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Birds' plastic nest décor carries a message, scientists find

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Courtesy of *Science*
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Members of a bird species that decorate their nests with bits of white plastic do it for more than just looks, new research suggests.

Scientists studying black kites—medium-sized birds of prey—found that the adornments also carry a message. The birds that use the most white plastic are apparently also the best fighters, produce the most chicks and live in the best territories.



A decorated nest of an 11-year-old black kite, an age at which the kites are at peak reproductive performance and typically decorate exuberantly. (Courtesy F. Sergio)

About 20 days before laying their eggs, male and female black kites usually begin scavenging their surroundings for items to decorate their nests with. These are most often bits of white plastic, such as scraps of bags.

A group of researchers led by Fabrizio Sergio and Julio Das at the Superior Council for Scientific Investigation in Seville, Spain, monitored 127 black kite nests in Doñana National Park in Spain. They found that the strongest birds, who were seven to 12 years old, decorated their nests copiously, but very young and elderly birds hardly did so at all.

The investigators also found that black kites with the most white plastic in their nests were also the most capable of defending their territory from other, intruding black kites. And it doesn't seem like the birds are interested in pretending to be something they are not: When the researchers added extra plastic to the birds' nests, most of them removed it immediately.

The scientists suggest the birds don't want to pretend to be tough if they really aren't—much like a new student in a karate class wouldn't want to pretend to be a black belt on the first day.

The findings suggest structures built by animals might serve as signaling devices more often than was previously thought, Sergio and colleagues argue.

By decorating their nests abundantly, it seems, strong black kites gain the benefit of having potential competitors pass them over for attack, the researchers said. On the other hand, it would seem the birds—who are given to rough competition and intrusion into each other's territories—aren't too dumb to spot peers that are blatantly faking. The experiments' results indicate that pairs that "suddenly advertise a high-quality territory" may open themselves up to attack, the scientists wrote, reporting their results in the Jan. 21 issue of the research journal *Science*.

The white plastic decoration behavior is common among black kites at least across Europe, Sergio said; members of the species also inhabit Africa, Asia and Australia. It's unclear when or how the

nest-decorating began, or whether it is a genetic or “cultural” phenomenon, Sergio added. Observations of the birds using human-made objects in their nests date back to the early 1800s, he explained, but “it was not [until] up to 5 years ago that we started to investigate the phenomenon intensively.”