

SERVICES AND DIS-SERVICES OF RAINFOREST INSECTS IN CROPS IN NORTH QUEENSLAND

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➤ Some insect species that originate in Australian rainforest, or use rainforest for a part of their life cycle, cause economically important damage to crops nearby. Conversely, other insect species reliant on rainforest play positive roles in crops by contributing to pollination and control of pests.

➤ During the next three years we will assess the relative value of services and dis-services flowing from rainforest insects to north Queensland crops. The assessment will incorporate published information, consultation with other researchers and growers, and our own field surveys of pollinators, pests and control insects in a wide range of crops.

➤ This research will add to the knowledge base needed to allow the contributions of rainforest insects to be better incorporated into decision-making on natural resource use. Insects illustrated below are examples of species whose roles in crops are already recognised.

PESTS

POLLINATORS



Several rainforest plants are the food source for larvae of hawk moths (Sphingidae: *Macroglossum* spp.) that pollinate papaya.



Adult flower scarabs (*Phyllotocus apicalis*) are pollinators of the rainforest tree *Flindersia brayleyana* but are also attracted to many non-rainforest plants.



Some flower wasps (*Campsomeris* spp) are found in rainforest. The species shown (*C. tasmaniensis*) is a pollinator of macadamia flowers.



Larvae of the avocado fruit borer (*Thaumatotibia zophophanes*) damage avocados by mining the fruit surface. An alternative host in rainforest is Aspen (*Acronychia acidula*).



Adults and nymphs of the banana-spotting bug (*Amblypelta lutescens*) damage numerous fruits. Rainforest hosts include umbrella tree (*Schefflera actinophylla*) and white cedar (*Melia azedarach*).



Adults of the fruit-piercing moth (*Eudocima* spp) are capable of damaging most fruits. The larvae feed on twining rainforest vines of the Menispermaceae, such as snake vine (*Tinospora smilacina*).

PROTECTORS



Rainforest wasps, similar to the *Euplectrus* sp. above, parasitise larvae of the fruit-piercing moth.



Rainforest robber flies prey on other insects.



Rainforest harbours species of assassin bugs (Reduviidae) that are generalist predators of pest insects in crops.

