Research on vital bat species emphasizes need for immediate conservation action

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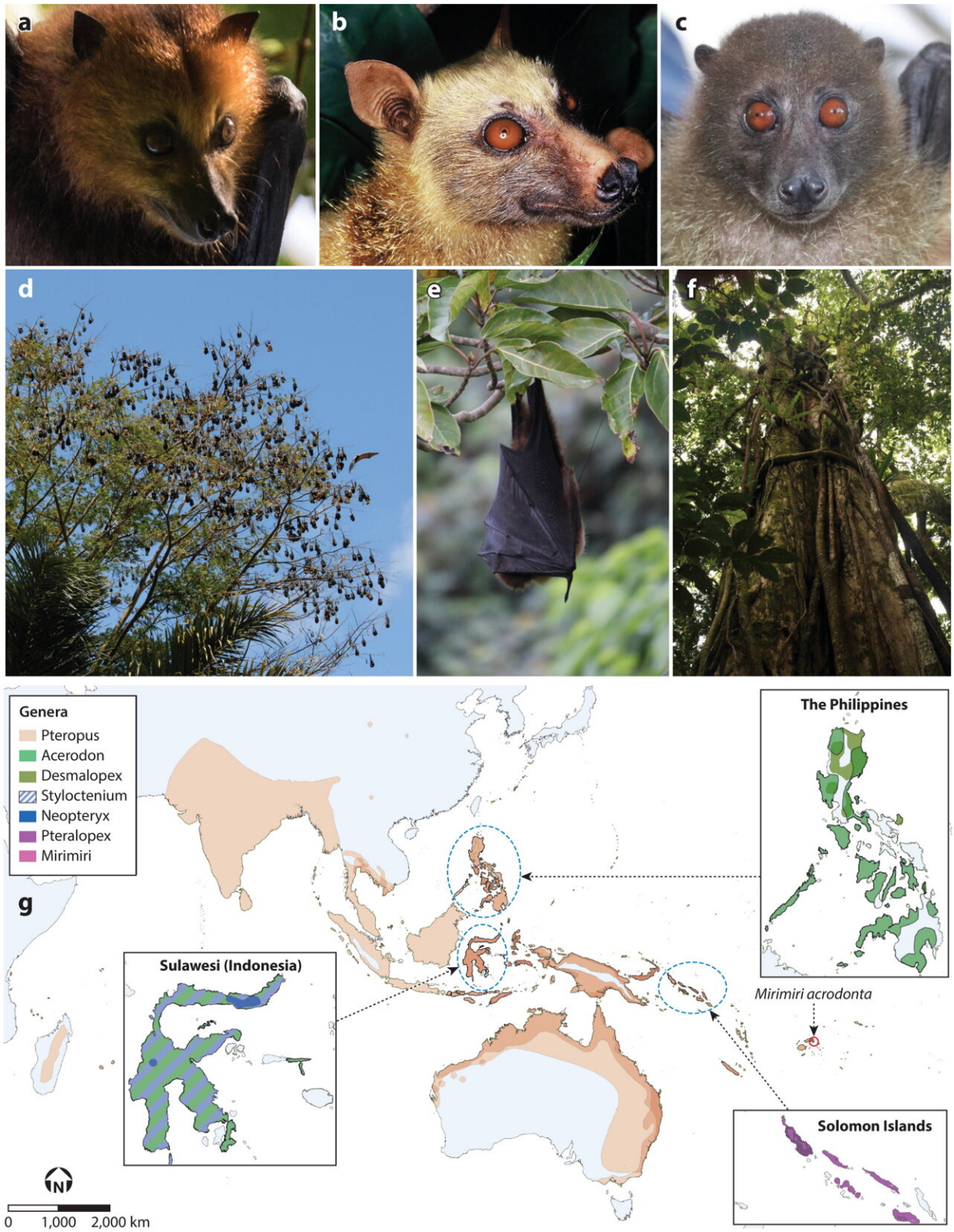

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Large Old World Fruit Bats, their roosting ecology and geographical distribution. Credit: *Annual Review of Ecology, Evolution, and Systematics* (2023). DOI: 10.1146/annurev-ecolsys-110321-055122

Recent research led by Tigga Kingston, a professor in the Department of Biological Sciences at Texas Tech University, delivers a stark warning concerning the distressing decline of flying foxes and related species, also known as Large Old World Fruit Bats (LOWFBs).

This study, conducted in collaboration with F.B. Vincent Florens of the University of Mauritius and Christian E. Vincenot of the University of Luxembourg, emphasizes the critical need for immediate, coordinated global conservation efforts to avert the extinction of these vital bat species. The work is published in the journal *Annual Review of Ecology, Evolution, and Systematics*.

The comprehensive research draws on data from the International Union for the Conservation of Nature Red List assessments and an extensive literature review, revealing a concerning decline in conservation status, spanning 50 years.

Species of Pteropus and Acerodon and their relatives, constituting the LOWFBs, are now deemed the most endangered bat group globally, with some 70% of the 75 existing species threatened with extinction. The threats faced by LOWFBs are multifaceted, encompassing issues such as hunting, land-use changes, habitat degradation, climate change, invasive introduced species, urbanization and persecution. These factors collectively propel these bats to the brink of extinction, posing a severe risk to their survival.

Kingston's inspiration for this research stems from her role as the Old-

World co-chair of the Bat Specialist Group of the IUCN's Species Survival Commission. The study builds on her prior engagement with the issue, dating back to 2015 when she and the specialist group were alerted to the mass cull of 30,000 Pteropus niger fruit bats on the island of Mauritius, part of the Mascarene archipelago in the Indian Ocean.

These bats, unique to the island, faced a threat due to conflicts over lychee fruit crops. Kingston made visits to Mauritius in 2015 and 2018, advocating for a collaborative solution that would safeguard both the crops and the fruit bats.

The urgency of the situation is underscored by the disproportionate impact on LOWFBs compared to other bat species. Their island distribution accelerates population declines, heightening vulnerability to various threats. The ramifications of declining LOWFB populations extend beyond the bats themselves, disrupting crucial ecosystem services like pollination and seed dispersal, particularly on islands.

Six out of the nine recent bat extinctions highlighted in the research were LOWFBs from small islands, emphasizing the severity of the situation. Unsustainable hunting and habitat loss emerge as significant contributors to these alarming declines.

"In essence, we are witnessing the potential extinction of a group of bats that play keystone roles in maintaining the health and balance of ecosystems," Kingston said. "Their decline not only jeopardizes their own survival but disrupts vital ecological interactions, such as pollination and seed dispersal, with far-reaching consequences."

In response to these urgent challenges, the researchers propose a comprehensive strategy. Recommendations include protecting and restoring native habitats, monitoring, and modeling population trends, engaging local communities through campaigns, strengthening legislation

and enforcement, considering captive breeding for select species, and establishing a multinational LOWFB Network to enhance research capacity.

Conservationists and researchers are issuing a fervent call to action, urging the global community to unite in safeguarding these crucial bats and the ecosystems they sustain. Preserving flying foxes is not merely about saving a species; it is a vital step in ensuring the health and resilience of entire ecosystems that rely on their keystone ecological roles.

The time to act is now to prevent the impending loss of these remarkable creatures and the invaluable services they provide to the natural world.

More information: Tigga Kingston et al, Large Old World Fruit Bats on the Brink of Extinction: Causes and Consequences, *Annual Review of Ecology, Evolution, and Systematics* (2023). DOI: 10.1146/annurev-ecolsys-110321-055122

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