and others. It appears that federal agencies, including the USDA's Natural Resources Conservation Service and Forest Service and the U.S. Fish and Wildlife Service, were not consulted during the development of this BMP manual, and we strongly recommend that they be included in this stakeholder process.

The recommendations significantly impact farmland assessment for private landowners, which may dissuade forest owners from voluntarily conducting forest stewardship activities. Agencies, like the Natural Resources Conservation Service and the U.S. Fish and Wildlife Service, can provide technical and financial assistance to landowners looking to adopt conservation practices; however, these projects ensure the landowner's goals are considered and often rely upon the landowner's ability to retain farmland assessment.

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We also request to review the scientific literature that was referred to when drafting these recommendations. We expect a manual of this magnitude to be rooted in science to ensure the Highlands Region's natural resources are protected; however, many of the recommendations are counter to existing literature that shows the connection between ecological forest stewardship and wildlife conservation, watershed protection, and climate resilience (See list of references below).

Finally, we question the Council's authority to regulate natural resource management, particularly forest stewardship. We believe the New Jersey Forest Service should have final authority over developing and updating the Forestry and Wetlands Best Management Practices Manual. The Highlands Water and Protection and Planning Act is meant to regulate "activities constituting major Highlands development," and we believe this BMP manual is an overstep of that authority.

The following comments are specific to each section in the BMP draft.

### **Wetland Buffers & Streamside Management Zones**

Adopting a 300-foot buffer for all wetlands and streams, regardless of their ecological value, may have widespread implications for habitat restoration on public and private lands. This document makes it unclear which activities are prohibited within wetland buffer and streamside management zones. The list of permitted activities is extremely limited and restricts many actions that, when done properly, are ecologically beneficial to rare and declining species and habitats. For example, "native plantings" is listed as a permitted activity within the Streamside Management Zone but not under the Wetlands Buffer section.

Forest Stewardship Plans are exempt from obtaining a freshwater wetlands permit and/or a flood hazard area permit. This is because the NJ DEP thoroughly reviews and approves these plans, which includes a review of activities that may occur in regulated areas. We do not believe the Council has the authority to require a freshwater wetlands permit and/or a flood hazard area permit nor to restrict the activities allowed within these regulated areas, all of which are determined through an official regulatory rulemaking process.

### **Road Maintenance and Construction**

Well-maintained trails and wood roads are necessary for general property maintenance, stewardship activities, and sustainable forestry activities. Restricting road maintenance and construction can severely limit a landowner's ability to efficiently and reasonably complete desired forest management on a site.

Many small acreage sites will be restricted to any management or access with buffers that may theoretically cover an entire property. Current BMPs aim to minimize negative impacts on sensitive areas by using proper timing, thoughtful planning, and monitoring, not completely excluding activities from more sensitive areas.

### **Skid Trails**



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Skid trails are typically used when the ground is firm enough for larger equipment to pass, during drier periods when the ground is firm or frozen. In other cases, individual site conditions (rocky, firm ground) or existing wood roads may be used for skidding. Restricting this activity to when the ground is frozen severely limits the opportunity to conduct forestry activities. Mild winters may produce incredibly limited time frames to efficiently skid trees under such a restriction. Combine these timing restrictions with the cost of leaving wood staged and unable to be moved, disjointed skidding schedules (e.g. every time the ground warms up, contractors will have to halt skidding), and harvesting operations may become completely cost-prohibitive to landowners.

### **Timber Harvesting**

All recommendations regarding harvesting are already required and reviewed by the NJ Forest Service. Additional oversight is redundant and extraneous.

### **Pesticide Use**

The BMP manual assumes only two herbicide application methods: hand application and aerial application. It is unclear whether “hand application” includes backpack sprayers and/or mistblowers and does not consider other methods, including sprayers affixed to UTVs, high-pressure sprayers, or others. NJ DEP already regulates the use of pesticides in sensitive areas, while pesticide labels and proper training provide guidance in applying pesticides safely and effectively. Restricting pesticide application methods may have widespread implications in controlling non-native invasive species, mainly when hand application is not feasible.

### **Reseeding Disturbed and Compacted Areas**

We support using native species when reseeding disturbed areas when financially viable and available. In cases where it is deemed that soil stabilization may be needed, it is recommended to seed until the natural establishment of vegetation occurs. Temporary cover crops, such as grasses and oats, have been used with positive results. Depending on the native seed mix recommendation, seeding larger disturbed areas may become cost-prohibitive to the landowner. Restricting seed mixes to solely native plants found within the Highlands Region may not be financially viable for landowners. The availability of such seeds may also be a challenge.

### **Prescribed Fire**

Prescribed fire can be a beneficial tool in reducing fuel load and restoring and creating habitat. Both dormant and growing season burns are effective management tools and often have different yet equally beneficial results. The New Jersey Forest Fire Service has authority over when and how a prescribed burn is conducted. Existing conditions and weather patterns, including relative humidity, wind speed and direction, and atmospheric conditions, are all considered before conducting a prescribed burn. Restricting prescribed burns to when the ground is frozen would severely limit this activity and make it incredibly challenging to find appropriate conditions to burn. Growing season burns can also have beneficial ecological results, depending on the site conditions and landowner goals. Additionally, fire

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may not always negatively impact amphibian species and in some cases, may encourage population increases (Hossack).

### Vernal Pools

Habitat management surrounding vernal pools is often recommended to protect the health of the ecosystem and the long-term viability of the species that use these areas (Calhoun). In some instances, it may be appropriate to selectively thin forests to create and maintain uneven-aged forests while leaving coarse woody debris on the forest floor. Restricting habitat activities will have widespread implications for species that use vernal pools and may restrict the creation or restoration of habitats that are needed by many vernal pool species.

Additionally, restricting pesticide use within the buffer zone will render invasive species management challenging and unfeasible. NJ DEP regulates pesticide use in sensitive/wetland areas, and proper guidance on herbicide labels gives exact protocols for safe application within those areas. In many cases, invasive plants can only be managed through an integrated management approach, which includes mechanical and chemical control techniques.

Finally, it is unclear which portion of the recommendations are derived from the cited NRCS document. We also had trouble finding the cited document on NRCS Vermont's website and would like to request a copy for our review.

### Natural Heritage Priority Sites

Natural Heritage Priority Sites are meant to be used as a guide for land acquisition and habitat conservation. While the intent was to protect rare and declining plants, these sites also prioritize rare and declining wildlife and habitat. According to the NJ State Wildlife Action Plan, habitat loss, including the loss of suitable habitat, is our state's number one threat to wildlife. Many Species of Greatest Conservation Need require early successional habitat at some point during their life cycle. The recommendations laid out in this BMP manual would severely limit and restrict habitat restoration actions that can benefit both plants and animals. It is also unclear how frequently the Natural Heritage Priority Sites are updated and confirmed to contain unique features, habitats, or species. For example, if natural succession has occurred and drastically changed the land cover or shifted the habitat structure, do the restrictions still apply, or are management activities allowable to try to restore habitat? Natural Heritage Priority Sites include public and private lands, developed and natural areas, and areas adjacent to critical habitat. Would all these areas be required to follow these BMPs?

More specifically:

1. The BMPs restrict the use of foliar and/or broadcast pesticide application; however, the physiology of many non-native invasive plants (e.g. herbaceous plants) renders cut and dab or EZ-Ject ineffective. Best management practices for pesticides can be used to limit the impact on non-target species. This may include timing, weather conditions, and/or chemicals used to control the targeted species.

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2. Heavy machinery can be a helpful tool when exercising caution. Timing restrictions and psi considerations are examples of ways to minimize impacts on sensitive areas. Only allowing walk-behind mowers and weed whackers is not feasible for all sites and conditions and will make effective habitat restoration and management incredibly challenging. Although this manual is only for forests, does the Council recommend restricting heavy machinery in other land uses, like grasslands? If so, maintaining these critical ecosystems will also become incredibly challenging.
3. Who would determine which species will provide an exemption to removing canopy trees and how is occupancy determined? Additionally, species occupancy is not the only driver when selecting areas for habitat restoration, and in many cases, would exclude important areas from habitat restoration. The nature of species recovery often means attracting rare and declining species from other areas to restored areas. In many cases, site selection uses landscape-level data to determine whether a species or suite of species will benefit, not just site occupancy.

### **Invasive Species**

A Forest Stewardship Plan must address forest health concerns, including invasive plant management. We support responsible forest management, including proper pre-treatments of a project site involving a canopy reduction.

The recommendations in this section conflict with earlier recommendations. For example, some earlier BMPs restrict your ability to address invasive species, including restricting pesticide use within a vernal pool buffer. The recommended 50ft buffer around an invasive treatment area may also extend into a wetland buffer or riparian zone, which conflicts with the recommendations laid out in those sections.

### **Deer Management**

Deer populations are transient and typically concentrate along edge habitats, agricultural fields, throughout suburban development, parklands, and, to certain degrees, forest interiors. Until the overpopulation of deer is addressed on the landscape level, requiring private landowners to engage in deer management to the extent outlined in the recommendations is extraneous. We support comprehensive deer management programs in many areas of NJ; however, it is far beyond the authority of the Council to require specific deer management requirements on private properties.

Deer fencing may be a plausible solution in small, discrete instances, but ultimately displaces the deer problem to those without the ability to protect their properties with physical barriers. Additionally, deer fence installation and maintenance is costly and time-consuming.

Unless all parcels within a significant region of the state engage in aggressive, active deer management, deer populations will learn to respond and adapt to increased hunting pressure by favoring unmanaged properties as safe havens.

### **Forest Soils**

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The need for soil amending varies by site and is financially and logistically infeasible at scale. Utilizing “compost tea” on thousands of acres is nearly impossible. Non-native earthworms continue negatively impacting many soils throughout NJ, making soil amendments ineffective. Restoring healthy ecosystem function to forest tracts via prescribed burning, ecological forestry, invasive species management, and reforestation efforts where appropriate can help with nutrient cycling and soil health in the long term.

### Steep Slopes

In general, most heavy machine operators will want to avoid steep slopes and if necessary, enter those areas when the ground is the firmest. Forest Stewardship Plans address access of properties regarding topography and timber harvesting, and an FSP can outline how sloped terrain may be avoided or navigated with minimal impacts.

Under these recommendations, a steep slope that is near or fully infested with invasives can be completely cleared of vegetation under the practice of invasive species management, yet forest stand improvement (light thinning) would be restricted. Steep slopes do not mean completely restricting access but modifying practices to minimize soil disturbance or utilizing alternative harvesting methods (hand-felling + cable skidding).

Steep slopes in NJ are typically avoided by heavy machinery for timber harvesting operations. Forest Stewardship Plans address access of sloped sites.

### Habitat Creation & Enhancement

Many of the earlier BMPs restrict or severely limit what is allowable, making habitat creation and enhancement challenging. New Jersey Fish and Wildlife and the U.S. Fish and Wildlife Service have authority over the management and protection of game, non-game, and federal trust species. We believe the Council does not have the authority to determine whether habitat creation and/or enhancement is needed or warranted. We also believe and recognize that private landowners may have differing goals for their property and question the Council’s jurisdiction to require this for private landowners.

### Core Forest, Older-growth forests, and Forest Fragmentation

Core forests can include many forest types, including closed canopy, young/early successional, open canopy, and more. It is unclear what the Council considers “older-growth forests” except in reference to the Vermeule maps. These maps only cover a relatively short snapshot in time and do not show forested areas that may have been harvested, particularly those harvested post-1887 when the maps were completed. The best way to determine a forest stand’s age class and structure is through forest inventory, which is required as part of the Forest Stewardship Planning process.

The Council recommends a very limited number of allowable activities in these forest types; however, there is little scientific literature to support these recommendations, particularly concerning the 0.5-acre threshold. These restrictions make habitat creation and enhancement ineffective and infeasible. It also



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does not consider the full life cycle of interior forest species but rather only emphasizes the breeding habitat. There is a growing body of research that shows even interior forest nesting species use early successional habitat after the fledgling stage (Sterby, Chandler). While we support protecting forest core habitat from fragmentation (development or non-forest land uses), we also understand the need to create diverse habitats across the landscape.

Finally, it is unclear how the Council will define “impact” to other resources.

### Historical, Archeological, and Cultural Resources

All Forest Stewardship Plans include Historical, Archeological, and Cultural Resources as identified and mapped to the best extent possible utilizing State NJDEP GIS layers. Any physical structures or cultural resources identified on a property are adequately buffered to ensure no negative impacts occur to them during management activities.

Additionally, some of the recommendations, including protective matting around wetlands, conflict with earlier restrictions to roadways/access around wetlands.

### Climate Change Considerations

Many of the recommendations in this document are counter to this statement: “... it is imperative to implement practices that prioritize biodiversity, native species. The maintenance of forest structure, and protection of Highlands Open Water Areas to enhance the resilience of forests in the New Jersey Highlands Region.” Forest Stewardship can help to increase biodiversity, encourage native species, increase forest health and resiliency, and position forests to be better adapted to a changing climate. Forest stewardship can also increase carbon sequestration and strengthen carbon storage through structural complexity and biodiversity. (Iverson, Caldwell, Pugh, Lathrop).

### Conclusion

We appreciate the opportunity to comment on the proposed BMP manual and would welcome further discussion and clarification regarding our concerns. If you would like further review, please do not hesitate to contact me at [kristen.meistrell@njaudubon.org](mailto:kristen.meistrell@njaudubon.org) or at (609) 400-3843.

Sincerely,

Kristen Meistrell, Vice President of Stewardship

New Jersey Audubon



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Public Comments Submitted at the Highlands Council Meeting  
on December 14, 2023 by Richard Kelsey Page 19 of 38

From: Donnelly, Donald - FPAC-NRCS, NJ <[Donald.Donnelly@usda.gov](mailto:Donald.Donnelly@usda.gov)>  
Sent: Wednesday, September 20, 2023 6:32 PM  
To: Klaube, Carolyn [HIGHLANDS] <[carolyn.klaube@highlands.nj.gov](mailto:carolyn.klaube@highlands.nj.gov)>; Hascha, Alexander [HIGHLANDS] <[Alexander.Hascha@highlands.nj.gov](mailto:Alexander.Hascha@highlands.nj.gov)>; Curran, Kelley [HIGHLANDS] <[Kelley.Curran@highlands.nj.gov](mailto:Kelley.Curran@highlands.nj.gov)>; Spinelli, Ben [HIGHLANDS] <[Ben.Spinelli@highlands.nj.gov](mailto:Ben.Spinelli@highlands.nj.gov)>  
Cc: Madlinger, Evan - FPAC-NRCS, NJ <[evan.madlinger@usda.gov](mailto:evan.madlinger@usda.gov)>  
Subject: [EXTERNAL] RE: [External Email]Draft Forestry and Wetlands BMP guidance review


Hello Carolyn,

I haven't had a chance to go through this document in detail yet, but at a quick glance, it appears very problematic and lacks the scientific merit to back-up the restrictions that you are proposing. As I stated during our meeting several weeks ago, it remains unclear what real-world examples and / or scientific literature the Highlands Council staff are using to conclude that the existing forestry BMPs are inadequate to protect Highlands forest resources? In the absence of such examples or scientific literature, the addition of these onerous restrictions on landowners in the region appears to be nothing more than an attempt to effectively eliminate forest management as a tool, and these proposed BMPs are certainly not based in any science I am aware of. It is shocking that various water resource managers in nearby states like the NYC Watershed Agricultural Council, Bethlehem PA Water Authority, South Central Connecticut Water Authority, and the Quabbin Reservoir in Massachusetts, all have active forestry programs to apply ecological forestry practices as a mechanism to enhance forest resiliency and improve water quality, and yet the NJ Highlands Council staff is approaching this issue in the exact opposite manner – treating forestry as if it is an activity that is inherently damaging to forests. If you look beyond NJ, natural resource agencies throughout the north-east, including both state-level and federal agencies like the EPA and USDA, are also embracing opportunities to use forestry practices to restore a 200-year legacy of colonial exploitation of the region's forests. So it is with that mindset, I find myself dumbfounded that the Highlands Council staff could have visited the forestry projects that have been ongoing for more than 10 years in the "core forests" within the Sparta Mountain Wildlife Management Area, prepare and submit a report of that visit to the Highlands Council explaining the positive results that are occurring as a result of those activities, and then prepare a BMP stating: *"the creation of canopy gaps larger than 0.5 acres will not be permitted within Highlands core forests without review by NJ Highlands Council staff to ensure that Highlands resources are not being impacted by the project"*. Where is the evidence that the New Jersey Forest Service, who currently provide oversight of the BMPs, lacks the expertise to continuing providing oversight for forestry in the Highlands? This BMP is a misguided attempt to solve a problem that does not exist, and in doing so, will have negative impacts on private landowners and the regions forests.

I also did want to mention that I regularly communicate with colleagues who received a similar request from you on this topic about a week ago, and have come to learn that it seems the only reason I received this follow-up message was at their urging to include myself and others who were not included on the initial email. I feel compelled to say that after taking time out of my schedule to drive to your office and provide insight on my 30 years of experience as a forester in NJ, and then returning another day to share example forestry plans for you to review to better understanding what is involved, I think it is professionally inconsiderate to not have included me in the draft comment process until you were pressed to do so. For a public agency representing the State of New Jersey, the process by which this BMP is being developed seems to lack transparency, which is troubling considering it has the potential to affect so many landowners.

Respectfully,

Don Donnelly  
State Forester  
New Jersey

 **USDA** Natural Resources Conservation Service  
U.S. DEPARTMENT OF AGRICULTURE  
200 Clocktower Drive, Suite 101  
Hamilton Square, NJ 08690  
p: (732) 537-6068  
e: [donald.donnelly@usda.gov](mailto:donald.donnelly@usda.gov) | w: [www.nj.nrcs.usda.gov](http://www.nj.nrcs.usda.gov)



## Klaube, Carolyn [HIGHLANDS]

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**From:** Donnelly, Donald - FPAC-NRCS, NJ <Donald.Donnelly@usda.gov>  
**Sent:** Monday, October 2, 2023 4:35 PM  
**To:** Klaube, Carolyn [HIGHLANDS]; Hascha, Alexander [HIGHLANDS]; Curran, Kelley [HIGHLANDS]; Spinelli, Ben [HIGHLANDS]; Humphries, James [HIGHLANDS]  
**Cc:** Madlinger, Evan - FPAC-NRCS, NJ  
**Subject:** [EXTERNAL] RE: [External Email]Draft Forestry and Wetlands BMP guidance review  
**Attachments:** DRAFT Highlands Forestry and Wetlands BMPs Section 3 DD.docx

Hello Carolyn,

I appreciate the opportunity to provide comments on your proposed BMPs. As you may know, the USDA Natural Resources Conservation Service (NRCS) was established in the wake of the dust bowl to help farmers improve soil conservation practices and now has nearly 100 years of experience advancing research and implementation of science-based land conservation practices. As the lead federal agency tasked with aiding private landowners with management of their land, we have significant interest in how proposed Highlands BMPs might affect those landowners and our ability to continue assisting them.

Most of the proposed BMPs pose outright restrictions on forest management practices other than hazard tree removal, invasive species, and deer management. So, in essence, this BMP proposal implies that the Best Management Practice for forestry is to avoid doing any actual forestry work, which is not consistent with the founding principles for establishing the Highlands Region as proposed in the USDA Forest Service 1992 NY – NJ Highlands Regional Study and subsequent 2002 update you referenced. Those documents are grounded in five primary goals listed below that are considered vital for the long-term stewardship of the Highlands, and numbers 3 and 5 are in direct conflict with the proposed BMPs.

1. Manage future growth that is compatible with the region's ecological constraints;
2. Maintain an adequate surface and ground water supply that meets the needs of local and downstream users;
3. Conserve contiguous forests using management practices that are consistent with private property rights and regional resources;
4. Provide appropriate recreational opportunities; and
5. Promote economic prosperity that is compatible with above goals;

A cursory GIS analysis reveals that where forestry practices will not be permitted in Natural Heritage Priority Sites and in buffer zones for vernal pools, wetlands, and water bodies, the area affected amounts to approximately 460,000 acres; meaning that 54% of the entire Highlands Region will be restricted from forestry activities under the proposed BMPs. This will not only impair the ability of private property owners to manage their land in accordance with their own values, but will also impair their ability to manage for forest resiliency and long-term health as needed.

In my original email dated September 20<sup>th</sup>, 2023, I was looking for clarification why the proposed BMPs seek to eliminate traditional forest management practices on a significant portion of the Highlands region without providing a scientific need to do this, or without providing real-world examples showing that the existing BMPs have failed to protect certain resources. As I stated in that email message, in the absence of such supporting information, the exclusion of traditional forestry practices is an arbitrary restriction that lacks scientific merit. Regardless of any directive for the Council to explore if better Forestry BMPs are available, there is no mandate to fix a problem that has not been identified. In short, it seems that you are either trying to fix a problem that does not exist.

I have reviewed the series of technical reports you mentioned as the scientific underpinnings of the Highlands Regional Master Plan and therefore these proposed BMPs. Specifically, the *Ecosystem Management* and *Land Preservation and Stewardship Technical Reports* that pertain to forest conservation. Those documents discuss detailed strategies and findings for forest stewardship and land preservation with the most prominent concern being forest management

activities (at the time) being conducted to satisfy Farmland Assessment requirements, which mandated the sale of wood products that potentially drive unsustainable harvesting practices. (Note that the report acknowledged insufficient data exists to determine if harvesting was unsustainable and recommended data collection to determine this. Also note that the subsequently approved 2009 Forest Stewardship Act has effectively alleviated this concern by removing the income requirement for woodland qualification under the Farmland Assessment.) However, I was unable to find *any* references that support the assertion that forest management activities conducted under a plan approved by the NJDEP negatively affect Highlands resources. In fact, the *Ecosystem Management Report* does discuss forestry work that is conducted *outside of the purview of an approved Forest Stewardship Plan*, and in those cases, offers some BMPs for landowners. I have listed those in italics below for reference. However even these recommendations don't go as far as the proposed BMPs to eliminate forestry altogether.

*Completion of a Forest Stewardship Plan should be encouraged, but not required, for approval of a Forest Management Plan. Currently, preparation of a forest stewardship plan can be funded by the New Jersey Forest Service through the Forest Stewardship Program if the property is within the Highlands Area. Under the Forest Land Enhancement Program, forest management activities in an approved plan are eligible for cost-share funds to implement recommendations made in the plan. As part of a stewardship plan, foresters can field-verify the location of streams, including intermittent streams and associated riparian areas, wetlands including vernal pools, seeps, and springs on lands that they manage. Conducting these activities along with implementing best management practices will protect soils from erosion and loss of productivity and will protect water quality. Low impact logging practices should be incorporated into approved forest management plans, where not already in use. Low impact logging practices may include some of the following:*

- *Establish designated and protected refueling areas to avoid potential for incidental spills.*
- *Outfit heavy equipment with spill kits which may include sorbent pads or other material.*
- *Attempt to avoid harvest during the time of year that forests serve as critical habitat for wildlife species, such as neotropical bird breeding season or reptile and amphibian breeding season. Ideally, harvest during times when the ground is frozen.*
- *Harvesting should be discouraged during the spring thaw when the ground and soils are saturated. Heavy equipment use at this time will compact soils and injure roots.*
- *Access logging roads should be minimized, properly located to avoid sensitive resource areas, and identified in a forest management plan. Restoration and maintenance of access roads should be a required element of a stewardship plan.*
- *Avoid road building practices that block or reroute natural drainage.*
- *Reduce travel using heavy equipment over forest soils particularly during the thinning process.*
- *Encourage the use of draft horses for salvage operations where possible and practical.*

*Additional steps could be taken to improve the sustainability of both forests and forestry, including:*

- *Promoting through forest management plans the formation of a cooperative that will allow small landowners to pool resources and coordinate harvesting activities in order to improve efficiency and forest industry viability in New Jersey.*
- *Completing timber harvesting under the supervision of an approved Forester under the auspices of an approved forest management plan by an approved logger. Forest management plans could further benefit forests by including recommendations for dealing with regeneration failure, deer management, and control of invasive plant species.*
- *Inspect forest harvesting sites both prior to, and post harvest to ensure that best management practices are sufficient for water quality protection.*
- *Provide a cutting plan and notification letter to the New Jersey Forest Service prior to commencement of the harvesting operation within the Region, and also upon completion of the harvesting operation, which denotes the amount of material removed in thousand board feet. These data would, over time, demonstrate that forest*

*products removed from the Highlands Region are removed on a sustainable basis and may lay the groundwork for third-party certification of forest products from the Region.*

- Include information on material removed by landowners or, sales that were not conducted under the supervision of an approved Forester, in the biennial accomplishment report required from Approved Foresters. This report is required as part of remaining on the State's Approved Forester list. Also specify the property that was harvested so it could be determined whether it was harvested from within the Highlands Region or from areas outside of the Highlands Region.*

- Visit any timber sale upon completion to evaluate the effectiveness of best management practices. Further, advanced forest regeneration should be a primary concern following such a harvest. When a timber sale is completed, whether under the supervision of an Approved Forester or not, conduct a follow up site visit in order to ensure that best management practice protocols are being followed and implemented. At the time of the inspection, the amount of timber can be recorded into a database to confirm sustainability. Valuable information can be collected concerning conservation of soil and water resources, forest successional stages, associated wildlife, invasive species, and effectiveness of best management practices.*


Within the Highlands Regional Master Plan and its supporting technical reports are numerous references to goals, policies, and objectives, for sustainable forest management, and a common theme is that the statements begin with or include the words "to encourage". Conversely, for policies and objectives used in conjunction with development and land-use regulation, the statements contains the words "to limit" and "to require". It is clear that the Highlands Regional Master Plan treats forestry and development as the two distinct activities they are, but the proposed BMPs are not written from this perspective. Instead of encouraging good stewardship, the BMPs are written to restrict forestry, which is not consistent with the Highlands Act, the technical reports, or the Highlands rules.

As you requested, I have inserted my BMP comments using Track Changes in the attached document (note there were a few pre-existing comments from Allegra Mitchell in the document). Overall, I would reiterate that most of the proposed BMPs are not actually guidance for how to improve a problem caused by poorly planned forestry activities, they are simply restrictions that will amount to more than half of the entire Highlands Region being off-limits to forest management other than invasive species and deer management. As our forests are under increased pressure from stressors including a changing climate, it seems ill-advised to purposely remove the practice of silviculture as a management tool for dealing with some of these stressors. I encourage you to consider making significant changes to the proposed BMPs so that sustainable forest stewardship can continue to be practiced and practices can be improved where they are inadequate. As I stated during our office meeting, I believe the biggest avenue of opportunity to safeguard Highlands resources is better enforcement of the existing rules and holding those who aren't following those rules accountable.

Please let me know if you have any trouble accessing my comments or need additional clarity.

Respectfully,

Don Donnelly  
State Forester and Acting State Resource Conservationist  
New Jersey

 **Natural Resources Conservation Service**  
U.S. DEPARTMENT OF AGRICULTURE  
200 Clocktower Drive, Suite 101  
Hamilton Square, NJ 08690  
p: (732) 537-6068  
e: [donald.donnelly@usda.gov](mailto:donald.donnelly@usda.gov) | w: [www.nj.nrcs.usda.gov](http://www.nj.nrcs.usda.gov)

**From:** Klaube, Carolyn [HIGHLANDS] <[carolyn.klaube@highlands.nj.gov](mailto:carolyn.klaube@highlands.nj.gov)>  
**Sent:** Monday, September 25, 2023 4:58 PM



New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

## Section 3. Highlands Region BMPs and New Jersey Statewide Guidance

### 3.1 Introduction

The New Jersey Highlands Region is designated as a special resource area of the state on par with the Pinelands and Meadowlands, and has been set aside for enhanced natural resource protections through the New Jersey Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1 et seq.). The Highlands Act created the Highlands Council and provided it with the authority to transmit to the Commissioner of Environmental Protection recommendations for standards pertaining to the lands and natural resources of the Highlands Region as the Council deems appropriate (see N.J.S.A. 13:20-6m).

While the New Jersey Forestry and Wetlands Best Management Practices Manual (Manual) prepared by the New Jersey Bureau of Forest Management (October 1995) provides far-reaching and comprehensive guidance for the proper management of New Jersey's forests and wetlands, additional protections are required in the Highlands region to meet the mandates of the Highlands Act.

The Highlands Council has worked in collaboration with numerous stakeholders including relevant departments within the NJDEP, professional foresters, researchers, and ecologists to develop these Highlands Region-specific BMPs that reflect the statutory guidance provided in the Highlands Act, the regulatory guidance provided in the Highlands Water Protection and Planning Act Rules (N.J.A.C. 7:38), and the regional planning guidance provided by the Highlands Regional Master Plan (RMP).

The information that follows has been divided into two sections: Areas where statewide guidance diverges from what's required in the Highlands, and areas where the Highlands Act and RMP require considerations that are not currently included in the statewide guidance.

### 3.2 Highlands Region Diversions from the Statewide Guidance

Sections 3.2.1 through 3.2.7 identify areas discussed in the Statewide Guidance that require additional consideration in the Highlands Region.

#### 3.2.1 Wetland Buffers

There are many types of wetlands, including swamps, marshes, bogs, and vernal pools, but they all have 3 important characteristics which include water, hydric soils and hydrophytic vegetation. Water levels can be just below the ground surface (high water table), at or above the ground surface and it can be intermittent. This can include flooding by nearby waterbodies or seasonal pools, such as vernal pools. Hydric soils are formed due to prolonged periods without oxygen and tend to have characteristic colors that are used to identify them. Hydrophytic vegetation refers to plant species that are adapted to survive in areas that flood or have hydric soils. These plants can be graminoids, forbs, shrubs, or trees. Some plants have been added to "The National List of Plants that Occur in Wetlands" and given a "Wetland indicator status" that designates how likely a plant is to occur within a wetland. This list was developed by U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, The U.S. Environmental Protection Agency, and the USDA Natural Resources

**Commented [DDFNN1]:** There is no mandate to impose unsubstantiated activity restrictions, to make this assertion there has to be data or examples showing the inadequacy of current BMPs to protect highlands resources, of which, there does not appear to be any evidence for

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

Conservation Service. In the current NJ Forestry and Wetland BMP manual (1995), the buffer size of wetlands is determined by the value given to the wetland.

*NJ Forestry and Wetland BMP guidance for Wetland Buffers*

- Wetlands of exceptional resource value – 150ft buffer
  - Those wetlands documented habitat of certain endangered or threatened species, or adjacent to FW1 and FW2 trout production waters or their tributaries
- Ordinary resource value wetlands – no buffer
  - Ditches and swales
  - Detention basins
- Small, isolated wetlands surrounded by at least 50 percent development
  - Wetlands of intermediate resource value – 50ft buffer
- These buffers are associated with all other wetlands

*NJ Highlands Region BMPs Wetland Buffers*

In the NJ Highlands region, all wetlands, excluding ditches, swales and detention basins, require a 300-ft buffer regardless of their wetland classification of exceptional, ordinary or small. The NJ Highland Council's interactive map is a tool that foresters, private landowners and the general public can use to help identify potential wetland areas. A project that is in an area and is mapped as a Wetlands on the NJ Highland Council's interactive map should obtain a Letter of Interpretation (LOI) from the NJDEP to confirm the wetland boundary. Vegetated cover conversion shall be regulated by NJDEP Wetland mitigation.

In the NJ Highlands region, activities that are permitted within the wetland buffer include the removal of hazardous trees, invasive species management, and deer management. The removal of stumps is not permitted within the wetland buffer. The conversion of vegetation type within a wetland requires a wetland permit obtained through the NJDEP. The application of pesticides/herbicides is dependent on whether the compound is permitted to be used within a wetland area in accordance with NJDEP guidelines.

It should also be noted that Vernal Pools are considered separately and distinctly from wetlands in the Highlands RMP. Please see section 3.3.1 for Vernal Pool guidance.

**3.2.2 Streamside Management Zones**

*NJ Forestry and Wetland BMP guidance for Streamside Management Zones (SMZ)*

Designed to protect a water body from adjacent land-use activities by providing a relatively undisturbed vegetative zone to trap and filter out sediments and other pollutants before they enter the water resource.

- The width of SMZ ranges between 25ft on each side of a streambed in slightly erodible soils to 50 feet in severely erodible soils.
- Minimum SMZs:
  - Slope 0-10%, minimum SMZ is 25 ft up to 50 ft
  - Slope 11-20%, minimum SMZ is 40 ft up to 130 ft
  - Slope 21-45%, minimum SMZ is 70 ft up to 200 ft

**Commented [DDFNN2]:** In accordance with the Freshwater Wetlands Protection Act - which are the rules that affect forest management that is otherwise exempt under the Highlands Act - wetlands have transition areas, not buffer areas. More importantly, the BMP manual does not determine the "buffer" size, those are defined at 7:7A-3.3. in the Freshwater Wetland Protection Act Rules

**Commented [DDFNN3]:** To get an LOI cost prohibitive, impractical, and is the very reason why a forestry plan adhering to the BMPs is exempt from the standards that are applied for development / land conversion. Forestry is permitted within wetlands and transition areas with conditions, so if those conditions are being met to protect the resource, it does not really matter where the exact wetland boundary is. Vegetative conversion to another land use is not permitted by the NJFS in an approved forestry plan for the Highlands.

**Commented [DDFNN4]:** First, it seems unlikely that there would be many "Hazard" trees within a wetland buffer because by legal definition, a tree cannot be hazardous without a target that it endangers (i.e., people or fixed objects that can be damaged). Therefore, there would be very few places where this would apply. Perhaps more importantly, the exclusion of all other tree cutting is arbitrary and without scientific merit. What research are you citing that all tree removal in a 300' wetland buffer is detrimental to water resources? There are many reasons why tree thinning and even harvesting may be warranted in a wetland and beneficial, and certainly so within the 300' highlands buffer.

**Commented [DDFNN5]:** The removal of stumps is never a permitted forestry activity in an approved plan, so this is redundant. And forest conversions to other cover types is similarly not permitted as an approved forestry activity in the highlands.

**Commented [DDFNN6]:** This is a redundant statement that is already the law

**Commented [DDFNN7]:** This section has been acknowledged in many forums as being inconsistent with the Flood Hazard Area Control Act rules, which references Riparian zones and are the operative regulatory rule that the DEP applies when reviewing forestry plans for approval.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

#### *NJ Highlands Region BMPs Open Water Protection Areas*

Highlands Open Water protection areas require a 300-ft buffer regardless of slope. Activities that are permitted within the riparian buffer include the removal of hazardous trees, planting native bare root stock and native plants up to 1 gallon in size, invasive species management, and deer management. Removing stumps is not permitted within the Highlands Open Water Protection Areas. Activities that cause soil disturbance are not permitted within the Highlands Open Water Protection Areas.

**Commented [DDFNN8]:** Another arbitrary exclusion of tree management without scientific underpinning for its universal negative impact on water quality. You need rigorous scientific studies to back this restriction.

#### 3.2.3 Road Maintenance and Construction

##### *NJ Forestry and Wetland BMP guidance for Road Maintenance and Construction*

- Locate access roads outside the SMZ and wetlands, unless no other alternative exists.
- Stabilize exposed soil on roads within the SMZ.
- Avoid road construction during wet periods.

##### *NJ Highlands Region BMPs for Road Maintenance and Construction*

In the Highlands Region, all forestry road maintenance and construction must adhere to the Highlands Open Water buffers and Critical Habitat buffers.

#### 3.2.4 Skid Trails

##### *NJ Forestry and Wetland BMP guidance for Skid Trails*

- Skid trails should be well-planned.
- Avoid skidding on slopes greater than 20%.

##### *NJ Highlands Region BMPs for Skid Trails*

In the Highlands Region, all skid trails must adhere to the Highlands Open Water buffers and Critical Habitat buffers. Skidding will not be permitted on slopes greater than 40%. Skid work shall only be conducted while the ground is frozen to minimize soil disturbance.

**Commented [DDFNN9]:** I assume this means excluded from these areas, which is not a BMP, it is a restriction. Doing this will eliminate most stewardship activities altogether - aside from just tree thinning because the cost of accessing these acres on foot without the aid of small utility vehicles and equipment will be cost-prohibitive. This is completely impractical even for meaningful sized invasive species management projects. People need to be able to gain access to conduct stewardship activities aside from tree harvesting, and the elimination of access will negatively impact thousands of landowners across many thousands of acres. When people stop trying to steward land because they can't access the land, forest conditions will certainly degrade in areas. Furthermore, when access is properly constructed using appropriate BMPs, it eliminates the point source effects on water quality as per the EPA ruling several years ago.

#### 3.2.5 Timber Harvesting

*NJ Forestry and Wetland BMP guidance for Timber Harvesting* include recommendations for following SMZs however, the NJ Highlands open water buffers must be used in place of the NJ Forestry and Wetlands BMP manual's recommended SMZs.

##### *NJ Highlands Region BMPs for Timber Harvesting*

In the Highlands Region, timber harvesting plans must adhere to the Highlands Open Water Buffers and not disturb soils within those buffers. Timber Harvesting plans must also outline the location and size of wetlands on site, location and buffers of vernal pools on site, where the access roads and landing sites will be located, an inventory of both canopy and understory woody species, an inventory of non-native invasive species and a plan for how the landowner will manage the invasive species and how will the land-owner address herbivory from deer. The Highlands Council encourages the use of adaptive management planning due to effects of invasive species, diseases and white-tailed deer herbivory on the ability of the forest to regenerate successfully. It should be anticipated that disturbances will occur, and that the landowner is aware that due to these possible disturbances, that the management plan of the forest may have to be adjusted in order to reach the regeneration goals.

**Commented [DDFNN10]:** Again, the exclusion of skid trails in these areas is not a bmp, it is a restriction

**Commented [DDFNN11]:** Frozen ground is almost never a thing any more with warmer winters, so saying that skidding cannot occur on dry ground - which is currently acceptable throughout the world - is effectively halting any equipment use all year, which is neither acceptable or backed by scientific literature. This is just completely unacceptable.

**Commented [DDFNN12]:** Again, I would like to see some literature that indicates all timber harvesting within 300' of a water body is detrimental - that literature does not exist.

**Commented [DDFNN13]:** These are already requirements of a timber harvest plan

**Commented [DDFNN14]:** This is inherent in all forest management. While I am not opposed to the statement, it is not really a BMP



New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

### 3.2.6 Pesticide Use

#### *NJ Forestry and Wetland BMP guidance for Pesticide Use*

- For aerial spray applications, maintain and mark a buffer area of at least 50 ft around all ponds, lakes, streams and marshes to avoid drift or accidental application of chemicals directly into a water surface.

#### *NJ Highlands Region BMPs for Pesticide Use*

In the NJ Highlands region, a 300-ft buffer is required for aerial pesticide application around Highlands Open Waters. Hand application may be applied within the 300-ft buffer if state pesticide application guidelines are followed within Wetland use zones.

### 3.2.7 Reseeding Disturbed and Compacted Areas

The current NJ Forestry and Wetland BMP manual (1995) include many highly invasive, non-native plants as well as the application of fertilizers. It is critical that non-native plants are not introduced into our forests as well as the addition of fertilizers which are known to negatively impact water quality.

#### *NJ Highlands Region BMPs for Reforestation, Reseeding Disturbed and Compacted Areas*

In the NJ Highlands region, all seeding mixes must be exclusively plants that are native to this region of the United States, and it is not permitted to use fertilizers as amendments to any areas of disturbance.

### 3.2.8 Forest Protection

#### *NJ Forestry and Wetland BMP guidance for Forest Protection*

The current recommendations for prescribed fire in the NJ Forestry and Wetland BMP manual focus on the elimination of or reduction or unincorporated organic matter on the forest floor.

#### *NJ Highlands Region BMPs for Forest Protection and Prescribed Fire*

In the NJ Highlands region, wildfire was historically part of the forest landscape. Prescribed burning (RxB) can have a multitude of benefits such as forest regeneration, invasive species management as well and managing wildfire risks. If a landowner decides to incorporate RxB into their forest management/woodland management/forest stewardship plan, they must evaluate what invasive species are present on the property and understand that some invasive species respond positively (increase growth) as a response to fire, as well as how deer density will impact forest regeneration post-fire. It will also be important to consider any vernal pools and natural heritage priority sites within the burn area or closely surrounding it due to the impacts of fire on the plants and animals that are utilizing those areas. While it is not prohibitive to use prescribed fire within these areas, the timing of the burn for the protection of these organisms must be taken into great consideration, and burning within these areas must only be done when the ground is frozen so that it protects over-wintering amphibians that are subterranean, and that rare plant species receive the greatest amount of protection for their underground root systems during the burn.

**Commented [DDFNN15]:** Pesticide applications must follow the methods described on the pesticide label, which are the only lawful means of applying them - these are not just flexible guidelines. As an example, an ariel application used to apply Bt for gypsy moth control would be off-limits under your suggestion. Bt has no effect on water quality, and your misguided attempt to protect water without a full understanding of existing pesticide regulations does not serve to make forests healthier - it just restricts all activities, some of which might be helpful for stewardship. Unless you show research demonstrating that the pesticide application methods that are approved by the EPA on the label are inadequate, there is no justification for this. All that said, aerial pesticide applications in the highlands are infrequent in woodlands. This may effects farmers more than woodland stewards.

**Commented [DDFNN16]:** This list could certainly be updated in the current BMP manual, but there are few, if any, native grasses that are well suited to growing under a forest canopy and would be helpful for quick site stabilization - which is the purpose. So some non-native annuals that are non-invasive are probably most appropriate for this purpose. Many non-native cool season grasses do not grow well in forest and are therefore not invasive in a forest because forest soils are usually not the correct pH and light is limiting for their wide-spread establishment. I agree in removing the fertilizer, but as an FYI, in practice, no one is actually applying fertilizer - at least that I am aware of.

**Commented [DDFNN17]:** Burning only when the ground is frozen is unlikely given that fuels at that time may not be conducive to ignition, and furthermore, frozen ground is becoming a thing of the past which will eliminate burning as a tool. This approach also fails to recognize that spring and other warm-season burning is considered crucial to appropriately kill many target plants that will other survive if burned when conditions are frozen. For example, burning outside of the dormant season is necessary to sustain oak regeneration from being supplanted by mesophytic species, and since oak forests are the most abundant forest type in the Highlands regions, this policy could have widespread negative impacts for sustaining oak, especially when combined with your proposal to eliminate other disturbances that might otherwise emulate the effects of fire. Burning is widely used in other hardwood forests across the Appalachian region with great success and the effects have been studied extensively. Part of any management activity is that there are some losers and winners in the outcome. Amphibians and rare plants that are part of oak systems (like those in the highlands) have co-evolved with fire, and although there may be some individual losses caused by a burn, the burning sustains the system they thrive in. Yes, land managers need to consider the plants and amphibians, but blanket statements like "burn only when ground is frozen" are not how you sustain a disturbance -dependent system like oak forests.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

### 3.3 Not Specifically Addressed in Statewide Guidance

Sections 3.3.1 through 3.3.10 discuss areas or resources not mentioned in the statewide guidance that require special consideration in the Highlands Region.

#### 3.3.1 Vernal Pools

Vernal pools are critical habitat for many species, including some that are rare and threatened. It is important to address how to best protect these important habitats by taking additional precautions than that of other wetlands. Amphibians are known to utilize a large radius around vernal pools, thus making these areas vital for protection, particularly when the ground is not frozen. In the Highlands Region, vernal pools receive a 300m buffer to ensure not only the protection of the vernal pool basin itself, but also the habitat for the amphibians that are utilizing that vernal pool (Ecosystem management technical report, page 58).

##### *NJ Highlands Region BMPs for Vernal Pools*

Activities that would be permitted within the vernal pool buffer include the removal of hazardous trees, invasive species management, and deer management. Activities that would cause soil disturbance and the use of pesticides are not permitted within the Highlands Open Water Protection Areas or the Highlands vernal pool buffers.

The Highlands Council has chosen to use the NJDEP's guidance on mapped vernal pool buffers (300m) instead of the Highlands Regional Master Plan's buffer of 1,000ft. The Highlands Council finds that the difference in distance, 984ft (300m) and 1,000ft is negligible and thus will be consistent with NJDEP mapping conventions.

The Highlands Interactive Map and the Highlands ERI web applications can both be used to determine if there are verified vernal pools within a project area. There may also be unverified vernal pools on the property, and it will be important to identify all vernal pools on a property and grant them the same buffer protection (see N.J.A.C. 7:7A for NJDEP definition and certification criteria for vernal pools).

Vernal pools generally are dry during part of the year, so it is important to look for characteristics of vernal pools while assessing a project area. Not all vernal pools have been certified by the NJDEP, however, that does not mean that there are not functioning vernal pools in a project area. The following criteria to identify a vernal pool comes from the Pennsylvania Vernal Pool Identification Guide:

To identify a vernal pool during a dry phase, look for areas that have some of the following characteristics. However, you do not need all of the characteristics to be present for it to be a vernal pool:

1. Depression of water-stained and decomposing leaves and debris
2. Trees with buttressed trunks
3. Tree trunks with stains that mark high water levels
4. Hydric soils
5. Wetland plants growing in dry soil

**Commented [DDFN18]:** You indicate the recommendations in this section are based upon the NRCS Vernal Pool Habitat in Conservation Planning (Vermont Biology Technical notes 1, 2010), but the reference does not actually eliminate all activities aside for hazard tree removal, invasive species mgmt, and deer mgmt. The NRCS document permits tree removal and canopy reduction at different intensities based on the distance from the pool. That is an example of a scientific BMP rather than an outright restrict as you propose. Why not just use the VT Tech note as the BMP guidance?

**Commented [MA19]:** It may be helpful to include language indicating potential vernal pools should be assumed to be vernal unless appropriate survey work (at least 3 surveys conducted during the breeding season, generally late February through late June) concludes the wetland does not function as a vernal pool. This may be helpful in cases where there are disputes over particular wetlands. This can be kept more vague to allow for your office to review survey methods and results on a case-by-case basis to determine validity.

**Commented [MA20]:** Definition on page 24

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New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

There are three protection zones within the vernal pool buffer, the vernal pool basin that contains the breed pool, the 50m zone, and the 300m zone (The following recommendations are based upon the NRCS – Vernal Pool Habitat in Conservation Planning (Vermont Biology Technical notes 1, 2010)).

- 1 Vernal pool basin/breeding pool: This area is defined as the vernal pool depression to the high-water mark measured in the spring. This can be evaluated by looking for obvious changes in topography around the edge of the vernal pool or water-stained and compressed leaves. Do not disturb this area during any season. This includes the removal of woody debris or application of herbicides within this area.
- 2 100m zone. This area is defined from the edge of the spring high-water mark out to 100m away. Retention of canopy cover is important in this zone, so only hand removal of invasive species without the use of herbicide will be permitted. Ensure canopy coverage of at least 80% within this area, even if that means leaving some non-native species. Non-native species can be removed over a span of years while allowing for native regeneration (or planting) to ensure that adequate canopy coverage shades this area. Work done in this area should only occur when the ground is frozen completely in mid-winter.
- 3 The 100m - 300m zone. Adequate amphibian habitat will require a minimum of 60% canopy coverage with a combination of large mature trees, shrubs, and woody material on the forest floor. Abundant coarse woody material of various sizes, deep leaf litter, and canopy coverage will allow for a moist forest floor that is critical for amphibians. Hazard trees may be removed from this area, and invasive species management and native plantings may occur in this area, however, there should be no heavy equipment or pesticides used within the 100m - 300m zone. It is important to not alter the hydrology of the vernal pool by creating roadways or directing additional run-off to this area because it can introduce pollutants and sediments to the vernal pool.

### 3.3.2 Natural Heritage Priority Sites

Natural Heritage Priority sites are currently noted in Woodland Management plans and forest stewardship plans and a report from the Natural Heritage Priority. These sites provide critical habitat and/or have unique features that need an additional level of protection.

#### *NJ Highlands Region BMPs for Natural Heritage Priority Sites*

In the Highlands region, if the project site or parcel contains a Natural Heritage Priority Site, the following activities are restricted from this area:

1. Foliar spraying or broadcast spraying of herbicide
  - a. Targeted herbicide treatment such as cut and dab or ex-ject is permitted, however the risk of overspray from foliar or broadcast spraying is too great and shall not be permitted.
2. Heavy machinery, including forestry mowers, are not permitted in these areas.
  - a. Walk-behind mowers and weed whackers are allowed.
3. Removal of canopy trees

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

- a. Exceptions are given in the cases of hazard trees or for the explicit need to allow more light to the canopy floor to support a species that is already residing at that location (example: bog turtle)
4. The creation of roads, skid trails or landing areas are not permitted within Natural Heritage Priority sites.

### 3.3.3 Invasive Species

Invasive species have become an increasingly important issue in New Jersey. Invasive species negatively impact the forest ecosystem by out-competing native species due to lack of natural controls and herbivory pressure from white-tailed deer. Non-native invasive species can have negative impacts by affecting the hydrological and fire cycles, as well altering the patterns of natural succession (New Jersey Forest Action Plan). Due to changing climate and unprecedented pressure from invasive species and white-tailed deer, it has become imperative to address invasive species when conducting any type of Forestry work in New Jersey. Invasive species are likely to colonize newly disturbed areas and will often over-take an area quickly especially with the excessive deer browse on native plants (New Jersey Forest Action Plan). Controlling and preventing non-native invasive plants will be vital elements of any forestry activities in the Highlands (Highlands MPRR page 14).

#### *NJ Highlands Region BMPs for Invasive Species*

- Conduct a survey throughout the planned stand area to identify species of invasive species and approximate quantities of these species.
- Treat the area and a 50ft buffer of the area for invasive species at least two weeks prior to disturbance of the site.
- Wash all equipment (vehicles, tools, etc) to reduce the risk of non-native seeds, pests and diseases are not being accidentally introduced into the stand or landing area.
- Follow up one (1) year after management and treat for any resprouting /re-emergence or new invasive species at the site.
- Document and record all findings and treatments at the stand.
- Write plan for how to deal with invasive species on site, including how to deal with invasive species within Highlands open water buffers and critical habitat areas (vernal pools)
- Monitor and treat invasive species at site and landing areas for a minimum of 2 years post treatment

### 3.3.4 Deer Management

Deer populations in NJ have grown dramatically in the last 50 years. Historically, most of NJ naturally supported populations of deer of approximately 10 per square mile, and now populations in some areas are exceeding 200 per square mile. The increased number of deer in addition to a reduction in available habitat from fragmentation as a result of development has led to enormous pressure on forest ecosystems (NJ Highlands MPRR page 14, New Jersey State Forest Action Plan). White-tailed deer are a native and natural part of New Jersey's landscape, but the current population size is unsustainable for the deer and the for the resources that they share with other animals and plants. Deer are having a large selective force on our NJ forests and are impacting forest regeneration (New Jersey State Forest Action Plan).

**Commented [DDFN21]:** Again, the outright restrictions to allow only a few selective activities is not based in science because the boundary descriptions of many NHPS are arbitrarily defined because of lack of comprehensive knowledge of the life history of the plants involved. I have confirmed this in personal communications with staff from the ONLM, and I suspect the arbitrary nature of these delineations are why they currently have no regulatory standing for protection from development. To eliminate activities in large, arbitrarily defined areas amounts to a take of private property rights.



New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

#### *NJ Highland Region BMPs for Deer Management*

- Deer density studies to quantify deer populations in the treatment area or use current data from the municipality (preferable) or county to estimate deer density.
- Deer management must be part of forest stewardship plans/woodland management plans. If the landowner does not want active deer management on their property, they shall employ other deer deterrents such as fencing or allow deer drives to take place on their property to allow for active deer management on adjacent properties.
- Deer exclusion (fencing and repellent) shall be used in conjunction with active deer management when deer densities exceed 50 per square mile to allow for forest regeneration.
- Write plan for how to manage for deer density on site (hunting – how many deer need to be harvested per year/per acre, deer fencing/tubes, deterrent sprays)
- Write a plan stating how you will monitor and how often you will monitor for deer herbivory
- If deer herbivory reaches a given threshold, how are you going to adapt your management plan to ensure the landowner will reach their forest regeneration goals?

**Commented [DDFNN22]:** Deer densities are highly variable across the landscape and can vary greatly within relatively short distances. Deer occupy large home ranges so density estimations on small tracts are unreliable. Requiring deer density studies at the private property level is not only cost-prohibitive, but is impractical due to a lack of contractors doing these studies and the lack of reliability. Assuming that county-level estimates are transferable to each small private property is not accurate and cannot be the basis to require fencing. Fencing is also cost-prohibitive in most cases. Other than recommending deer management should occur, this BMP to control deer is otherwise unenforceable.

#### *3.3.5 Forest Soils*

Forest soils are the basis for the health of the entire forest, and it is critical to manage these soils proactively when conducting forestry work in the Highlands (MPRR page 14). When a location is being considered for forestry work, whether it is harvesting, restoration, enhancement or stewardship, a standardized soil test to understand the soil conditions as well as to determine whether these soils have been plowed. Plant selection for a particular site should be based on what species are native to the site's soil conditions rather than to alter the soil or site conditions to encourage a selected species (Stewardship, Restoration and Mitigation of Forest Habitat in the NJ Highlands).

**Commented [DDFNN23]:** What is a standard soil test? What I mean is that you need to list exactly what needs to be tested for and what are the impacts for implementing a forestry practice? These details need to be defined, but the short response is, this is not a practical option for private landowners before each activity.

#### *NJ Highlands Forestry BMPs for Soil Management*

- Soil testing to assess the soil conditions of the site
- Prohibit the disturbance of primary forest soils except in the incidences of the removal of hazard trees
- Limit disturbance of any forest soils by conducting forestry work when the ground is frozen
- Soil enhancement techniques for degraded soil such as leaving generous amounts of woody material and inoculating the soil with beneficial microbes via compost tea area appropriate measures that should be considered.

**Commented [DDFNN24]:** What exactly is a primary soil? And where is the scientific basis for this? I think you are trying to get at the post-agricultural soil discussion, but it is unreasonable to tell a landowner that doesn't have post-ag soil that they cannot manage their forest. Additionally, we have experienced better vegetative response from forestry treatments on non-post ag soils (see sparta mountain), which is counter to your proposal. Why would we restrict doing forestry projects to where success is poor because of the post-ag soil influence?

**Commented [DDFNN25]:** See my former comments on frozen ground, or lack thereof

#### *3.3.6 Steep Slopes*

Steep slopes defined within the Highlands Regional Master Plan are any slope having a grade of 15% or more, or if situated in a Riparian area, of 10% or more. The disturbance of a steep slope can cause soil erosion which can result in siltation in water bodies as well as the loss of topsoil. Flooding and landslide issues can also arise as a result of steep slope disturbance from changes in draining patterns. It is important to protect steep slopes in the NJ Highlands due to the negative impacts that can be caused by the disturbance of this natural landscape (Highlands RMP, page 147). Slopes as defined in the Highlands RMP are grouped into the following categories.

**Commented [DDFNN26]:** The steep slope section of the RMP is really directed towards smart planning for development, not to restrict forestry access utilizing a properly constructed access trail following BMPs.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

- *Constrained Slopes* – All non-Riparian Area lands having a slope of 15% to less than 20% which are non-forested and exhibit one or more of the following characteristics: a) highly susceptible to erosion; b) shallow depth to bedrock; or c) a Soil Capability Class indicative of wet or stony soils.
- *Limited Constrained Slopes* – All non-Riparian Area lands having a slope of 15% to less than 20%, which are non-forested, are not highly susceptible to erosion, and do not have a shallow depth to bedrock or a Soil Capability Class indicative of wet or stony soils.
- *Moderately Constrained Slopes* – All forested non-Riparian Area lands having a slope of 15% to less than 20%.
- *Severely Constrained Slopes* – All lands having slopes of 20% or greater and all lands within Riparian Areas having slopes of 10% and greater.
  - [The only forestry activities permitted within severely constrained slopes are invasive species management, deer management, planting and hazard tree removal.]

#### *NJ Highlands Forestry BMPs for Steep Slopes*

Activities that would disturb soils are prohibited on Severely Constrained Slopes. Such activities would include skidding, timber harvesting, or any other silvicultural activity that would disturb the soil. Activities that would be allowed include invasive species removal with the exclusion of machinery such as a brush hog, planting, deer exclosures and deer management.

#### 3.3.7 Habitat Creation & Enhancement

Habitat creation and enhancement activities shall only be permitted in the Highlands Region after a consistency determination is issued by the NJ Highlands Council. A consistency determination is a formal review process that the NJ Highlands Council undertakes to assess the impacts of a given project on NJ Highlands resources. Any habitat creation or enhancements will be evaluated not only for the benefit of a particular species or set of species but considers how this habitat creation/enhancement will impact other Highlands resources.

#### *NJ Highlands Forestry BMPs for Habitat Creation and Enhancement*

[An approved application for a consistency determination from the Highlands council is required for any habitat creation and enhancement projects in the Highlands region.]

#### 3.3.8 Core Forest, Older-growth forests and forest fragmentation

Core forest is the innermost forested areas in the Highlands and provides critical habitat for forest interior species. These forests generally also contain older-growth forests per the Vermeule Maps. Due to its relatively lower “edge effects” caused by human disturbances, it is important to keep core forests intact. Core forests are beneficial because they are not fragmented like the majority of NJ forests, and it is important to keep the forest and the canopy intact.

#### *NJ Highlands Forestry BMPs for Core Forest, Older-Growth Forests and Forest Fragmentation*

Activities such as invasive species management, deer management and tree planting are permitted within core forests, however the creation of canopy gaps larger than 0.5 acres will not be permitted within Highlands core forests without review by NJ Highlands Council staff to ensure that Highlands resources are not being impacted by the project.

**Commented [DDFNN27]:** Based on this, more than half of my own property would be off-limits to forestry, and I have been cutting trees on my land for 30 years without any signs of erosion. BMPs for tree cutting, skid trail use, etc. are used to mitigate the negative aspects that can result from poorly designed activities on steep slopes. You should provide detailed parameters/designs that are in alignment with existing BMPs that have proven effective rather than just saying - no tree cutting. Totally unacceptable to assume these activities are always detrimental without scientific backing showing that.

**Commented [DDFNN28]:** What is the difference between a forest management activity for water quality, an activity for forest health, and an activity for habitat improvement? The Highlands Act does not distinguish between forest management objectives as the merit for the exemption. This proposal is nothing more than a political move.

**Commented [DDFNN29]:** This fails to recognize that a canopy gap created for forest management purposes is still a forest - just a different age piece of the forest, which is what creates a healthy biodiverse matrix. A forestry created gap is not the same as a land conversion, and this 0.5 acre proposal is in direct opposition with current scientific literature and management strategies that are needed to regenerate certain intolerant trees and shrubs. Totally unacceptable.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

### 3.3.9 Historical, Archeological, and Cultural Resources

The Highlands Region has played an important part in the history of New Jersey. The cultural and historic resources that this region provide tourism opportunities, education, and allow residents and visitors alike to take a glimpse into the regions past. Historic resources in the region include buildings, statues, historically important town districts, or sites. The Highlands region has over 600 listed historic resources, 4 of which are listed as national historic landmarks. Cultural and archeological resources such as ruins, structures, graves, or human remains are spread throughout the Highlands. As time progresses the State Historic Preservation Office (SHPO) anticipates that even more sites in the Highlands will be added to the registry. The continued protection and preservation of these resources is required to maintain the unique character of the New Jersey Highlands. The Highlands Council interactive map uses a grid system to identify the locations of these sites. The list of these resources described in the Highlands Regional Master Plan (RMP page 93-95) is as follows:

- Agricultural Historic Districts and Farmsteads, including farm buildings such as houses, barns, windmills, spring houses, corn cribs, fields, fence lines, etc.;
- Historic Landmark Districts and architecture that represent a significant period in American History such as Ringwood Manor, Skylands Manor, Craftsman Farms, early stone houses, log cabins, churches, and schools;
- Archaeological sites, including early American settlements, such as the prehistoric Black Creek site in Sussex County, rock shelters, and historic mill and farm ruins;
- Designed landscapes attributed to a significant landscape architect or designer;
- Health and public welfare facilities, including Greystone Park (State Asylum for the Insane) and Morris County Alms House and Hospital;
- Industrial facilities or complexes, including Long Pond Ironworks, saw mills, grist mills, manufacturing sites, dams, quarries, mines, lime kilns, paper mills, and forge sites;
- Military installations and places of significance such as Picatinny Arsenal and American Revolutionary War Encampments, Battlefields, and skirmish sites;
- Recreational landmarks such as the Appalachian Trail, the White Deer Plaza and Boardwalk in Sparta Township, or Civilian Conservation Corps facilities;
- Transportation structures representing a significant period of time in history or unusual engineering type, such as the Morris Canal, and stone or steel truss bridges; and
- Water supply facilities such as the Wanaque Reservoir dam.

Ground disturbing activities near a waterway are subject to formal regulatory review through the permitting process and would have a formal review from the State Historic Preservation Office for impacts on cultural resources. Please review LUCY cultural resource GIS viewer here to inform the regulated public to areas of known archaeological sensitivity (see the archaeology grid squares) here: <https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=6706ac2a7e46489f6d4dabb02fc9c>

*NJ Highlands Forestry BMPs for Historical, Archeological, and Cultural resources*

In the Highlands Region, if a project area is within a Highlands Archaeological grid, the State Historic Preservation office must be contacted for review prior to the start of work.

**Commented [DDFNN30]:** The BMP expectation for a private landowner to take on these onerous and probably costly measures to contact the SHPO in order to conduct lawful activities on private property is unrealistic. This would add a burden for which the benefit is not obvious, and it is unclear that SHPO could even handle the requests in a timely manner.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

Areas of high archaeological sensitivity for Native American and colonial period habitation sites are on moderate- to well-drained soils, less than 15-percent slope, and within 500 feet of a water course and/or large wetland and ground disturbing activities should be limited. There can also be upland activity areas such as Native American rock shelters and/or Native American and historic period mining activities.

Protective matting shall be used around wetlands for temporary roadway/access projects also protects archaeological resources and is recommended. For large scale replanting/reforestation projects, use bare root stock or up to 1 gallon size since this work does not have the potential to penetrate below the agricultural plow zone into lower intact soils. A professional archaeologist will/is required to review the area after the ground disturbing activity is completed.

Review is required for the replacement of any culvert made of stone or brick to ensure they are not a historic property.

Commented [DDFNN31]: I am at a loss at what to even say to this suggestion without sounding derogatory because requiring an archaeologist to review a replanting/reforestation project is beyond onerous....

### 3.3.10 Climate Change Considerations

The New Jersey Highlands region is characterized by extensive forested areas that support biodiversity, water quality, and ecosystem services and serve as an important carbon sink for the region and the state. Forests and natural lands in NJ store an estimated 8.1 million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>e) annually and are the sole identified carbon sink in the state's 2022 Report of the Greenhouse Gas Inventory, representing an 8% annual sink of CO<sub>2</sub> compared to greenhouse gas (GHG) emissions. Preserving forests and other natural lands as a carbon sink is a key element of the New Jersey strategy for mitigating GHG emissions. However, the functionality, health, and resilience of the New Jersey Highlands forests face growing threats due to climate change.

The ecosystem disturbances due to climate change increase the vulnerability of forests to stress and tree mortality events. Climate change causes interconnected threats, such that one factor alone may not cause mortality, but in combination, trees are more susceptible to stressful events. Rising temperatures and changing precipitation patterns may adversely affect the phenology, growth, and distribution of tree species, negatively impacting forest health. Additionally, warmer temperatures can facilitate the expansion of diseases and invasive species. Altered climate conditions may also influence the frequency and intensity of wildfires, potentially resulting in significant changes to the forest's structure and overall composition. Such changes may lead to shifts in the composition of tree species, favoring some that are more adaptable to warmer temperatures while pushing others out of their traditional habitat.

Changes in precipitation patterns due to climate change are of particular concern in the Highlands region. A study on projected changes in extreme rainfall in New Jersey finds that under moderate atmospheric warming, projected precipitation associated with the 100-year storm may increase by as much as 37% to 50% in Highlands counties. Compounding the threats of increased rainfall, much of the topography of the Highlands region is characterized by steep slopes, narrow valleys, and rocky terrain, rendering these areas highly vulnerable to flooding and flash flooding conditions. Given the substantial risks to human health associated with flooding, the natural systems that attenuate flooding, including wetlands, riparian buffers, and forested steep slopes, must be preserved and protected.



New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

In light of these challenges, it is imperative to implement practices that prioritize biodiversity, native species, the maintenance of forest structure, and the protection of Highlands Open Water Areas to enhance the resilience of forests in the New Jersey Highlands Region. Strategies that promote ecological connectivity between forest fragments through wildlife corridors and contiguous protected areas can facilitate species migration and genetic exchange, aiding forests in adapting to changing climatic conditions. Preserving the integrity of watersheds by safeguarding open water buffers and forested steep slopes within the region is important for maintaining water availability, quality, and ecosystem services while mitigating the impacts of increased rainfall and vulnerability to flooding.

*NJ Highlands Forestry BMPs for Climate Change Resilience*

- Preserve or restore biological diversity and forest structure to enhance native species diversity.
- Restore a diverse range of native species in highly disturbed areas.
- Minimize soil and steep slope disturbances.
- Prevent the encroachment of invasive species, especially after disturbance.
- Promote ecological connectivity by focusing on preserving or establishing habitat corridors.

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

#### Appendix I Summary Comparison of Highlands BMPs and Statewide Guidance

The following table provides a high-level summary comparison of Highlands BMPs and Statewide Guidance. Complete details can be found in Section 3 of the Highlands Forestry and Wetland BMP manual.

<b>Areas where standards are the same</b>	<b>Filter strips</b> <b>Stream crossings</b> <b>Log decks and portable sawmill sites</b>
<b>Areas where Highlands BMPs diverge from Statewide Guidance</b> (see sections 3.2.1 through 3.2.7 for details)	<b>Stream side management zones</b> <ul style="list-style-type: none"> <li>All SMZ for riparian areas are 300 ft</li> </ul> <b>Wetlands</b> <ul style="list-style-type: none"> <li>All wetland buffer are 300ft</li> </ul> <b>Access roads</b> <ul style="list-style-type: none"> <li>Must adhere to Highlands Open water buffers</li> </ul> <b>Timber harvesting</b> <ul style="list-style-type: none"> <li>Must include inventory of canopy and understory woody species – including non-native invasive plants,</li> <li>invasive species management plan</li> <li>Plan for how the landowner will address deer herbivory as it may impact forest regeneration.</li> </ul> <b>Skid Trails</b> <ul style="list-style-type: none"> <li>Consistent with current standards except skidding on slopes greater than 40% is prohibited</li> </ul> <b>Site preparation</b> <ul style="list-style-type: none"> <li>Consistent with additional steps</li> <li>Improve compacted soils</li> <li>Adhere to Highlands Open water buffers and critical habitat buffers</li> </ul> <b>Forest pesticides</b> <ul style="list-style-type: none"> <li>Consistent except that aerial spray must adhere to the Highlands Open Water buffers and critical habitat buffers.</li> </ul> <b>Reforestation</b> <ul style="list-style-type: none"> <li>All seeding mixes must include 100% native plant species</li> </ul> <b>Forest Protection</b>

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

	<ul style="list-style-type: none"> <li>• Prescribed fire may also be used to promote vegetation regeneration and control of some invasive species</li> <li>• Precautions must be in place to protect vernal pools and natural heritage priority sites</li> </ul>
<b>Areas not specifically addressed in Statewide Guidance</b> (see sections 3.3.1 through 3.3.10 for details)	<p><b>Vernal Pools</b></p> <ul style="list-style-type: none"> <li>• All vernal pool buffers are 300m</li> <li>• 3 zones of protection</li> <li>• Basin/Breeding pool zone</li> <li>• 100m zone</li> <li>• 100-300m zone</li> </ul> <p><b>Natural Heritage Priority site</b> In the Highlands region, if the project site or parcel contains a Natural Heritage Priority Site, the following activities are restricted from this area:</p> <ul style="list-style-type: none"> <li>• Foliar spraying or broadcast spraying of herbicide</li> <li>• Heavy machinery, including forestry mowers, are not permitted in these areas.</li> <li>• Removal of canopy trees</li> <li>• The creation of roads, skid trails or landing areas are not permitted within Natural Heritage Priority sites.</li> </ul> <p><b>Invasive species</b></p> <ul style="list-style-type: none"> <li>• Inventory non-native species on site</li> <li>• Write plan for how to deal with invasive species on site, including how to deal with invasive species within Highlands open water buffers and critical habitat areas (vernal pools)</li> <li>• Clean all equipment to remove invasive species seed and debris prior to entering site</li> <li>• Monitor and treat invasive species at site and landing areas for a minimum of 2 years post-treatment</li> </ul> <p><b>Deer Management</b></p> <ul style="list-style-type: none"> <li>• Conduct deer density survey or obtain deer density data from municipality or county</li> </ul>

New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

	<ul style="list-style-type: none"> <li>• Write plan for how to manage for deer density on site (hunting – how many deer need to be harvest per year/per acre, deer fencing/tubes, deterrent sprays)</li> <li>• Write a plan stating how you will monitor and how often you will monitor for deer herbivory</li> <li>• If deer herbivory reaches a given threshold, how are you going to adapt your management plan to ensure the landowner will reach their forest regeneration goals?</li> </ul> <p><b>Forest Soils</b></p> <ul style="list-style-type: none"> <li>• Soil testing to assess the soil conditions of the site</li> <li>• Prohibit the disturbance of primary forest soils except in the incidences of the removal of hazard trees</li> <li>• Limit disturbance of any forest soils by conducting forestry work when the ground is frozen</li> <li>• Soil enhancement techniques for degraded soil such as leaving generous amounts of woody material and inoculating the soil with beneficial microbes via compost tea are appropriate measures that should be considered.</li> </ul> <p><b>Habitat Creation &amp; Enhancement</b></p> <ul style="list-style-type: none"> <li>• Requires a consistency determination from the Highlands Council</li> </ul> <p><b>Core Forest, Older-growth forests and fragmentation</b></p> <ul style="list-style-type: none"> <li>• Activities such as invasive species management, deer management and tree planting are permitted within core forests.</li> <li>• Creation of canopy gaps larger than 0.5 acres will not be permitted within Highlands core forests without review by NJ Highlands Council staff to ensure that Highlands resources are not being impacted by the project.</li> </ul> <p><b>Historical and Cultural significant areas, the archeological grid</b></p>
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New Jersey Highlands Water Protection and Planning Council  
DRAFT/CONFIDENTIAL BMPs for Forestry in the New Jersey Highlands Region, Release Date: [Month] 2023

	<ul style="list-style-type: none"><li>• Areas of high archaeological sensitivity for Native American and colonial period habitation sites are on moderate- to well-drained soils, less than 15-percent slope, and within 500 feet of a water course and/or large wetland and ground disturbing activities should be limited.</li><li>• There can also be upland activity areas such as Native American rock shelters and/or Native American and historic period mining activities.</li><li>• If a project area is within a Highlands Archaeological grid, the State Historic Preservation office must be contacted for review prior to the start of work.</li></ul> <p><b>Climate Change Considerations</b></p> <ul style="list-style-type: none"><li>• Implement practices that prioritize biodiversity, native species, and maintenance of forest structure to enhance the resilience of forests in the New Jersey Highlands Region.</li><li>• Promoting ecological connectivity between forest fragments through wildlife corridors and protected areas can facilitate species migration and genetic exchange, aiding forests in adapting to changing climatic conditions.</li><li>• Preserving the integrity of watersheds within the region is crucial for maintaining water availability, quality, and ecosystem services.</li></ul>
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