

Migratory moths may hitch their rides, but they're anything but drifters

October 13 2008

Night-traveling migratory moths may hitch a ride on the wind, but a new study in the October 14th issue of *Current Biology*, a Cell Press publication, confirms that they are anything but drifters.

A previous report also in *Current Biology* offered the first evidence that Silver Y moths rely on a sophisticated internal compass, sailing on favorable winds to reach their southerly winter destination within a matter of days. Now, the research team that brought us that finding reveals that the moths get back north, where they started from, in the spring by throwing that whole system in reverse.

"In our first paper, we demonstrated how the moths manage to make return migrations of hundreds of kilometers in just a few nights to their more southerly over-wintering ranges, using a compass and an inherited preferred direction," said Jason Chapman of Rothamsted Research in the United Kingdom. "The obvious question arising from that study was: do the migrants also have specialized behaviors to enable them to carry out the spring northwards migrations, or do they just drift with the wind?"

To answer that question, the researchers examined the high-altitude spring migrations of the Silver Y moths into southern U.K. by using vertical-looking radars. Over three years, in June, when the moth migrations are most frequent, they identified 83 high-altitude mass migration "events" 200 to 1,200 meters into the sky.

Those observations showed that the migrant Silver Y moths in spring

limit their high-altitude travel to nights with favorable, northward winds, just as they do with the southward winds as winter approaches. They carefully select their altitude to travel in the fastest winds and align themselves such that their own flight speed adds to the wind speed.

The moths also reverse their preferred direction, using their internal compass to make up for any wind drift that sends them off their course north. Chapman said they don't know exactly how the moths do it, but they suspect that the seasonal compass switch is controlled by changes in day length over the course of the year.

He calls the two studies a "big advance in the field of insect migration," noting that there had been no conclusive evidence for a compass sense in nocturnal moths used to guide their migrations. A similar mechanism had been discovered in butterflies that fly low to the ground during the day, he added, but "it is much harder to envisage how these insects are able to carry out these feats of orientation while traveling hundreds of meters above the ground at speeds up to 100 kilometers per hour in almost total darkness."

Source: Cell Press

Citation: Migratory moths may hitch their rides, but they're anything but drifters (2008, October 13) retrieved 18 April 2024 from <https://phys.org/news/2008-10-migratory-moths-hitch-theyre-drifters.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.