



W Piel (2)



On a recent bird-watching trip to Malaysia with a group of intrepid researchers affiliated with the Yale Institute for Biospheric Studies, we not only spotted 130 species of birds, but also found plenty of bird droppings, both real and imitation.

A

## Flies in the Ointment Make for Convincing Poop

By William Piel, Director of Informatics and Cryo Collection Manager, Yale Peabody Museum of Natural History, and Antónia Monteiro, Assistant Curator in Entomology, Yale Peabody Museum of Natural History, and Assistant Professor, Yale Department of Ecology and Evolutionary Biology

We encountered a particularly intriguing imitation bird-dropping on the dorsal wing surface of *Macrocilix maia*—a rare drepanid moth found only at higher elevations in the Asian tropics. Allan Lee reports that this species produces an unpleasant smell (see [www.flickr.com/photos/allanlee/3506113435/](http://www.flickr.com/photos/allanlee/3506113435/)), although we didn't notice this at the time. Finding exquisite bird-dropping imitations among moths, caterpillars and spiders is common in the tropics. Often these mimics also emit foul odors or use dashes of white glint to look especially fresh and wet. Typically, this mimicry functions either to cryptically hide the moth or to ward off predators by posing as something unprofitable. But in the case of *Macrocilix maia* the imitation bird dropping and odor was accompanied by a most extraordinary wing pattern.

To our astonishment, this moth, which we found outside our hotel on Fraser's Hill, Malaysia (3°42'49.8"N, 101°44'48.0"E), seems to have false images of flies on its wings. It may be our imagination, but don't those red compound eyes, rounded thorax with legs, and blurred grey folded wings together form the images of flies? In butterflies, eyespots usually function to deflect predatory strikes to the margin of the wings, providing the butterfly with a chance of escape. Are flies functioning as the deflectors here? Or, alternatively, are these flies pretending to feed on the bird dropping, thus completing the entire picture: foul-smelling bird poop that has attracted flies? Only careful future research will answer this question.

Our thanks to Larry Gall, Torben Larsen and Henry Barlow, who all helped identify the moth.



B

A The moth *Macrocilix maia* photographed on Fraser's Hill in peninsular Malaysia. Below: Flanking the imitation bird dropping on the hindwings are two patterns on the forewings that look remarkably like flies (one wing shown in detail).

B Trip members (left to right): William Piel; Antónia Monteiro; Jon Beadell, former postdoctoral researcher in the YIBS Molecular Systematics and Conservation Genetics Laboratory; Yulia Bereshpolova, University of Connecticut, Storrs; Peabody Division of Vertebrate Zoology Collections Manager Kristof Zyskowski; Alana Beadell, postdoctoral researcher, University of Wisconsin-Madison; and Florence Piel, a student at the Bear Path School.