



Demystifying Hummingbird Vision

Do you really need a garden full of red to attract hummingbirds?

Pareesay Afzal (guest author), Summer Science Journalism Intern - Cornell Lab of Ornithology

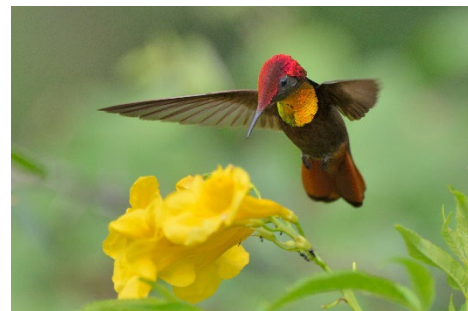
Everyone loves the airborne burst of shimmering colors that is a hummingbird. There are many reasons why you may want them in your yard—not only do they flaunt magical, iridescent colors, but their slender bills are wonderful for carrying pollen from flower to flower, as well as feeding on insects. Many guides to lure these birds into your garden have an intriguing emphasis on the color red - some of which are harmless (display red flowers, create red feeders), while others we definitely do not recommend as they can cause harm to the birds (hanging red ribbons on bushes and trees, [adding red food coloring](#) to homemade nectar).

So, how real is the red rave?

Observations and controlled research alike show that there is some truth to the assertion that red and shades of red (orange, pink) are hummingbird classics. In fact, hummingbirds wandering into raspberry fields and consequently eating the invasive fly, spotted wing drosophila, has brought about a berry industry [revival](#) in New York. Gardens full of cardinal, petunia, fuschia, and honeysuckle flowers have been a tried and tested way of catching these birds' attention. However, research has shown that hummingbirds will select flowers based on nectar quality and composition over color (Stiles 1976).

The color that keeps the bees at bay

Contrary to the “hummingbird preference” theory is the better supported “bee-avoidance” theory: though bees are not red-blind, they take more time to discern the red color from its background. Thus, hummingbirds might choose to visit red flowers which have not been used by bees. If it wasn't for bees' lack of attraction to red that left an open invitation for hummingbirds, the hummingbirds wouldn't care. In a 2015 study, hummingbirds visited pink and white flowers of the same species at the same rate, whereas bees visited only white. (Bergamo et al. 2015)



A hummingbird visits a yellow flower. (Courtesy Michiel Oversteegen. Macaulay Library ML127423551)

In fact, atypical hummingbird flowers (that lack the usual reddish color, tubular shape, and dilute nectar that hummingbirds prefer) may aid the successful migration of hummingbirds, a [study](#) said—migration being a crucial time when hummingbirds require

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more energy than usual. (Add spring and fall flowers to your landscape to reinvigorate migrating hummingbirds!) Atypical flowers might also come to their rescue in areas with low resources. So, hummingbirds are “making a profit—not a “mistake”—when they forage systematically at such atypical flowers.” (Waser et al. 2018)

Thinking beyond color

There runs a deeper, mutually beneficial relationship between hummingbirds and flowers that has allowed the two to co-evolve over time. Ninety percent of a hummingbird’s diet is nectar, and plants benefit from birds through pollination. While hummingbirds do have long bills, hovering abilities, and light weight that allows them to interact more efficiently with flowers to fulfill their nectar needs, ornithophilous flowers—or flowers that are pollinated by birds—also have special, bird-friendly adaptations. Besides bright colors, they are also adapted with specific arrangements of stamen and stigma, bracts, as well as long, tubular structures. It is also very possible that hummingbird migration is correlated with the flowering time of certain species. This constant dialogue, adaptation, and evolution between ornithophilous flowers and hummingbirds, therefore, extends beyond hues—the flowers themselves have a say.

The 2015 [study](#) suggested that red flowers have specialized (through other features) to become hummingbird-pollinated flowers because hummingbirds tend to cross-pollinate a plant, rather than self-pollinate a plant as a bee more often does, giving the plant access to a different system of reproduction (Bergamo et al. 2015). So, even though non-red floral colors can be just as profitable to hummingbirds as red, flowers themselves have evolved into greater redness if they prefer being pollinated by hummingbirds. Of course, bees are wonderful pollinators in their own right—this coevolution is merely a testament to the long-standing relationship between hummingbirds and flowers.



A hummingbird and some bees visit a feeder. (Courtesy Mary Jane Gagnier. Macaulay Library ML127423551)

When researchers in 2013 [compared](#) the floral reflectance of flowering plants whose visitors (bees or birds) were known, their results suggested that flowers have evolved to take on the favorite colors of their preferred pollinator. (Gutierrez de Camargo et. al 2018). This also means that pollinators play an important role in driving floral color diversity!

To set up the ultimate hummingbird haven in your garden, you don’t need to drive bees away by placing an excessive emphasis on red—include bee magnets galore and plenty of ornithophilous flowers suited to hummingbirds in shape, structure, and size (some will likely be, but all needn’t be, red). Explore the best plants for birds in your area through this [Native Plant Database](#). The Cornell Lab of Ornithology has a suggested homemade nectar [recipe](#) that can be adjusted according to the season on the All About Birds website. To learn more about hummingbirds, visit the Lab’s Bird Academy Course, [The Wonderful World of Hummingbirds](#).

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