

16. Climate Change Perceptions of Southern Foresters

Leslie Boby^{1,4} • William Hubbard^{2,4} • Hilary Morris^{3,5}

¹Extension Associate • ²Regional Forester • ³M.S. Student • ⁴Southern Regional Extension Forestry • ⁵Department of Forestry and Environmental Resources, North Carolina State University



The PINEMAP Extension team's primary effort in sharing new developments from the PINEMAP project and increasing forest resilience is directed toward southern foresters who work for industry and private landowners. A survey was conducted to learn more about foresters' views on climate change and interest level in various forestry issues. Survey results are informing our approach to working with foresters and other forestry stakeholders as we develop continuing education programs and outreach materials with the goal of building an engaged and literate public with the capacity to make informed, practical decisions related to climate, forest ecosystems, and forest management. These education programs will also enhance capacity for regional, interdisciplinary collaboration among climate and forest scientists and Extension professionals, as well as enhance connections between forest landowners and researchers and outreach professionals.

Professional foresters in the southeastern United States are an important stakeholder group for PINEMAP. This group, comprised of professionally trained individuals from private industry, consulting firms, public agencies, universities, and nonprofits, will need to provide several critical services if PINEMAP is to accomplish its goals and objectives. Many professional foresters are in the business of serving private family forest owners. They provide oversight in the development of management plans, recommend and oversee implementation of preferred silvicultural practices, and initiate several other practices on behalf of the landowner. Currently, little information exists regarding southern foresters' views on climate change, their receptivity to new information regarding climate change concepts, and their willingness to implement forest management strategies to mitigate impacts of climate variability.

A survey was conducted to gain a better understanding of professional foresters' experiences, perceptions, beliefs, and attitudes with regard to climate change. The survey was also used to gain an understanding of the level of knowledge and interest in continuing education topics and formats regarding climate science and climate change.

Twenty-four questions relating to foresters' personal observations, perceptions, beliefs, and continuing education needs were developed in areas relating to changing climatic conditions, weather, and resilient forest management strategies. Eight questions collected demographic information. Most of the questions used rating scales with open-ended options to provide additional information.

A comprehensive database of professionally trained foresters was developed through Internet searches and personal contacts with state forestry agencies, Cooperative Extension, private companies, and nongovernmental forestry organizations. This working database consisted of nearly 6,700 foresters in the 13 states that make up the USDA Forest Service's Southern Region (including all 9 states within the PINEMAP region). The survey was implemented with guidelines from the Tailored Design Method (Dillman et al. 2009) to increase the response rate. Nonresponse bias was tested using late respondents as proxies for nonrespondents and no bias was detected for any of the response variables tested.

More than 1,700 foresters completed the survey, yielding a 27% response rate and a sampling margin of error of 2% at the 95% level of confidence, which is typical for web-based surveys that do not provide completion incentives (Dillman et al. 2009). The following key findings emerged from the survey:

- Nearly all of responding foresters were male (95%) and have bachelor's degrees (97%). Respondents were approximately equally represented among different age classes, which was important because previous studies (Labriole and Luzadis 2011) have found age to influence levels of acceptance of climate change.
- Of the responding foresters, 61% agreed that the climate is changing but differed in their views of the cause, with only 14% agreeing that it is primarily anthropogenic in origin. Of the 39% who did not believe that the climate is changing, 6% thought that sufficient evidence exists to show that climate change is not occurring (Figure 16.1).



Photo by Steve McKeand.

While many foresters had different views and perceptions on climate change, the majority were interested in educational programs that would help them increase forest resilience.

- Of the responding foresters, 75% felt “somewhat” to “very knowledgeable” about climate and climate change, and 63% were “somewhat” to “very interested” in learning more. Only 25% of respondents responded that their clients had asked about climate change.
- Climate change views among responding foresters differed by state, with Texas and Oklahoma foresters having the highest rates of acceptance that climate change is occurring and Mississippi and Alabama having lowest rates of acceptance. This could be partially due to the extreme drought and dry weather experienced by states such as Texas and Oklahoma during the survey period.
- Of the responding foresters, 45% thought that changes in forest management strategies are needed to respond to and mitigate climate uncertainty, and more than 70% were interested in learning about forest resilience strategies.
- Responding foresters expressed varying levels of interest in learning more about specific topics such as planting guidelines and silvicultural recommendations (Figure 16.2).

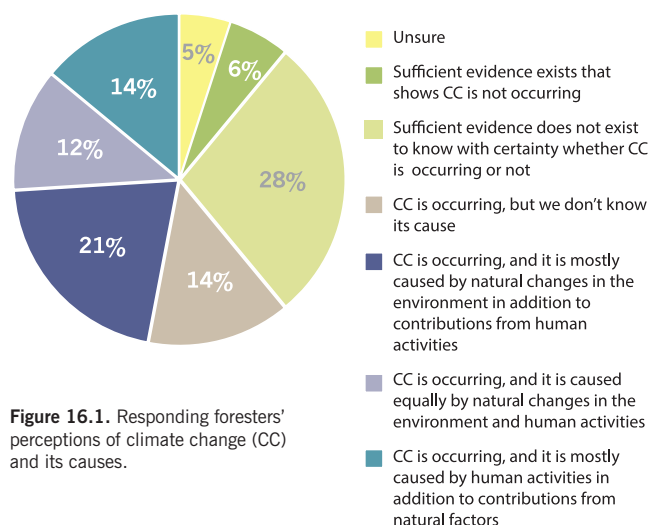


Figure 16.1. Responding foresters' perceptions of climate change (CC) and its causes.

Potential Application of Findings

Results from this survey have informed our approach to working with foresters and other forestry stakeholders as we develop continuing education programs and outreach materials. For example, we found that while many foresters had different views and perceptions on climate change, the majority were interested in educational programs that would help them increase forest resilience, which is consistent with a similar survey of Midwestern foresters (Carlton et al. 2014). Because our overall task is to disseminate the latest developments from PINEMAP research and to increase forest resilience, the results of this survey suggest that PINEMAP objectives are congruent with foresters' goals of maximizing production and minimizing risk. Further, findings suggest that aligning our educational programs toward reducing risk, increasing resilience, maximizing productivity, and helping landowners achieve specific management objectives may be most effective for achieving PINEMAP objectives.

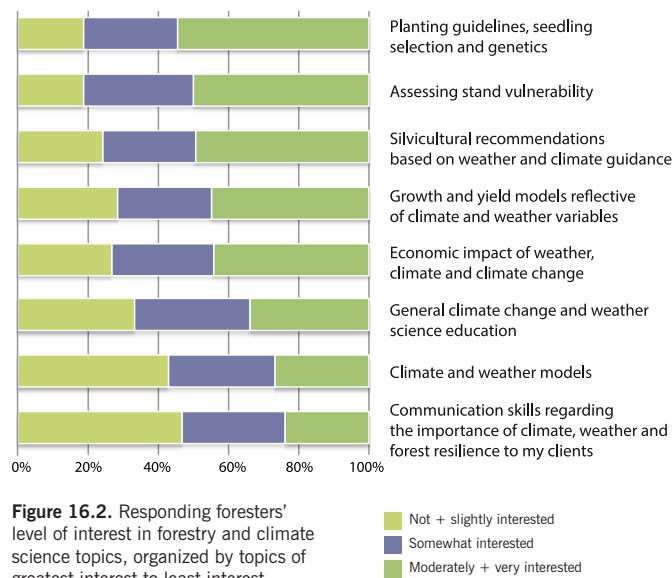


Figure 16.2. Responding foresters' level of interest in forestry and climate science topics, organized by topics of greatest interest to least interest.