

## Why Do Rock Sparrows Decorate Their Nests?

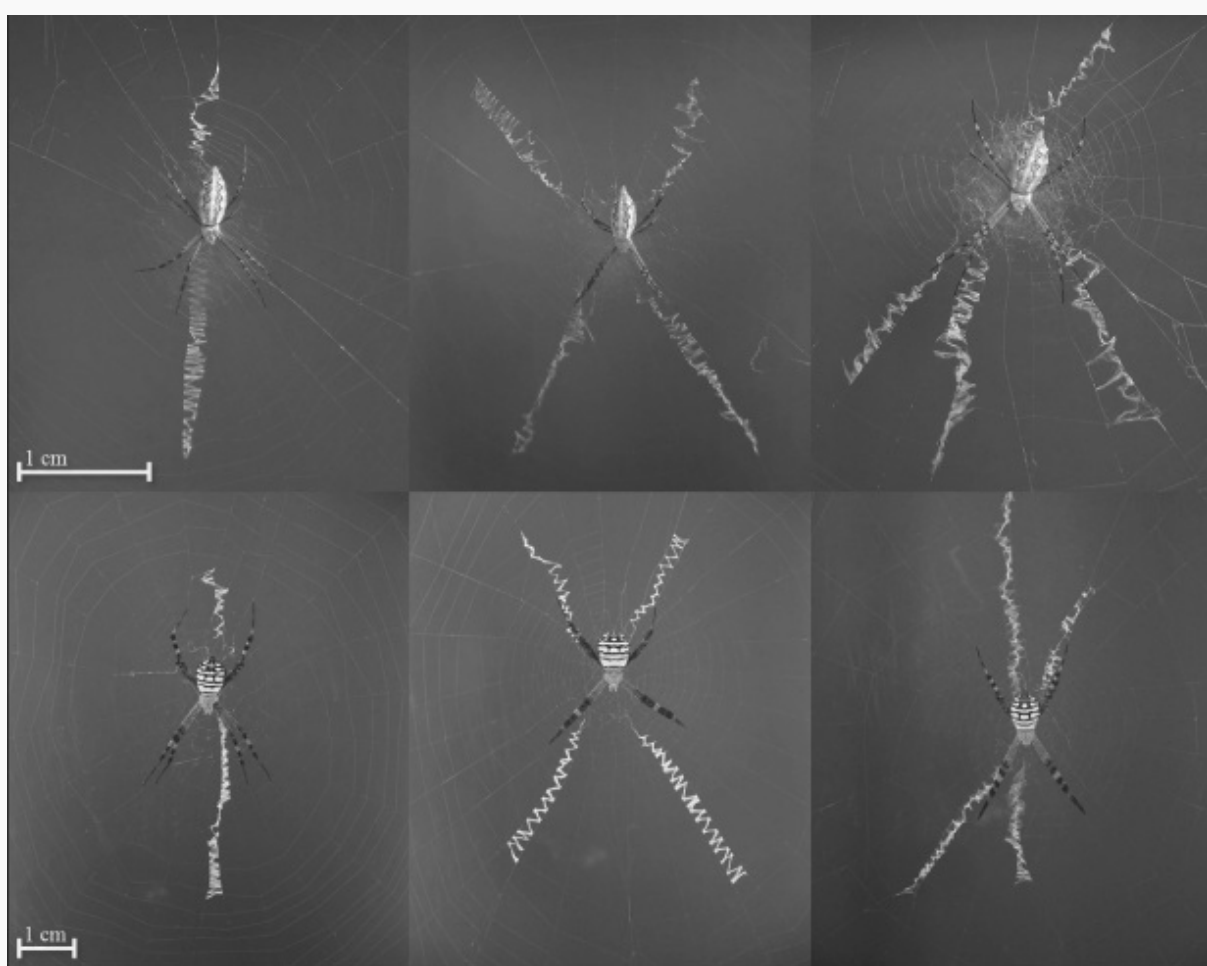
By Felicity Muth

*The views expressed are those of the author and are not necessarily those of Scientific American.*

When you read the word 'communication', you probably think of language in some form, likely spoken or written. This is because, as humans, we're obsessed with communicating through language; it's likely that an hour doesn't go by in your day when you don't communicate with someone by phone, email or text.

While animals are generally thought to not have language akin to that of humans, there are a plethora of other ways that they communicate with one another. Previously I've written about the elaborate courtship [displays of bowerbirds](#) and [gift-carrying spiders](#). Decorations, like those on bowerbird's bowers, are rather attractive to us, but their actual purpose is to signal the prowess of the individual creating them.

However, animals don't just use decorations to attract the opposite sex. For example, some orb web spiders create shapes in their webs using silk that are designed to scare predators away. But how might such a thing evolve? Who was the first spider that decided that creating this unusual structure might be scary to a predator?



The 'scary' web decorations of two species of spider. Taken from Walter & Elgar (2012)

Often what happens is that a particular behaviour evolves for a specific function (in the example of the spider making its web, to catch prey). However, then there is variation in that behaviour (as all spiders make their webs slightly differently, just like how we would all construct a fishing net slightly differently). Of the millions of spiders, one spider makes a web that just happens to be 'scary' to a predator. This spider does much better than other spiders, as predators avoid it, and then all her spiderling offspring go on to make webs like their mother. Eventually all members of

that species are incorporating the frightening embellishment into their webs.

A [recent study](#) by Vicente García-Navas and colleagues found that rock sparrows also use decorations to communicate. Like orb web spiders, the behaviour of making this decoration probably evolved from a behaviour with a very different function. The main purpose of birds' nests is to hold birds and their offspring, first as eggs and then as chicks. They are often built to keep eggs warm and protect the individuals from bad weather and predators. However, it seems that rock sparrows have taken this a step further. Males and females of this species collect the feathers of other birds (such as jays, raptors, magpies and pigeons) and bring them back to the nest. Here the feathers are displayed conspicuously 'like hunting trophies'. But why do these birds do this?



A rock sparrow collecting the experimental blue feathers

To work out why rock sparrows do this unusual behaviour, the researchers added five blue feathers (the favourite colour of these birds) to the nests of some rock sparrows. They found that females who had blue feathers added to their nests then laid larger clutches of eggs, fed their nestlings less and guarded their nests more. Furthermore, males were less likely to abandon blue-feathered nests and defended these nests more. But why might this be?

It is likely that the feather decorations are used as a status symbol by this species. Therefore, males and females with the blue feathers added to their nests suddenly found themselves elevated in status. Therefore, both male and females guarded this prized nest more vehemently and males were less likely to abandon such a high-status family. The females also may have believed that their male partners had provided all these impressive feathers, meaning they produced larger clutches as their mate had suddenly gone up in their estimation.

However, as is often the case in understanding animal behaviour, the story is not as simple as this. Some females did not like having these blue feathers added to their nest and either removed them, buried them in dirt or covered them in faeces. In these cases, the females may have thought that the feathers were added by an intruder, perhaps a female rival mating with their male.

So, just like human communication, the use of feathers by rock sparrows may convey a variety of messages through a

single signal and can perhaps be interpreted (or misinterpreted) differently by different individuals. Hopefully more work on these fascinating creatures will help us to better understand how this animal communicates in this unique fashion.

### Photo Credits

Spiders and their webs taken from Walter & Elgar (2012)

Rock sparrow with feathers: Vicente Garcia Navas

Lone rock sparrow: [Sandra](#)



Rock sparrows seem to use feathers a symbol of social status

### References

García-Navas, V., Valera, F., & Griggio, M. (2015). Nest decorations: an 'extended' female badge of status?. *Animal Behaviour*, 99, 95-107. (Main article)

Walter, A., & Elgar, M. A. (2012). The evolution of novel animal signals: silk decorations as a model system. *Biological Reviews*, 87, 686-700.

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