

VI. FUMIGATION OF CONIFER SEEDLINGS WITH OZONE AND SULFUR DIOXIDE
MIXTURES IN OUTDOOR OPEN-TOP CHAMBERS

PURPOSE

Pollutant mixtures transported from the Bakersfield-Oildale area to downwind areas are expected to contain relatively low concentrations of sulfur dioxide along with ozone (Duckworth and Crowe, 1979). There is no evidence to explain how important montane tree species may react to pollutant mixtures. Therefore, several single and mixed gas fumigations of conifer seedlings were carried out to investigate possible ozone-sulfur dioxide interactions at concentrations similar to those monitored at remote sites east of Bakersfield-Oildale.

Two objectives were defined for the fumigation experiments. First, the effects of single and mixed gas treatments on dry weight of the shoots and roots of recently germinated conifer seedlings were examined in two experiments. Second, we included in the first of these experiments two- to three-year-old Pinus ponderosa and P. Jeffreyi and six-month-old Sequoiadendron giganteum (giant Sequoia) seedlings, in order to determine the types of symptoms that may appear on secondary foliage that is similar to that of adult trees. The designs and durations of the fumigation experiments are shown in Table VI-1.