



DETERMINATION OF BIOMASS EXPANSION FACTOR (BEF) IN NATURAL YOUNG BLACK PINE (*PINUS NIGRA* ARN.) STANDS IN REGIONAL FOREST DIRECTORATE OF ANKARA



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INTRODUCTION

In Turkey, young forest stands less than 8 cm in diameter cover about 1.8 million hectare area and these young stands are excluded from the inventory. For this reason, there is a lack of data on the amount of biomass in young forests. With this study, it was aimed at the determination of aboveground and belowground biomass expansion factor ($BEF_{aboveground}$ - $BEF_{belowground}$) of stands in development stage of black pine (*Pinus nigra* Arnold.) which is one of the important tree species of Turkey.

MATERIAL AND METHODS

For this purpose, 100 square meters of sample plots for 35 sampling points of the natural young black pine stands in Ankara Regional Directorate of Forestry were taken and root collar diameters and heights of each seedling in the plots were measured (Figure 1-2).

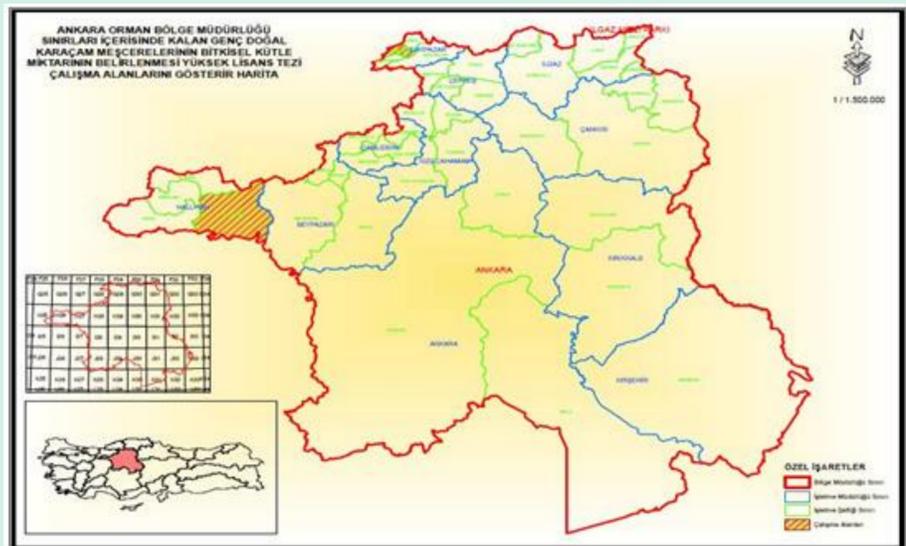


Figure 1. Study Area



Figure 2. Study about biomass in field and lab.

RESULTS

The biomass of the tree components can be estimated by the regression equations, as can be estimated by multiplying the crusted wood biomass by various coefficients. In this study area, the volume ranged is from 0,120 to 0,883 t / m³, with an average value of 0,262 ± 0,168 t / m³. $BEF_{aboveground}$ was estimated to be 3,120 ± 1,247. The root-to-root ratio is 0,151 ± 0,056. So, BEF coefficients were also developed which can also be used to calculate the biomass of other tree components (Table 1).

	Wood Density (t/m ³)	BEF _{leaf}	BEF _{drybranch}	BEF _{livebranch}	BEF _{branch}	BEF _{bark}	BEF _w	BEF _{ag}	(R)
Av.	±0,262	±1,080	±0,097	±0,965	±1,040	±0,322	±0,678	±3,120	±0,151
S.D.	±0,168	±0,706	±0,081	±0,599	±0,590	±0,052	±0,052	±1,247	±0,056
Min.	0,120	0,320	0,009	0,241	0,280	0,202	0,553	1,626	0,049
Max.	0,883	2,453	0,303	2,506	2,506	0,447	0,798	5,955	0,294

Table 1. Biomass Expansion Factor.

DISCUSSIONS

The $BEF_{aboveground}$ is higher because the branch and leaf ratio is increased in young stands.

CONCLUSIONS

Within the United Nations framework convention on climate change (UNFCCC), Turkey is currently committed to reporting its annual greenhouse gas emissions. The Biomass Expansion Factor (BEF) refers to variables which are used to quantify carbon stock in forests. It would be useful to increase the number of similar studies so that the productivity of our country's forests, carbon stocks and annual savings can be calculated more healthily.

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