

2009: Three Top Emerging Issues

2009-1: Enhancing understanding of global connections: Interactions among effective fire and forest management in the U.S., availability of timber and biomass, and conditions of ecosystems and communities on American soil and abroad.

Managing fire in accordance with forest management plans enhances timber production, mitigates wildfire severity, and serves ecosystem functions. Managing forests in accordance with domestic timber supply needs strengthens communities, promotes economic sustainability, and serves ecosystem functions. Provided that forests are managed through sustainable practices that account for ecosystem functions, there are compelling ecological, energy efficiency, policy and moral reasons to seek satisfaction of U.S. timber needs from U.S. forests. Fire management is integral in this calculus.

Public and private forest management across the U.S. is directly related to construction costs and the many other uses of wood in our lives. Decreasing U.S. dependence on foreign timber would cause us to better recognize the value of forest land within our own regions and communities. Before the recent rise of globalization, the practice of forestry within a community has for centuries supported the construction of homes, the growth of societies, and the strong local economies.

Sustainable management of forests in the U.S. with coordinated fire management policies can be designed to support local ecosystems and economies. Policies that discourage self-reliance on domestic timber lead to increased imports of foreign forest systems and timber which can directly affect communities and ecosystems in foreign countries through illegal activities, economic enslavement, and environmental degradation.

Contemporary technological tools for mapping and remote sensing analysis and biomass utilization offer hope for a closer connection between forest and fire management, though challenges remain in preventing invasive species colonization of sites that are burned, harvested, or otherwise disturbed.

Implied strands of this theme:

- Promoting understanding among U.S. public of forest dynamics with and without management and inherent global links to environmental and economic status.
- Follow the conservation ethic and wisely use our domestic resources. Application from corporate management to home remodeling.
- Learn and understand the cycle of forests and how timber can be a sustainable resource within your own community.
- Apply the lessons from the past. We have endured the cycle of mismanagement, unsustainable forestry practices, restrictions on timber production, and economic collapse. Practice conservation, support forest management, and use resources.

wisely. Protect communities in other countries from the devastating impacts of timber high grading and unsustainable harvesting practices.

- Communication between groups representing the preservation philosophy and the conservation, wise use philosophy. Find common ground. Expand this concept to the building industry (Forest Certification is already moving forward on this front.)

Implied Questions:

- What are the barriers to public understanding of these connections?
- What are key opportunities to develop and convey educational messages?
- Who needs to have their understanding transformed to effect lasting change in policies?
- How to leverage products (i.e., digital maps) derived from remote sensing technology such as forest stand condition, pest damage, fuel load assessment, post-fire damage assessment, and land-use conversion to increase awareness among the general public?
- How to disseminate the scientific information on forest management to general public in easily accessible formats and in non-technical formats?

Planned actions so far:

- A Global Connections track at 2010 SAF Convention (coordinated by Kathy Fernholz.)

2009-2: Thinking through how biomass for energy plays out: What can we learn from the intensive timber management experience?

While biomass utilization for energy generation and to finance fuel treatments may have a lot going for it in many cases, there is also potential for deleterious impacts on ecosystem services such as habitat and nutrient cycling. These unwanted impacts could ripple disruptively through ecosystems with long-lasting effect. SAF should be at the table in developing best management practices for biomass utilization.

Biomass recovery is a means, not an end nor the only means, when it comes to restoring the health of US forests. As an economic driver of what happens in the forest, a biomass extraction focus can change forest composition and structure, disturbance frequency, nutrient dynamics, and habitat as well as aesthetic aspects of peoples' experience of the forest resource.

Implied questions:

- Where are the potentials for unwanted consequences greatest?
- What are the thresholds of biomass extraction beyond which unacceptable degradation of habitat or even ecosystem sustainability become realistic threats?
- Utilizing biomass can cause air quality problems. Where is technology to address pollution problem?
- Parallels to mining industry and reclamation forestry – what can we learn?
- Biomass removal as the 21st century version of timber extraction – what can we learn?

Planned actions so far:

- Biomass utilization impacts task force charter under development (by Bill Rockwell, FSTB Chair.)
- Integration of this issue into the Forest Management track at SAF Convention 2010 in Albuquerque (coordinated by Ed Gee.)

2009-3: Illuminating statistical black boxes: Promoting conceptual understanding and correct interpretation in support of forest management and policy analysis

This issue has two related, but distinct parts: statistical knowledge of natural resource professionals and the more specific question on understanding Type I and II error.

a) Statistical knowledge. Climate change, invasive species, fragmentation, plummeting economies, and many other threats (and opportunities) force foresters to make decisions about an uncertain future. Occasionally such decisions are based on faulty analyses due, in part, to a lack of statistical rigor. Without correct interpretation of the results, foresters run into the risk of making wrong decisions that can have long-lasting consequences and can be costly. However, interest and participation in statistical training, sampling, analysis, and modeling has been steadily decreasing over the decade. Knowledge in these subject areas is decreasing at a time when our needs for solid understanding of them have never been greater. Possible vehicles for addressing this part of the issue include keynote speakers at the 2010 convention (for example: dynamic, engaging speakers like Tony Starfield and conversant statisticians who are good communicators – they are out there – why not have them take forestry cases and make the concepts relevant to our audience?), a special issue of the Journal of Forestry, and development of online tutorials in statistical application tailored to natural resource problems and hosted by SAF.

b) Understanding Type I and II error. On those occasions when foresters tackle an issue scientifically, chances are there will be talk of “scientific proof”, generally referencing the notion of statistical significance. However, it is not clear that there is widespread understanding of the values aspects of choosing alpha in a risk tradeoff with beta regarding the respective danger of a Type I (calling a difference real when it really is not) and Type II (calling a difference not real when in fact it is) error. This is alarming given that most of what we do involves just such risky decisions with costly and imperfect information, and there’s risk to our credibility when we talk in public about “science” without this understanding, as we may well be the only ones at the tables with this understanding deficit. The profession could be very well served by re-exposure to these ideas from introductory statistics, organized around examples such as managing wildlife diseases, formulating climate policy, and funding research. Possible vehicles include an issue of the Journal of Forestry, or even a whole track on it at the 2010 convention, perhaps followed up by a monograph or other publication carefully targeted and packaged so as to promote understanding among our diverse membership.

Implied strands of this theme:

Many/most foresters have forgotten or gone fuzzy concerning key statistical precepts upon which the scientific aspects of forestry are founded. Many of us have come to rely on a combination of our own personal experiences and observations built on not necessarily representative anecdotal evidence and an array of “priesthood” models and corporate datasets built by researchers, scientists and analysts but often with important details, limitations, and assumptions poorly understood by the managers and policymakers that rely upon them, often for purposes different than those for which such models and datasets were originally intended. As a result, decisions that are well supported by facts and scientific evidence are rarer than they should be, and the risks of decisions where uncertainties are inevitable are not well understood.

Implied questions:

- What will it take for foresters to understand the significance and importance of this problem?
- How can foresters be engaged to invest the effort to tune up their understanding of statistics? How can the benefits be made plainly apparent, and how can we make this tuning up fun?
- How can SAF provide the best learning experiences most efficiently (and with the least pain on the part of the learners) for the greatest number of forestry professionals at all stages of their careers? How can SAF support the development on online statistical courses that will cover basic to intermediate to advanced concepts in a way that is relevant to foresters?
- How can we build a system for ongoing knowledge improvement and refreshment such that gains in statistical understanding are not one-time events followed again by decline?
- How can we ensure that sound statistical principles are incorporated in all operational forest inventories?
- How can we interpret the statistical significance of results obtained from remotely sensed data such as aerial photographs, satellite images and LIDAR and overlays of such geographic layers?
- Understanding the black box – what questions should all foresters ask about their models?

Planned actions so far:

- A series of thought-provoking essays are available of the SAF website entitled “A Series on Statistics and Science.”
http://www.eforester.org/ip/statistics_and_science.ctm