

Cirad statement for the 25th anniversary of the International Initiative for the Conservation and Sustainable Use of Pollinators

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Reconnecting farming systems to biodiversity

Pollinators are vital in maintaining biodiversity, productivity, and resilience in natural and agricultural ecosystems by ensuring essential pollination services. From tiny specialized weevils to powerful carpenter bees, from nocturnal butterflies to bats, they contribute directly to human welfare by securing the quality and quantity of fruits, nuts, seeds, and vegetables, thus contributing to improve diets and micronutrient intake. They also enable the reproduction of many wild plants, thereby supporting biodiversity conservation and, to a greater extent, the resilience of terrestrial ecosystems. In addition, some pollinators act as ecological indicators due to their susceptibility to environmental changes, pollutants, and habitat modifications. Their population dynamics and distribution patterns can provide early warning signals on ecosystem health, making them such guides for ecosystem conservation and management initiatives. Conserving pollinator populations and their diversity is thus essential for maintaining the ecosystem integrity and keeping the connections between biodiversity and sustainable development.

Pollinators are increasingly threatened by habitat loss, pesticide use, climate change, and the introduction of new predators and pathogens, posing a major scientific and societal challenge. CIRAD, the French Agricultural Research Center for International Development, is developing research programs that contribute to understanding the context of pollinator decline and designing effective conservation strategies for these crucial organisms. Along with its partners across tropical and subtropical regions worldwide, from Madagascar's endemic baobabs to economically important crops such as cocoa, oil palm, cotton, vanilla, and diverse fruit species, CIRAD scientists have documented complex plant-pollinator interactions, quantified pollination service effectiveness, and developed predictive models to assess pollinator responses to environmental changes. This research provides insights for designing pollinator-friendly landscapes that balance agricultural productivity with ecosystem conservation.

CIRAD affirms that new farming models, grounded in agroecology and nature-based solutions, offer a promising pathway to safeguard pollinator diversity. Key strategies include strategic crop diversification, enhanced floral resource management, agroforestry systems that provide year-round nesting habitats and food sources, and reduction of harmful pesticide applications. Such transformational changes require robust scientific support to deepen our understanding of pollination ecology, and the interactions between pollination services and other ecosystem functions. It also calls for transdisciplinary approaches that foster dialogue among stakeholders—farmers, researchers, policymakers, and local communities— emphasizing building capacity and weaving traditional knowledge with scientific innovation. Ultimately, the success of these transitions depends on policy frameworks and incentives that actively promote sustainable agricultural practices and the protection of pollinator habitats.