

研究论文

沙棘木蠹蛾蛹的空间分布

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摘要 沙棘木蠹蛾 (*Holcocerus hippophaecolus* Hua, Chou, Fang et Chen) 是近几年在内蒙古、辽宁、山西、宁夏和陕西等地大面积爆发的一种钻蛀性害虫, 该虫约4a完成1代, 主要以幼虫危害沙棘(*Hippophae rhamnoides*)的根部和干部, 老熟幼虫在土壤中化蛹。为了解种群的空间结构, 从而有效控制其危害, 应用生物学统计方法和地质统计学(*Geostatistics*)方法对沙棘木蠹蛾蛹的空间分布特性进行了分析研究。结果表明: 约90%的蛹在6月初到7月末之间羽化, 而7月份羽化的数量占总数的一半之多。在调查样地中, 雌雄蛹的比例基本为1: 1。每株沙棘树周围, 蛹的数量为0~4个, 有蛹株率仅为24.3%。蛹在距离根基部周围1.3m的范围内均有分布, 不同分布区内蛹的数量变化没有一定的规律性, 但90%的蛹分布在距根基部1m的范围内。沙棘木蠹蛾蛹的种群呈现较明显的空间聚集状态, 空间依赖范围大小为11.1m, 局部空间连续性强度为90.7%, 呈现较明显的斑块状分布, 在整个区域内有很多聚集点。对不同样方大小的变异曲线图进行比较得知: 样方边长分别为5、6、7m时, 变程、空间局部连续性强度和基台值的变化幅度均很小, 几乎相等, 而样方边长为5m时的决定系数较大, 此样方为最适样方大小。

关键词 [沙棘木蠹蛾](#); [蛹](#); [空间分布](#); [地统计学](#)

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Spatial distribution regularities of *Holcocerus hippophaecolus* Pupae

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Abstract The seabuckthorn carpenter moth, *Holcocerus hippophaecolus* Hua, Chou, Fang et Chen is recently a major pest of seabuckthorn (*Hippophae rhamnoides*) in Inner Mongolia Autonomous region, Liaoning, Shanxi, Ningxia and Shaanxi provinces in China. The generation time of *H. hippophaecolus* is four years. The larvae cause damage primarily to the stems and roots of seabuckthorn, and the mature larvae pupate in soil. Spatial distribution regularities were analyzed using biostatistics and geostatistical methods for the carpenter moth pupae in order to effectively control the insect and to further study the spatial distribution of the population. The results showed that the eclosion time of most of the pupae (90%) is from early June to the end of July. The sex ratio of the pupae was nearly 1:1 in the woodland samples. 24.3% of the trees were found to have pupae, ranging from 0 to 4 pupae per tree. The pupae were found within a distance of 1.3 m from the base of the stem, but 90% of the pupae were found to be aggregated within the distance of 1 m from the base of the stem. The pupae showed intense spatial aggregation in the studied woodland, 11.1m spatial dependence and 90.7% intensity of local spatial continuity were found, the population presented intensive spotted distribution, and many aggregated spots were found in the whole woodland. In the study on the relationship between different grid sizes and variogram of the pupae, the variation in the range, the intensity of local spatial continuity and the sill was very low or non-existent when the grid size was 5m, 6m or 7m, the value of the decisive coefficient was

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s more bigger when the grid size was 5m, so, it is ideal grid size.

Key words [Holcocerus hippophaecolus](#) _ [Hippophae rhamnoides](#) _ [pupae](#) _ [spatial distribution](#) _ [geo-statistics](#)

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