
ATSUSHI SAKURAI; NATURE PRODUCTION

Nesting gobies

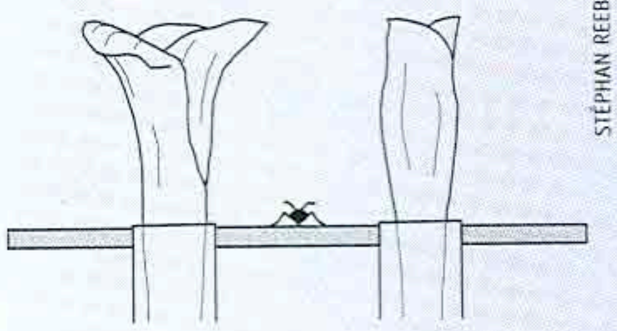
FISH IN THE FAST LANE Love can sweep you off your feet (or fins), but for one species of freshwater fish, being swept away is the last thing an amorous male would want.

Rhinogobius is a small goby that lives in streams and rivers in Japan. During the reproductive season, the male builds a nest by clearing a space underneath a stone in a shallow area known as a riffle. Then he moves to deeper pools and tries, through energetic displays, to convince females to come spawn inside his nest. Two researchers at Osaka City University, Daisuke Takahashi and Masanori Kohda, have found that females are attracted to males that display in stronger currents within the pools. Not necessarily the biggest in absolute terms, these successful males are nevertheless rather heavy relative to their length.

According to Takahashi and Kohda, a female may use a male's performance in a fast current as an indication of his physical condition and his energy reserves. These are important, because after a female chooses a male and lays her eggs in his nest, she departs, leaving the male to guard the eggs, a task to which he devotes himself assiduously for two weeks. With no time for foraging, males sometimes cannibalize some of the eggs under their care. Healthy males with abundant energy reserves may be less likely to succumb to temptation, which may explain the females' preference. ("Females of a Stream Goby Choose Mates That Court in Fast Water Currents," *Behaviour* 138, 2001)

FLARED WELCOME Some flower shapes that are particularly good at forcing insect pollinators into contact with pollen have a downside: they also let in nectar thieves, such as ants that do not transfer pollen and may even munch on the flower's ovary. One wildflower faced with this dilemma is the skypilot, *Polemonium viscosum*.

Working at a site in Colorado's Rocky Mountains, Candace Galen and Jessica Cuba, of the University of Missouri, noted the flared shape of skypilot flowers growing on the alpine tundra, where bumblebees are the main pollinators and nectar-stealing ants are rare. Flowers were slightly more tubular at the timberline, where ants are more abundant. To investigate the reason for this difference, the researchers first exaggerated the tubular form of some flowers by gluing the edges of petals together. To control for the possible repellent effects of the glue, Galen and Cuba also placed drops of it on the remaining flared flowers (on the back of the petals, where it did not change the blossoms' shape). Then they waited to see which shape—hypertubular or flared—was more attractive to bumblebees and ants. They inferred the bees' preference from pollination rates in the field but tested the ants' preference more directly, on a makeshift platform.


STÉPHAN REEBS

Setup for an ant choice test

The results were clear: both bumblebees and ants favored the flared flowers by a twofold margin. The biologists also found more damage to the ovaries of flowers that were naturally more flared. Predation by ants may have driven the evolution of flowers with a more tubular shape, counterbalancing the pressure for flaring caused by bumblebees and explaining the less open shape in areas where ants are more numerous. ("Down the Tube: Pollinators, Predators, and the Evolution of Flower Shape in the Alpine Skypilot, *Polemonium viscosum*," *Evolution* 55:10, 2001)

DIGESTIVE MOVE For a snake, there's no such thing as eating piecemeal: it gobbles its prey whole. But a complete carcass sitting in the snake's stomach may slow it down, and the prey may even start to decompose before being fully digested. So it would be advantageous for a snake with a full stomach to speed digestion by raising its body temperature. And according to observations by Gabriel Blouin-Demers and Patrick J. Weatherhead, of Carleton University in Canada, snakes do that by judiciously choosing where they go to digest their meal.

The researchers placed recently killed chipmunks, mice, and voles in the shady interior of a forest and also along its edges, which get more sun and thus afford more opportunities for warming up. Free-living black rat snakes that fed on rodents along the forest edges tended to stay put after eating, whereas snakes that ate


TOM BRAKEFIELD; BRUCE COLEMAN INC.

Black rat snake swallowing a mouse

in the interior often moved out to the edges afterward. Individuals that had dined were seen basking more often than those that hadn't, and surgically implanted temperature-sensitive radio transmitters reported higher body temperatures in fed than in unfed snakes. Back in the laboratory, captive black rat snakes confirmed these field observations. Offered the opportunity, these snakes, too, liked to repair to a warm spot after a good meal. ("An Experimental Test of the Link Between Foraging, Habitat Selection and Thermoregulation in Black Rat Snakes *Elaphe obsoleta obsoleta*," *Journal of Animal Ecology* 70, 2001)

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