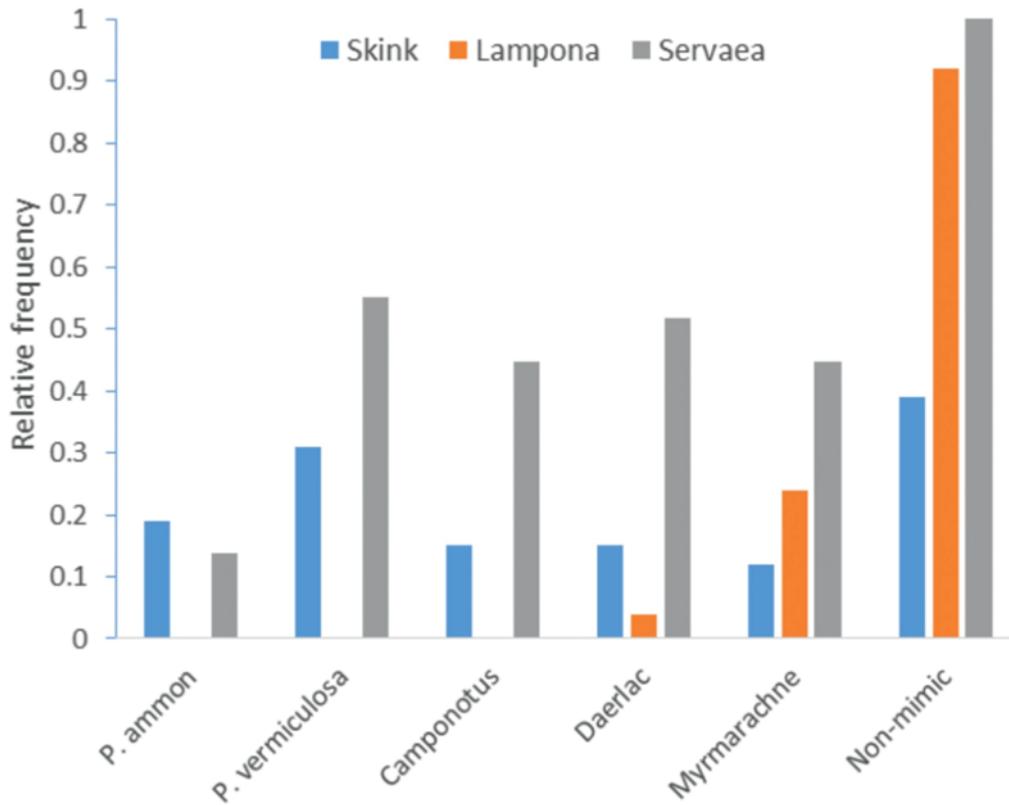




## Mimicry in a Diverse Community of Arthropods



**Caption:** Proportion of prey captured by three predators (skink, *Lampona* sp., and *Servaea* sp.) for each of six species of arthropod prey (along x-axis). The five species on the left are mimics with gold coloration on their abdomens to warn predators of their defenses. The nonmimic group (*Badumna insignis*, a spider) does not display such coloring. The prey species are listed in order of palatability (based on a combination of all defenses, such as spines and chemicals), with the least palatable on the left and most palatable on the right. The first three groups on the left are ants; *Daerlac* sp. are “true bugs” (order Hemiptera); and *Myrmarachne* sp. are spiders. *Daerlac* sp. and *Myrmarachne* sp. are also ant mimics in terms of their body shape. The three predator species vary in their prey preferences: skinks are lizards that are visual hunters with no feeding preferences among arthropod groups, *Lampona* sp. are spiders and are nonvisual predators that avoid ants, and *Servaea* sp. are spiders that are specialized ant predators.

### BACKGROUND INFORMATION

Some animals are vividly colored to advertise to potential predators that they have defenses that may include stings, noxious chemicals, spines, and biting. Predators then learn to avoid such brightly colored prey. The vivid colors evolve via natural selection because individuals with more striking and noticeable color have a survival advantage. In many regions, many different species have evolved similar warning colors, seeming to mimic each other’s appearance. These are called “mimetic complexes,” in which species appear to be similar physically but do not always possess the same defense mechanisms (such as foul-tasting chemicals, spines, or biting mandibles). In this study, researchers in Australia examined a group of more than 140 members of a mimetic complex, including ants, wasps, spiders, and true bugs, that all possess a similar black body with a gold patch on their abdomen to ward off predators. The nonant species in this group mimicked the body shape of ants. In general, the level of unpalatability, measured by a combination of their defenses, was found to correspond with

the size of the golden patch on their abdomen; as unpalatability increased among species so did the amount of gold, after controlling for body size. Would the golden patch ward off predators regardless of the prey's palatability? How effective is mimicry when confronted with different predators' prey preferences? To answer these questions, the researchers exposed five mimic species with different levels of palatability, and one nonmimic species without defenses, to three predator species with different prey preferences.