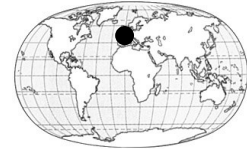


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## IMPORTANCE OF STOCK EXTERNALITIES IN MANAGEMENT STRATEGIES FOR INVASIVE SPECIES

The management of an invasive species presents some similarities with renewable resources. However, the objective function is the sum of two positive and often increasing components: environmental damages and management costs. The paper stresses the importance of stock externalities to ensure that a non zero stock is optimal. In a static approach, the paper shows that when the damage is decreasing, the absence of stock externalities leads to a solution of eradication (zero stock) under usual assumptions. If the damage is decreasing (and negative as sometimes assumed), it is still possible that a non zero stock to be optimal. In the presence of externalities, it is more likely that an interior solution be optimal, although it needs not to the case. If the stock externalities tend to be infinitely large for low stock levels, then eradication is ruled out. In the dynamic approach, conditions are given for an interior solution to exist. The existence of externalities helps satisfy both first and second conditions for a solutions stopping short from full eradication An empirical application for *Ludwigia* spp. will be given. The aim of this study is to identify and quantify control strategies for various French sites invaded by *Ludwigia* spp.

keywords: invasive species, resource economics, eradication, controlled invasion