

Effects of site characteristics on distribution of oak forests of lakes district of Turkey

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Abstract: Oaks are important tree species for protection of soil and water resources, maintenance of wildlife habitats and rangelands, for production of high quality industrial wood and fuel wood, for its social role in Anatolian folk culture. With its 18 species, oaks cover about 26 % of Turkish forest land. The Lakes District account for a significant portion of Regional Directorate of Forestry in Isparta, and in this region oaks cover 24% of the forest land area. This research was conducted to determine the effects of site characteristics on distribution of oak species in forestlands of Regional Directorate of Forestry in Isparta. The area was in a transitional zone which is under the influence of Mediterranean and continental climates and substantial changes can be seen in local climate depending on the topography. Climate type ranged from semi-arid to very humid according to Erinc method. Mean annual precipitation was 367 - 1395 mm, while mean annual temperature is 11.5 - 17.6 °C. This research was conducted in 15 different sites where oak stands were abundant. Results showed that two of the most common oak species were *Quercus cerris* and *Q. infectoria* among the 7 oak species (*Q. cerris*, *Q. infectoria*, *Q. ithaburensis*, *Q. trojana*, *Q. vulcanica*, *Q. robur*, *Q. coccifera*) found in this region. Although *Q. coccifera* had a wider distribution area in comparison to these two species, it is usually not in a tree form but appears as shrubs in maquis vegetation. *Q. vulcanica* and *Q. robur* had smallest distribution area. Within the study area, soil texture was mostly loamy clay, while it ranged from heavy clay to sandy clay loam. pH of the soils were between 6.92-7.75 and lime content was between 0 and 36.4 percent. It was determined that *Q. coccifera* preferred protected and sheltered areas which were not exposed to cold northerly winds. Generally, oak species found on heavy soils were distributed according to moisture and temperature characteristics of the site. For example, *Q. cerris* and *Q. infectoria* commonly accompanied each other; however, increased humidity favored *Q. cerris* while increased aridity favored *Q. infectoria*.

Keywords: Lakes district, Oaks species, Site characteristics

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