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## GIANT SWARM

The largest swarm of insects ever recorded consisted of approximately **12.5 trillion** Rocky Mountain locusts (*Melanoplus spretus*) that flew over Nebraska in 1875. This swarm was estimated to cover 198,000 square miles (an area greater than the size of California) and weigh about 27.5 million tons.

Less than 30 years later, the species was apparently extinct. The last recorded sighting of a live specimen was in 1902 in southern Canada. Because a creature so ubiquitous was not expected to become extinct, very few samples were ever collected (though a few preserved remains have been found in Grasshopper Glacier, Montana). Since the disappearance of this species, North America is now the only continent without a major locust species, apart from Antarctica.

The cause of their extinction is unknown. Biologists have hypothesized that plowing and irrigation by settlers in the Great Plains disrupted their natural life cycle in the areas they lived in between swarms. However, it appears that this species lived and reproduced in the prairie only temporarily during swarming years with each generation being smaller than the previous one and swarming ever further from the Rocky Mountains.



African Locust  
*Locusta migratoria migratorioides*  
Ivory Coast, 1979, Sc#519C

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## FLIGHTLESS FLY

On 2 January 2017, French Southern and Antarctic Territory (FSAT) issued a stamp depicting an endemic fly (*Amalopteryx maritima* Eaton).

This monotypic species is found only in the sub-antarctic islands of the Indian Ocean including the Kerguelen Islands and Crozet Islands of FSAT and Macquarie Island and Heard Island of Australia.

These insects are members of the Order Diptera (true flies), but though they have wings, these are very narrow and the insects are completely unable to fly. This is a condition called brachyptery wherein the wings are very reduced and only partly or non-functional.

This species is found on rocks and moves by jumping when disturbed. Presumably the wings provide some assistance with this locomotion.

Brachyptery is rarely seen in Diptera and for this reason this species is of interest to naturalists. Why would natural selection favor the loss of a structure that is generally attributed with being the key evolutionary innovation leading to the success of the group? This question has intrigued insect systematists ever since Darwin.

An insect species might evolve towards brachyptery in reducing its flight muscles with their associated energy demands, or in avoiding the hazards of flight in windy conditions on oceanic islands, where flying insects are prone to drowning.



*Amalopteryx maritima* Eaton  
FSAT, 2017