

## The impact of maintenance and pruning practices on health of urban trees; a case study from Çankırı Province

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**Abstract:** Unarguably, trees growing in urban environments are strongly stressed by both abiotic and biotic factors. To mitigate the adverse effects of stress, trees should be handled with specific care. In this sense, maintenance and pruning practices represent the backbone of growing vigorous, healthy as well as attractive trees. The maintenance practices for ornamental and shade trees include planting suitable trees, irrigation, fertilization and restoration or removal of trees if necessary. On the other hand, pruning has been treated amongst the most prominent practice in maintenance of urban trees. While the objective of maintenance and pruning practices are to produce strong, healthy and attractive trees, if not implemented properly, they also can lead trees to lose their vigour, health as well as aesthetical values. Moreover, trees those have not been subjected to any or proper practices would eventually pose threat to public safety. Improper pruning practices can have a number of adverse impacts on trees. For example, pruning wounds serve as main entrance doors for many canker as well as decay causing plant pathogenic organisms. Once an improper pruning practice has been applied, the probability of the tree to be attacked by this kind of pathogenic organisms would increase. Infected trees would pose threat to public safety through prompting failure of branches or trunks. Even so, safety prunings can help to reduce these adverse impacts. However, a special care should be paid to avoid spread of the disease agent via infected pruning materials or pruning residues such as infected branch pieces or saws. In this study, the impact of maintenance and pruning practices on the health, safety and aesthetic value of street trees in Çankırı province were evaluated. Visible signs; indicating type, intensity or severity of previous pruning practices, were visually assessed on the trees along main streets of the city. The health, safety and aesthetic value of trees were found to be strongly affected by improper punning practices, especially through topping or pollarding. Decay fungi were also very common on deformed trunks of topped trees. Host tree species was another factor effecting the likelihood of a tree to be infected with a decay fungus. Along with the impact of improper pruning practices, the lack of proper maintenance practices was also evident with the presence of decay fungi as well as dead branches on trees in streets or even in children playgrounds which pose a high risk for public safety. In this context, appropriate pruning practices were introduced which improve tree architecture and health. The preliminary results from Çankırı, a relatively small city, revealed a negative impact of improper pruning and lack of sufficient maintenance practices. Detailed studies for further evaluations on tree defects and tree risk analysis would be beneficial to put forward and set an example on the importance and necessity of tree risk management plans.

**Keywords:** Urban trees, Pruning, Wood decay fungi, Hazard trees, Tree risk analysis