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PROPOSAL TO DEVELOP A LANDSCAPE-WIDE FIRE HISTORY FOR THE JEMEZ MOUNTAINS

In the Jemez Mts. recent fire history research conducted in the Frijoles watershed (Caprio et al 1989, Allen 1989) provides one of the most detailed and extensive fire histories conducted in the Southwest. These data show that extensive fires burned throughout this watershed about every 15 years between 1684 and 1850, including in the riparian zone of upper Frijoles Cañon. Many of these Frijoles watershed fire years are recorded as significant fire years at other fire history sites in the Southwest (AZ and NM). However, it is not known how extensive fires were in the larger landscape of the Jemez Mts. during these years when the entire Frijoles watershed recorded fires. No fire history has ever been conducted at such a landscape scale.

In recent discussions with Dr. Tom Swetnam of the Tree Ring Lab it has become apparent that the historic fires of 1910, the biggest fire year on record in the SW, were quite likely dwarfed by the regionwide fires suggested by the existing fire scar record. If confirmed, such extensive pre-suppression fires not only have local and regional implications, but possibly even global significance as a source of aerosols that may have affected paleoclimates (although the difference between the effects of surface fires versus the crown fires more commonly observed in the historic period need to be considered).

One or more fire histories must be conducted at a landscape scale to confirm that regionwide fire years burned extensive portions of the Southwest. The Jemez Mts. provide an appropriate setting to conduct a landscape level fire history. The Frijoles watershed fire history provides the most areally extensive data base of any of the regional fire histories to expand upon. The current positive relationships between the Santa Fe National Forest, the National Park Service, LANL, and the TRL provide an opportunity for productive collaboration to occur across a significant portion of the Jemez Mts. The best way to undertake this project would be to have a graduate student work on it for a thesis topic, but until such time as a student and funding materialize we can still make a dent in the topic by cooperatively working at a modest level, as follows. I envision locating clusters of 3-5 specimens at widely scattered locations throughout the Jemez Mts. initially, and then gradually filling in the gaps between clusters with additional clusters as resources permit. Sampling of old stumps, downed logs, snags, and other relict materials would be emphasized to push the time period covered back as far as possible. If fire crews can cut and sand the specimens, between the TRL and myself we can see that the samples are crossdated, the fire scars dated, and the data compiled and analyzed.

This project could proceed as an informal, small-scale operation that gradually developed an expanded data base over a period of years as opportunities presented themselves, such as the Guadalupe Cañon and upper Capulin Cañon samples this year. Alternatively, an effort could be made to fund a fullscale project that would conduct this study in a shorter period of

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time. Possible funding sources for a more intensive project include:

- NPS regional science \$
- NPS global change project
- USFS RMFRES
- NSF

In conclusion, the Jemez Mts. offer a good opportunity to conduct a unique, landscape level fire history study that has both local management and broader scientific implications. At the local scale having knowledge of fire histories across the landscape would improve our understanding of how our current ecosystem conditions developed, and increase our ability to properly manage these lands. The broader scientific questions that such a study could help address are of global significance. This is a study that is worth doing.