

## 荒漠地区柠条种实害虫对寄主斑块质量与格局的反应

张大治<sup>1,3</sup>, 贺达汉<sup>2,3\*</sup>

1宁夏大学生命科学学院, 银川 750021; 2宁夏大学农学院, 银川 750021; 3宁夏大学西北退化生态系统恢复与重建教育部重点实验室, 银川 750021

**Responses of *Caragana* seed pests to host plant patch quality and patch pattern in desert regions of Ningxia, Northwest China.**ZHANG Da-zhi<sup>1,3</sup>, HE Da-han<sup>2,3</sup>

1School of Life Science, Ningxia University, Yinchuan 750021, China; 2School of Agronomy, Ningxia University, Yinchuan 750021, China; 3Ministry of Education Key Laboratory for Restoration and Reconstruction of Degraded Ecosystem in Northwestern China, Ningxia University, Yinchuan 750021, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (928 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

**摘要** 以宁夏中东部荒漠区为景观背景, 选择人工固沙次生林地、流动风积沙地和沙壤土质丘陵地3种生境类型共18块天然或人工种植的柠条林斑块, 研究了柠条豆象、豆荚螟和柠条种子小蜂3种柠条种实害虫对寄主植物斑块质量、斑块面积和空间格局的反应. 结果显示: 3种柠条种实害虫对寄主植物的为害率与斑块质量、斑块格局和昆虫自身迁移能力有关. 对斑块质量的反应受到斑块尺度大小的影响, 在不同的生境类型间, 种实害虫的为害率差异显著 ( $P < 0.05$ ), 以人工固沙次生林地的为害率最高, 其次为沙壤土质丘陵地, 流动风积沙地相对较低. 在小斑块格局中, 柠条种实害虫数量的发生与寄主植物斑块的面积、破碎化程度存在一定的相关性, 斑块面积减少、生境破碎化程度增加能够降低移动能力较强的豆荚螟 ( $r = 0.365$ ) 的为害率, 而对移动能力较弱的柠条豆象 ( $r = 0.160$ )、柠条种子小蜂 ( $r = 0.193$ ) 则没有明显影响. 斑块边缘效应强度和景观斑块周边资源互补对种群密度具有正相关的影响.

**关键词:** 荒漠景观 生境破碎化 斑块质量 斑块格局 种实害虫 柠条

**Abstract:** Taking the desert landscape in mid-eastern Ningxia of Northeast China as the background, eighteen patches of *Caragana* shrub lands (natural or manned) with the habitat types of manually-fixed sandy land, mobile sandy land, and silty-loam downland were selected as study sites to investigate the responses of three *Caragana* seed pest species (*Kytorhinus immixtus*, *Etiella zinckenella*, and *Bruchophagus neocaraganae*) to the host plant patch quality, patch area, and patch spatial pattern. The damaged rate of host plant by the pests had close relations to the patch quality, patch pattern, and the transferring capability of the pests. The responses of the pests to patch quality were affected by patch scale, and among the three habitat types, manually-fixed sandy land had the highest damaged rate, followed by mobile sandy land, and silty-loam downland, with significant differences among them ( $P < 0.05$ ). In small scale patch pattern, there existed definite correlations between the pest number and the patch area and its fragmentation degree. The decrease of patch area and the increase of the fragmentation degree reduced the damage rate of high transferring capability *Etiella zinckenella* ( $r = 0.365$ ), but had less effects on low transferring capability *K. immixtus* ( $r = 0.160$ ) and *B. neocaraganae* ( $r = 0.193$ ). The strength of patch edge effect and the mutual complement of the resources around patches had positive effects on the population density of the pests.

**Key words:** desert landscape habitat fragmentation patch quality patch pattern seed pests *Caragana*

## 服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

## 作者相关文章

## 引用本文:

. 荒漠地区柠条种实害虫对寄主斑块质量与格局的反应[J]. 应用生态学报, 2011, 22(07): 1871-1877.

. Responses of *Caragana* seed pests to host plant patch quality and patch pattern in desert regions of Ningxia, Northwest China. [J]. Chinese Journal of Applied Ecology, 2011, 22(07): 1871-1877.

## 链接本文:

<http://www.cjae.net/CN/> 或 <http://www.cjae.net/CN/Y2011/V22/I07/1871>

## 没有本文参考文献

[1] . 基于最小费用模型的景观连接度评价[J]. 应用生态学报, 2009, 20(08): 2042-2048.