DEADWOOD IN FOREST STANDS CLOSE TO OLD-GROWTHNESS UNDER MEDITERRANEAN CONDITIONS IN THE ITALIAN PENINSULA

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The presence of large amounts of dead wood is a typical criterion to identify old-growth conditions: standing and downed dead wood and woody detritus are indirect evidence of canopy mortality and gap phase dynamics. In North America and in Europe, many studies were conducted on old growth forests, focusing on their structural dynamics, stand age structure, natural regeneration and on deadwood as indicator of old-growth conditions. In Southern Europe, particularly in the Mediterranean forests, such studies have been much more scarce. In this area, forests have been heavily exploited since ancient times. So, old-growth forests are very rare and usually are found only inside strict forest reserves or in remote and impervious mountain areas.

In order to characterize the level of naturalness and the role of deadwood for identifying old-growth conditions under Mediterranean conditions, eleven study sites located in undisturbed forest stands were selected across the Italian peninsula and records of deadwood and stand structure were carried out.

Methods

The amounts of deadwood indicate a large variability among the investigated forests: the total volume ranged between 2 and 143 m³/ha, with an average of 60 m³/ha. Lying deadwood is the most abundant component, due to the natural mortality occurring in the stands in relation to the processes established in the last decades. On the contrary, stumps are the less represented type of deadwood in almost all the study areas. All the decay classes are present in each study site.

Results

The amount of deadwood recorded, even if lower than that reported for old-growth forests, could have a different meaning due to the faster decay occurring in Mediterranean forests. Old-growth features and the characteristics of each indicator should be framed and referred to well-defined climatic and biogeographic contexts. In this study, three main deadwood features prove to characterize forest stands close to old-growthness: a ratio of dead to living wood not lower than 10%; lying deadwood much abundant than the standing one and a large range of deadwood size and decay classes across all the deadwood components.

Discussion and Conclusions

The amount of deadwood recorded, even if lower than that reported for old-growth forests, could have a different meaning due to the faster decay occurring in Mediterranean forests. Old-growth features and the characteristics of each indicator should be framed and referred to well-defined climatic and biogeographic contexts. In this study, three main deadwood features prove to characterize forest stands close to old-growthness: a ratio of dead to living wood not lower than 10%; lying deadwood much abundant than the standing one and a large range of deadwood size and decay classes across all the deadwood components.

One of the questions still open is how long does it take the development of old-growth conditions from managed stands and, in addition, how long could they be related to forest types, climate and orographic traits.