

研究报告

红火蚁多蚁后型种群有效蚁巢局域分布的空间相关性

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摘要 应用地统计学的方法分析了红火蚁多蚁后型种群有效蚁巢的空间变异规律, 建立了多个间隔距离与半方差值的球状模型. 对吴川市调查样地的研究表明, 多个样地不同方向上红火蚁有效蚁巢不同间隔距离上的半方差值呈明显规律性变化, 表现为随着间隔距离的增大, 半方差值增大, 具有空间依赖性. 其5个球状模型的变程分别为 9.1、7.6、23.5、7.5和14.5 m, 平均为12.4 m. 在这些距离内的抽样空间上任何两点红火蚁有效蚁巢数量间存在相关关系. 所建模型块金常数占基台的比例, 即空间不连续性较大, 分别为0.7034、0.9247、0.4398、1.1196和0.4624, 表明红火蚁有效蚁巢分布存在一定的空间随机性和结构性. 深圳市的5块样地10个方向上有7个方向半方差值随间隔距离呈明显规律性变化, 表现为空间依赖性, 变程分别为14.5、11.2、10.8、17.6、11.3、9.9和12.8 m, 平均为12.6 m.

关键词 [红火蚁](#) [多蚁后型](#) [有效蚁巢](#) [空间分布](#) [地统计学](#)

分类号

Spatial correlation of active mounds locative distribution of *Solenopsis invicta* Buren polygyne populations

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Abstract

By using geostatistic method, this paper studied the spatial distribution patterns of the active mounds of *Solenopsis invicta* Buren polygyne populations in Wuchuan and Shenzhen, and built up the spherical models of the interval distances and semivariances of the mounds. The semivariograms were described at the two directions of east-west and south-north, which were obviously positively correlated to the interval distances, revealing that the active mounds in locative area were space-dependent. The ranges of the 5 spherical models constructed for 5 sampling plots in Wuchuan were 9.1 m, 7.6 m, 23.5 m, 7.5 m and 14.5 m, respectively, with an average of 12.4 m. The mounds of any two plots in this range were significantly correlated. There was a randomness in the spatial distribution of active mounds, and the randomness index (Nugget/Sill) was 0.7034, 0.9247, 0.4398, 1.1196 and 0.4624, respectively. In Shenzhen, the relationships between the interval distances and semivariances were described by 7 spherical models, and the ranges were 14.5 m, 11.2 m, 10.8 m, 17.6 m, 11.3 m, 9.9 m and 12.8 m, respectively, with an average of 12.6 m.

Key words [Solenopsis invicta Buren polygyne](#) [active mound](#) [spatial distribution](#) [geostatistics](#)

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