

Duke Forest Five-Year Strategic Plan: 2024 - 2029





A Resource for All Seasons





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I. Acknowledgements

Duke Forest staff members Maggie Heraty, Senior Program Coordinator, and Lee Anne Reilly, Assistant Director of Teaching and Research, contributed a tremendous amount of thought, time, and effort into creating this updated plan alongside Sara Childs, Executive Director. Maggie's additional efforts beyond this document are briefly described and referenced in Appendix C.

It is to the great credit of all Duke Forest staff members, immediately past and present, that this document lives as an authentic and representative guide for how the team successfully delivers across a wide range of benefits and a diverse set of audiences.

In addition to Maggie Heraty, Lee Anne Reilly, and Sara Childs, these staff include:

Tom Craven, Forest Supervisor
Craig Hughes, Maintenance and Infrastructure Manager
Zach Carnegie, Forest Technician
Kevin Egan, Forest Protection and Safety Coordinator
Tim Barco, Operations Coordinator
Tyler Gibson, Assistant Director of Engagement
Blake Tedder, immediately past Assistant Director of Engagement



II. Executive Summary

The Duke Forest Strategic Plan fortifies the position of the Duke Forest as a relevant and invaluable asset for Duke University, the Office of Climate and Sustainability (OCS), the Nicholas School of the Environment (NSOE), and the greater community. It charts a trajectory for the next five years by developing strategic goals, objectives, and actions that guide program development and resource use. The plan also facilitates the creation of annual action plans, which provide an opportunity to adapt to changing conditions, respond to emerging needs, and track successes.

The 2024 – 2029 Duke Forest Five-Year Strategic Plan builds upon the tremendous success and progress sustained via implementation of the 2017 – 2022 strategic plan¹. While the intent of the overarching goals remains the same, this new plan includes updated language and orientation to emerging challenges, opportunities, and priorities. These include Duke's Climate Commitment (FY23), the creation of the Office of Climate and Sustainability and reorganization of the Office of the Duke Forest under its umbrella (FY24), Duke's Commitment to Diversity and Inclusion², Duke's academic focus on interdisciplinary research and experiential education³, the acquisition of the Duke Forest Cabin and associated property (FY21), and a series of discussions that consider Duke Forest ecology and management in a rapidly changing world (FY21).

The 2024-2029 Plan addresses three overarching goals, which align with the University, OCS, and NSOE's strategies to drive research and education missions in the service of society across all scales:

- **Stewardship for Sustainability**: Steward the natural, financial, and human resources of the Duke Forest to ensure sustainability as a major University asset for research, teaching, and community engagement, and as a vital source of essential nature and its benefits within our region.
- * Teaching and Research: Facilitate opportunities for researchers, educators, scholars, practitioners, and students from all backgrounds to use the Duke Forest to discover, experience, and learn across all topics and disciplines, especially at the frontiers of understanding about our rapidly changing world.
- **Community Engagement:** Engage the community beyond the academy to showcase the Duke Forest's role as a stage for teaching and research; to share vital insights about the interaction between humans and the environment; and to encourage the community to forge meaningful, stewardship-focused connections with the Duke Forest.

This plan also includes three important appendices. The first is the Duke Forest Land Acknowledgement, which underpins and drives a commitment to unearthing and sharing the stories of the land's human histories. The second is a description of the current state of Duke Forest's major resources — staff, natural, and financial — and describes challenges associated with each that are addressed in this plan. Lastly, the final appendix describes an overview of the process that contributed toward this plan's creation.

¹ The 2017 – 2022 strategic plan remained in effect through fiscal year 2023-2024.

² https://provost.duke.edu/about/dukes-commitment-diversity-and-inclusion

³ As described in the current strategic documents produced by the Offices of the President and the Provost, respectively, and synthesized herein: https://president.duke.edu/wp-content/uploads/2024/08/Duke2030_FinalReport.pdf.



II. Introduction

The Office of the Duke Forest is the Duke University department responsible for the management and stewardship of the Duke Forest Teaching and Research Laboratory. The mission of the Duke Forest is: (1) to facilitate research that addresses fundamental and applied questions across a variety of disciplines; and (2) to aid in the instruction of all students in their pursuit of knowledge, especially regarding the stewardships of our natural resources. To this purpose, the Duke Forest offers a land base and professional staff to serve as "an outdoor classroom" and "a living laboratory" for Duke faculty and students, other academic and research institutions, local K-12 schools, life-long learners, and the public.

The entire Duke Forest land base contributes critical ecosystem services such as water quality, wildlife habitat, carbon sequestration, clean air, and access to nature — services that are rapidly disappearing due to the high rate of permanent land conversion across the region. Beyond its boundaries, the Duke Forest anchors a large, landscape-level network of natural and semi-natural areas that are critical in preserving ecosystem functions, connecting habitat for native plants, wildlife, fungi, and other life, and sustaining the aesthetic, woodsy appeal that makes the area so desirable to work and live in.

In total, the Duke Forest is approximately 7,093 acres in Durham (1,542 acres, 22%), Orange (5,133 acres, 72%), and Alamance counties (418 acres, 6%) (Figure 1). It is divided into six management units known as divisions and one dedicated natural area. Management of the Duke Forest is guided by a comprehensive plan that promotes the Forest's academic mission while ensuring the protection of its natural resources. Five major management priorities, which aim to maximize a wide variety of forest benefits, guide the allocation of forest resources, and in particular, direct staff time and energy. These priorities also underlie strategic efforts to enhance the value of the Duke Forest as a University and community asset:

- Promote the teaching and research mission.
- Sustainably manage natural resources.
- Protect unique biodiversity and historical elements.
- Provide education and outreach.
- Offer recreational and aesthetic amenities.

Since 1931, the Duke Forest has been Duke University's largest teaching and research laboratory. The legacy of scientific discovery — from understanding how ecosystems respond to changes in climate to learning about the peoples who once lived on the land that is now the Duke Forest — is rich. As a living laboratory and outdoor classroom, the Duke Forest has taught countless students, generated innumerable scientific articles, and launched the careers of many well-respected scientists. Its academic legacy is alive and well today as new students and faculty from across the globe use the Duke Forest to uncover secrets about our ever-changing world.



Throughout its history, academic uses of the Duke Forest have evolved with the changing intellectual needs of our society. What began as a demonstration platform for southern forestry evolved into a basic science laboratory for understanding ecological processes and ecosystem-based management. Scholars today integrate that foundational knowledge and historical data with the human context to develop local, national, and global solutions for climate change, ecosystem services losses, biodiversity conservation, and other pressing environmental issues as well as for a multitude of interdisciplinary questions. Now, more than ever before, researchers, teachers, students, and community members engage the Forest to examine past, present, and future issues related to diversity, equity, inclusion, and justice, and to cultivate meaningful connection to these and other topics through experiential opportunities.

As Duke University presses further into an interdisciplinary approach to teaching and research, civic engagement, and collaborative problem solving, the Duke Forest remains poised to support the University's strategic goals with its unique complement of natural, financial, and human resources. Notably, the Duke Forest's recent realignment under the Office of Climate and Sustainability⁴ demonstrates its past, present, and future contributions to advancing Duke's Climate Commitment⁵, a university-wide, impact-oriented initiative to address the climate crisis by creating sustainable and equitable solutions. Duke Forest also maintains its close relationship with the Nicholas School of the Environment⁶ and continues to serve its mission to create knowledge and leaders of consequence; to further understand basic earth and environmental processes; and to forge a sustainable future.

⁴ The reporting structure of the Office of the Duke Forest officially changed from the Office of the Executive Vice President to the Office of Climate and Sustainability on July 1, 2023.

⁵ https://climate.duke.edu

⁶ https://nicholas.duke.edu/about/mission-history



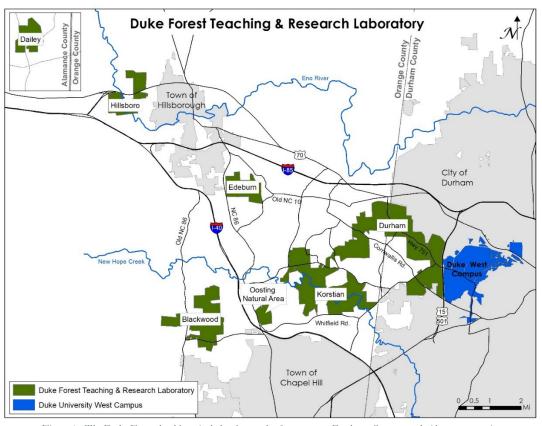


Figure 1. The Duke Forest land base includes thousands of acres across Durham, Orange, and Alamance counties.

It is divided into six management units known as divisions and one dedicated natural area.



III. Goal 1: Stewardship for Sustainability

Steward the natural, financial, and human resources of the Duke Forest to ensure sustainability as a major University asset for research, teaching, and community engagement, and as a vital source of essential nature and its benefits within our region.

The Office of the Duke Forest is responsible for the stewardship of the forest's natural, financial, and human assets, which together generate and sustain the Duke Forest's contributions to the diverse audiences it serves. Sustaining, growing, and adapting these resources is vital to achieving the teaching and research mission and the various roles it plays for the University, the Office of Climate and Sustainability, the Nicholas School of the Environment, and the greater community. Consideration of the status and desired future of these foundational resources is essential for setting expectations and strategies that secure the Forest as an academic and community asset (see Goals 2 and 3). Appendix B provides information on the current state of these resources and describes challenges that are addressed by this strategic plan.

OBJECTIVES: STEWARDSHIP FOR SUSTAINABILITY

- A. Evolve and expand the development program formally established in 2018 to create and/or leverage fundraising opportunities that bolster staff and programmatic capacities.
- B. Increase staff capacities across high-priority areas (i.e., forest management; advancing Duke's climate commitment; increasing diversity, equity, and inclusion in programming; fostering interdisciplinary research; and delivering experiential education).
- C. Reassess expectations around timber revenue based on most recent data and current market uncertainties while maintaining the sustainable timber management program for its teaching, research, and demonstration values, as well as for forest health and resiliency.
- D. Conserve and restore natural resources to secure the Duke Forest as a living laboratory and outdoor classroom, especially in the face of threats such as climate change, urbanization, invasive pests and disease, unauthorized uses, and biodiversity and habitat loss, among others.
- E. Maintain a stable land base and prevent further fragmentation to sustain the integrity of the Duke Forest ecosystem and its role as an anchor of habitat and connectivity across our region.
- F. Promote landscape level conservation to maintain ecosystem function and habitat connectivity beyond Duke Forest boundaries.



ACTIONS: STEWARDSHIP FOR SUSTAINABILITY

Objective		Actions	
A.	Evolve and expand the development program formally established in 2018 to create and/or leverage fundraising opportunities that bolster staff and programmatic capacities.	Update the current Duke Forest Development Plan to reflect the changing needs of the Office of the Duke Forest and its land base as it responds to emerging operational and programmatic opportunities, priorities, and challenges; set fundraising goals and implement relevant strategies for enhanced resourcing of Duke Forest staff and programs. Priority sub-actions include endowing the director or supervisor positions and exploring opportunity to jointly fund positions.	
В.	Leverage opportunities to bolster, focus, and/or expand staff capacity, especially across high-priority areas (i.e., forest management; climate commitment; diversity, equity, and inclusion; interdisciplinary research; and experiential education).	Develop and assess staffing scenarios that achieve incremental gains across the current suite of priorities and/or facilitate focused achievement across a narrower scope; evaluate tradeoffs between additional training for existing staff versus recruiting specialized, experienced staff; determine and apply decision criteria to select a staffing strategy. Priority sub-actions include bringing the Forest Protection and Safety Coordinator up to full-time status.	
C.	Reassess expectations around timber revenue based on most recent data and current market uncertainties while maintaining the sustainable timber management program for its teaching, research, and demonstration values, as well as for forest health and resiliency.	Generate a new timber revenue analysis based on updated cover type (2019) and inventory (2020) data; present a status update and discussion addressing changing revenue expectations and market conditions to Duke administrators.	
D.	Conserve and restore natural resources to secure the Duke Forest as a living laboratory and outdoor classroom, especially in the face of threats such as climate change, urbanization, invasive pests, unauthorized uses,	Continue to investigate implications of threats such as climate change, invasive species, and population growth; incorporate adaptive responses into the Management Plan; and direct teaching and research activities to support this aim (see Goal 2). Priority sub-action includes advancing conversations with faculty and other experts to develop a vision for the forest's ecological future and associated implications for management.	



	biodiversity and habitat loss, etc.	Continue to advance the wildlife management framework finalized in 2017 to promote and protect biodiversity through research and management; direct teaching and research activities to support this aim (see Goal 2).	
		Continue to advance collaborative connectivity conservation work with regional partners to promote and protect biodiversity, habitats, and ecosystem services; direct teaching and research activities to support this aim (see Goal 2). Priority sub-actions include identification of strategic opportunities to work with partners to secure corridors that maintain Duke Forest's current connectivity level in the regional natural network.	
		Continue to minimize negative impact from increased unauthorized recreation use through enhanced staff communication with recreational visitors (via Forest Protection and Safety Coordinator role; see also Community Engagement goal); projects that protect sensitive areas by rerouting or closing trails; and maintenance activities that mitigate negative impacts on surrounding resources.	
		Maintain capacity to monitor digital applications that direct recreational traffic to the Duke Forest and to interact and have influence with companies responsible for their content.	
E.	Maintain a stable land base and prevent further fragmentation to sustain the integrity of the Duke Forest's natural resources and its role as an anchor of habitat and connectivity across our region.	Continue to prevent or minimize additional fragmentation caused by infrastructure development, e.g., power line, sewer line, or gas line easements; direct such projects to existing forest edges, avoiding interior areas; maintain relationships and open lines of communications with potential project developers.	
F.	Promote landscape level conservation to maintain ecosystem function and habitat connectivity beyond Duke Forest boundaries.	Continue to advance collaborative connectivity conservation work with regional partners to promote and protect biodiversity, habitats, and ecosystem services; direct teaching and research activities to support this aim (see Goal 2). Priority sub-actions include engagement of connectivity partners to identify strategic land protection opportunities that maintain Duke Forest's current connectivity level in the regional natural network.	



Develop and/or maintain partnerships, relationships, and/or communications with offices at Duke and beyond that participate in land-use and transportation planning at the local and county levels; determine when and how to take informed action if needed.

Priority sub-actions include implementation of two related studies:

- A project to assess the governance and land-use contexts surrounding the Duke Forest to identify potential threats, vulnerabilities, and risks to mission, management, and strategy.
- A project to articulate the contribution of the Duke Forest to the sustainability of local, regional, and state environmental and conservation values (possibly other values, as well).



IV. Goal 2: Teaching and Research

Facilitate opportunities for researchers, educators, scholars, practitioners, and students from all backgrounds to use the Duke Forest to discover, experience, and learn across all topics and disciplines, especially at the frontiers of understanding about our rapidly changing world.

Since 1931, the Duke Forest has been a resource for students and faculty at Duke and from across the globe to uncover secrets about our ever-changing world. The Forest's legacy of scientific discovery is rich — from understanding how a forest regrows after agricultural abandonment to learning about how ecosystems respond to climate change. This academic legacy combined with an increasing focus on the natural and human histories of the Forest, provide an irreplaceable foundation for future teaching and research to build upon. They also specifically empower progress on Duke's broad-based initiatives, such as the Climate Commitment; academic engagement on diversity, equity, inclusion, justice, and belonging; and advancing experiential learning.

Across the academic sphere — from K-12 to higher education to life-long learning and government organizations — engagement with researchers, teachers, and learners stimulates use of the Forest for investigation and experiential learning across basic and applied questions. The Forest continues to offer opportunities for experimentation, observation, and reflection across a growing suite of disciplines and technologies — engaging students and faculty in active learning within a unique setting. Increasingly, the Forest hosts interdisciplinary investigations by communities within and beyond Duke that wrestle with pressing environmental issues and translate that knowledge into local, national, and global solutions.

OBJECTIVES: TEACHING AND RESEARCH

- A. Continue to promote teaching and research across new disciplines, technologies, and audiences, and by integrated teams of faculty, graduate, professional, and undergraduate students.
- B. Design, advertise, and mentor teaching and research projects that address management issues, long-term stewardship goals, and/or leverage on-the-ground implementation of sustainability practices (as sourced from Goal 1).
- C. Provide direct and indirect support, programming, and projects to advance climate and sustainability fluency and interdisciplinary climate-related research in line with Duke's Climate Commitment.
- D. Continue to develop strategy and capacity to centralize sharing and access to historic and current research data; enhance the availability of baseline teaching and research information.
- E. Facilitate teaching and research projects and support translation of findings, especially when they involve environmental issues that impact everyday life and/or lift-up, unveil, or shape stories from the land and its peoples.
- F. Strengthen recognition and branding of the Duke Forest as an essential teaching and research destination within the University and across the broader local, national, and international academic communities.



G. Advance plans to develop the Duke Forest Cabin and surrounding area as a teaching and research center.



ACTIONS: TEACHING AND RESEARCH

	Objective	Actions	
ar di au te pı	Continue to promote teaching and research across new disciplines, technologies, and audiences, and by integrated teams of faculty, graduate, professional, and undergraduate students.	Offer Forest-based projects through existing Duke programs (e.g., CAST Fellows, SCALe, certificate programs, TPW Fellows, and First Year Engineering) to expand teaching and research use by undergraduate audiences.	
		Outreach to disciplines at Duke that are not typical Forest users (e.g., arts, humanities, medicine) to promote its use by new audiences for learning, observation, and experimentation.	
		Build relationships with academic leaders at local higher-ed institutions that have not historically used the Forest for teaching and research (e.g., North Carolina Central University, Durham Tech) to determine interest and needs.	
		Increase capacity to support independent and/or self-guided access to learning opportunities within the Forest.	
		Assess and/or create opportunities to financially support new audiences and disciplines in using the Duke Forest, especially for interdisciplinary research or experiential learning.	
В.	Design, advertise, and mentor teaching and research projects that address management issues, long-term stewardship goals, and/or leverage on-the-ground implementation of	Develop and advertise specific research project ideas or course projects that address issues of habitat connectivity, land-use, etc., (see Goal 1) that ultimately benefit Duke Forest management; leverage existing Bass Connections, Data+, and other such Duke programs.	
	sustainability practices (as sourced from Goal 1).	Collaborate with scholars and students in the Nicholas School of the Environment's Natural Resources Finance Initiative to assess feasibility of non-timber market opportunities.	
C.	Provide direct and indirect support, programming, and projects to advance climate	Facilitate increased use of the Forest for place-based learning or provide Forest topics for case studies within sustainability education at Duke, including via the CAST Fellows Program	



	and sustainability fluency and interdisciplinary climaterelated research in line with Duke's Climate Commitment.	SCALe, experiential-based and sustainability-related undergraduate, graduate, professional, executive, and continuing education programs/certificates.
		Collaborate with fellow place-based units to advance climate and sustainability fluency themes through a variety of distinctly Duke lenses (e.g., Duke Gardens, Duke Campus Farm, Duke Lemur Center, Nasher Museum of Art, etc.).
and capacity to central sharing and access to l and current research d	Continue to develop strategy and capacity to centralize sharing and access to historic and current research data; enhance the availability of	Build capacity through new funding or partnerships to improve accessibility of ecological data from long-term research plots and promote use of historical and archaeological data.
	baseline teaching and research information.	Establish and maintain a larger network of research equipment that provides foundational data for numerous research tracks, e.g., weather stations, stream gauges.
E.	Facilitate teaching and research projects and support translation of findings, especially when they involve environmental issues that impact everyday life and/or lift-up, unveil, or shape stories from the land and its peoples.	Cultivate teaching and research uses that offer opportunity to engage communities around environmental issues and the role of science in seeking solutions; then, offer public forums, tours, and digital interactions, etc. A priority sub-action includes supporting researcher needs to satisfy funding requirements for public outreach.
		Continue to lead on existing efforts (or to develop new ones) to uncover and lift-up human and ecological histories of the Duke Forest, especially those of marginalized communities; advertise these opportunities as formal research and/or teaching projects.
F.	Continue to strengthen recognition and branding of the Duke Forest as a major teaching and research destination within the University and across the broader local, national, and	Advance work on developing the Duke Forest Cabin and surrounding area as a teaching and research center (see Objective G.)
		Raise awareness of the Duke Forest as a destination through participation in site networks such as the Organization for Biological Field Stations and the Eastern Research Forest Managers, among other networks.



international academic communities.	Leverage Duke communications to showcase the high- impact teaching and research projects underway at Duke Forest.
G. Advance plans to develop the Duke Forest Cabin and surrounding area as a teaching and research center.	Use the Duke Forest Cabin Visioning process and resulting documents as a starting point for a next round of exploration that includes design drafts, delineations of site limitations, funding needs, etc.



V. Goal 3: Community Engagement

Engage the community beyond the academy to showcase the Duke Forest's role as a stage for teaching and research; to share vital insights about the interaction between humans and the environment; and to encourage the community to forge meaningful, stewardship-focused connections with the Duke Forest.

The Duke Forest engages a large audience, including the University community, local K-12 schools, life-long learners, and the general public. While the Teaching and Research goal focuses on engagement within the formal academic community, this Community Engagement goal addresses education and outreach with the general public and the Forest's recreational visitors. Beyond academy walls, community engagement leverages the Forest's mission to connect people with science and other disciplines of discovery; to educate about natural resources conservation and forest management; to empower the public with information about issues affecting the environment; and to engage the community in dialogue around all of these topics.

The Duke Forest can uniquely provide a stage for the general public to learn about climate change, land use, and local human and natural histories — all of which supports wider initiatives at Duke University, such as the Climate Commitment; diversity, equity, inclusion, justice, and belonging (DEIJB) goals; and experiential learning objectives. Finally, as the local population has increased in recent decades, so has use of the Duke Forest as a recreational and aesthetic amenity. Engaging this community is particularly important to raising awareness about the use and benefits of the Duke Forest and for ensuring compliance with rules and regulations that protect its value for research, teaching, and natural resource conservation.

OBJECTIVES: COMMUNITY ENGAGEMENT

- A. Connect the general public with science and all forms of knowledge generation focusing education and outreach opportunities on natural resource conservation, forest management, natural and human histories, and teaching and research occurring on the Duke Forest.
- B. Cultivate a culture of stewardship among recreational visitors; raise and sustain awareness regarding the need to protect Forest resources and the role and benefits of the Duke Forest within the community.
- C. Leverage staff and programmatic capacity, as well as partnerships at Duke and beyond, to increase the diversity of Duke Forest's non-academic audience.
- D. Continue to deliver communications that raise awareness beyond academy walls about ongoing teaching and research, forest resources, and responsible forest management to build the public's appreciation of and connection to the Duke Forest.



ACTIONS: COMMUNITY ENGAGEMENT

	Objective	Actions
Α.	Connect the general public with science and all forms of knowledge generation focusing education and outreach opportunities on natural resource conservation, forest management, natural and human histories, and teaching and research occurring on the Duke Forest.	Leverage ongoing teaching, research, and management activities to offer novel outreach experiences (led directly by Duke Forest staff or through facilitated connections with teachers and researchers) and to increase educational/interpretive infrastructure in the Duke Forest.
В.	Cultivate a culture of stewardship among recreational visitors; raise and sustain awareness regarding the need to protect Forest resources and the role and benefits of the Duke Forest within the community.	Engage the recreational user community to share information about the use and benefits of Duke Forest and how the community's actions can impact the teaching and research environment, especially through regular communications and as-needed impact statements.
		Incorporate learnings from the Protection & Safety Coordinator and Forest Steward volunteers to enhance recreational visitor engagement, build a culture of stewardship among the recreational community, and track and archive the impacts of recreation on the Duke Forest.
		Partner with other conservation and land management organizations to share information and continue co-learning about the impacts of recreation, ultimately applying best practices for recreation management and visitor engagement in the Duke Forest.
C.	Leverage existing staff and programmatic capacity, as well as partnerships at Duke and beyond, to increase the diversity of Duke Forest's non-academic audience.	Perform a needs assessment to evaluate how to build inclusivity and accessibility in Duke Forest's community engagement programs.
		Build partnerships and learn directly from organizational partners at Duke and beyond who have expertise in developing accessible and inclusive programming and who can share best practices.



	Increase the diversity of the Duke Forest audience — particularly among BIPOC, LGTBQ+, and other marginalized communities — by enhancing the accessibility and inclusivity of current engagement programs or through exploring additional projects (e.g., identity-based affinity groups within volunteer programs, a Conservation Corps Program, etc.)
D. Continue to deliver communications that raise awareness beyond academy walls about ongoing teaching and research, forest resources, and responsible forest management to build the	Continue to use and refine Duke Forest's engagement pipeline to strengthen communications with constituents and donors from the community (e.g., neighbors, recreational visitors, local community groups, and the general public), and to broadcast and meaningfully engage people in the important mission of the Duke Forest.
public's appreciation of and connection to the Duke Forest.	Stay aware of the latest communications and engagement offerings from organizational partners at Duke and beyond to learn from and track their successes or develop equivalent offerings.



Appendix A: Duke Forest Land Acknowledgement

The Office of the Duke Forest has the benefit of presenting this land acknowledgement because of the research and synthesis provided by Duke Faculty and Duke Forest Advisory Committee member, Nicolette Cagle, Ph.D. As part of the Duke Forest mission to facilitate teaching and research across all disciplines and for all students, we actively support efforts to investigate, reveal, and hold-up the histories and legacies of people on Duke Forest land that have yet to be understood and told.

As Gould (1992) acknowledges, "there is not a university in this country that is not built on what was once native land." That is true for Duke University and its Duke Forest landholdings. What is now Durham and Orange Counties was originally the territory of several Native nations, including Tutelo (TOO-tee-lo) and Saponi (suh-POE-nee) - speaking peoples. Many of their communities were displaced or killed through war, disease, and colonial expansion. Today, the Triangle is surrounded by contemporary Native nations, the descendants of Tutelo, Saponi, and other Indigenous peoples who survived early colonization. These nations include the Haliwa-Saponi (HALL-i-wa suh-POE-nee), Sappony (suh-POE-nee), and Occaneechi (oh-kuh-NEE-chee) Band of Saponi.

North Carolina's Research Triangle is also home to a thriving urban Native American community who represent Native nations from across the United States. Together, these Indigenous nations and communities contribute to North Carolina's ranking as the state with the largest Native American population east of the Mississippi River. We would like to acknowledge, honor, and respect the diverse history of Indigenous peoples in North Carolina and across the settler state. We would also like to recognize their continuing connections to land, water, and culture and pay respect to their Elders, past, present, and emerging.

In addition, we acknowledge the overlapping histories of this land, including past violence and ongoing harm produced by the legacy of racialized slavery and oppression. We know of at least four sites where slavery was practiced on what is now considered Duke Forest land, including the Alexander Hogan Plantation in the Blackwood Division, the Robson Mill and Barbee property in the Korstian Division, and the Couch property in the Durham Division.

Interested in learning more or supporting marginalized communities? Check out Occaneechi: A Past and Present History and the Homeland Preservation Project. You are also invited to learn more about the impact of segregated communities in North Carolina at the UNC Inclusion Project. You can learn about the Rogers Eubanks community in Orange County, which has a historic connection to the Alexander Hogan Plantation. Also visit the North Carolina African American Heritage Commission to learn more about local African American history, art, and culture, and the Black Family Land Trust and the Land Loss Prevention Project in Durham, NC.

(Modified from Hanson, J. K. Lyons, L. Rangel, & J. Whitten. 2020. *Inclusive Conservation: Improving Collaboration with Tribes in the United States*. Masters Project Symposium, Duke University, 2 April



2020. Cited: Gould, J. 1992. The problem of being "Indian": One mixed-blood's dilemma. In S. Smith and J. Watson (Eds.), *De/colonizing the subject: The politics of gender in women's autobiography* (pp. 81-90). Minneapolis: University of Minnesota Press. Resource: https://www.csusm.edu/cicsc/land.pdf. Special thanks to Drs. Ryan Emanuel and Malinda Lowery of the Lumbee tribe for contributing lines 4-13 and to Paul James, Sara Childs, and Rebecca Hoeffler for your feedback).

Special thanks to Drs. Ryan Emanuel and Malinda Lowery of the Lumbee tribe for contributing lines 4-13 and to Paul James, Sara Childs, and Rebecca Hoeffler for your feedback.



Appendix B: Duke Forest Resources and Usage Statistics

B.1 CURRENT STATE OF RESOURCES (STAFF, LAND, AND FINANCES)

The Office of the Duke Forest is the university department responsible for the management and stewardship of the Duke Forest Teaching and Research Laboratory. Duke Forest resources include the human, physical, and monetary assets that are administered by the Office of the Duke Forest, the Vice-President and Vice-Provost of the Office of Climate and Sustainability (as of July 1, 2023), and Duke Financial Services. The following information is up to date as of the start of the 2024-2025 fiscal year. Since 2014, the Office has diligently worked to raise the Forest's profile and to create an unambiguous understating of its irreplaceable value throughout the University and to the highest levels of administration. This has been successful; yet it will remain an important priority to ensure that its priceless tangible and intangible values are always understood, enabling the Forest and its resources to remain secure through leadership turnover, including on the board of trustees. The entire strategic plan serves this aim.

STAFF

At the beginning of fiscal year 2024-2025, the staff capacity of the Office of the Duke Forest is 8.4 full-time equivalents. These are distributed across the following nine positions: Executive Director (ED), Forest Supervisor (FS), Assistant Director of Teaching and Research (AD-TR), Assistant Director of Engagement (AD-E), Operations Coordinator (OC), Maintenance and Infrastructure Manager (MIM), Forest Technician (FT), Senior Program Coordinator (SPC; 0.8 FTE), and Forest Protection and Safety Coordinator (FPSC; 0.6 FTE). Further support is provided by temporary positions, which include summer interns (up to 2, typically full-time for 13 weeks) and student assistants (up to 2) during the school year.

- The ED oversees all mission, management, administrative, strategic, and fiscal activities; leads on a variety of special projects within Duke and across the region (including fundraising); holds an Adjunct Instructor title at NSOE; and provides teaching, research, engagement, and outreach activities at NSOE, Duke, and beyond.
- The FS leads the daily, on-the-ground operations, including forest management and facility maintenance activities; supports the ED in all real estate and property matters; holds an Adjunct Instructor title at NSOE; and participates in teaching and research activities at NSOE, Duke, and beyond.
- The AD-TR plays a key role in advancing the mission of the Duke Forest as a unique and irreplaceable teaching and research asset, as well as an invaluable demonstration tool for responsible natural resource management and environmental conservation. The AD-TR is a dedicated leader, ambassador, and coordinator for academic uses of the Duke Forest within the Duke community and beyond.
- The AD-E leads the development and communications programs that sustain audience engagement with, and financial support of, the Duke Forest mission, management, and strategy. The AD-E is the primary contact and collaborator for all fundraising and marketing activities within the Duke community and beyond.



- The SPC is a talented administrator and educator with interests in science, the environment, and connecting people with both. The SPC provides critical capacity for the Office of the Duke Forest across its three strategic pillars—community engagement, stewardship for sustainability, and research and teaching. The SPC leads coordination and oversees implementation of established programs and works closely with the AD-TR and ED to create new programs that engage diverse audiences and activate the Duke Forest Strategic Plan.
- The OC is an experienced, organized, and tech-savvy administrator whose work provides a
 reliable foundation for all aspects of the management of a multi-faceted teaching and
 research forest. The OC provides consistent financial management and analysis, coordinates
 central programming and other baseline activities; oversees central document and recordkeeping systems, provides general office management, and serves as a first contact for
 requests and inquiries.
- The MIM provides essential support for the management and operation of the Duke Forest as a teaching and research facility, a responsibly managed working forest, an environmental education resource, and a recreational amenity. The MIM has primary responsibility for equipment operation, repair, and maintenance, and schedules, plans, oversees, and/or implements activities related to vehicle repair and maintenance, road/trail building and maintenance, research site establishment and maintenance, rental house maintenance, and picnic shelter maintenance.
- The FT performs a variety of forest management and maintenance activities in Duke Forest; provides geospatial-based mapping, analysis, and record-keeping; supports supervision and mentorship of students; and works with SPC as necessary on related programs. The FT works closely with the FS and MIM on a daily basis to support their efforts while also directly managing specific tasks.
- The FPSC primarily works with the Duke Forest field team to ensure a safe and productive environment for a diverse community of teachers, researchers, students, staff, and recreational visitors (among others) and serves as a point person to: uphold guidelines, rules, and regulations around use of the Duke Forest; prevent and respond to unauthorized activities occurring on the Duke Forest; and in conjunction with the Duke University Police Department (DUPD), develops and maintains relationships with other proximate first responders (EMS, law enforcement, fire, crisis task force, etc.).
- Summer Interns and Student Assistants support ongoing field and office projects.

Challenges Addressed in the Strategic Plan

The current capacity and allocation of staff effort, as well as the associated salary budget, represents the successful culmination of the staffing strategy laid out in the 2017 – 2022 strategic plan. As we look forward amidst emerging, evolving, and nuanced priorities and projects (e.g., Duke Climate Commitment, the Duke Forest Cabin, etc.), a new analysis and evaluation of future staffing scenarios and importantly, identification and implementation of strategies to fund these scenarios, is necessary. Both issues are addressed under Goal 1 of this strategic plan. Some additional considerations regarding this challenge, captured during deliberations for writing this updated plan, are included below:



- Given experience to-date with the challenges associated with the part-time nature of the FPSC role, we will seek to expand the salary budget to build out this role to a full-time position.
- We have discussed whether we need a strategy for bolstering the capacity of existing staff to
 address accessibility and inclusivity across Duke Forest programming and audiences (in other
 words, a focus on Diversity, Equity, Inclusion, Justice, and Belonging in Duke Forest's
 work) or a strategy for recruiting a new person with specific experience with these topics.
 Likely the former but TBD.
- In keeping with the current staff structure patterns, we may seek to hire an AD of Community Engagement, which will functionally allow an AD to oversee a distinct focus area, especially aligning with the three goals of the strategic plan. This may allow the current AD-E to become the AD of Development and Communications (title still under consideration). Additionally, we may consider whether each AD will manage/supervise a program coordinator (potentially with certain specialties).
- In this new paradigm of reporting through OCS and having formal connections with other units, we will consider what opportunities exist to share positions and effort in ways that are maintainable/sustainable?
- To evaluate the above scenarios, we will consider the following questions: which best leverage existing and new opportunities; which achieve maximum efficiency; which staff structure/dynamics are maintainable/sustainable; which accelerate collaborative impacts, etc.?

LAND

In total, the Duke Forest is approximately 7,093⁷ acres in Durham (1,542 acres, 22%), Orange (5,133 acres, 72%), and Alamance counties (418 acres, 6%). It is divided into six management units known as divisions and one dedicated natural area in which there is no infrastructure. The total boundary is 84 miles with an overall edge to area ratio of approximately 7.5:1⁸, indicating that the Duke Forest land base is highly fragmented and vulnerable to edge effects and associated issues. There are 38.5 miles of graveled forest roads and 13.2 miles of dirt foot-trails within the Duke Forest.

As of the close of fiscal year 2023-2024, forest cover occurs across approximately 95% of the land base or across 6,724 acres out of the total 7,093; these include 3,017 pine acres (43%), 2,762 hardwood acres (39%), 945 pine-hardwood mix acres (13%). In addition to these acres, 285 acres (4%) that could potentially support forest cover are non-forested (e.g., fields) and 84 acres (1%) are untyped (e.g., forest roads, rivers, new land not yet typed, etc.).

The Forest contains approximately 63 miles of streams with a majority of the land area (78%) in the Cape Fear River Basin and the remainder (22%) in the Neuse River Basin. Approximately 1,200 acres (17%) are Registered Natural Heritage Natural Areas⁹ identified by the state as important to preserving the biodiversity of North Carolina. With regard to Duke Forest biodiversity, a variety of biologists and ecologists over several decades have estimated at least 150 birds, 80 butterflies, 60 amphibians and reptiles, and 30 mammals use the variety of Forest habitats, which include over 1,000 species of trees and plants, for all or portions of their life cycles.

⁷ This figure includes 54 acres of land purchased in 2019 and 2021 to protect the Forest and its mission.

⁸ This calculation excludes interior forest roads and power line easements.

⁹ https://www.ncnhp.org/conservation/natural-areas



Within its boundaries, the Duke Forest land base provides the physical and ecological infrastructure needed to accomplish its teaching and research mission. In this capacity, the Forest serves Duke faculty and students, other academic and research institutions (including locally, nationally, and internationally), local K-12 schools, and the public. The land base also generates revenue that offsets portions of the operating budget via a sustainable timber management program.

While not part of the formal mission, the Forest offers aesthetic and limited, passive recreational amenities to the Duke and local communities. Out of 48 total access gates, 33 are accessible to the public ¹⁰. The most recent recreation survey (2022) estimates at least 199,000 recreational user visits to the forest every year, but given previous results and growing populations, this is believed to be an underestimate.

As of the 2020 US Census, approximately 97,000 people live within 2-miles of the forest boundary, 315,000 people within 5-miles, and 560,000 within 10-miles¹¹. The populations of Durham and Orange Counties, which together contain 94% of the Duke Forest property, are predicted to increase by over 12% and 8% respectively by 2030¹².

The entire land base contributes critical ecosystem services such as water quality, wildlife habitat, biodiversity conservation, carbon sequestration, clean air, and access to nature — services that are rapidly disappearing due to the high rate of permanent land conversion across the region. Beyond its boundaries, the Duke Forest anchors a large, landscape-level network of natural and semi-natural areas that are critical in preserving ecosystem functions, connecting areas for native plants and wildlife, and sustaining the aesthetic, woodsy appeal that makes the area so desirable to work and live in ¹³.

Challenges Addressed in the Strategic Plan

As noted above, population growth is driving continued development and consistently high land prices across the region and along the boundaries of the Duke Forest. Increasing use by the public for recreation — particularly increases in unsustainable, unauthorized recreational activity (as documented during the COVID-19 pandemic¹⁴ and as driven by the proliferation of recreation-related digital apps) contributes to the degradation of the natural environment and creates significant challenges for implementing the Duke Forest mission, management objectives, and strategies. This is especially problematic when people do not recognize or understand that the Forest is a private teaching and research asset of the University. In general, a lack of visibility, value, and connection between Duke Forest and the surrounding communities (especially those that are not oriented to the teaching and research mission in any way, nor to land management and stewardship issues and best

¹⁰ In 2022, the Office of the Duke Forest created freely available, high-resolution, geo-referenced PDFs to represent authorized gate access, forest road, and foot trail locations across the land base. At this time, staff made decisions to remove some gates from public access because in reality, they did not offer (or no longer offered) a recreational opportunity.

¹¹ 2020 census tract data clipped to 2-,5-, and 10-mile buffers; each buffer area contains portions of multiple census tracts; the pop/sq mi figure for each tract is used to calculate total population within the clipped area of that tract; then each tract total within a 2-, 5-, or 10-mile buffer area is summed to generate the grand total for that particular buffer. ¹²https://www.osbm.nc.gov/facts-figures/population-demographics/state-demographer

¹³ See reports, data, and analyses here: https://connectedconservationnc.org/.

 $^{^{14}\,}https://duke forest.duke.edu/2020/08/20/a-recreational-impact-statement-from-the-office-of-the-duke-forest-at-duke-university/$



practices) remains a challenge with respect to population growth and also land-use and transportation planning/policies/actions.

Urbanization and increased population in rural areas generally lead to a loss of ecosystem services, increased degradation of the natural environment, and greater fragmentation of the natural and semi-natural habitat network. Development can also lead to increased species mortality — particularly from habitat fragmentation caused by roads — and can increase the spread of invasive species as they are often planted in human-controlled landscapes. Land-use changes along Duke Forest edges may conflict with staff's ability to execute beneficial management activities (e.g., prescribed fire) and to appropriately facilitate, manage, and/or minimize conflicts between the major uses of Duke Forest (e.g., teaching, research, management, and recreation).

Finally, given the wide breath of area and corresponding jurisdictions that the Duke Forest's land base occupies, it is very difficult to stay abreast of local land-use issues, priorities, and changes, which can shift things for the Duke Forest that are out of our control.

The Duke Forest 2024-2029 Five-Year Strategic Plan includes several objectives and actions to address these challenges, specifically:

- Actions under the objectives for Goal 1 Stewardship for Sustainability remain similar to those in the previous plan and are essential for maintaining stability in the current land base and protecting connectivity of the natural network across our region. Regionally, land trusts, land-holding universities, city/county and state land management departments, and others have recognized the crucial need to preserve connectivity across a natural and semi-natural network of habitats in this area. Incredible progress with tremendous contribution from the Office of the Duke Forest since 2015 has been made in this regard and remains an ongoing priority and challenge addressed under Goal 1 of this plan.
- Actions under the objectives for Goal 2 Teaching and Research remain similar to those in the previous plan and create valuable opportunities for research projects that address these land-related challenges in various ways, which ultimately provide staff with more information and/or potential solutions that allow for informed action when necessary.
- Actions under the objectives for Goal 3 Community Engagement remain similar to those in the previous plan and partially address the challenges around recreational visitors' awareness, attitudes, and use patterns that degrade the Forest's mission and purpose, as well as its natural resources, via communication and programmatic actions. Similarly, work to incorporate and capacity to act on information gleaned from monitoring recreation-related digital apps is incorporated under Goal 1, but this remains a persistent challenge without more dedicated capacity in this space.

FINANCES

The Office of the Duke Forest's primary operating budget consists of position and non-position expenses that are offset by the sum of timber revenues, lease revenues, quasi-endowment and endowment returns, and direct university support. Timber production provides the most obvious and direct financial contribution to the University from the management of the Duke Forest land



base by the Office of the Duke Forest. The combined valuation of non-market goods and services and estimates of indirect cost recoveries from research occurring in the Duke Forest, are of tremendous value, but these do not directly offset expenses.

Most of the operating expense budget (86%15) covers staff salaries and benefits with the remainder directed toward contracts, supplies, equipment, professional development, and allocations to minor and capital purchase plans. An improvement fund, primarily supported through donor contributions but also picnic shelter rentals, helps cover costs for public education, outreach, access, and recreation, as well as special projects that involve aspects of conservation, outreach, and recreation.

Since the last strategic plan, the Forest received a \$1 million endowment with expendable returns used to support implementation of strategies, projects, and programs that solidify the Duke Forest as a major University asset for teaching, research, and community engagement. Additionally, the Forest received a \$100,000 cash gift to support NSOE student internships at the Duke Forest with the general intent to host at least one intern per summer for 10 years.

In the 2015-2016 fiscal year, staff adjusted the trajectory of the timber management program to account for gaps in the age-class distributions of mature pine, which affect the volume available for production. While these adjustments result in smaller projected annual timber revenues, they reestablish a viable harvest system that is based on even-aged pine production across a 50-year rotation.

To offset the decline in timber revenue, the university increased its support of the Duke Forest by an additional \$150,000 beginning in fiscal year 2016-2017. Additionally, a portion of monies from land transactions were allocated to increase the principal of the quasi-endowment with the aim of reducing future deficits through additional returns. In 2022, the Forest also began receiving monthly rent monies from a cell phone tower company for an existing site on the Duke Forest. At that time, this total revenue increase accounted for almost 35% of non-salary operating costs. These combined additional revenues essentially reset our primary expense-revenue balance to zero, overcoming the revenue deficit that arose from the reset of the Duke Forest timber management program that occurred in 2015-2016.

Challenges Addressed in the Strategic Plan

As noted above, staff capacity is the largest primary expense and timber revenue is the largest primary revenue.

Regarding staff capacity: since the last strategic plan, we have successfully funded a reworked organizational chart that secures baseline functions and allows staff and the land base to participate in new, collaborative ways within the new administrative structure of OCS, and to continue to serve new University priorities. However, much demand exists for more participation from, and engagement of, the Duke Forest and its staff. To go beyond the current status quo in programming and to support a full-time FPSC, we will require a larger staffing budget.

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¹⁵ As budgeted for FY 2024-2025.



Regarding timber revenue: as noted in the last strategic plan and as remains true today, significant uncertainty exists across all facets of the timber market, which reveal that an ideal Duke Forest budget scenario would not rely on this revenue to offset expenses. Instead, this revenue (for the duration in which the Duke Forest can successfully participate in the regional timber market) would be used to bolster the reserve fund, offset shortfalls, and generally support one-off special projects or deferred maintenance. To achieve this, the professional fundraising and development program created in 2018 must continue to grow.

The Duke Forest Strategic Plan addresses these finance considerations with actions under the objectives for Goal 1 - Stewardship for Sustainability. These include plans for financing various future staffing scenarios; maintaining the timber management program for its research and demonstration values; and investigating opportunities to leverage the development program formally established in 2018 to bolster staff and programmatic capacities.

B.2 DUKE FOREST USAGE DATA

The Office of the Duke Forest produces annual statistics of research, teaching, and outreach to demonstrate work across its mission, management, and strategic priorities. The latest available data from the 2022-2023 fiscal year were published in the publicly available annual bulletin, <u>The LOG</u>, in November 2023 and snapshots of various statistics are shown below (Figure 2). Tracking of these statistics across years also occurs and allows for general comparisons and assessment of trends.

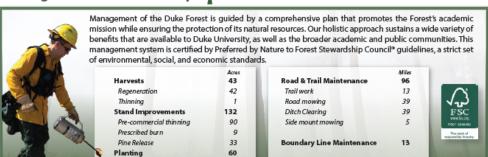


2022 - 2023 AT A GLANCE



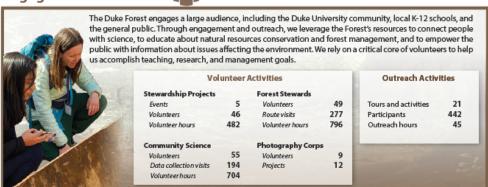
Duke Biology Professor emeritus Dr. Ron Grunwald has visited the Forest with hundreds of students, introducing them to herpetofauna.

Management & Stewardship



Forest Supervisor Tom Craven ignites a prescribed burn in a Longleaf Pine demonstration plot, originally planted in 1935.

Engagement & Outreach



Duke undergraduates and high school students in the Health and Environment Scholars @Duke Program headed to the Forest to learn about our herpetofauna transects

Figure 2. A page excerpted from the 2023 LOG to show fiscal year statistics.



Appendix C: Strategic Plan Background, Methods, and Process Outputs

The Duke Forest staff developed the updated 2024-2029 Five-Year Strategic Plan through input gathered at a staff retreat, meetings with the Duke Forest Advisory Committee, and conversations with other Duke administrators and faculty. The process to collect input coincided with Forest-led efforts to create a vision for the Duke Forest Cabin and surrounding area and to engage Nicholas School faculty in a conversation about the Forest's research legacy and its ecological future.

These additional conversations resulted in topics, themes, opportunities, and challenges that are incorporated or addressed into this updated strategic plan. Similarly, several major university initiatives have been taking shape during the period in which this plan was undergoing an update. As referenced in the main body of the document, these include: Duke's Climate Commitment (FY23), the creation of the Office of Climate and Sustainability and reorganization of the Office of the Duke Forest under its umbrella (FY24), Duke's Commitment to Diversity and Inclusion, Duke's academic focus on interdisciplinary research and experiential education, the acquisition of the Duke Forest Cabin and associated property (FY21), and a series of discussions that consider Duke Forest ecology and management in a rapidly changing world (FY21).

Timeline and Stakeholders Engaged

Date	Method	Group	Total
August 19, 2021	Mini-Retreat/ Focus Group	Duke Forest Staff	7
June 8, 2022	Focus Group	Executive Vice President and Duke Forest Advisory Committee	10
July to December 2022	Small Group or One-on-one Interviews	Faculty and Administrators from Duke University's Nicholas School of the Environment (NSOE)	8
July to December 2022	Small Group or One-on-one Interviews	Duke University Faculty and Staff outside of NSOE, including from the: - Biology Department, Divinity School, Franklin Humanities Institute, Thompson Writing Program, and Duke Gardens	8
Grand Total: 33 stakeholders from across Duke University			

The Duke Forest Cabin Visioning process and outputs are summarized in an internal document entitled <u>Summary of the Duke Forest Cabin Visioning Process</u> written by Senior Program Coordinator, Maggie Heraty in August 2024.
 A summary of the "Big Questions" meetings convened and facilitated by Executive Director Sara Childs are synthesized in a document created by Senior Program Coordinator Maggie Heraty entitled <u>Takeaways and Implications</u>.