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Author: Lucas A. Garibaldi Fabrice Requier Orianne Rollin Georg K.S. Andersson

PII: S2214-5745(17)30047-0
DOI: http://dx.doi.org/doi:10.1016/j.cois.2017.05.016
Reference: COIS 344

To appear in:

Received date: 29-3-2017
Revised date: 28-4-2017
Accepted date: 6-5-2017

Please cite this article as: Lucas A. GaribaldiFabrice RequierOrianne RollinGeorg K.S. Andersson Towards an integrated species and habitat management of crop pollination (2017), http://dx.doi.org/10.1016/j.cois.2017.05.016

Abstract = 119 words (max. 120)
Main text = 2274 words (2000 words suggested)
References = 55 in the main text (50 suggested) plus 82 in Tables.
Artwork = 4 consisting of 2 tables, 1 figure, and 1 box (max. 4)

Towards an integrated species and habitat management of crop pollination

Lucas A. Garibaldi[1,*], Fabrice Requier[1], Orianne Rollin[1], Georg K. S. Andersson[1]

[1] Instituto de Investigaciones en Recursos Naturales, Agroecología y Desarrollo Rural (IRNAD), Sede Andina, Universidad Nacional de Río Negro (UNRN) y Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Mitre 630, CP 8400, San Carlos de Bariloche, Río Negro, Argentina.

* Corresponding author: Lucas A. Garibaldi (lgaribaldi@unrn.edu.ar)

Abstract

Pollination deficits are widespread in current agriculture, so improving management for crop pollination is critical. Here we review the two most common management approaches to enhance crop pollination, species and habitat management, by providing referenced lists of successful examples. We pinpoint that these approaches have been studied in isolation from each other, with little discussion on potential synergies and trade-offs between them. The potential costs of species management (e.g. loss of biodiversity due to biological invasion), as well as the potential benefits to managed pollinator species from habitat restoration, are rarely quantified. An integrative approach to crop pollination should be implemented, accounting for the cost and benefits (including those beyond crop production) and interactions of species and habitat management.

Highlights

- Pollinator species and habitat management are the main strategies to enhance crop pollination.
- These strategies have been studied in isolation from each other.
- An integrative approach considering both strategies should be adopted for crop pollination.
- The integrative approach could improve pollination both in crops and the wider landscape.
- Potential trade-offs include competition and disease transmission from managed to wild species.