0515

Extensive defoliation of forests following salt-spray of ‘dry’ typhoons

Hiroshi Kudo
Kobe Univercity

Summary

Questions: We report an unusual defoliation of forests observed after ‘dry’ typhoons. We used the opportunity to test the effects of precipitations during the storms and the effects of slope orientations against onshore winds, and asked following questions. 1. Which species received heavy damage and which species expressed less damage ? 2. Were there differences in the damage levels between areas that received different amounts of precipitation ? 3. Were there differences in the damage levels between forests that face and face back to onshore winds ?

Location: Rokko-Himeji region on the south-western coast of the Honshu, Japan,

Methods: After typhoons 0416 and 0418, we recorded damage levels of 3,981 trees of 108 species from nine sites that were selected from three contrasting areas in terms of precipitation during the typhoons and slope orientation.

Results: Foliage damages were generally prominent at the sites on wind-facing slopes that directly received onshore wind. In comparisons of shared species, damage levels were significantly higher in the wind-facing area for all compared species. Although the differences in damage levels were not great between the areas with different amounts of precipitation, three species showed statistically heavier damages in the area with smaller precipitation. Deciduous species generally showed heavier damage compared with evergreen species. Some evergreen species that are common to natural maritime forests showed high tolerances.

Conclusions: The results indicated that the combination of the salt-spray by onshore wind and insufficient precipitation to dilute salt from foliage was the causal mechanisms of the extensive forest defoliation.