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研究论文

基于荧光标记的怒江流域桔小实蝇（*Bactrocera dorsalis*）的迁移扩散

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摘要 2005年7月在云南怒江流域地区，以荧光粉作为标记物，采用“标记-释放-回收”方法，对怒江流域桔小实蝇迁移扩散规律进行了研究。以释放点潞江坝为中心，东南西北4个方位设立桔小实蝇回收点，经过7d的回捕，从释放点沿潞江以北至六库沿线共回收到的标记桔小实蝇43头，最远在距释放点以北97 km 的地方回收到标记桔小实蝇5头。沿怒江在释放点以南，仅在小于29 km 的范围内回收到标记桔小实蝇17头。释放点东面和西面未能回收到标记桔小实蝇。分析释放点以北各回收点标记桔小实蝇与非标记桔小实蝇的相互关系揭示，非标记桔小实蝇与标记桔小实蝇在空间动态中具有相同的行为模式，由此推论非标记桔小实蝇与标记桔小实蝇可能来自同一种群。分析怒江流域区的自然地理发现，潞江坝桔小实蝇可借助怒江两边高大山脉形成的天然河谷通道，在适宜的气候条件下，在北上气流的携带下，实现由南向北的远距离迁移扩散；同时，由于高大山脉的阻隔，使潞江坝桔小实蝇没能向东西两个方向作远距离扩散迁移。研究首次揭示了在特定峡谷地区桔小实蝇扩散迁移现象，为桔小实蝇迁移扩散研究提供了新鲜实例，为在当地制定切实有效的桔小实蝇防治策略提供了基础信息。

关键词 荧光标记；桔小实蝇；怒江流域；迁移扩散

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Migration and dispersal of the Oriental fruit fly, *Bactrocera dorsalis* in regions of Nujiang River based on fluorescence mark

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Abstract The migration and dispersal of the oriental fruit fly, *Bactrocera dorsalis* Hendel, was studied using methyl eugenol-baited traps, in regions of Nujiang River, Yunnan, in July 2005, by mark-release-recapture method fluorescence powder as mark material. Recapture sites were set up at eastward, southward, westward and northward from release site, Lujiangba. After 7-day recapturing, 43 marked flies were recaptured at northern recapture sites from Lujiangba to Liuku along Nujiang River, and at the farthest site, 97 km from release site, 5 marked flies were recaptured. 17 marked flies were recaptured at southern recapture sites from release site, but the distances from release site were in 29 km. No any marked and no-marked flies were recaptured at western and eastern recapture sites. Analyses of topography and geographic landscapes of the region indicated that under suitable climatic conditions, the fruit flies of Lujiangba could achieve their longer movement and dispersal inside the Nujiang valley from south to north along Nujiang River in virtue of southern air current carry. Meanwhile further movement and dispersal of the flies to east and west was obstructed by the two higher mountain chains beside Nujiang River. Analyzing relationships of marked and no-marked flies in the northern recapture sites showed that both marked and no-marked flies had similar behavior patterns in spatial population dynamics. It was inferred tha

t both marked and no-marked flies might come from the same original region. The study firstly rev eals a special movement and dispersal phenomenon of *B. dorsalis* at the special valley region. Th e results provide fundamental data for establishing feasible and effective control strategy of the frui t fly in regions of Nujiang River.

Key words fluorescence mark _ *Bactrocera dorsalis* _ regions of Nujiang River _ migration and dispersal

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