IMPACT OF PINE MISTLETOE ON THE RADIAL GROWTH OF SCOTS PINE: A CASE STUDY IN THE KELKIT STATE FOREST ENTERPRISE

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Abstract

Radial growth variability due to pine mistletoe infection (*Viscum album ssp. austriacum*) was studied in pure scots pine (*Pinus sylvestris*) forest in the Northeastern Anatolia. The study area was located in Kelkit State Forest Enterprise, in Gumushane, Turkey which has a humid continental climate with cold and snowy winters and warm summers, with a mean annual precipitation of 450 mm.

A total of 113 trees were sampled in 12 representative sampling plots, in relation the class of mistletoe infection. These stands were selected on the basis of their level of mistletoe infection, site conditions and stand characteristics. Site quality of the whole study area was medium (Site index = 18-22m). The 6-class dwarf mistletoe rating system (DMRS) was used to define infection classes, and classes by total infection rate were determined as; "0" for non-infection, "1-2" for low infection, "3-4" for moderate infection, "5-6" for high infection.

Some tree and mistletoe characteristics were measured in each plot. Measurements included tree diameter at breast height (dbh), age, the crown base height and crown width of each tree. Increment cores were taken at dbh level from 28 infected and 105 uninfected trees. Increment cores were studied carefully in a laboratory, and diameter increments were determined for the last 15 years.

The results of the radial growth in mistletoe infected trees showed an average radial growth loss over 15 years period could reach up to 17% in low infection (DMR = 1-2), 38% in moderate infection (DMR = 3-4) and 45% in high infection classes (DMR = 5-6).

Key words: Mistletoe *Viscum album*, *Pinus sylvestris*, Radial growth.