

Export citation Purchase More options...



Purchase \$31.50

Show thumbnails in outline

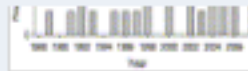


Table 2

3. Ecosystem services and habitat management

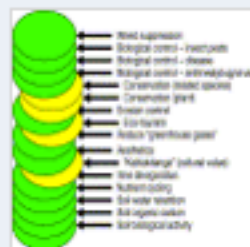
3.1. Types of ecosystem services

Table 3

3.2. Habitat management and ecosystem services

3.3. Maximizing ecosystem services

3.3.1. Supporting services



3.3.2. Provisioning services

3.3.3. Regulating services

3.3.4. Cultural services

4. Case studies

4.1. Michigan native plants to enhance multiple ecosystem services



Abstract

The intentional provision of flowering plants and plant communities in managed landscapes to enhance natural enemies is termed habitat management and is a relatively new but growing aspect of conservation biological control. The focus of most habitat management research has been on understanding the role of these plant-provided resources on natural enemy biology, ecology, and their ability to enhance suppression of pest populations. Far less attention has been paid to additional ecosystem services that habitat management practices could provide in managed landscapes. We first evaluate whether habitat management is well positioned to advance in these areas. Our analysis of past habitat management studies indicates that four plant species have been tested in the majority of field evaluations, while plants native to the test area and perennial plants are particularly underrepresented. We suggest that synergies among biodiversity conservation, ecological restoration, human cultural values, tourism, biological control and other ecosystem services have largely been overlooked in past habitat management research and we illustrate how these potential ecosystem services could be evaluated and enhanced. We then review two case studies in which broader ecosystem services were explicitly addressed in plant selection criteria. One case study demonstrates that native plants useful in restoration of rare ecosystems can increase natural enemy abundance as much as widely recommended non-natives. The second addresses additional ecosystem services provided by habitat management in New Zealand vineyards. We conclude that addressing 'stacked' ecosystem services with multiple ecosystem service goals can decrease agriculture's dependence on 'substitution' methods such as the current reliance on oil-based agro-chemical inputs.

Keywords

Native plants; Ecological restoration; Biodiversity conservation; Biological control; Ecosystem services