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NEW METHOD OF ESTIMATION OF THE ANNUAL INCREMENT OF WOODY PLANT STEMS

© *A. Yu. Lyanguzov*, [1] *V. T. Yarmishko*, [2] *I. V. Lyanguzova*[*, 2]

[1]Saint Petersburg State University, St. Petersburg, Russia

[2]Komarov Botanical Institute of Russian academy of Sciences, St. Petersburg, Russia

[*]E-mail: ILyanguzova@binran.ru

SUMMARY

The paper describes a proposed method for estimating area of the annual growth of woody plants by the example of *Pinus sylvestris L.* (Pinaceae), using approximate, rather than accurately measured, values of the areas of the annual wood increment, based on the assumption of tree stems growing in the form of concentric rings. For statistical analysis of the areas of annual increments of model trees, it is recommended to employ nonparametric methods and bootstrap sampling that allow obtaining unbiased estimates of the mean based on small quantity of samples, and provide a clear graphical representation of the results. Automation of calculations and graphical representation of the results is carried out using a script written in the open-source R statistical programming language [17]. Bootstrap sampling is calculated by the bootstrap module from R repository. The proposed method has satisfactory accuracy, does not require much time and special training. It makes it possible to do data analysis of the area of tree stems annual increment both within a single habitat and in several habitats with different environmental conditions.

Key words: radial increment, the area of stem wood annual increment, bootstrap method, *Pinus sylvestris*, Kola Peninsula.