Original article

Analysis of Errors in Estimation of the Main Taxation Indices of the First Cycle of the State Forest Inventory

Natalia V. Malysheva[1]
Candidate of Geographical Sciences

Andrei N. Filipchuk[2]
Doctor of Agricultural Sciences

Tatiana A. Zolina[3]

Alexander A. Seleznev[4]

Abstract. *Calculations of the actual error of the total growing stock volume for forests of the Russian Federation as a whole, forest regions and administrative units have been carried out based on permanent sample plots (PSP) data of the first cycle of the state forest inventory (SFI). Comparison of the actual errors of the total growing stock volume at a confidence level of 0.95 with the normative (target) errors established during the first SFI cycle planning showed that actual values were less than the planned (target) values for the country as a whole and the forest regions. The rank correlation coefficient of the target and actual errors is +0.95. The actual errors of the total growing stock volume at a confidence level of 0.95 are greater than the target errors for the administrative units of the Russian Federation. The rank correlation coefficient of the target and actual errors is -0.79. The results of statistical analysis of errors in estimation of the total growing stock volume, and growing stock volume, areas and age of the main forest species are presented. It is shown that, based on the results of the first SFI cycle, the main taxation indicators are evaluated with high accuracy at the 95% statistical reliability, which is acceptable for strategic planning at the national level and for international reporting on the forests of the Russian Federation.*

Key words: *State forest inventory, permanent sample plots, errors in estimation of growing stock volume, statistical analysis.*

[1] Russian Scientific Research Institute for Silviculture and Mechanization of Forestry, Deputy Head of Department (Pushkino, Moscow region, Russian Federation), nat-malysheva@yandex.ru

[2] Russian Scientific Research Institute for Silviculture and Mechanization of Forestry, Principal Scientist (Pushkino, Moscow region, Russian Federation), afilipchuk@yandex.ru

[3] Russian Scientific Research Institute for Silviculture and Mechanization of Forestry, Leading Engineer (Pushkino, Moscow region, Russian Federation), tzolina@gmail.com

[4] Lomonosov Moscow State University, Faculty of Biology, Student (Moscow, Russian Federation), asa250404@gmail.com