Ancient Pine Research

As a result of the New Year's Eve Storm of 2005-2006, a paleobotanical discovery was made within Sugarloaf Ridge State Park, on the headwaters of Sonoma Creek. The discovery provides an important perspective on the forests of the Mayacamas Mountains during the Late Pleistocene. Numerous specimens of partially carbonized wood were recovered, eroding from a deeply buried deposit. The deposit was at least 90cm thick and consisted of a blue clay. While most of the recovered specimens consisted of sections of limbs and twigs, over 100 small redwood and Douglas fir cones were recovered, as were six pine cones. Several of the pine cones are clearly *Pinus radiata* (Monterey pine), but the others appear to be possible hybrids, derived from a mingling of *Pinus radiata* and some other species, possibly *P. murricata* (bishop pine) or *P. attenuate* (knobcone pine). Hybrid KMX pines (knobcone and Monterey) have been reported in historic commercial forests but are not known from the wild. Efforts are underway to better identify the six pine cones. Radiocarbon dates derived from the deposit indicate that it spans the period 27,000-18,000 years ago and encompasses the Last Glacial Maximum. The pine cones came from the lower part of the deposit, suggesting that they came from trees that grew on site just before the start of the great warming event that brought an end to the Pleistocene. Fossil pine cones dating to the Late Pleistocene have been found in similar deposits on the Marin and Sonoma Coasts, but none had been reported from the interior until now. During the LGM, these trees were about 60 miles inland from the coast. As the Pleistocene Epoch ended, the Monterey pine disappeared from the interior, its territory shrinking to what we know today. The six pine cones that were found on Sonoma Creek are thought to have significance in a world struggling with a changing climate. Future efforts to better date the six cones and to establish their genetic history are called for.