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STEM DECAY IN CENTRAL PARK[1]

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Abstract. Increment cores were taken from a random sample of 617 trees in Central Park in 1983-84. On the average just over 16 percent of the trees cored had stem decay. The percentage of trees with stem decay varied by species and increased by diameter class. There is a high degree of association in the sample between trees with stem decay and trunk abnormalities such as bark wounds and longitudinal cracks.

As part of a study to determine the growth and longevity of New York City Central Park trees, increment cores were taken in 1983-1984 from a stratified random sample of 617 trees greater than 6 inches dbh. As increment cores were being taken, it became apparent that a substantial number of the trees had stem decay. Because of the increased potential for hazard due to decay and the lack of information on its extent in urban trees, we are presenting these preliminary results.

The number of trees with stem decay varied by species (Table 1). On the average over 16 percent of the trees cored appeared to have decay. One species, London planetree *(Platanus × acerifolia)* was free of apparent decay. Forty percent of the Asiatic Turkey oaks *(Quercus cerris),* were seriously affected with decay.

While it may be premature at this time to make statements about large trees and decay, because additional data will be collected on large diameter trees, it is important to note that all of the trees in

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Table 1. Percent of stem decay by species in central Park.

Species	*Number sampled*	*% of decay*
Planetree, London *(Platanus × acerifolia)*	6	0
Ailanthus *(Ailanthus altissima)*	26	7.7
Crabapple *(Malus* sp.*)*	25	12.0
Oak *(Quercus)*		
Pin *(Q. palustris)*	37	5.4
Red *(Q. borealis)*	43	6.9
Turkey *(Q. cerris)*	16	43.8
Weighted mean of oaks		12.5
Ash, white *(Fraxinus americana)*	78	12.8
Locust, black *(Robinia pseudoacaia)*	74	16.2
Hackberry *(Celtis* sp.*)*	36	16.7
Maple *(Acer)*		
Planetree *(A. pseudoplatanus)*	63	9.5
Norway *(A. platanoides)*	133	20.3
Weighted mean of maples		16.8
Ginkgo *(Ginkgo biloba)*	28	17.8
Hawthorne *(Crategus* sp.*)*	20	30.0
Cherry, ornamental *(Prunus* sp*)*	32	34.3
Total	617	
Weighted mean of all trees with stem decay		**16.2**

the largest diameter class sampled to date have stem decay versus only 13 percent in the smallest class.

Trunk abnormalities consisting of bark wounds, longitudinal cracks, cavities, slimeflux, seams, and structural damage were recorded. Fifty-nine percent of the sample trees with trunk abnormalities had stem decay. Clearly there is a higher degree of association between trees with stem decay and observable trunk abnormalities in Central Park.

In a 1982 inventory, approximately 7,900 park trees had similar trunk abnormalities. If conclusions from the sample are applied to the entire park tree population, and 59 percent of these trees have stem decay, nearly 4,000 out of 25,000 (16 percent of the total) may have stem decay. If this is a general indication of the incidence of stem decay in the urban environment, obviously the need for accurately detecting potentially hazardous trees is great. In this study, nearly 6 out of every 10 trees with stem decay have trunk abnormalities. If, in general, trees in the urban environment have a similar ratio of stem decay they should be examined in greater detail, to accurately determine the extent of decay in them without causing additional wounding. The use of an electric pulsed-current meter such as the Shigometer, for example, may serve that need. At the very least, careful observation, recording, and monitoring urban trees with trunk abnormalities is important.

Central Park is an extremely heavily used urban space. The plants in it, because of the numerous construction projects over the years and because of their high density, are susceptible to the wounds which initiate the processes that can lead to decayed wood. This is little different from the situation found in other urban tree-growing sites. The need to take appropriate measures to see that tree wounds are kept to an absolute minimum is imperative. Moreover, maintenance practices such as pruning, injection, or bracing and cabling are also a source of wounds and must be done properly and conservatively.

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