

研究论文

龙眼园节肢动物群落结构及其时空格局

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摘要 通过对龙眼园节肢动物群落结构及时空格局12次的调查, 结果表明, 龙眼园节肢动物群落由2纲21目127科334种组成, 其中昆虫纲的植食性昆虫8目69科159种(类群); 腐生性昆虫4目9科9种(类群); 捕食性昆虫7目20科47种(类群); 寄生性昆虫1目9科11种(类群); 蛛形纲1目20科108种。各亚群落个体数分别为: 植食性昆虫占31.21%, 腐生性昆虫占27.15%, 捕食性昆虫占25.49%, 寄生性昆虫占1.28%, 蜘蛛占14.87%; 种类数则分别占47.60%, 2.69%, 14.07%, 3.29%, 32.34%。群落结构分层明显, 树冠上下层皆有的优势类群是黄立毛蚁(*Paratrechina flavipes*), 多色金蝉蛛(*Phintella vesicolor*)、啮虫科(*Psocidae*), 小蜂总科(*Chalcidoidea*)。树冠上层的优势类群有白蛾蜡蝉(*Lawana imitata*), 荔蝽(*Tessaratomya papillosa*), 龙眼角颊木虱(*Cornegenapsylla sinica*), 折翅蠹科(*Blaberidae*), 姬蜂科(*Ichneumonidae*), 下层有矢尖蚱(*Unaspis citri*), 黑刺粉虱(*Aleurocanthus spiniferus*), 蚊总科(*Culicoidea*), 长角跳虫科(*Entomobryidae*), 细蜂总科(*Proctotrupoidea*), 咸丰球蛛(*Theridion xianfengensis*)和灵川丽蛛(*Chryso lingchuanensis*)和常见类群小叶蝉(*Japananus spp.*)。地面杂草层优势类群是比罗举腹蚁(*Crematogaster biroi*), 黄斑弓背蚁(*Camponotus albosparsus*), 哀弓背蚁(*Camponotus dolendus*), 斜纹猫蛛(*Oxyopes sertatus*), 长角跳虫科, 蚊总科, 小蜂总科, 茧蜂科(*Braconidae*), 姬蜂科和常见类群幼豹蛛(*Pardosa pusiola*)。树冠上、下层的植食性和寄生性昆虫亚群落的相似性小, 捕食性昆虫和蜘蛛的相似性大。龙眼树冠上的5个亚群落的时间格局从1月至10月份是由低到高, 然后逐渐下降, 其中蜘蛛亚群落的时间格局波动较平缓, 高峰在4月份, 其余的群落数量季节波动较大, 植食性昆虫数量最高峰在5月份, 捕食性昆虫的数量高峰在8月份, 寄生性昆虫数量高峰在5月份和7月份。地面杂草层的群落数量波动比树冠层平缓。植食性昆虫与蜘蛛的数量相关显著。

关键词 [龙眼园](#) [节肢动物群落](#) [优势种](#) [时间格局](#) [垂直分布](#)

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Spatial and temporal structures of arthropod community in longan orchard

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Abstract The spatial and temporal structures of arthropod community in longan orchard were studied with 12 surveys. The arthropod community consists of 334 species belonging to 127 families of 21 orders in Insecta and Arachnoidea. There are 159 species within 69 families and 8 orders of phytophagous insects, 9 species within 9 families and 4 orders of scavenger insects, 47 species within 20 families and 7 orders of predacious insects, 11 species within 9 families and 1 order of parasitic insects, and 108 species within 20 families and 1 order of spiders. They represent 31.21%, 27.15%, 25.49%, 1.28% and 14.87% in number of individuals and 47.60%, 2.69%, 14.07%, 3.29%, and 32.34% in number of species for phytophagous insects, scavenger insects, predacious insects, parasitic insects, and spiders respectively. There is an obvious stratification in the community structure. The species(groups) that are predominant in both top and bottom plant strata are *paratrechina flavipes*, *phintella vesicolor*, *Psocidae* and *Chalcidoidea*. *Lawana imitata*, *Tessaratomya papillosa*, *Cornegenapsylla sinica*, *Blaberidae* and *Ichneumonidae* are predominant only in top plant stratum and *Unaspis citri*, *Aleurocanthus spiniferus*, *Culicoidea*, *Entomobryidae*, *Proctotrupoidea*, *Theridion xianfengensis* and *Chryso lingchuanensis* are predominant in bottom plant stratum.

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inant only in bottom plant stratum. On ground surface vegetation, the predominant species (groups) are *Crematogaster biroi*, *Camponotus albosparus*, *Camponotus dolendus*, *Oxyopes sertatus*, Entomobryidae, Culicoidea, Chalcidoidea, Broconidae and Ichneumonidae. Community structures in top plant stratum and in bottom plant stratum are similar for phytophagous and parasitic insects but very different for predacious insects and spiders. Population dynamics of all 5 sub-communities between January and October showed an early increase, peak, and then decline toward the end. Changes in spider populations are relatively small and peak occurs on April. Dramatic changes were observed in population dynamics of other subcommunities. The population peak on May for phytophagous insects, August for predacious insects, and between May and July for parasitic insects. Changes in population in ground vegetation community are smaller than that in the crown. The number of phytophagous insects shows a significant correlation with the number of spiders.

Key words Longan orchard; arthropod community; predominant species; temporal structure; vertical distribution

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