

秦岭山地油松群落更新特征及影响因子

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摘要 采用样方法,对秦岭山地油松次生林群落更新特性和相关环境因子进行了研究.结果表明:油松次生林更新层乔木树种共36种,占总种数的51.4%;优势种有短柄枹栎、锐齿枹栎和榛子等;幼苗库丰富,高度级及龄级较小;更新方式以实生为主,该森林群落处于演替中期.林分密度对林下乔木幼苗、幼树数量影响极显著($P<0.01$),当林分密度从580株· hm^{-2} 增加到1500株· hm^{-2} 时,林下更新的幼苗、幼树密度呈增加趋势,随着林分密度的继续增加,其密度逐渐减少;坡向对幼苗、幼树密度的影响显著($P<0.05$),当坡向由南偏西 10° 到南偏西 40° ,林下幼树密度逐渐减少,至阴坡(北偏东 10°)幼树数量又逐渐增加.不同坡位林分更新特征各异,平坡林分中幼苗、幼树密度均较大;从坡下向上,幼苗密度逐渐减少,而幼树密度逐渐增大;海拔从1159 m增至1449 m,幼树密度逐渐增加,至1658 m时,幼树密度逐渐减小,而幼苗密度则一直呈现增加趋势.处于阴坡的中密度林分更新效果最佳.合理调整林分密度是加快林分更新的有效途径之一.

关键词: 秦岭山地 油松次生林 更新特征 林分密度 环境因子

Abstract: The study with sampling plot method showed that in *Pinus tabulaeformis* secondary forests in Qinling Mountains, there were 36 tree species in regeneration layer, occupying 51.4% of the total. The dominant species were *Quercus glandulifera*, *Quercus aliena* var. *acuteserrata*, and *Corylus heterophylla*. The seedling bank was abundant, and with lower height class and age class. The main regeneration type was seedling, showing the forest being at its middle succession period. Stand density had significant effects on sapling and seedling densities ($P<0.01$). The sapling and seedling densities increased when the stand density increased from 580 trees· hm^{-2} up to 1500 trees· hm^{-2} , but decreased with the further increase of stand density. Slope aspect also had significant effects on the seedling and sapling densities ($P<0.05$). The sapling density decreased gradually when the slope aspect changed from SW 10° to SW 40° , but increased with the slope aspect changed to shady slope (NE 10°). The forest regeneration characteristics differed at different slope positions, with the sapling and seedling densities being relatively higher in flat stand. From foot to top, the seedling density decreased, while the sapling density increased. The sapling density increased from the altitude 1159 m up to 1449 m but decreased from 1449 m up to 1658 m, while the seedling density all along had an increasing trend from lower altitude to higher altitude. It was suggested that the medium stand density on shady slope had the best natural regeneration. To rationally regulate stand density could be an effective way to accelerate the regeneration process of *P. tabulaeformis* forest.

Key words: Qinling Mountains *Pinus tabulaeformis* secondary forest regeneration characteristics stand density environmental factor

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