

# USDA FORESTRY RESEARCH ADVISORY COUNCIL

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February 23 – 24, 2016

Washington, DC

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On behalf of the

National Association of State Foresters

# Primary **Investigative Sources** of Forestry Science for NASF Members

- USDA Forest Service Research
- Land Grant Universities – Forestry and other NR Departments
- Non-Land Grant Universities
- Industrial Scientists (e.g. NCASI)
- Private Entities: (e.g. Tall Timbers)

# Primary **Informational Sources** of Forestry Science for NASF Members

- Internet
- Refereed Journals
- Conventions
- Conferences
- Field Days
- Personal Conversations

# Research Services and Products Utilized

- Production and Management Science
  - Silviculture
  - Fire
  - Agroforestry
  - Invasive species (plants and I&D)
- Ecosystem Service Science
  - Habitat
  - Recreation
  - Air and Water Quality
- Socio-Economics
  - Supply -- FIA
  - Demand - TPO
  - Landowner demographics
- Socio-Political
  - Forest Policy – EPA, T&E, GMOs
  - Climate Change
  - International Trade

# Are Research Needs Currently Being Met?

- Yes

- Fire Behavior
- Fire Recovery
- Silviculture
- Habitat
- Wood Utilization
- Tree Improvement
- Climate Change – Carbon Accounting
- Roads/SMZs/BMPs
- Forest Harvesting

- No

- Riparian Resources - Sediment
- Fire – Suppression Cost -Values Saved
- Ecosystem Service Values
- Climate Change – Resilience
- Prescribed Fire in Hardwoods
- FIA – Plot Intensity - Remote Sensing
- Human Dimensions – Messaging
- Woody Biobased Products
- Certification Cost vs Benefits

# What Research Does Your Organization Provide

- Marginal involvement as Main Line Investigators
- Moderate Cooperator Involvement – Primarily Applied Research
- Some support through access to and retention of research sites

## What Percentage of Your Organization's Budget is Targeted to Research?

Little to none, even in those State Forestry Agencies Administratively Attached to Land Grant Universities

# U.S. Rank in Research Quality and Relevance?

- Head of the Pack in the Broader Sense
- Scientists are domestically and internationally known and investigations are relevant
- International students clamor for acceptance in US Universities
- Excel in information dispersal
- Excel in collaboration – domestically and internationally

# Where Scientifically Does the U.S. Excel?

- Fire –Behavior, Recovery, Smoke Behavior
- Silviculture
- Ecological Research
- Climate Change – Carbon Accounting
- Wood Utilization
- Hydrology - BMPs
- Tree Improvement
- Urban Forestry

# In What Scientific Areas Are We Falling Behind Internationally?

- Climate Change
  - Species Adaptability
  - Resilience
- Invasives
- Restoration
- Genetics
- Wood Marketing
- Nutrient Management
- Social Sciences
- Economics
- Operations Research
- Soil Health
- Entomology
- Pathology
- Rangeland Research

# Emerging Trends

- Loss of indigenous cover types and values – especially rangelands
- Conflict between prescribed fire and smoke management
- Losing Riparian Forests
- Losing Windbreaks and Shelterbelts
- Increasing #'s of environmentally uninformed leaders and citizens
- Accelerated forest land parcelization
- Socio – Political conflicts –push back on federal regulations and genetics
- Weakening economic state of the forest products industry
- Better understanding of the rising potential for low value hardwoods
- Better understanding of the importance of alternative revenue sources as a means of sustaining forest and natural resources

# Is U.S. Facing a Decline in Forest Scientists?

- Sharik, Terry, L: (etal): Nov. 2015 Journal of Forestry
  - Undergraduate enrollments highly cyclic – can change as much as 50% within a decade
  - Undergraduate enrollments match the 1980's
  - Enrollments have shifted from consumptive natural resource fields to interdisciplinary and ecosystem based programs
  - Female enrollments – 41% ; 18% in Forestry; Minority enrollments 12%; Forestry below average. NR Dominated by Hispanics -- Wood Science – Asians – Recreation – Blacks
  - Merger of Disciplines – Forestry in Non-Research Institutions –“For a profession that prides itself on advancing the science, education, technology and practice of forestry these trends suggest a future where the science becomes increasingly separated from the practice.” O’Hara and Redelsheimer – JOF 2012.

# Is NASF Concerned About Scientific Capacity?

## Numbers Trained – Numbers Retained

- Yes
  - Investigators
  - Interpreters
  - Communicators

## How to Address

- STEM enhancements --- Science, Technology, Engineering, Math
- Building interest in talented kids at the middle school or earlier levels
- Reverse negative image of forestry
- Improve wages