

Figure 2. Mammoth Mountain area: Map A, at 1:24,000 scale, shows selected topographic, geologic, and cultural features, and carbon dioxide (CO₂) sampling sites; Maps B-G, at 1:6,000 scale, show boundaries of tree-kill areas, sampling sites, CO₂ flux magnitudes, and CO₂ concentrations in soil.

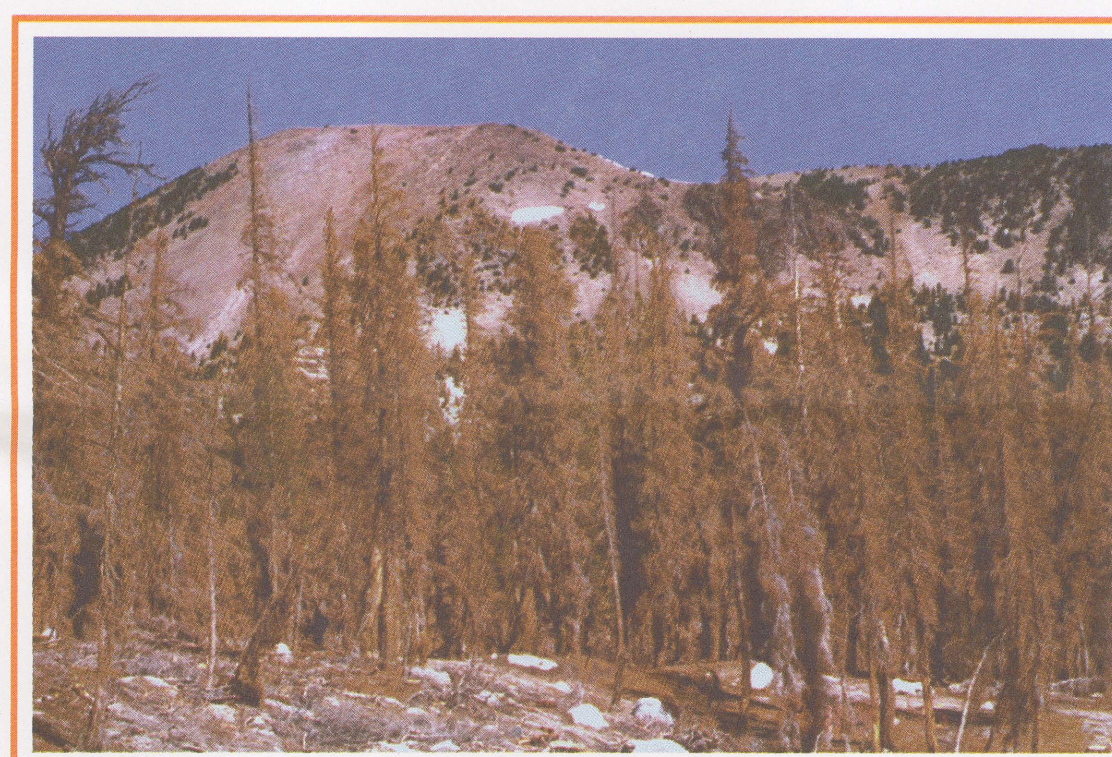
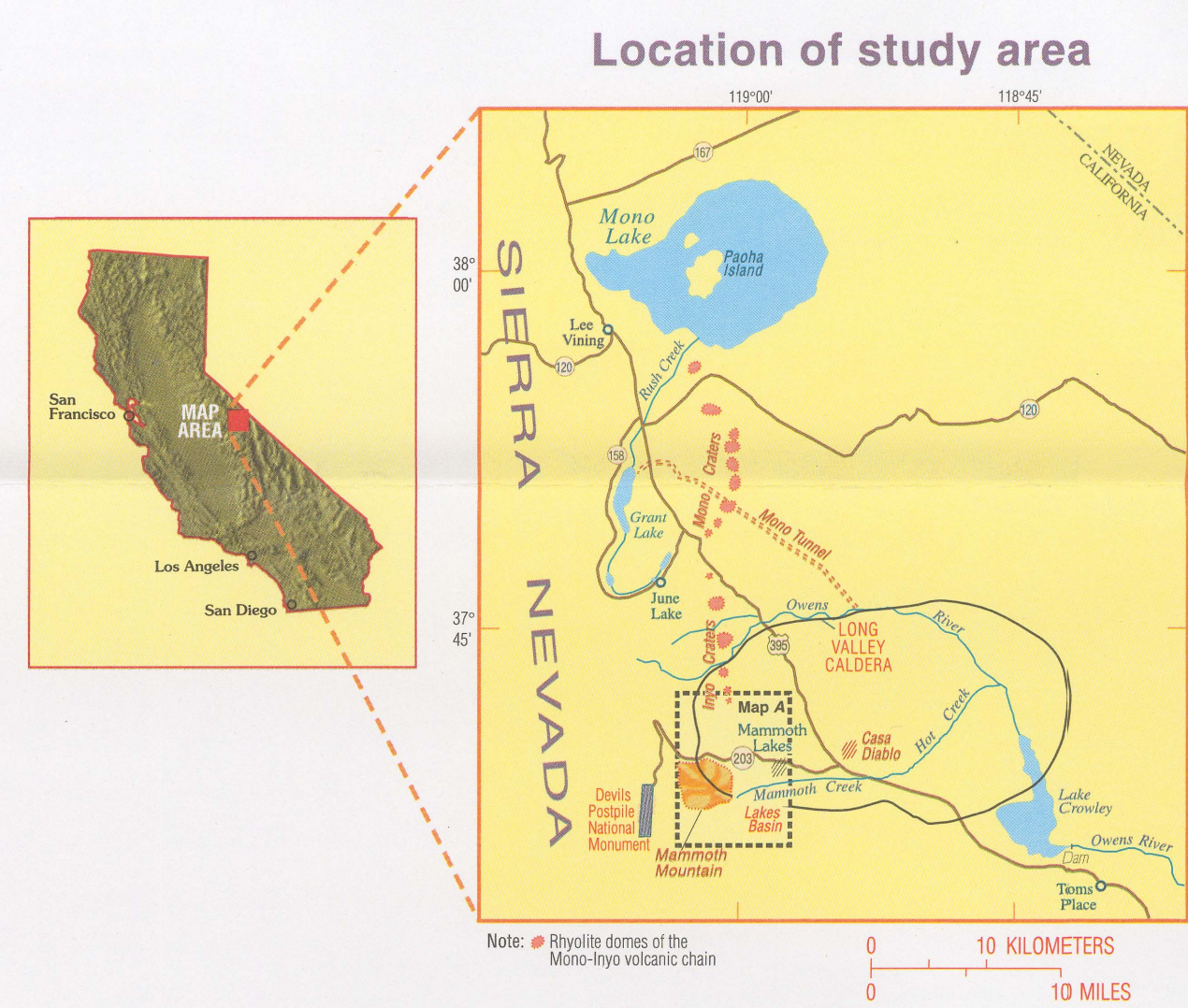


Figure 4A. Tree-kill area near the base of the south face of Mammoth Mountain. A high percentage of the trees in the foreground are dead due to high CO₂ concentration in the root zone of the soil. Trees higher on the mountain are unaffected. (Looking north from near the northwest shore of Horseshoe Lake.)

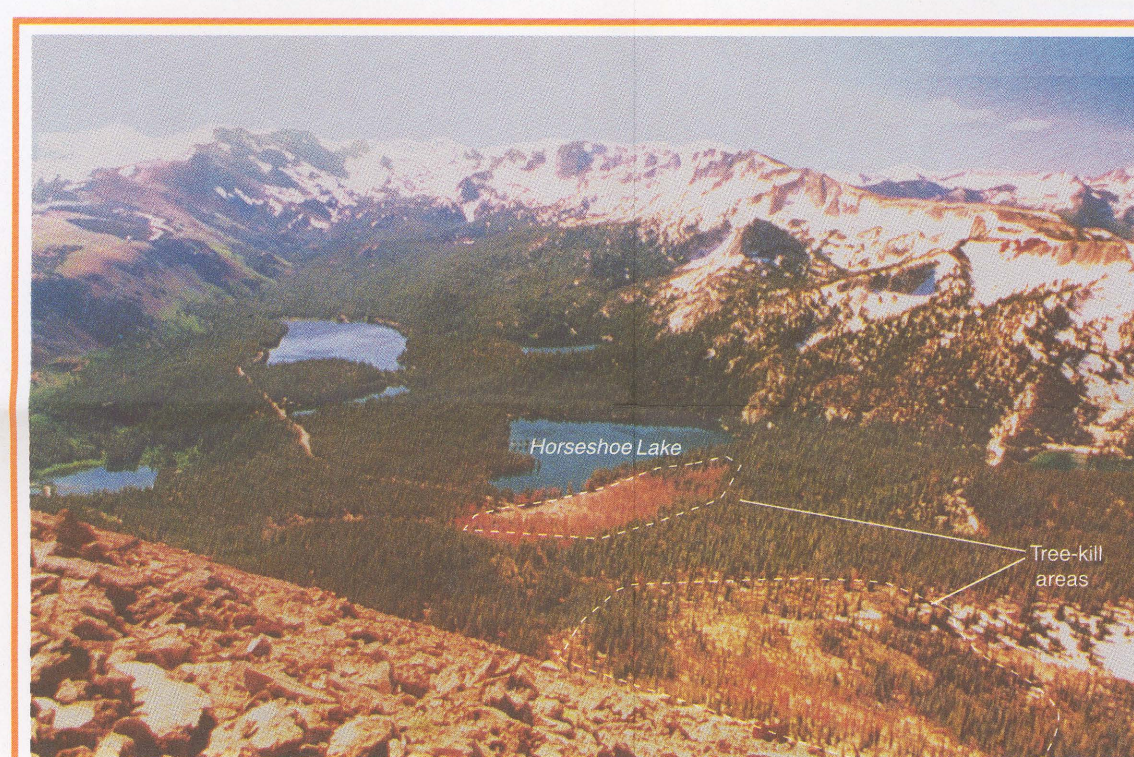


Figure 4B. Tree-kill areas on the southwest side of Mammoth Mountain (lower right of photo) and along the northwest shore of Horseshoe Lake (near center of photo). (Looking south from near the top of Mammoth Mountain.)



Figure 4C. Tree-kill near the west shore of Horseshoe Lake, where CO₂ in the soil has killed nearly 100 percent of the trees in a 16-hectare area. (Looking west.)

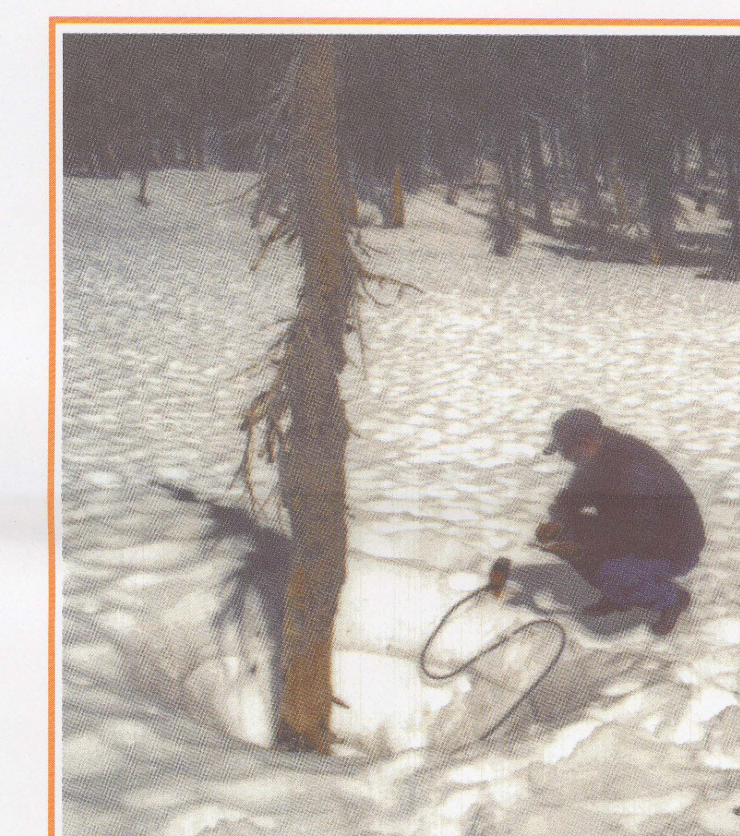


Figure 5. USGS scientist measuring CO₂ concentration in the air in a tree well. Wells are pits formed when snow melts away from the trunk. Carbon dioxide can accumulate to dangerous concentrations in such pits, especially if the winds are calm.

MAGMATIC CARBON DIOXIDE EMISSIONS AT MAMMOTH MOUNTAIN, CALIFORNIA

By Christopher D. Farrar, John M. Neil, and James F. Howle
1999