

## ***Interactive comment on “Time since death and decay rate constants of Norway spruce and European larch deadwood in subalpine forests determined using dendrochronology and radiocarbon dating” by M. Petrillo et al.***

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The decay rate of standing deadwood, i.e., of snags, is slower than that of downed deadwood in contact with the forest floor. We agree with Dr. Anger's opinion that this may be an important reason why clear age differences in the decay classes 1 – 3 are missing. Some snags fall earlier others later. This overshadows a clear age trend in decay. If the rate at which snags of larch fall down on the floor was lower compared to that of spruce then this also would be a cause for the differences in decay rates between these two types of trees. Unfortunately, the fall rates of snags of the

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studied tree species are not known at the investigated sites. To our knowledge, no data about fall rates of snags of both species, *Picea abies* (Norway spruce) and *Larix decidua* Mill. (European larch), are available. In this respect, the data situation in North America is much better. A good overview is given for example in Hilger et al. (2012) and Dixon (2015). According to Hilger et al. (2012), Engelmann spruce (*Picea engelmannii* Parry ex Engelm.) and subalpine larch (*Larix lyallii* Parl.) react similarly. Due to morphological, ecological and physiological similarities, we have to assume (but we finally cannot prove it) that Norway spruce and European larch should exhibit a similar reaction to Engelmann spruce and subalpine larch. As a consequence, no particular difference in the fall rate between European larch and Norway spruce has to be expected.

### References

Dixon, G.E., 2015. Essentials FVS: A User's Guide to the Forest Vegetation Simulator. United States Department of Agriculture, US Forest Service, Fort Collins CO.

Hilger, A.B., Shaw, C.-H., Metsaranta, J.M., Kurz, W.A., 2012. Estimation of snag carbon transfer rates by ecozone and lead species for forests in Canada. *Ecological Applications*, 22, 2078–2090.

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