DOI: 10.24419/LHI.2304–3083.2017.2.02

Comparative Assessment of statistics on Growing Stock in Forests of Russian Federation

A. N. Filipchuk – *Russian Research Institute for Sylviculture and Mechanization of Forestry, Deputy Director, Doctor of Agriculture Science, Pushkino, Moscow Region, Russian Federation*
B. N. Moiseev – *Candidate of Agriculture Science, Moscow, Russian Federation*
A. N. Yugov – *Russian Research Institute for Sylviculture and Mechanization of Forestry, Senior Research Fellow, Pushkino, Moscow Region, Russian Federation*

Keywords: *forest management, forest evaluation, timber resources, forest resources accounting, data reliability, forest carbon sequestration, Paris Agreement, Global Forest Resources Assessment, FAO*

This paper investigates the reliability of original statistic data that provide the basis for the calculation of the carbon sequestration in forests of the Russian Federation. The problem of the reliability of the growing stock assessment has arisen because some Russian and foreign researchers are treating the difference of the SFFA–SFR growing stock values in two successive forest inventories as a real basic wood increment. The total average SFFA–SFR wood increment will be obtained through adding together the average stand increments by age classes. In its turn, an average stand increment for each age class will be determined through dividing the corresponding growing stock for said age class by the average age. In the opinion of the authors, the understatement of the SFFA-SFR growing stock can be basically accounted for the use of the outdated forest management (assessment) materials without their high-quality updating. Another, equally well significant reason for obtaining understated SFFA-SFR total growing stock is a systematic inaccuracy in evaluating stands of trees. In order to test an assumption of a systematic understatement of the growing stock, a dynamics of hypothetical timber resources was analyzed by using the SFFA–SFR growing stock values and total mean annual wood increments. It was concluded that the current inconsistencies can be mainly explained by the use of different methods for calculating annual growth (wood increment).

A comparative analysis of historical SFFA–SFR timber resources data and SFI (State Forest Inventory) data has brought to light a substantial understatement of the growing stock in some territorial entities of the Russian Federation. The authors estimate that a hypothetical total growing stock in Russia's forests can be currently equal to 129,000,000,000 m3, i.e. the total growing stock is likely to be underestimated by 40 to 50 per cent. According to the authors it would be advisable, before the completion of the first SFI cycle, to calculate the carbon balance in Russia's forests by using the mean values of timber resources of the main forest-forming species to be obtained at permanent sample plots. In this context, the calculations should be made by forest regions rather than by territorial entities of the Russian Federation.