



PROCEEDINGS OF THE ROYAL SOCIETY B

BIOLOGICAL SCIENCES



[Advanced](#)

[Home](#) [Content](#) [Information for](#) [About us](#) [Sign up](#) [Submit](#)

Importance of pollinators in changing landscapes for world crops

Alexandra-Maria Klein, Bernard E Vaissière, James H Cane,
Ingolf Steffan-Dewenter, Saul A Cunningham, Claire Kremen,
Teja Tscharntke

Published 7 February 2007. DOI: [10.1098/rspb.2006.3721](https://doi.org/10.1098/rspb.2006.3721)

Article

Figures & Data

Info & Metrics

eLetters

 **PDF**

Abstract

The extent of our reliance on animal pollination for world crop production for human food has not previously been evaluated and the previous estimates for countries or continents have seldom used primary data. In this review, we expand the previous estimates using novel primary data from 200

We use cookies to help us improve this website. [Learn more](#)

Close

dependent upon animal pollination, while 28 crops do not rely upon animal pollination. However, global production volumes give a contrasting perspective, since 60% of global production comes from crops that do not depend on animal pollination, 35% from crops that depend on pollinators, and 5% are unevaluated. Using all crops traded on the world market and setting aside crops that are solely passively self-pollinated, wind-pollinated or parthenocarpic, we then evaluated the level of dependence on animal-mediated pollination for crops that are directly consumed by humans. We found that pollinators are essential for 13 crops, production is highly pollinator dependent for 30, moderately for 27, slightly for 21, unimportant for 7, and is of unknown significance for the remaining 9. We further evaluated whether local and landscape-wide management for natural pollination services could help to sustain crop diversity and production. Case studies for nine crops on four continents revealed that agricultural intensification jeopardizes wild bee communities and their stabilizing effect on pollination services at the landscape scale.

Keywords:

Footnotes

- Electronic supplementary material is available at <http://dx.doi.org/10.1098/rspb.2006.3721> or via <http://www.journals.royalsoc.ac.uk>.

-

- Received July 24, 2006.

- Accepted August 29, 2006.

- © 2006 The Royal Society

[View Full Text](#)

Sign in for Fellows of the Royal Society

[Fellows: please access the online journals via the Fellows' Room](#)

Not a subscriber? [Request a free trial](#)

LOG IN USING YOUR USERNAME AND PASSWORD

Username *

We use cookies to help us improve this website. [Learn more](#)

Close

Password *


*Enter the password that accompanies your username.***Log in**[Forgot](#) your user name or password?**LOG IN THROUGH YOUR INSTITUTION****via Institution**


You may be able to gain access using your login credentials for your institution. Contact your library if you do not have a username and password.


[Pay Per Article](#) - You may access this article or this issue (from the computer you are currently using) for 30 days.


[Regain Access](#) - You can regain access to a recent Pay per Article or Pay per Issue purchase if your access period has not yet expired.


[< Previous](#)[Next >](#)[^ Back to top](#)[< Previous](#)[Next >](#)**7 February 2007****Volume 274, issue 1608**[Table of Contents](#)[Table of Contents \(PDF\)](#)[About the Cover](#)[Index by author](#)[Back Matter \(PDF\)](#)[Ed Board \(PDF\)](#)We use cookies to help us improve this website. [Learn more](#)[Close](#)


 Share

 Email

 Print

 Manage alerts

 Citation tools

 Article reuse



☐ Article

☐ Abstract

☐ 1. Introduction

☐ 2. Material and methods

☐ 3. Results and discussion

☐ 4. Management conclusions and future directions

☐ Acknowledgments

☐ Footnotes

☐ References

☐ Figures & Data

☐ Info & Metrics

☐ eLetters

☐ PDF



Related articles

No related articles found

Web of Science Scopus PubMed Google Scholar



Cited by



Large datasets are available through *Proceedings B's* partnership with Dryad

RECOMMENDED ARTICLES

Ecosystem services and agriculture: tradeoffs and synergies

Alison G. Power, *Philosophical Transactions B*

We use cookies to help us improve this website. [Learn more](#)

Close


Hannes Dempewolf et al., Proceedings B

Landscape context shifts the balance of costs and benefits from wildflower borders on multiple ecosystem services


Heather Grab et al., Proceedings B

Optimal foraging in seasonal environments: implications for residency of Australian flying foxes in food-subsidized urban landscapes

David J. Páez et al., Philosophical Transactions B

Global phosphorus flows through agricultural trade 

Global Environmental Change

A methodology for quantifying global consumptive water use of coffee for sustainable production under conditions of climate change 

Eriyagama, Nishadi et al., Journal of Water and Climate Change

Bioenergy potential from agriculture residues for energy generation in Egypt 

Renewable and Sustainable Energy Reviews

Global change effects on land management in the Mediterranean region 

Global Environmental Change

Powered by **TREND MD**



PROCEEDINGS B

About this journal

Contact information

Purchasing information

Submit

Author benefits

Open access membership

Recommend to your library

FAQ

Help

ROYAL SOCIETY PUBLISHING

Our journals

Open access

Publishing policies

Conference

We use cookies to help us improve this website. [Learn more](#)

Close

News
Blog
Manage your account
Terms & conditions
Privacy policy
Cookies

THE ROYAL SOCIETY

About us
Contact us
Fellows
Events
Grants, schemes & awards
Topics & policy
Collections
Venue hire

Copyright © 2018 The Royal Society

We use cookies to help us improve this website. [Learn more](#)

Close