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Pollination Crises in the Agro-ecosystems of the Tropics **Challenges and Way Forward**

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ABSTRACT

About 70 per cent of common agricultural crops grown by a vast majority of subsistence farmers across the tropics are directly dependent on pollination services in varying extents. Pollinating insects play a major role in delivering the pollination service. Among them the bees—both domesticated and wild, are the primary pollinators of most agricultural crops. This paper describes the root causes for the decline in pollinating insects with a note on their impact on pollination services. It also suggests how we can overcome such pollination crisis.

KEYWORDS

Subsistence Farmers, Tropics, Pollinating Insects, Pollinator Loss, Pollination Services, Pollination Crisis

POLLINATION CRISES IN THE TROPICS

About 70 per cent of common agricultural crops, grown by a vast majority of subsistence farmers across the tropical world, are directly dependent on pollination services in varying extents. Pollinating insects play a major role in delivering the pollination service and among them the bees—both domesticated and wild—are the primary pollinators of most agricultural crops (Potts *et al.* 2010). However, there has been a rising concern about the decline in pollinating insects across the globe (Potts *et al.* 2010; Kearns *et al.* 1998; Kremen *et al.* 2002; Klein *et al.* 2007; Bismeyer 2006).

The first sign of the threat to the pollinating insects came to the fore with the colony collapse disorder in 2006 and 2007 in the US where there was large scale mortality of the managed European honey bees (*Apis mellifera*) (vanEngelsdorp *et al.* 2009). Similar phenomenon was also observed in Europe (Potts *et al.* 2010). Since then a number of drivers of such loss has been proposed including an Asian invasive ectoparasitic mite *Varroa destructor* (Potts *et al.* 2010). This

catastrophic episodes of large scale losses of the managed honey bees prompted further closer scrutiny of the status of other pollinating insects including various wild bees and other honeybee species across the world and saving the pollinators has been a major conservation issue. The fifth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD) highlighted the following to establish international initiatives¹:

- Monitor pollinator decline, its causes and its impact on pollination services,
- Address the lack of taxonomic information on pollinators,
- Assess the economic value of pollination and the economic impact of the decline of pollination services,
- Promote the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.

The Intergovernmental Panel of Biodiversity and Ecosystem Services (IPBES) also initiated a major assessment to cover changes in animal pollination as a regulating ecosystem service

Few Pages are not available

ENDNOTES

1. <https://www.cbd.int/agro/pollinator.html>.
2. <http://www.ipbes.net/work-programme/pollination>.

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