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Is Climate Change Causing Pollinator Disruption Within The Orchidaceae?

Long term climate change can alter the timing of important behavioural and developmental events for both faunistic and floristic taxa. These phenological changes impact ecological interactions in complex and unforeseen ways, altering population level dynamics as well as species and trophic relationships. This research assesses the impact of global climate change on both the flowering phenology of orchids and the flight phenology of associated pollinator species. Divergent phenological effects occur when plants and their pollinators are differentially impacted by environmental cues. Highly co-evolved synchronicities, such as orchid-pollinator mutualisms, are particularly susceptible to disruption.

The consequences of pollination disruption are both complex and wide-ranging. Therefore an essential element in the successful conservation of pollination systems is an enhanced understanding of the nature of multiple interacting factors and of the threat of co-extinction arising from the loss of associates. This research examines pollination interactions in the Orchidaceae and assesses the implications of pollination disruption for the integrity and conservation of orchids at the community level.

Specimen-based records, such as those found in herbaria, provide a wealth of data on the distribution and phenology of plant species through both space and time. The on-line accessibility of digitised herbarium data is becoming more widespread, enabling greater access to such herbarium specimens worldwide. Hence, the potential contribution of information technologies for conservation research is highlighted. Preliminary results are discussed.