

INTRODUCTION TO SPECIAL ISSUE OF THE JOURNAL OF POLLINATION ECOLOGY ON CROP POLLINATION DEFICITS

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While it is well recognised that pollination is an ecosystem service of vital importance to human well-being through its role in food production, it is still remarkable how little is known, on a crop-by-crop basis, about this role, and the extent and causes of declines in the service. Without better documentation of the specific contribution of pollination to crop yields, there have been mounting - and justified - questions about how relevant pollination may be to agricultural development and food security. In addition, the vast majority of studies of pollination services to crops have been carried out in Europe and North America; and certainly the problems we know to impact pollinators most severely - a high dependence on agricultural chemicals and monocropped landscapes offering little diet diversity to pollinators - are typical features of industrialised, Northern hemisphere agriculture.

With this special issue, it is possible to begin to bring substantial evidence to bear on the characteristics of pollination deficits in crops, from a variety of agricultural systems around the world. In 2012 Apimondia (the International Federation of Beekeeping Associations) convened a special symposium called "ApiEcoFlora" in San Marino. The Food and Agriculture Organization of the United Nations (FAO) and Naturalis Biodiversity Center organised, in this symposium, a session focused on Pollination Deficits. The Global Pollination Project, funded by the Global Environment Facility and United Nations Environment Programme, and coordinated by FAO had earlier identified pollination deficits as a priority topic, and had developed a protocol to identify and assess pollination deficits from a farmer's perspective, led by FAO and the Institut National de la Agronomie in Avignon, France

(Vaissière et al. 2011). Project partners - from Brazil, Kenya, and other developing countries - were able to present the results of applying this protocol to a broad scope of crops; some of these results are highlighted in a number of papers included in this special issue. The global nature of the issue is evident as well in the symposium presentations and contributions to this special issue from New Zealand, United Kingdom and Canada, providing a robust overview of crop pollination deficits around the world.

A great value of this set of papers is that, to the extent possible, researchers have made efforts to record the impacts of pollination on the aspects of crop production that are most relevant to farmers: yields - whether this be tomato volumes, canola seed weights, or apple quality. As pollination ecology moves from its initial role of drawing needed attention to pollinator declines to the next steps of identifying measures to address such declines, it is critically important to develop a common perception - with farmers and land managers - of the scope of the problem, and where we need most to focus on reversing any trends that may impact the ability of agroecosystems to nourish a growing population. This special issue is an important contribution to this next step.

REFERENCES

- Vaissière B, Freitas B, Gemmill-Herren B (2011) Protocol to detect and assess pollination deficits in crops: A handbook for its use. FAO, Rome. <http://www.fao.org/docrep/013/i1929e/i1929e00.htm>

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