EVALUATION OF OZONE DAMAGE TO VEGETATION ON THE LYE BROOK WILDERNESS IN 1992

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Survey Report

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HIGHLIGHTS

* Ozone concentrations in the vicinity of Lye Brook Wilderness were low, on the average, during 1992. The

INTRODUCTION

Under provisions of the Clean Air Act amendments of 1977, the Forest Service is responsible for the protection of "Class I" wilderness areas from the adverse effects of air pollution. In 1987, personnel of the National Forest System requested assistance from Forest Health Protection in evaluating the effect of ozone on the vegetation

of the Lye Brook Wilderness in Vermont. Since then the Wilderness has been surveyed annually for symptoms of ozone injury. Herein is a report of the 1992 findings, and comparisons with the findings of previous years.


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Injury ratings

From 1988 to 1990, nearly all the injury found on the plants examined consisted of a purple stippling or

Table 1. Black cherry and white ash trees and branches with ozone symptoms in Lye Brook Wilderness in 1988, 1989, 1990, 1991, and 1992.

Group	Total	Trees with symptoms					Branches with symptoms				
Number	Trees[1]	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992
1	5	3	1	0[2]	0	0	5	1	0[2]	0	0
3	5(2)	2	2	4	2	1	10	10	11	10	6

Ozone concentrations in 1992

Table 2 shows that for most of the parameters computed, ozone concentrations recorded at Bennington, in 1992 were the lowest recorded since 1988, when the first survey was completed. We can expand this statement to include 1987, the first full year in which monitoring was completed by the State of Vermont.

The second highest one-hour average concentration has been chosen as the ozone parameter relevant to the Forest Service's PSD (Prevention of Significant Deterioration) process for the wilderness areas of Region 9

RECOMMENDATIONS

(1) To discern long term trends in ozone concentrations, the ozone concentration monitoring should be continued indefinitely. The Forest Service monitor on Mt. Equinox is more relevant to the Wilderness than the State monitor at Bennington because it is closer, both geographically and in elevation. In 1992, the Mt. Equinox monitor was more indicative of the higher concentrations to which most of the Wilderness was exposed. Apparently, in some years, the differences in elevation between the locations of the monitors leads to marked differences in concentrations. Nevertheless, the Bennington monitor is of considerable value, particularly for May data, as the weather may make it difficult to install the Mt. Equinox monitor in May.

(2) The vegetation surveys too should be continued, at least for several more years. Most of what insight we have as to the effect of ozone on the plants came only after several years of surveying.

REFERENCES

APPENDIX

ton and Mt. Equinox monitors. Days in which there were no or incomplete recordiings at either monitor were