LETTERS

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DO EURASIAN HOBBIES (*FALCO SUBBUTEO*) HAVE "FALSE EYES" ON THE NAPE?

We propose that the two whitish or creamy-colored spots on the nape of the Eurasian Hobby (*Falco subbuteo*; Fig. 1) are "false eyes" or ocelli, resembling a similar feature described for American Kestrels (*F. sparverius*; Clay 1953, *Wilson Bull.* 65:129–135). In both Eurasian Hobbies and American Kestrels, the "false eyes" confer an owlish appearance to the individuals when viewed from the rear (Figs. 1 and 2). Even though hobbies have been extensively studied in Europe and their plumage patterns have been thoroughly described in raptor books and bird field guides, this is, to our knowledge, the first time that "false eyes" are hypothesized to be present in this species.

We examined preserved skins of Eurasian Hobbies from the Iberian Peninsula (Biological Station of Doñana, Sevilla, Spain, $N = 36$ specimens; National Museum of Natural Sciences at Madrid, Spain, $N = 16$ specimens) and Kazakhstan (Natural Sciences Museum of Kostanay, $N = 1$ specimen). We noted ocelli on live hobbies as well. In June 2003, J.J. Negro made observations of two captive birds from central Spain, seven individuals kept at the Almaty Zoo in Kazakhstan, and one free-ranging bird (observed using a spotting scope at a distance of ca. 50 m) at the Naurzum nature reserve in northern Kazakhstan. All these birds, including adults and juveniles, males and females, and originating from opposite ends of the species' range in Eurasia, presented the two ocelli. These ocelli may have been overlooked in the literature because they are retractable and only fully visible when the occipital feathers are erect (based on observations of live birds). In museum specimens, the two ocelli are visible, and each marking covers an area of 0.2–0.8 cm^2, whereas on live birds, when fully displayed, the ocelli each cover an area of about 2.5 cm^2. These ocelli can be described as two rounded or elliptical light-colored spots located within the otherwise dark-gray plumage of the back of the head. The occurrence of these ocelli on nestlings and immatures (in both Eurasian Hobbies and American Kestrels) suggest that these "false eyes" are not sexually-selected traits and calls for alternative functional hypotheses.

In the case of the American Kestrel the function of the ocelli has not yet been established, although the subject has been debated for years. Clay (1953) suggested that the false eyes were "deflective" marks; in other words, patterns that are conspicuous in appearance and may misdirect the attack of potential enemies from the more to the less vital parts of the body (Cott 1940, Adaptive coloration in animals, Oxford University Press, New York, NY U.S.A.). Mueller (1971, *Wilson Bull.* 83:249–254) suggested that the head markings were used in the territorial displays of the species. Balgooyen (1975, *Jack-Pine Warbler* 53:115–116) advocated the protective function of the ocelli, but suggested they would be most important in this regard when the kestrels bow for eating or grooming, two situations in which the birds would be most vulnerable to attack by avian predators. Balgooyen (1975) suggested that the ocelli would give the illusion of watchful eyes and would make predators think that their potential prey had discovered them.

Figure 1. Eurasian Hobbies (*Falco subbuteo*) showing "false eyes" on the nape (from the collection of the National Museum of Natural Sciences at Madrid). The visual effect is more pronounced in live-mounted specimens with erected occipital feathers (two individuals to the right) compared to museum skins (four individuals to the left).

Figure 2. American Kestrel (*Falco sparverius*) in a posterior (left) or lateral (right) view, showing the ocelli in the nape.

Even though American Kestrels and Eurasian Hobbies live on different continents, they have common ancestry within the Falconiformes as they are congeneric (but not closest relatives; J. Figuerola pers. comm.). Given that two related species apparently have the same type of visual signal, we recommend a detailed comparison of ecological and behavioral characteristics of the two species. Such studies may prove fruitful in unraveling the evolution of a seemingly sophisticated trait, which has only been previously described in two genera of nocturnal predators, the pygmy owls of the genus *Glaucidium* (del Hoyo et al. 1994, Handbook of the birds of the world, Lynx Editions, Barcelona, Spain) and the Northern Hawk Owl (*Surnia ulula*; Svensson et al. 2001, Collins Bird Guide, Collins, U.K.). Field experiments using either stuffed or live birds, in which the ocelli can be covered at will by the experimenter, are needed to test the hypothesis that predators are deterred by the ocelli.

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VULTURE WINTER ROOST ABANDONMENT AND REESTABLISHMENT

Turkey Vultures (*Cathartes aura*) and Black Vultures (*Coragyps atratus*) often roost communally in large, mixed-species groups during winter. Use of a traditional roost located at the base of Big Round Top (BRT) hill in Gettysburg National Military Park, Gettysburg, PA (Adams County), by wintering vultures has been well documented for many years (Wright et al. 1986, *J. Raptor Res.* 20:102–107; Thompson et al. 1990, *J. Wildl. Manage.* 54:77–83). The BRT roost consists of several mature white pine (*Pinus strobus*) trees and various hardwood trees located on a southeast-facing slope in the approximate center of the forest stand at BRT hill. We sought to determine the status of the BRT roost and another roost that apparently has been established recently in the vicinity of the BRT roost. The new roost is at Lake Heritage (LH), a gated community about 7 km from the BRT roost, that consists of two distinct clumps of coniferous trees ca. 0.5 km apart within a residential area. One clump contains 12 scotch pines (*Pinus sylvestris*) and the other clump consists of five white pines (Roen 2002, Habitat use and feeding behavior of avian scavengers in Gettysburg National Military Park, M.S. thesis, Pennsylvania State Univ., University Park, PA U.S.A.).

We assessed vulture use of both roosts in winter by monitoring individuals leaving the roosts during early morning hours. We conducted 19 counts at the BRT roost; observations were made from an elevated position 280 m from the roost location (Wright et al. 1986). Counts occurred 1–4 d/wk from December 1999–March 2000 and four times from December 2000–March 2001 (Roen 2002). Counts were not conducted on days with measurable precipitation or dense fog. Each count began 30 min prior to sunrise and continued for 60–90 min.

We first suspected that vultures were present at the LH roost in 1999 because of the large number of vultures (>80) observed circling over the residential community at dusk. Subsequently, we counted vultures at the LH roost 1–3 d/wk from December 2000–March 2001 from a vehicle 30–60 m from each distinct clump of trees (referred to as Jackson and Longstreet after the bordering street names), for a total of 14 counts. Beginning 30 min before dawn, we counted vultures leaving the Jackson clump for 30 min, then we counted vultures remaining on the roost. Next, we traveled by vehicle to the Longstreet clump and conducted our counts there for an additional 60 min or until all vultures had exited the roost trees. This method most likely resulted in an underestimate of the total number of roosting vultures because some vultures may have exited the Longstreet roost trees while we were at the Jackson location. We often observed vultures moving from the Longstreet clump to the Jackson clump, but never observed the reverse. Therefore, some vultures were included in our count as they exited the Jackson trees after previously roosting at the Longstreet location.

We never observed vultures using the BRT roost during any of our counts there. Historically, numbers of vultures at this roost ranged from a mean of 199 over seven counts in late winter 1983 to a mean of 719 over 15 counts in mid-winter 1983 (Wright et al. 1986). Thompson et al. (1990) reported a mean of 665 roosting vultures at BRT over