

研究论文

岷江上游干旱河谷灌丛群落种-面积曲线的拟合及最小面积确定

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摘要 研究采用3种饱和曲线方程拟合出的群落种-面积曲线, 对岷江上游干旱河谷灌丛群落的最小面积进行研究, 取比例因子 ρ 分别为0.6、0.7、0.8、0.9, 求得灌丛群落的最小面积或临界取样面积。研究结果表明: 当 ρ 取0.6、0.7、0.8时, 阴、阳坡各海拔梯度样地群落最小面积均小于或略大于100m², 样方可设置为10m×10m, 即样地面积为100m², 可以满足精度60%~80%的研究要求。当 ρ 取0.9时, 阴、阳坡各海拔梯度样地群落最小面积均小于200m², 样方可设置为10m×20m, 即样地面积为200m², 可以满足精度90%的研究要求; 群落最小面积呈现出随海拔梯度的升高而逐渐增大的趋势, 且最小面积所含物种数也随之增加; 在相对应的海拔高度上, 海拔2000m以下群落最小面积及所含物种数阴坡明显大于阳坡, 而在2200m左右的高海拔则是阴坡与阳坡相接近; 对于岷江上游干旱河谷灌丛群落类型而言, 由方程(1)、(2)拟合所得的种-面积曲线较优于由方程(3)拟合所得的种-面积曲线。

关键词 [灌丛群落](#); [最小面积](#); [种-面积曲线](#); [海拔](#); [坡向](#); [干旱河谷](#); [岷江上游](#)

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Determination of species-area relationships and minimum sampling area for the shrub communities in arid valley in the upper reach of the Minjiang River

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Abstract The minimum sampling areas (MSA) for the shrub communities in arid valleys in the upper reach of the Minjiang River were studied by fitting community species-area relationships using 3 types equations. The MSAs were determined at the proportional factor (ρ) 0.6, 0.7, 0.8 and 0.9. The proportional factors represent the proportion of the number of species within a sampling plot in total number of species. All the MSAs of the shrub communities at different elevation and slope face for the ρ at 0.6, 0.7 and 0.8 were somewhere around 100m². Hence the MSAs could be set as 100m²(10m×10m) at 60%~80% precision level. For the ρ at 0.9, i.e. for 90% precision level, the MSAs were less than 200m²(10m×20m). The MSAs and species richness increased gradually with the rising of altitude. At elevation below 2000 m, the MSAs and species richness on north facing slope were larger than south facing slope. However at the elevation around 2200 m, there was no difference among different facing slopes. For the shrub communities in arid valley in the upper reach of the Minjiang River, the species-area curve by fitting the first two equations are better than that by the third equation.

Key words [shrub community](#) [_](#) [minimum sampling area](#) [_](#) [species-area relationship](#) [_](#) [elevation](#) [_](#) [slope face](#) [_](#) [arid valley the upper reach of Minjiang River](#)

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