

# THEORY GUIDES RAPID RESPONSE TO PLANT INVASIONS

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Land managers have long realized that exotic species do not invade plant communities equally. Many theories have been advanced to explain these differences, but studies to investigate these theories often produce conflicting or ambiguous results. However, Davis and others (2000) have developed a new theory from empirical studies

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and long-term vegetation monitoring that is simple yet captivating: a plant community becomes more susceptible to invasion whenever an increase in the amount of unused resources occurs. This

increase may come about through a reduction in resident vegetation (e.g., from heavy grazing, a disease outbreak, or intense flooding) or through an increase in the resource supply (e.g., during a particularly wet year or as a consequence of eutrophication). A community's susceptibility to invasion, therefore, varies over time. These pulses of resource availability also must coincide with the presence of invasive propagules such as seeds and spores, leading to the episodic establishment of invasive species.

This theory has important implications for resource managers, in particular the required response to new invasions. In short, environments that are naturally subject to frequent fluctuations in resource availability will be invaded most often and should be a priority for monitoring and potential mitigation. Areas that experience a known disturbance or influx of resources also should be investigated. —R. Harms

## Reference

Davis, M. A., J. P. Grime, and K. Thompson. 2000. Fluctuating resources in plant communities: a general theory of invasibility. *Journal of Ecology* 88:528–534.