JFSP Project Number: 01C-3-3-22

Principal Investigator: E.K. Heyerdahl, P.M. Brown and S.G. Kitchen

2006 Progress Report

1. Why is the research important from your perspective?

Our research to reconstruct multi-century histories of fire and forest structure across a range of topography, forest type and regional climate in 13 watersheds in Utah and eastern Nevada, from tree rings will provide the information managers need for ecosystem management. Utah and eastern Nevada currently lack the site-specific histories of fire and forest structure that are necessary for scientifically based land-management planning in this region. For a region with such extensive fire-adapted ecosystems, surprisingly few fire and forest-structure histories have been reconstructed, and these only at stand scales and only in a few of the region's forest types. 20th-century fire exclusion profoundly changed forest and fuel structures in many forests of the western US. However, these changes did not occur uniformly across the landscape due to variations in forest type, topography, and regional gradients in climate. As a result, without research of the kind we are conducting, land managers cannot confidently extrapolate fire and forest-structure histories across this region from the few existing fine-scale histories.

2. How will managers and practitioners use this research?
3. Is the work applicable at local, regional, or national scales and why?

Managers and researchers are likely to use our research at local, regional, and national scales. At the local scale, land managers can use our reconstructions of spatial variation in historical fire regimes and changes in forest structure and composition within watersheds as direct input to fire management plans for those watersheds, across gradients in topography and forest type. At the regional scale, land managers and researchers can use our fire histories to understand regional-scale drivers of variation in historical fire regimes, such as regional-scale variation in climate and/or land use. This information is critical for scientifically extrapolating historical fire regimes from sampled to unsampled watersheds. It can also aid in regional fire management planning, e.g., the climate drivers of fire are different in northern than in southern Utah, meaning that during some years it may be appropriate to plan prescribed fires in the north but not the south. At the national scales, our reconstructions of historical fire will be combined with other local- and regional-scale fire chronologies to identify the climate drivers of temporal variation in fire regimes among regions. This information can be used for fire management planning at a national scale and can be used as input to models for anticipating the effects of climate change on forest structure and function.

4. Please provide contact information for three managers or field practitioners who can provide testimonials of how they use your research findings for each JFSP project (Name, Title, Organization, Phone number, and E-mail).

- Robert B. Campbell, Ecologist, Fishlake National Forest, 435-896-1095, rbcampbell@fs.fed.us
- Linda M. Chappell, Interagency Fuels Planner, Fishlake National Forest and Richfield Bureau of Land Management, 435-896-1595, lchappell@fs.fed.us
- Jolie Pollet, Fire Ecologist, Utah Bureau of Land Management, 801-539-4129, jpollet@blm.gov