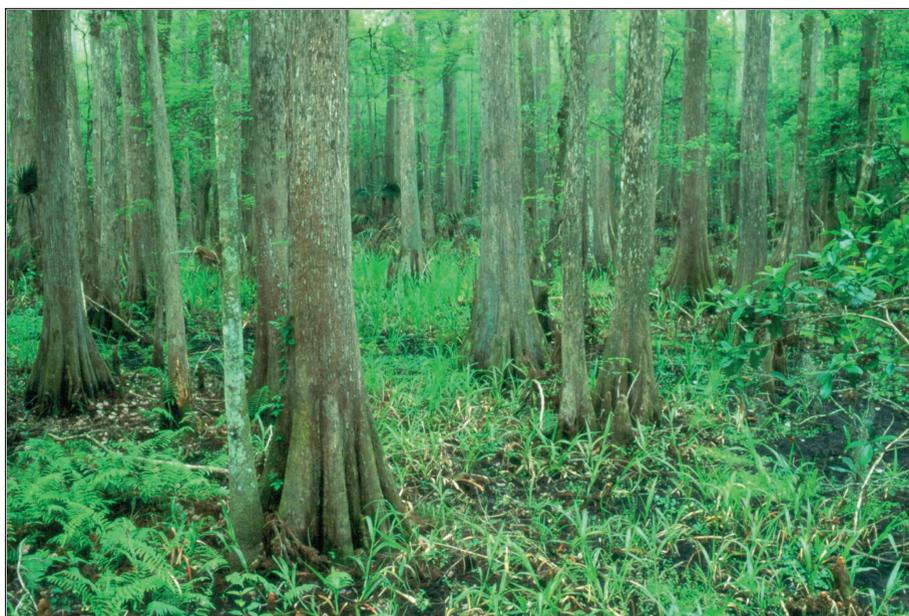


Conducting Science in the Public Eye



Bill Lea

John G. Greis and David N. Wear

ABSTRACT

Questions about the long-term sustainability of southern forest benefits, including wildlife habitat, water quality, and timber supply, prompted this regional assessment and guided the process by which it was conducted. SFRA's final report is descriptive—not prescriptive—and is intended to inform debate and policymaking in technically defensible, unbiased, and understandable terms. Although the analysis was science based and peer reviewed, the public helped frame the questions and critique the answers. This article describes the process used to complete the assessment and draws out several general observations about conducting a scientific analysis of this scope in a public setting.

Keywords: communication; future of forestry; public relations; sustainable forestry

The Southern Forest Resource Assessment (SFRA) final report culminates a three-year process led by the USDA Forest Service in partnership with the US Environmental Protection Agency, US Fish and Wildlife Service, Tennessee Valley Authority, and representatives of the 13 state forestry and wildlife and fish agencies. Although previous sub-

regional assessments provided important antecedents, this science-based study of southern forests is unique in its scope and scale.

SFRA was organized in response to several issues. In the early 1990s significant media attention began to be focused on management of the South's mostly private forests (89 percent of total forest area) and the influence of

several forces of change. New wood-processing technologies, urban expansion and forest conversion, insect and disease epidemics, population growth, and recreation demands heightened public interest and fueled controversy over the status and likely future of southern forests. Ultimately, these concerns boil down to a concern for the long-term sustainability of forest benefits, including wildlife habitat, water quality, and timber supply.

That constellation of concerns convinced leaders of federal and southern natural resource agencies of the need to investigate the status, trends, and possible future of the South's forest re-

Above: A stand of cypress in Florida, one of the key states covered in the Southern Forest Resource Assessment.

sources and to report findings in technically defensible, unbiased, and understandable terms. The Southern Region and Southern Research Station of the USDA Forest Service shared leadership of the assessment. A planning team comprising representatives of the four cooperating federal agencies, the Southern Group of State Foresters, and the Southeastern Association of Wildlife and Fish Agencies provided guidance and coordinated contributions from their constituents.

The assessment can be viewed as an exercise in what Lee (1993) has called "civic science." It was designed to be accessible to the public and to utilize considerable public input in the definition of issues, scope, analysis protocols, and review of outputs. And it was designed to provide the public a platform of up-to-date knowledge and data on which to discuss and debate current and future issues regarding the South's forests. Note that SFRA was intended to inform the public debate with descriptive information, not prescriptive solutions. This was the challenge posed to the assessment leaders and team and the promise made to the public.

The Assessment Process

Defining the questions. The first step in conducting the assessment was to define the questions that would guide the analysis. We adopted an approach similar to that utilized in the Southern Appalachian Assessment (SAMAB 1996). In June 1999, initial sets of concerns were drafted by about 75 experts from participating government agencies, using a workshop format. The issues were organized within five broad subjects: social and economic, terrestrial ecosystems, water and aquatic ecosystems, timber markets and forest management, and forest conditions and health. These concerns were then summarized as an initial set of draft assessment questions to provide a framework for organizing pub-

lic discussion and input.

To gather citizens' input on the draft questions, two public workshops (one in the afternoon, the other during the evening) were conducted at each of five locations around the South during August 1999. After presenting the audience with an overview of the project's objectives and general design, attendees were invited to take part in any or all of five breakout sessions, each dealing with one of the five broad topics. In these facilitated sessions, participants identified concerns and issues that they believed should be addressed by the assessment. Comments were recorded and compiled. For those who could not attend the meetings, the draft questions were also posted on the SFRA website, which invited mail and e-mail comments. Altogether, there were more than 700 meeting participants and hundreds of other contributors. Once all comments were received, compiled, and sorted using a content analysis technique, they were posted on the SFRA website.

After reviewing the comments, assessment leaders crafted more detailed questions, each of which was accompanied by a set of major concerns or issues (labeled subpoints) identified by the public as requiring finer detail in the eventual analysis. Stated differently, the questions broadly reflected input from the public, and the subpoints served to retain memory of the detail contained in them. These preliminary questions and subpoints were posted on the SFRA website for 30 more days of public review. The feedback was used by the planning team to write the penultimate iteration of questions and to select the assessment team.

The assessment questions defined the full scope of SFRA (see "The Heart of SFRA," p. 48). In this sense, they can be viewed as a contract—explicitly defining what would be addressed and implicitly defining what would not. The questions constituted the expecta-

tions for those conducting the analysis and for the public.

Conducting the analysis. A scientist-analyst was selected by SFRA's planning team to carry out the analysis for each question. These "question managers" included representatives of the Forest Service, Environmental Protection Agency, Fish and Wildlife Service, and academia; they constituted the assessment team. In February 2000, the assessment team was convened for an initial meeting to refine the questions, assess the feasibility of addressing them, and draft initial study plans.

Because of the potential for overlap between questions and the need to coordinate approaches and eventually share data, question managers discussed their questions and approaches in five groups, again organized topically; members of the public participated in these facilitated meetings. Immediately afterward, question managers prepared draft study plans for posting on the SFRA website. As with the draft questions, public input was requested on the draft study plans. Following 30 days of review and comment, the plans were finalized, and in March 2000 the analysis began.

Each question manager was encouraged to consult with colleagues and build a research team to complete the work. During the course of the nearly year-long analysis, two team meetings were conducted to discuss progress, share data, and coordinate work. These meetings were open to the public but were carefully designed to allow the team to conduct its business efficiently while interacting with the attendees in an organized way. Preliminary findings were never discussed in open meetings, consistent with the team's strict policy that findings not be released piecemeal and without careful peer review.

A closed meeting of the assessment team was held in January 2001 to discuss preliminary findings and again provide opportunity for team members

The Heart of SFRA

The major questions addressed by the Southern Forest Resource Assessment were organized by topical area; the answers to each question form a chapter of the technical report. The full report can be viewed at www.srs.fs.fed.us/sustain.

Terrestrial ecosystems

1. What are the history, status, and projected future of terrestrial wildlife habitat types and species in the South?
2. What are the history, status, and projected future of native plant communities in the South?
3. What are the likely effects of expanding human populations, urbanization, and infrastructure development on wildlife and their habitats?
4. What are the historical and projected future impacts of forest management and access on terrestrial ecosystems in the South?
5. What conditions will be needed to maintain plant and animal species associations in the South?

Social and economic issues

1. How have land uses changed in the South, and how might changes in the future affect the area of forests?
2. What are the attitudes and values of southern residents toward forests and their management, and how have they changed over time and do they differ by demographic groups?
3. How do current policies, regulations, and laws affect forest resources and their management?
4. What motivates private forest landowners to manage their forestland, and how are their management objectives formed?
5. What role do forests play in employment and local economies in the South?
6. What are the supplies of and demands for forest-based recreation and other noncommodity uses of forests in the South?
7. How do forests and their uses influence the quality of life in the South?

Timber markets and forest management

1. What are the history, status, and projected future demands for and supplies of wood products in the South?
2. What are the status and trends of forest management practices in the South?
3. How might existing and new technologies influence forest operations and resultant conditions of forests?

Forest conditions and health

1. What are the history, status, and projected future of southern forests?
2. How have biological agents, including insects and disease, influenced the overall health of the South's forests, and how will they likely affect it in the future?
3. How have abiotic factors, including environmental stressors such as air pollution, influenced the overall health of the South's forests, and what are future effects likely to be?

Water and aquatic ecosystems

1. What are the history, status, and likely future of water quality in southern forested watersheds?
2. What are the history, status, and likely future of forested wetlands in the South?
3. How have forest management activities and other forest uses influenced water quality, aquatic habitat, and designated uses in forested watersheds?
4. What are the implementation rates and effectiveness of best management practices in the South?
5. What are the history, status, and likely future of aquatic habitats and species in the South?

to coordinate analysis. At the final team meeting, also closed, team members were briefed on findings and plans for their formal release.

Constructing the draft reports. Responses to each question were drafted by question managers and submitted as separate chapters for the technical report; assessment coleaders then compiled and synthesized the major findings for the summary report. All documents were evaluated using a peer-review process patterned after standard approaches used by scientific journals. The subject experts were selected from candidates suggested by members of the public, agency representatives on the planning team, and the question managers themselves. We used a single-blind peer review—the identities of the reviewers were kept confidential—to maximize candor in the reviews. The reviews were sent to the question managers for consideration as they revised their chapters for release in the draft report. On November 26, 2001, the draft chapters (including the summary report) were published via the SFRA website and compact disk, and the draft summary report was printed and made available for distribution.

Preparing the final products. Although draft reports had been peer reviewed by more than 100 experts, the planning team had agreed early in the process to give the public an opportunity to review them and provide feedback on their accuracy and completeness. Ninety days were provided for this purpose, during which comments were received via a threaded message board on the SFRA website and through the mail. Public comments were evaluated and parsed into specific points, organized by chapter, and distributed to question managers for consideration while making final chapter revisions.

Final products include 23 technical chapters addressing the assessment questions, two background papers on southern forest history and the role of fire in southern forests, the summary report, a brief executive summary, and all data used in each analysis—along with the requisite metadata (i.e., complete documentation of data sources and analysis). Inclusion of the data per-

mits the public to conduct additional follow-up analysis or, if desired, replicate portions of the work conducted by the assessment team. This should also make the benchmark information used in this assessment easily available for future updates.

Lessons Learned

Conducting a study of the magnitude and complexity of SFRA and doing so in the public eye with strong and opposing public points of view was no simple task. Fortunately, two somewhat similar subregional analyses (the Southern Appalachian Assessment and the Ozark-Ouachita Highlands Assessment) had been completed in recent years and provided useful lessons and a point of departure. SFRA, however, had to proceed at a larger scale, engage a diverse and intensely interested public and the media, and use different approaches. We offer the following six lessons that were especially critical to SFRA.

1. *Openness.* Engage the public early, often, openly, and honestly. To ensure the relevancy of the final product to the public, involve citizens in identifying the issues to address. Keep them aware of progress at regular intervals, using the Internet, the mail, and the media. Include the public in team meetings but design meetings carefully and conduct them efficiently (see lesson 6 below). Always be truthful to the public when discussing the project's process and progress.

2. *Fairness.* Always share information equally with all sectors and interest groups. Set ground rules for team behavior and adhere to them meticulously. Share those rules with the public: This will provide support for team members as they engage the public.

3. *Expectations.* Establish guidelines for the study early in the process and disclose them to the public to set reasonable expectations. For example, SFRA was to be question-driven, science-based, peer-reviewed, and descriptive (not prescriptive). These principles guided the planning team, question managers, and citizens when interacting and exchanging information.

4. *Electronic media.* Fully utilize the capabilities of the Internet for process

updates, information sharing, team-public interaction, and publication of reports. Design the process at the beginning so that tracks are clear and easy to follow, the site is user-friendly and easily accessible, and reports are comparable in structure to facilitate easy navigation. The SFRA website has been extremely popular with the public throughout the process; it contains myriad details on SFRA, ranging from biographical information on the assessment team to detailed public comments to draft reports. The public responded very positively to a Web-only (and CD) release of the 1,500-page draft report.

5. *News media.* Release of a highly anticipated, potentially controversial report such as SFRA is likely to draw considerable media attention. Interest groups will naturally wish to influence the media's coverage. For this reason alone, it is critical that advance information not be released to anyone outside the team or cooperating agencies prior to formal release, lest the integrity of the formal release or the credibility of the report itself be jeopardized.

6. *Meetings.* All team meetings should be designed by expert meeting managers and conducted with the help of skilled facilitators. There are many reasons for this, including efficient use of the team's and public's time, fairness to all participants, orderly meeting behavior, and achieving the meeting's objectives. Final meeting results and the satisfaction of all who attend are determined by such items as choice of meeting location, starting and ending times, seating layout, and scheduled interactions between the public and team members. Such details must not be overlooked.

Conclusion

SFRA is one model of an exercise in civic science conducted at a large regional scale. Here we have described the process and listed what we consider the valuable lessons drawn from our experience in leading this effort. Careful establishment of ground rules coupled with a high degree of cooperation and commitment within the Forest Service and other cooperating agencies gave the project visibility, priority, and

ultimately credibility. However, as with any effort of this magnitude and complexity, success ultimately depends on the group of people assembled to do the work. We were fortunate to have worked with a highly talented and committed group of more than 50 people in completing this project.

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John G. Greis (jgreis@fs.fed.us) is coleader, Southern Forest Resource Assessment, USDA Forest Service, Southern Region, 1720 Peachtree Road NW, Atlanta, GA 30367; David N. Wear is coleader, Southern Forest Resource Assessment, USDA Forest Service, Southern Research Station, Research Triangle Park, North Carolina.