

Ecology vs. Beauty. How Does Progressing Urbanization Affect Plant Invasion?

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Introduction

Invasive plant species are plants that established a distribution area outside of their natural habitat. Due to a high and still developing level of globalization and global trading mechanisms, plants or even seeds are easily brought into new regions where they are able to settle and grow. An example would be the China native *Buddleja davidii*, also called Butterfly Bush, which has been brought to Europe for ornamental purposes, and spread from urban areas to quarries and floodplains.

The plant is a threat for the naturally inhabitating plants and endangers the sustainable ecological future of affected areas. The theory on the phases of invasion grants insight into the development of the establishment of the plant and suggests management measures that provide possibilities to deal with the invasion and its consequences.

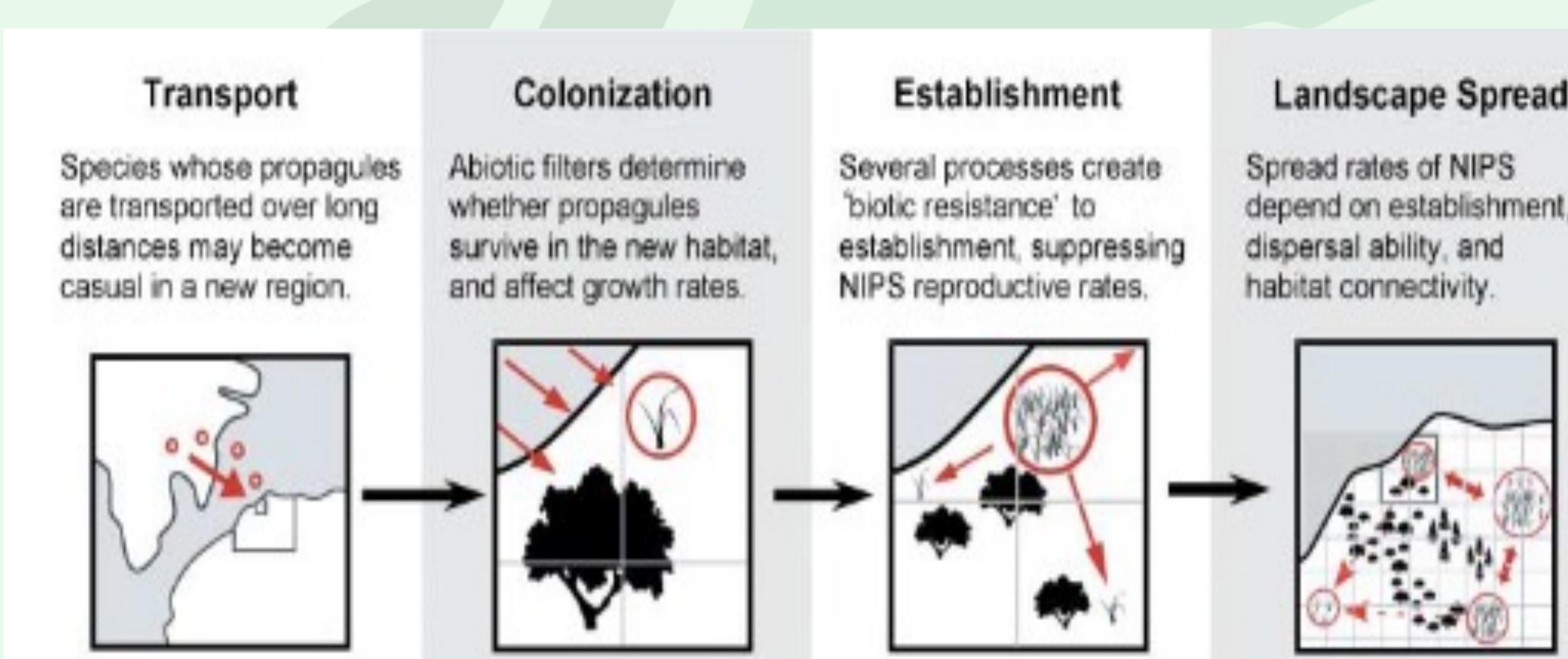


Fig 1: Phases of invasion (Theoharides & Dukes, 2007)

Results

Buddleja davidii was introduced to Europe with intentions of settling a new ornamental species for gardens and parks. Due to the plants reproductive characteristics and an increase in private gardening, the Butterfly Bush became established outside of gardens and parks. The plant found its way out of the gardens to settle in natural habitats where it can be found to this day. Because of biological features of the Butterfly Bush, the plant needs to be fully removed from protected habitat to achieve a decrease in population density. Management measures imply strict and regular monitoring, especially for smaller populations. But the plant is widely regarded as being very attractive. Conflicts emerge between ecological and decorative perspectives.



Discussion

Buddleja davidii is a fitting example for human influence on plant expansion. The introduction in Europe was based on ornamental uses, but it led to an establishment of the plant outside of humanly cultivated landscapes. The addition of the Butterfly Bush to European ecosystems needs to be seen in critical manner due to the enhanced selection pressure for native plant species. The introduction of alien species always includes a level of uncertainty about the ecological future of the ecosystem.

The need for an entire removal of the plant increases the difficulty for management measures. To effectively address the invasion of the Butterfly Bush, detailed mapping, strict monitoring and manual removal is required.

However, a possible conflict of interest should be taken into account. The plant is recognized as a beautiful and wildlife-attracting flower and has been a well known garden plant for about a century. Therefore efforts to remove and contain the plant could be misunderstood or criticized by people of non-ecological interest.

The conflict of interests should be taken into account regarding the future of urban landscapes. Private gardens will carry potential for the re-expansion of *Buddleja davidii*. Furthermore, the progressing urbanization creates more opportunities for the Butterfly Bush and other invasive species to adapt to European ecosystems and spread from urbanized areas to other habitats.



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Literature

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