

ARVIND A.R. BHUTA, PhD, GIS Professional, & Certified Senior Ecologist

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EMPLOYEMENT HISTORY

Line Officer, District Ranger (July 2025–Present)

United States Department of Agriculture (USDA), Forest Service (FS), National Forests in Florida, Apalachicola National Forest, Crawfordville, FL

- Line manager's authority and steward for the Apalachicola National Forest:
 - supervised 12 direct reports and managed 52 employees in a values-based, purpose driven, and relationship-focused work environment.
 - managed and stewarded, through science, law, and policy, both natural and cultural resources across 576,000 acres of the Forest with two designated Wilderness Areas (Bradwell Bay and New River) and one national scenic trail (the Florida Trail).
 - provided leadership for all Forest employees and programs which include the inventory, planning, evaluation, & management of Forest resources (e.g., fire, timber, soil, land, water, wildlife & fish habitat, range, forage, wilderness, and visual areas, & outdoor recreation) and the planning, budgeting, and management information for identifying work force and organizational needs, & priorities.
 - established, collaborated, and maintained cooperative relations with local, county, and State representatives, special interest and civic groups, higher education, Tribal government, permittees, community members, and the public with interests in and in addressing the appropriate public use of the Forest.
- Communicated decisions and explained actions in the larger context of the agency's mission & purpose to Forest staff and members of the community.
- Implemented agency policy and navigated dynamic tensions and complex political, human, and social concerns while incorporating the interdependence of all mission areas.
- Managed the largest prescribed fire program in the nation and one of the most biodiverse forests in the southeastern United States.

Forest Mapping and Accomplishment Portal (ForMAP) Program Manager (March 2019–July 2025)

USDA-FS, National Headquarters (HQ), State, Private, and Tribal Forestry (SPTF), Cooperative Forestry (CF), Landowners Assistance (LOA) Program, Washington, DC

I was product owner and program manager the ForMAP program (an FS-CIO approved and funded portal) that allows federal, state, territorial, non-profits, and other partners to report their annual geospatial and tabular accomplishments through three nationwide SPTF programs' official databases of record to FS, USDA, and the White House leadership and congressional appropriators. The three programs are the Forest Health and Protection Branch's Forest Health Program (ForHealth application) and the Cooperative Forestry Branch's Landscape Scale Restoration Program (LaSR application) and the Forest Stewardship program (FSP, SMART application).

- Received Superior Ratings for FY19 and 20 Performance Reviews; FS performance review system was changed in FY21; successful for reviews for FY21, 22, 23, and 24.
- Led, collaborated, set priorities and deadlines, and implemented change for the strategic management, maintenance, operations, development, modernization, and enhancement of ForMAP with internal FS team (5-7 employees) and two different teams of external contractors to better align ForMAP with

FS-CF, CIO, and Assistant Chief Data Office business requirements and standards through:

- A sole-sourced, firm-fixed price Operation and Maintenance (O&M) contracts via contracting officer's representative (COR) and contracting officer (CO) with The Timmons Group Inc. (4 employees) for agile workflows in the continued O&M of applications via 1) a six-month extension (FY04/2019 – 02/2020 at \$279,406) of a previous four-year contract; 2) Three-year contract and six-month extension (FY2020 – 2024) at \$1,181,633; and 3) Five-year contract and six-month extension (FY2024 – 2029) planned at \$2,626,523).
- A firm-fixed price development, modernization, and enhancement (DME) blanket purchase agreement contract via COR and CO with Esri Inc. (8 employees) funded at \$471,075 (FY2024 – 2025) for agile workflows in a minimal viable product that leads to a new O&M for ForMAP with future financial projections to ~\$500,000 or less for a five-year contract.
- Improved collaboration, operational efficiencies, and successful program and project outcomes by serving as a liaison and providing expert leadership, guidance, and communication between the ForMAP team and 1) our internal stakeholders (CF, Forest Stewardship, Landscape Scale Restoration and Forest Health program managers) and 2) our external partners (associations for national and regional forestry agencies, state forestry agencies, non-profits, tribes, and academic institutions).
- Developed informational and briefing materials, program policy, and guidance to better communicate the intent and significance of ForMAP to federal and non-federal audiences based on policy and guidance, law, and peer-reviewed literature.
- Successfully argued for appropriate funding of the ForMAP program by providing justification via up-to-date documents, budgets, and activities to FS-CF and FS-CIO leadership.
- Instrumental in getting other CF-IT applications as officially recognized CIO-IT applications by the FS-CIO and USDA-CIO during a time of FS-CIO modernization and centralization where these applications and ForMAP were funded thereby complying with FS budget and FS-CIO modernization and FITARA. If these applications remained "shadow-IT," they would have been shut down for non-compliance thereby impacting Cooperative Forestry's business operations in reporting accomplishments to FS leadership, USDA, the White House, and Congressional appropriators.
- Served as a team moderator for the review of the FS Region 09 (Eastern Region) CF's Program and presented the WO's assessment of their regional FSP.
- Served on the Recreation Economy for Rural Communities program (managed by US Environmental Protection Agency) that focused on developing Fryeburg, Maine's recreation economy by building strategy, goals, and showcasing how Cooperative Forestry could contribute to their development.

Line Officer, District Ranger (July 2023–January 2024: 210-Day Lateral Detail)

USDA-FS, Sequoia National Forest, Kern River Ranger District, Kernville, CA

- Line manager's authority and steward for the Kern River Ranger District:
 - supervised 11 direct reports and managed 100 employees in a values-based, purpose driven, and relationship-focused work environment.
 - managed and stewarded, through science, law, and policy, both natural and cultural resources across 640,000 acres of the District (25 campgrounds, ten developed day-use areas, 578 miles of trails, four designated Wilderness Areas (Domeland, Golden Trout, Kiavah, and South Sierra), forest mountains, high desert, and rivers (including the Wild and Scenic River of the South and North Forks of the Kern River) ranging from 2,000–9,000 ft.
 - provided leadership for all District employees and programs which include the inventory, planning,

evaluation, & management of District resources (e.g., fire, timber, soil, land, water, wildlife & fish habitat, range, forage, wilderness, and visual areas, & outdoor recreation) and the planning, budgeting, and management information for identifying work force and organizational needs, & priorities.

- established, collaborated, and maintained cooperative relations with local, county, and State representatives, special interest and civic groups, higher education, Tribal government, permittees, community members, and the public with interests in and in addressing the appropriate public use of the district.
- Communicated decisions and explained actions in the larger context of the agency's mission & purpose to District staff and members of the community.
- Demonstrated a commitment to learning & evolving management approaches based on knowledge gained both from best available science, law, policy & the relationships with District staff, communities (Kernville and Kern River Valley Chamber of Commerce), key stakeholders (local American Forest Resource Council), interagency partners (US Army Corps of Engineers and Bureau of Land Management, California Fish and Wildlife, and California Parks Program), & the public.
- Implemented agency policy and navigated dynamic tensions and complex political, human, and social concerns while incorporating the interdependence of all mission areas.
- Participated in a Tribal Forum and other communications with the Tübatulabal Tribe, Kern River Valley Indians, and Tule River Tribe.
- Served as member of the Forest Leadership Team on plans, policies, and objectives. Provided information and recommendations to the Forest Supervisor.
- Forest Priority Letter and NEPA support as line officer for EA projects (Piute Travel Management, French Fire Restoration Project, and Black Rock Green Timber Sale) as well as other projects (Gilbert Ditch and Shearman Road Hazard Tree Sale) that required CEs.
- Approved and signed as delegating authority/line officer for timber cruises, special use permits, timesheets, and other District matters and worked with staff to send out correspondence internally and externally via Mercury.
- Developed and monitored quarterly and annual performance standards through ePM and eHR Apps; provided advice & counsel to staff, the community, and the public; heard and resolved minor complaints, addressed minor grievances; identified and provided training for direct reports; and recommended appointments, promotions, & reassignment actions.
- Planned work to be accomplished; set and adjusted short-term priorities; and prepared schedules for completion of work.
- Provided leadership, allocated resources, and implemented activities to accomplish organizational direction, requirements, goals, policies, and objectives.
- Built community; welcomed diverse & new perspectives; remained invested and stayed informed of current social, political, and economic issues and concerns within the District.
- Fostered a respectful & harassment-free work environment.
- Fire and other training: Opened and initiated Agency Administrator Task Books for Prescribed Fire (RXA3) and Wildfire (WFA3), 2700 - Special Uses Training, & Tribal Workshop on Section 106 and Programmatic Agreements.

Data Manager (April 2022–July 2022: 120-Day Temporary Promotion)

USDA-FS, HQ, Business Operations, Assistant Chief Data Officer's Office, Washington DC

- Cultivated working relationships with program managers to problem-solve efforts around data

collection and reporting for Forest Service Action Plans associated with the Infrastructure Investment and Jobs Act (IIJA).

- Using program/project management tools, I identified program contacts, their data holdings, and collection priorities and developed mission planning, milestones, and interdependency protocols and documents associated with data collection efforts.
- Implemented and monitored different program areas associated with the many Forest Service Action Plans as they implemented solutions focused on capturing requirements around IIJA in their program areas.

Urban & Community Forestry (UCF) Program Manager (February–April 2022: 120-Day Detail)

USDA-FS, Southern Region Regional Office, SPTF, CF, UCF, Atlanta, GA (remote)

- Led the Southern Region UCF Program (\$7.03m budget for FY2022) and coordinated, communicated, and advised the 13 southeastern state forestry agencies UCF programs and their non-profit partners on support, program delivery, requirements, guidelines, funding, reporting, and payments.
- Operated within a Southern Region UCF team of two to spread workload, maximize efficiency, and provide more diverse input for program improvement and operations.
- Consolidated Payment Grants Management
 - Reviewed narratives and funding for state UCF program's portion of FY2022 consolidated payment grants (grants and agreements) for Tennessee and Virginia and worked with them to resolve input before proceeding to funding their program, the remaining 11 states will be reviewed by the Southern Region UCF team (which will be a team of three)
 - Reviewed end-of-year accomplishment reporting (FY18, 19, 20, and 21) for three states (OK, TN, and TX) and worked with these states UCF program manager to clarify, edit, or amend their reports; reports were uploaded to the Natural Resources Manager (NRM) database.
- Approved Natural Disaster and Recovery Supplement and Funding grant applications (grant narrative and funding) for Florida, Louisiana, and Oklahoma
- Reviewed and approved new modifications for other grants and agreements.
- Shared State Urban Forest Resilience (SUFR) Grant RFA with our partners and fielded questions from partners interested in seeking funding.
- Served on the Community Accomplishment Reporting System (CARS) Question Review team which serve to help state agencies with answering questions they have about the CARS system.
- Reviewed ten Southern Region applications for the 5-Star Urban Waters Program and provided input to the national review board for applicant's ratings.

National Forest Stewardship Program Manager (February–May 2021 (120-Day Detail)

USDA, FS, WO, SPTF, CF, LOA, Washington, DC

- Led the National Forest Stewardship Program (FSP) during a period of modernization and budget reduction, where FY2021 budget was halved for the program from an average of \$20m/year for three prior years to \$11.9m for FY2021.
- Executed budget and programmatic modernization efforts for the program as requested by Congress which included:
 - Working with FS and the National Association of State Foresters (NASF) leadership, FS regional program managers, State and Territorial Forestry Agencies, and partners in communicating changes to the program

- Refining and using a new performance-based allocation formula for FSP funding, which allocates funding to all 50 States and US territories through FS Regions via grants and agreements.
- Indirectly supervised/led and held monthly meetings with eight region-wide FSP and four sub-region-wide FSP program managers to determine and deliver a better program of work and strategies in delivering customer service, funding, implementing FSP activities, and securing better working relationships with State and Territorial Forestry Agencies, NASF, the Southern Group of States Foresters, the Northeast-Midwest State Foresters Alliance, and Council of Western State Foresters
- Led a team of internal Forest Service FSP Managers (three employees) and three state foresters in the revision and update of the FSP Standards and Guidelines
- Drafted and finalized letters and associated documents for formal communication via Mercury (the Forest Service's official letter system) with NASF on FSP modernization implementation and with States on the FSP exemptions.
- Served as an expert, advising managers at the agency level and below by interpreting broad related legislation requirements and developing policy guidelines for their implementation of FSP.
- Served on the Joint Forestry Team, a collaborative effort between the Natural Resources Conservation Service (NRCS), the NASF, the National Association for Conservation Districts (NACD), and the FS, in making recommendations that result in coordinated interagency delivery of forestry and conservation assistance for working forests, farms, and ranches through sustainable forestry while providing public benefits and ecosystems services.
- Reviewed and commented on State Forest Action Plans for 23 States and 3 Territories for consistency, thoroughness, and in meeting the necessary requirements for the FSP.
- Outside of this temporary promotion, I managed the FSP from 10/2020–01/2021 and 05–08/2021 while also continuing my work duties as the ForMAP program manager during this temporary promotion.

Ecologist (June 2016–March 2019)

USDA-FS, National Forests in Alabama (NFAL), Forest Supervisor's Office (SO), Montgomery, AL

- Received Superior Rating for FY2018 and Fully Successful for FY2017 Performance Reviews.
- From FY2016–2019, led, planned, implemented, and monitored the financial budgets and accomplishments in collaboration with a team of NFAL employees (a Soil Scientist at the SO that I supervised and six NFAL Ranger District program managers) for the NFAL's:
 - ecology program (FSM 2000)
 - non-native invasive species program (FSM 2900; NFWW: \$353,327 and CWKV: \$30,643 total)
 - soil and water/watersheds (FSM 2500; NFWW: \$393,442 total)
 - Green/Sustainability Team (FSM 7000) program (\$30,000 total)
- Developed, planned, funded, deployed, and integrated field work methods, geospatial data collection, management, and analyses for ecological condition (EC), terrestrial ecological unit inventory (TEUI), hydrology, watershed, and other ecological models for the ecology, soil, and water programs in collaboration with the Soil Scientist and Geological Society of American GeoCorps Interns (who I supervised), Regional Office Employees, scientists and graduate students in academia (e.g. The University of Alabama, Auburn University, Tuskegee University, and Texas A&M University), and federal (e.g. NRCS) and state (e.g. Florida Natural Areas Inventory) agencies through credit card purchases and Grants and Agreements in NRM.

- Integrated the adoption of newer technology (Esri Collector mobile device applications for TESP-IS databases) into the workflow of the NNIS program to maximize workplace performance and increase workplace efficiency and productivity in the field and office and Esri Collector and Survey 123 mobile device applications for EC, TEUI, and Common Stand Exam (CSE).
- Worked with multiple partners (federal and state agencies, non-profits, academia, private sector, and the public) in longleaf pine restoration:
 - Collaborated and funded work with a graduate student at Texas A&M University (\$4,999 for FY2017 & 2018) to develop the National Forests in Alabama EC model version 1.0 and 2.0 for NFAL.
 - Led, collaborated, and funded (originally at \$30,000 from FY 2017 – 2018 and additional \$20,000 for FY 2018 – 2021) a team of federal and non-profit (Longleaf Alliance) members through a Participating Agreement towards restoration activities/support and the development of a web-based story map (<https://arcg.is/1q5Xqi>) for planning longleaf pine restoration across federal, state, and private landowners originally in Chilton, Clay, & Coosa Counties (now extended to all counties b/w the Talladega National Forest's Ranger Districts), Alabama for America's Longleaf Restoration Initiative's Talladega Mountain Longleaf Local Implementation Team/Partnership.
 - Represented NFAL at both the Chattahoochee-Fall Line and Talladega Local Implementation Teams for America's Longleaf Restoration Initiative.
- Initiated a collaborative effort between Alabama Water Watch for collecting water quality monitoring data across NFAL through a FS Citizen Science Competitive Funding Program grant (FY2019).
- Developed specialists reports in collaboration with the Soil Scientist for NNIS, soil, and water for Environmental Assessments (NEPA) projects across NFAL.
- As NFAL Green Team lead, I worked with the SO Green Team to establish the NFAL Green Team Charter and secured microgrant funding (\$15,000 combined for FYs 2017–2018) to install water bottle fill stations at the SO and Tuskegee National Forests to decrease disposable plastic water bottle consumption.
- Served as the point of contact and coordinator for NFAL's Research Natural Areas, Burn Area Emergency Response Teams, Health and Wellness and logistics during southern pine beetle infestations on NFAL lands, 2017–2018.

September 2016 to October 2016 (2 weeks)

USDA-FS, HQ, International Programs, Kilwa Masoko, Tanzania

- Participated in a three-person detail team for the U.S. Forest Service International Programs as GIS Technical Detailer for two weeks (September 26-October 7, 2016)
- Detail was part three of a three session detail to support the partnership between the U.S. Forest Service and the Mpingo Conservation and Development Initiative (MCDI) with a focus on geospatial infrastructure and development.
- Objectives of the detail were to: 1) build on the findings and recommendations from the prior two sessions; 2) hand over equipment to the MCDI procured by the USFS, including four hand-held Garmin Oregon 650t GPS units and one, single-use license for ESRI ArcGIS Desktop Advanced; 3) conduct formal training for ESRI ArcGIS Desktop, covering introductory, intermediate, and advanced topics; 4) To provide direct guidance on data management and other information technology and mapping priorities; 5) To investigate options for USFS technical cooperation beyond GIS and information technology
- Created maps for FS International Programs for the NKhotakota Wildlife Refuge in Malawi. These

maps consisted of land cover, watersheds, and 50k maps for field work to be used by Refuge employees, funding was through FS International Programs and USAID

Forester/Biometrician (October 2014–May 2016)

USDA FS, Pacific Northwest Region, Regional Office, Portland, OR

Worked within a team of six under the Regional Biometrician to oversee, manage, and complete the annual R6 vegetation inventory & monitoring program's FIA plots for the Pacific Northwest Region's National Forest Systems in Oregon and Washington

- Provided technical guidance in planning vegetation inventory and monitoring, sampling, and analysis and mapping of data using appropriate techniques based on the Forest Inventory Analysis protocol (modified if needed for NFS or other methods as determined by project type)
- Used geospatial, big data/data science, and statistical data analysis through ArcGIS, R, and Python to provide reports and statistics as needed by the Regional Forester, Directors, Regional Biometrician, other regional or Forest staff, or for congressional inquiries.
- Conducted and adapted the use of existing statistical (R and Python), database management (Microsoft Access and Oracle), and geospatial (ArcGIS and ArcGIS Online) packages for the most efficient methods of solving problems in the statistical and geospatial analysis of physical vegetative data.
- Provided expert technical advice for the collection, warehousing, analysis, and reporting of vegetative resource data for the region's vegetation inventory program.
- Reviewed all vegetative data acquisition procedures to ensure consistent inventory methods are utilized which align with NFS corporate protocols and databases (Forest Inventory Analysis (FIA), Current Vegetation Survey, FS-VEG, Forest Vegetation Simulator (FVS))
- Ensured efficient data entry to the vegetation inventory database and compilation of data to prepare it analysis.
- Aided in the design of sampling procedures, and the design of techniques to evaluate changes of vegetative conditions over time, for the region's vegetation inventory program, and provided detailed written explanations and procedures.
- Served as a consultant and advisor to other resource groups dealing with various techniques suitable for the acquisition and analysis of vegetative conditions such as the Blue Mountains Restoration Project and the Noble polypore and noble fir project.
- Provided technical transfer and training, as needed, in National Forest System (NFS) corporate inventory and analysis tools.
- Streamlined workflow and efficiency for NFS corporate inventory and analysis program data collection through ArcGIS online and mobile platform (Android) applications.

Owner and Principal Scientist (May 2014–September 2014)

Geospatial & Environmental Analysis & Research (G.E.A.R.) LLC, Montgomery, AL

- Consulted/contracted with The Nature Conservancy on the dendrochronology of conifers at Fort Benning (processing, dating, measuring, and analysis) of tree cores collected in 2013 from 24 Upland Pine Ecological Monitoring plots: \$17,900.
- Consulted with a U.S. Fish & Wildlife Service Forester at the Carolina Sandhills National Wildlife Refuge in determining ages for remnant old-growth longleaf pine.
- Built and developed UAS for consulting and contracting.

Post-Doctoral Fellow (June 2012–April 2014)

Silviculture and Ecology Lab, Department of Forestry and Natural Resources, Clemson University, Clemson, SC

Supervisors: Joan Walker, PhD (USFS Southern Research Station Research Botanist, retired)

Geoff Wang (Clemson University Professor); **Phone:** 864.656.4864; **Email:** gwang@clemson.edu

- Funded on a \$1.2M Department of Defense Strategic Environmental Research and Development Program research project titled: Temporal and Spatial Patterns of Pine Mortality in the Southeastern United States.
- Analyzed geospatial, remotely sensed (Landsat, NAIP, and hemispherical-fisheye photography), dendrochronological, and field data to determine reduced vigor of southern pine trees across four focal sites: Fort Benning, GA, Fort Stewart, GA, Fort Jackson, SC, and Talladega National Forest, AL.
- Supervised, directed, developed, planned, organized, and implemented field data collection protocols and teams that I assembled and managed to collect field data based on a modified version of USFS Forest Health Monitoring field and data collection protocol for conifers exhibiting poor health at Fort Benning, Fort Stewart, and Fort Jackson
- Field data collection involved establishing ten to twenty 30m x 30m plots (depending on site) to assess forest health based on modified USFS forest health monitoring protocols for all trees species; data on their health was collected along with diameter at breast height, canopy height, canopy diameter, and tree cores for dendrochronological assessment; Fisheye photography was captured to assess LAI and all trees were georeferenced via a subcentimeter GPS unit.
- Led, developed, organized, and led field teams and field data logistics and collections for other projects in the lab.
- Contributed as an author or co-author with the Primary Investigators and other peers in white papers, presentations at conferences, and publications in peer-reviewed journals.
- Placed job ads, interviewed, hired, supervised, and mentored five laboratory technicians.
- Supervised and managed graduate students, technicians, and research assistants
- Generated and submitted two proposals to the USDA FS Forest Health Monitoring- Evaluation Monitoring Project with Dr. G. Geoff Wang (one of the supervisors below) for extramural funding at Clemson University (both proposals were rejected)
- Managed, updated, and purchased laboratory supplies, computer software, and hardware systems and maintained research budgets for field and laboratory analyses for the Silviculture and Ecology Laboratory
- Taught an upper-level undergraduate-level research development course with four or more students for three semesters, receiving over \$3000.00 in funding for research equipment and field and conference trips for students (see the Student Teaching and Mentorship section below)

May 2008 to April 2012

Physical Scientist (DB-1301-2) from at the U.S. Army Corps of Engineers – Engineering Research and Development Center’s Topographic Engineering Center, Alexandria, VA

- This position served to support the warfighter with geospatial and remote sensing applications.
- Worked as a Student Career Experience Program intern within a team of five to collect data in support of the validation of LiDAR data from a new LiDAR sensor that was to be deployed with the USACE in supporting the warfighter; Mount Whitney was used as a surrogate for the mountains of Afghanistan in one of these field campaigns.
- Worked within a team of three to establish permanent circular study plots, identified tree species,

and collect tree morphometrics (diameter at breast height, height to live first branch, total height, and canopy diameter) in the eastern Sierra Nevada of California (Enyo and Humboldt-Toyaibe National Forests) and in the North Carolina Sandhills (Fort Bragg)

- Georeferenced and surveyed backsights, foresights, and plot centers using survey-grade Leica GPS units and total stations and deployed terrestrial LiDAR (Leica C10 or ScanStation 2) scans around and within the circular study plots based on georeferenced points.
- Surveyed scientific literature for current trends and applications for LiDAR research.
- Extracted and analyzed bare earth imagery, building structures, and forested areas from airborne and terrestrial LiDAR.

EDUCATION

Ph.D. Natural Resources: Geospatial and Environmental Analysis (December 15, 2011), College of Natural Resources and the Environment, Virginia Tech (VT), Blacksburg, Virginia 24061

Dissertation Title: Variation in the structure, composition, and dynamics of a foundation tree species at multiple scales and gradients

Advisor: Lisa M. Kennedy (VT, Geography); **Committee:** James B. Campbell (VT, Geography), Neil Pederson (Harvard Forest), Jeffrey R. Walters (VT, Biological Sciences)

M.S. Geography (May 13, 2006), Department of Geography, Virginia Tech

Thesis Title: A dendroecological analysis of disturbance of remnant *Pinus palustris*, southeastern Virginia

Graduate Student (2003 Fall Semester), transferred to Virginia Tech in Spring 2004), Department of Geography, The University of Alabama, Tuscaloosa, Alabama 35487; **Courses included:** Biogeography, Forest Ecology and Vegetation Analysis, and Regional Planning and Analysis

B.S. Environmental Science & B.A. Geography (May 10, 2003), Auburn University, Auburn, Alabama 36849; **Courses included:** Analytical Chemistry, Basic Soils, Climatology, Cartography, GIS Database Design and Analysis (Forestry Course), Environmental Geology, Environmental Law (Forestry course), and Water and Waste Treatment

B.S. Zoology (December 14, 1998), Department of Biological Sciences, Auburn University; **Courses included:** Entomology, Geography of Environmental Management Herpetology, Mammalogy, Ornithology, Silviculture, and Systematic Botany

PROFESSIONAL LEADERSHIP DEVELOPMENT (ordered by importance)

- **Middle Leader Training, Progress Associates Cohort One; Pacific Northwest Region and the Pacific Northwest Research Station** (December to April 2016): Designed for highly performing GS-09/11/12 employees, the training is designed to enhance core competencies related to emotional intelligence, communications, conflict resolution, creativity, personal/professional savvy, and strategic thinking while being a successful leader in the challenging and complex environments of the FS.
- **Office of Personnel Management (OPM) Leadership Assessment, 360, Leadership Profiler, and Potential Assessment** (2020): Received feedback from direct reports, peers, supervisors, and

others, in addition to self-ratings and assessment, to help me identify leadership strength, development needs, self-awareness about their personality, and how it impacts job performance while also providing feedback about a participant's potential to be successful in a higher level of leadership.

- **USDA Aspiring Leader Program (2017):** Enhanced my understanding of fundamental leadership competencies and discovering development resources for continual learning through AgLearn. The program is intended for GS9 – GS12 employees that aspire to be leaders or want to improve their leadership skills by enhancing competencies in accountability, conflict management, customer service, decisiveness, influencing/negotiating, and team building.
- **2019 & 2022 Federal Acquisition Training and Certification for Program and Project Management (FAC-PPM; Entry and mid-level training by Veterans Administration Acquisition Academy, Frederick, MD, 2019 and Progressive Concepts in Program Management, Virtual: Senior-Level, 2022):**
 - Developed soft leadership skills in communications, relationship building, conflict resolution, transparency, decision making, assessing, and translating business requirement, building collaboration and partnerships, teamwork, and networking.
 - Learned basic, mid-level, and senior knowledge and comprehension skills for Federal Sector project managers in managing small, middle, and large level projects or participating as an effective member of an integrated project team. Courses focused on identification of project management roles, responsibilities, decision points, and key deliverables required for effective systems-acquisition management throughout all phases of a project's lifecycle.
 - Learned about managing and evaluating agency acquisition investment performance, developing, managing, and gaining approval for a program budget, building, and presenting a successful business case, reporting program results, and presenting a program for review and approval before decision makers and stakeholders, strategic planning, and stakeholder management.
 - FPM 120 (June 17–21, 2019) & FPM 121 - Fundamentals of Program Management (June 24–28, 2019) FPM 260 - Concept Definition (August 6–9, 2019); FPM 261 - Concept Planning (August 26–30, 2019); FPM 262 - Development through Closeout (September 9–13, 2019). (FPM 331 - Progressive Concepts in Program Management; FPM 332 - Progressive Contracting Strategies for Programs; FPM 333 - Progressive Business Cost, and Financial Management; FPM 334 - Progressive Leadership in Program Management.

PROFESSIONAL TRAINING

- **Forest Service:**
 - **Aquatic Organism Passage and Culver Design Training** by the National AOP Design Team Cadre, Southern Region, Oxford, MS, February 26 - March 2, 2018
 - **Pesticide Certification Training**, Southern Region, Regional Office, Atlanta, GA, January 29 - February 2, 2018: certified applicator for forest, aquatic, and right-of-way
 - **FSVeg Spatial Training**, Southern Region, Regional Office, Atlanta, GA, January 24 - 26, 2017
 - **Introduction to NEPA** by the Southern Region NEPA cadre, National Forests in Alabama, Montgomery, AL, October 24 - 26, 2017
 - **Silvicultural Prescription School**, Southern Region, Regional Office, Pineville, LA and Crossett, AR, April 18-27, 2017
 - **Wilderness Awareness Course** by the Arthur Carhart National Wilderness Training Center, National Forests in Alabama, Oxford, AL, February 7 - 9, 2017

- Received online training in Supervisor, TEUI, ArcGIS, SharePoint, 3-D imagery, and official databases of record for NNIS (TESP-IS and TESP-IS Collector), soil and water (WIT), and FACTS
- **Forest Vegetation Simulator Training, Pacific Northwest Region, Seattle, WA**, (February 29 - March 4, 2016): Five-day training course on the introduction, concepts, and use of Forest Vegetation Simulator Training in growth and yield modeling using FVS and its extensions
- **Forest Service National Environmental Policy Act (NEPA) Courses**: Four NEPA courses taken on AgLearn and its use in the US Forest Service. Courses included: 1) 1950 NEPA Concepts Course: NEPA Overview; 2) 1950 FS National NEPA Requirements; 3) 1950 FS National NEPA Requirements (508 Compliant); 4) 1950 FS National NEPA Final Assessment
- **Unmanned Aerial Systems in Earth Sciences, Center for Transformative Environmental Monitoring Programs, Oregon State University, Corvallis, OR** (June 23–25, 2015): Learned about UAS applications, regulations, sensors, mission planning, data collection, and image processing while also getting to observe data collection in the field and working in groups to process imagery
- **Basic Data Analysis and Linear Regression Using R, Willamette National Forest, Forest Supervisor's Office, Springfield, OR** (April 9, 2015): One day workshop covered R basics and linear regression
- **Gradient Nearest Neighbor (GNN) for predictive vegetative mapping, Pacific Northwest Research Station, Corvallis, OR** (March 17, 2015): One day workshop covered how the Gradient Nearest Neighbor (GNN) method is used for predictive vegetation mapping
- **LiDAR Workshop with Fusion, USDA-FS, Remote Sensing Applications Center, La Grande, OR** (March 10–13, 2015): Four-day workshop on using Fusion for LiDAR data
- **FSVeg and Common Stand Exam Training, Pacific Northwest Regional Office, Portland, OR** (February 24–26, 2015): Three-day workshop on using FSVeg for uploading Common Stand Exam data

PROFESSIONAL SERVICE

• Forest Service:

- **2021 Senior Leadership Program Design Advisory Group and Review Panel**: worked with others across the FS in the redevelopment of the Senior Leader Program for launch in early 2022 which “engages participants in a meaningful way and is aligned with the agency’s mission and goals of *“This is Who We Are”* and participated in the review of applicants for the Class of 2022 Senior Leadership Program.
- **2021 Chief's Awards**: I served on one of four review teams as a reviewer for nominations submitted for consideration under Goal 1: Sustaining our Nation’s Forest and Grasslands. I reviewed 16 nominations and worked with a team to advance the top nominees to the next level for review.

• Science-based Peer Review for academic journals:

- **Editorial Board Member**: Southeastern Geographer (September 2019–August 2025)
- **Guest editor**: Southeastern Naturalist
- **Reviewer (academic journal articles)**: Annals of Forest Science, Agriculture, Ecosystem & Environment, Applied Geography, Canadian Journal of Forest Research, Castanea, Conservation Science and Practice, Environmental Research Communications, European Journal of Forest Research, Journal of Biogeography, Southeastern Naturalist, Tree-Ring Research, Trees
- **Reviewer (grants)**: Joint Fire Science Program, The Graduate Research Innovation (GRIN) Awards (2021); Ecological Society of America 2021 and 2023 Annual Meeting Abstract Reviewer; National Science Foundation, Geography and Spatial Sciences Program proposals (October

2016)

- **Working Group Member:** America's Longleaf Restoration Initiative's Longleaf Pine Sustainability Analysis Project Working Group (2022–Present): Providing technical oversight and guidance while overseeing and providing recommendations related to the development of a longleaf ecosystem-centric spatial analysis that will inform the next 15-year conservation plan.
- **Advisory Council Member:** College of Forestry and Wildlife Sciences, Auburn University, Auburn AL (2022–Present): Providing input/advice and recommendations to the College, especially with a concentration on their Geospatial and Environmental Informatics program.
- **Committee Member (Scientific Academic Non-profit organizations):**
 - **Ecological Society of America:** Governing Board's Committee (2022– 2024), Awards Nominations Committee (2022–2025), Certification Committee (2024–2026)
 - **American Association of Geographers:** Biogeography Specialty Group (2021–2022); Graduate Student Representative (2010–2011)
 - **National Capital Society of American Foresters:** Program Chair (2021); Chair-Elect (2022); and Chair and House of Society Delegates (2023)
- **Panelist:** *Invited to serve on 13 panel sessions over the last ten years that span sessions covering career advice, careers in government; certification; switching from academia to public-sector careers; and mentorship.*

PROFESSIONAL CERTIFICATIONS

- **Fire Qualifications:** Red card FFT2, GISS, READ, PIOT, and AA task (Prescribed Fire (RXA3) and Wildfire (WFA3)).
- **Federal Acquisition Certification Program and Project Management Level I and II**
- **GIS Certified Professional:** the GIS Certification Institute, License 57200
- **Certified Senior Ecologist (January 2023–January 2028):** The Ecological Society of America
- **Certified Ecologist (expired June 30, 2020):** The Ecological Society of America
- **The Data Scientist's Toolbox:** Coursera Verified Certificates, License NGH27KJCW8
- **Part 107 Small Unmanned Aircraft Certified by the Federal Aviation Administration (expired)**

REFEREED PUBLICATIONS (selected)

- Harley G, Therrell M, Maxwell J, **Bhuta AAR**, Bregy J, Heeter K, Patterson T, Rochner M, Rother M, et. al. (2023) The longleaf tree-ring network: reviewing and expanding the utility of *Pinus palustris* Mill. dendrochronological data. *Progress in Physical Geography*, <https://doi.org/10.1177/03091333221147652>
- Eberhardt TL, Lebow PK, Sheridan PM, **Bhuta AAR**. (2022) Identifying southern yellow pines from the southeastern United States using quadratic discriminate analysis on pith and annual ring diameters. *Dendrochronologia*, <https://doi.org/10.1016/j.dendro.2021.125904>
- Bhuta AAR**, Kennedy LM. (2021) Woody plant dynamics in a foundation conifer woodland of the Appalachian foothills, Alabama *Southeastern Naturalist*, <https://doi.org/10.1656/058.020.0313>
- Fargione J, Haase D, Burney OT, Kildisheva O, Edge G, Cook-Patton SC, Chapman T, Rempel A, Hurteau MD, Davis KT, Dobrowski S, Enebak S, De La Torre, Rafael, **Bhuta AAR**, Cubbage F, Kittler B, Zhang Daowei, Guldin RW (2021) Challenges to the reforestation pipeline in the United States. *Frontiers in Forests and Global Change*, **4**, 1–18, <https://doi.org/10.3389/ffgc.2021.629198>
- Kaiser A, Soulé P, van de Gevel SL, Knapp P, **Bhuta AAR**, Walters J, Montpeillier (2020) Dendroecological investigation of red-cockaded woodpecker cavity tree selection in endangered

longleaf pine forests. *Forest Ecology and Management*, **473**, 1–12,
<https://doi.org/10.1016/j.foreco.2020.118291>

Kressuk JM, Goode JD, **Bhuta AAR**, Hart JL, Kleinman JS, Phillips DL, Willson KG (2020) Composition and structure of a montane longleaf stand on the Alabama Piedmont. *Southeastern Naturalist*, **19**, 436–446, <https://doi.org/10.1656/058.019.0223>

Goode JD, Kleinman JS, Hart JL, **Bhuta AAR** (2020) Edge influence on composition and structure of *Pinus palustris* woodland following catastrophic wind disturbance. *Canadian Journal of Forest Research*, **50**, 332–341, <https://doi.org/10.1139/cjfr-2019-0292>

Bhuta AAR, Hart JL, Schneider RM (2011) Composition and structure of a second-growth mixed pine-hardwood forest in the Eastern Highland Rim of the Interior Plateau. *Natural Areas Journal*, **31**, 500–513, <https://doi.org/10.3375/043.031.0308>

Bhuta AAR, Kennedy LM, Pederson N (2009) Climate-radial growth relationships of northern latitudinal range margin longleaf pine (*Pinus palustris* P. Mill) in the Atlantic Coastal Plain of southeastern Virginia. *Tree-ring Research*, **65**, 105–115, <https://doi.org/10.3959/2008-17.1>

Bhuta, AAR, Kennedy LM, Copenheaver CA, Sheridan PM, Campbell JB (2008) Boundary-line growth patterns to determine disturbance history of remnant longleaf pine (*Pinus palustris* P. Mill.) in mixed forests of southeastern Virginia. *Journal of the Torrey Botanical Society*, **135**, 516–529, <https://doi.org/10.3159/08-RA-024R.1>

CONFERENCE PRESENTATIONS

Presented as lead author or coauthor for a total of 43 oral or poster presentations at scientific conferences since 2003 including: The Alabama Academy of Science, The American Association of Geographers, The Applied Geography Conference, The Biennial Southern Silvicultural Research Conference The Ecological Society of America, The Geological Society of America, The International Association for Society and Natural Resources The Longleaf Alliance, The Society of American Foresters, The Society of Conservation Biology, The Southeastern Division of the American Association of Geographers, and The Association of Southeastern Biologists.

GRANTS

- 2021: National Science Foundation, Paleoclimate Program Paleo Perspectives on Climate Change (P2C2): Tropical cyclone precipitation throughout the Southeastern United States (Award Number 2102888) through NSF 17-582 Paleo Perspectives on Climate Change: CO; awarded \$258,774
- 2014: Department of Defense, United States Army: Processing and measurement of Fort Benning, GA tree cores collected from Upland Pine Ecological Monitoring Plots; awarded \$17,900
- National Science Foundation, Geography and Regional Science Doctoral Dissertation Research Improvement Program (with Lisa M. Kennedy as PI): A Multi-Scale Analysis of Disturbance, Dynamics, and Climate-Growth Relationships in Mountain Longleaf Pine Forests, USA; awarded \$8297.00.

MENTORSHIP, STUDENT COMMITTEES, & TEACHING

- Mentored and supervised a student intern (2020–2021) from Stanford University and student interns (2021–2022) from Clark University and Johns Hopkins University (both of whom became FS employees) through the Department of State’s Virtual Student Federal Service. The interns

developed stories showcasing the success of the work implemented through the Forest Stewardship Program.

- Mentored and co-mentored Geological Society of America GeoCorps interns for 12 week periods securing funding for these interns through NFVW funds (\$33,332 for FY17/18) and cost shares with Washington Office (\$8,000): **1)** I mentored one intern from on a vegetation, soils, and GIS project (presentation at an academic conference), while co-mentoring another on a bird and vegetation project from May to August 2017; **2)** I mentored one intern on geospatial hydrological models, watershed condition framework, and watershed restoration action plan from January to March 2018; **3)** I co-mentored two interns on terrestrial ecological unit inventory for Tuskegee National Forest from June to August 2018.
- Through USDA FS International Programs, mentored a US Department of State (hosted by IREX) Community Solutions Fellow from Lebanon for four months (August to December 2017) to introduce the Fellow to FS operations, directives, and programs specifically focusing on GIS, remote sensing, and terrestrial ecological unit inventory.
- **DISSERTATION & THESIS COMMITTEES:** I have served as a committee member for graduate students defending their PhD Dissertations (three) and MS Thesis' (eight) at the University of Alabama, Old Dominion University, and Virginia Tech.
- **MENTORING & TEACHING AT CLEMSON UNIVERSITY:** Through the Creative Inquiry course, a university-wide research and teaching program, I mentored four undergraduate students for three semesters on research project titled ***Determining the effect of climate on longleaf and loblolly pines across the physiographic gradient of South Carolina***. They developed field and laboratory research and communication skills through interaction with the mentors and other students in the laboratory and at conferences. We received \$1,200 per semester to support all four students.
- **MENTORING & TEACHING AT VIRGINIA TECH:** As a prerequisite for graduation, Virginia Tech's Department of Geography requires Geography undergraduates to complete Undergraduate Research (GEOG 4994; 120 hours/semester or 3 credit hours) which included field and laboratory research experience. I directed and mentored 26 undergraduate students on their undergraduate projects in field and laboratory research from Spring 2008 to Spring 2013.

PROFESSIONAL MEMBERSHIPS

Association of American Geographers Ecological Society of America, Gamma Theta Upsilon Geography Honor Society (inducted at Virginia Tech), Sigma Xi, The Scientific Research Society (full member since 2010 at Virginia Tech), Society of American Foresters, Southeastern Division of the Association of American Geographers