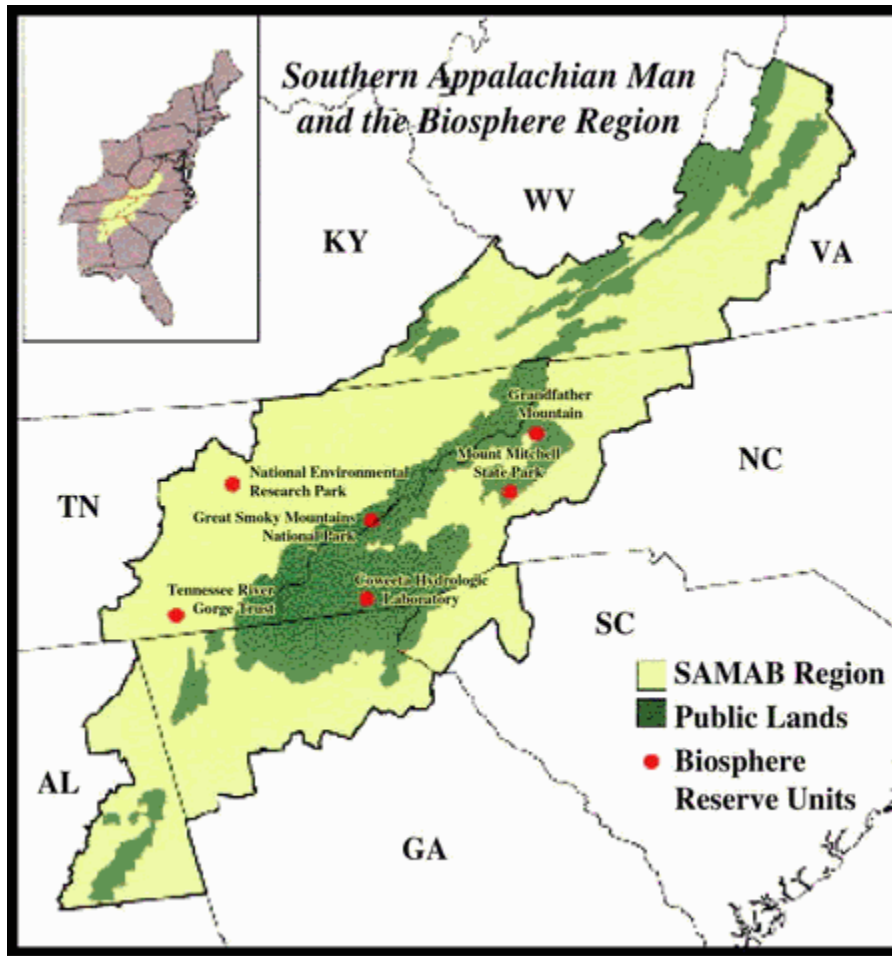


## Report from SAMAB's 2009 Conference on Climate Change

A group of 300 natural resource managers and leaders from state and federal agencies, universities and private conservation groups met to discuss new approaches in management techniques to address coming climate changes.



SAMAB (Southern Appalachian Man and the Biosphere) is made up of a **cooperative** of 11 federal agencies, Oak Ridge National Laboratory, National Park Service, US Fish and Wildlife Service, USDA Forest Service, USDA Natural Resources Conservation Service, US Environmental Protection Agency, US Geological Survey, Tennessee Valley Authority, US Army Corps of Engineers, Appalachian Regional Commission and the Economic Development Administration plus 3 state agencies, NC Dept of Natural Resources, Tennessee Dept of Environment and Conservation and the GA Dept of Natural Resources. The SAMAB **foundation** is SAMAB's link to the private sector. It gives private individuals, firms, academic institutions, and communities an opportunity to participate in SAMAB projects.

According to the SAMAB web site ([www.samab.org](http://www.samab.org)), their goal is to promote harmonious relationships between people and the Southern Appalachian environment. SAMAB promotes the

enhancement of environmental health, economic use and cultural values across the southern Appalachians by providing solutions for critical regional issues achieved through multiple collaborations, information gathering and sharing integrated assessments and demonstration projects.

In short, SAMAB is all the state and federal agencies involved with managing our natural resources in the southern Appalachian region. They get together once a year to present research and best practice techniques on a selected topic and discuss how they can cross interagency boundaries to achieve results that contribute to the health and stability of our natural resources. This year the topic of the conference was climate change.

It was encouraging to see all the attention that is focused on this important issue. This conference produced no answers – just more questions. At this stage in the game, when data is being collected and consensus is being formulated, just knowing the correct question to ask is a major step forward. Many of the presentations focused on computer modeling – a major tool in predicting what the future will bring as ecosystems change and management techniques change accordingly.

In order to present a brief overview of the conference, this report will present abstracts of the Plenary address given by Steve McNulty, Research Ecologist with the USFS Southern Research Station, and the Keynote address delivered by Sam Pearsall, SE Regional Manager for Land, Water and Wildlife of the Environmental Defense Fund. Presentation topics will also be listed in order to present an overview of the issues being discussed.

The title of McNulty's address was *Changing Times: Likely Impacts of Climate Change on Southern Appalachian Forests*. After illustrating the importance of southern Appalachian forests from a social, ecological and economic standpoint, McNulty warned that since 1850 atmospheric concentrations of carbon dioxide and other greenhouse gases associated with global warming have changed the climate of the US and that rate of change is increasing.

"Southern Appalachian forests have slowly evolved over thousands of years," said McNulty. "And the impacts of rapid climate change on ecosystem health and natural resource supply is uncertain. However, there is sufficient evidence to indicate the general direction, if not magnitude, of change. Climate variability is likely to increase, bringing more intense precipitation events, droughts and heat waves. These changes, in turn, will likely increase soil erosion, stream sedimentation and wildfire occurrence. Increases in disease and insect outbreaks will likely be worsened. Long-term climate change associated with increasing temperatures and shifts in precipitation patterns and changes in seasons will likely lead to changes in ecosystem composition, fisheries, wildlife habitat, forest and rangeland productivity and stream flow. The severity of climate change may alter both the composition and function of southern Appalachian forests. Land managers will need to develop and apply adaptation tools and strategies to minimize the negative impacts of climate variability and change on these ecosystems."

In his Keynote address, *Climate Disruption and the Southern Appalachians: Is Adaptation Possible?* Sam Pearsall noted that "climate disruption is certain to be a powerful re-organizer of ecosystems. There is a range of potential outcomes, beginning with drastic simplification and collapse on the least optimistic end of the continuum."

Pearsall urged that “the goal for adaptation should be to maintain complexity and functionality even as ecosystems are transformed by climate disruption into entirely new ecosystems. In general, the strategy should consist of determining the vulnerabilities – the places where simplification is most likely to be driven by climate disruption – and then applying the basic tools of adaptive ecosystem management to reduce simplification, or at least reduce the rate at which it happens.”

“We need to implement this approach as quickly and as systematically as we can, which means we need to rely mainly on the ecosystem management tools we already have as we also work to design new tools,” Pearsall continued.

“It will not be enough to maintain the health of the systems we presently manage in the context of the current environment and hope for the best,” he said. “In the southern Appalachians, with their extraordinary diversity driven in large part by microclimate variations, adaptations to climate disruption will be as challenging as anywhere on the planet.”

**The session on Climate Change Research included the following topics:**

Taking the pulse of our planet: The USA National Phenology Network – (Click here to learn about Southern Highlands Reserve phenology monitoring program); Does flowering phenology of native plants indicate climate change?; Episodes of regional extended drought and stand dynamics prior to European Settlement in Quercus-dominated forests; Climate change impacts on the Appalachian Trail; Environment and heredity – Change on Appalachian, continental and biospheric scales; Climate change: Ecologists think global, climate acts local; Conservation in a changing climate: Science and collaboration for a resilient and adaptive future for biodiversity in the Appalachians

**The session on Adaptation and Mitigation included the following topics:**

The western NC report card on sustainability: Using visualization support tools to help decision makers understand climate change; The power of ‘what-if thinking’: Exploring climate effects and trade-offs using a decision framework; Toward a national early warning system for forest disturbance using remotely sensed canopy phenology; Rating the risk of climate change to southern Appalachian tree species; Changes in Salamander distribution along an elevation gradient in the Mount Rogers National Recreation Area; Land use change and terrestrial carbon accrual in western NC.

Panel sessions at the conference included topics ranging from landslide hazards and population modeling to sustaining trout populations and watershed hydrology.

If you have gotten this far in this report, you probably are beginning to understand the complexity of the climate change issues to be addressed and also, most importantly, that the professional land managers and policy makers to whom we have entrusted the responsibility of caretaking our natural resources take their job seriously. They are a dedicated and forward looking lot. They better be.

