

## Resuscitating old forest models to meet present environmental reporting needs

A plethora of forest models were developed by transforming dependent variable, which introduces bias in estimation if appropriate correction are not applied when back-transforming to the original units. The need for accurate reporting of environmental statistics to national and international agencies lead to improvement of existing models or development of new ones. However, in many instances, not only that no original models were established, but original data sets are no longer available, which recommends ad-hoc bias corrections of existing models. The present research presents a procedure for bias correction based on information extracted from summary statistics, specifically coefficient of determination and standard error. The transformations considered in this study are trigonometric (i.e. sine, cosine, tangent, arcsine, and arctangent), hyperbolic (i.e., sine, secant, and tangent), power, and logarithm. The method was applied to site index equations of Douglas Fir and Ponderosa Pine [Hann and Scrivani, 1987], and tree volume of 27 species from Romania [Giurgiu, 1974]. Using only the information describing the models, such as variance or range, the proposed method corrected the bias, and proved that estimates can change from 1% (the site index equations of Hann and Scrivani) to 40% (the tree volumes of Giurgiu).