

Possible Play Behavior of a Peregrine Falcon

William Moskoff


This article describes an observation that I have interpreted to be play behavior on the part of an immature Peregrine Falcon (*Falco peregrinus*), where the object of play was a member of another species, a phenomenon not previously reported in the literature for Falconiformes. On September 24, 2000, at about ten o'clock in the morning at the Lake Chataqua National Wildlife Refuge in central Illinois, I observed an immature Peregrine Falcon (age evident from brown upper and heavy streaking below) dive at and strike a Blue-winged Teal (*Anas discors*). Teal are a highly favored prey of peregrines because they are easy to kill and carry away (Dekker 1995). However, this teal was not immediately killed, but was wounded. Unable to fly, it began to swim slowly toward the shoreline and the cover of the vegetation near the shore. The peregrine returned and momentarily hovered above the teal, bringing both its legs and its talons forward. But it did not snatch the teal from the water as it easily could have, and instead it flew away. It repeated this action perhaps a dozen times within a ten-minute period, alternately hovering over the helpless teal, at times less than a meter above the bird, and then flying away. The episode ended when the teal reached the shore and the safety of the shrubbery.

Play behavior is known to occur among many avian species (Ficken 1977, Smith 1983). Play is defined as "all motor activity performed postnatally that appears to be purposeless, in which motor patterns from other contexts may often be used in modified forms and temporal sequencing" (Bekoff and Byers 1981). Play is a behavior in which there is no "immediate biological function," no action that will at the given moment enhance a bird's ability to survive or achieve reproductive success (Ficken 1977). Typically, although not exclusively, play is engaged in by young birds (Ortega and Bekoff 1987). Several categories of play behavior can be identified, including: social play, in which the play behavior involves one or more other individuals, either conspecifics or members of other species; object play, in which the bird plays with an inanimate object; and locomotory play, in which the bird engages repeatedly in a locomotory act with no obvious goal in mind (Ortega and Bekoff 1987). Play is a means by which birds can practice basic locomotory and social skills (Gill 1990).

Mew Gull (*Larus canus*) adults have been observed diving into shallow water to bring leaves to the surface, then shaking their heads, repeatedly tossing the leaves and retrieving them, or diving after more leaves (Morris 1993). Black Vultures (*Coragyps atratus*) perform diving maneuvers, usually in formation (Thurber 1981). Bearded Vultures (*Gypaetus barbatus*) have been observed taking turns chasing each other while producing a high-pitched whistle and never making physical contact (Blumstein 1990). Several woodpecker species engage in a variety of play behaviors, including dodging around a tree trunk to avoid imaginary enemies, that have been observed in Downy (*Picoides pubescens*) and Hairy (*Picoides villosus*) woodpeckers in the wild and among Yellow-bellied Sapsuckers (*Sphyrapicus ruber*) and Pileated Woodpeckers (*Dryocopus pileatus*) in captivity (Kilham 1974).

Play behavior has also been documented as occurring among raptors. Paired Swainson's Hawk (*Buteo swainsoni*) adults will drop and then catch a prey item over and over again in the air (England et al. 1997). Prairie Falcons (*Falco mexicanus*) have been seen flying with dried cow manure in their talons, repeatedly tossing it up and ahead of themselves and attempting to catch it before it hits the ground (Munro 1954). Red-tailed Hawks (*Buteo jamaicensis*) also engage in play with an object in midair, first dropping and then catching it (Lowe 1978). Among Harris's Hawks (*Parabuteo unicinctus*), older nestlings and immatures chase insects and jump on sticks in ways that suggest play (Bednarz 1995). Bald Eagle (*Haliaeetus leucocephalus*) nestlings commonly pick up and manipulate objects such as plastic bottles (Buehler 2000).

The Peregrine Falcon's interaction with the teal seems understandable in light of an explanation that it was engaged in play behavior. Peregrines have been reported to feign attacks as many as 10-12 times as often as they actually succeed at a kill, and some of these stoops may only be efforts at play (Brown and Amadon 1968). It has also been suggested that play in raptors may be practice for behaviors that have serious biological consequences, including courting, aggression, and foraging (Blumstein 1990, Buehler 2000). The peregrine may simply have been practicing its hunting techniques rather than seeking a meal.

There are three alternative interpretations of the peregrine's behavior. One possible explanation is that Peregrine Falcons are reluctant to take birds out of the water. In fact, peregrines have been observed in Alaska grabbing birds out of the water when the bird had been knocked down or forced into the water by the falcon (Cade 1960). A closely related explanation is that peregrines will only take prey on the wing. While it is true that the vast majority of peregrine prey is captured on the wing, they will still consume prey killed in other ways. Moreover, if capturing prey on the wing was a requirement, then the peregrine would not have continued to return to where the teal was struggling; it would have abandoned its failed effort to capture the teal soon after the duck went into the water. A third explanation is that the bird's behavior reflected the inept foraging skills of an immature animal. This is a compelling suggestion. Age-related differences in foraging success have been reported in a number of avian species, including Little Blue Herons (*Egretta caerulea*), Brown Pelicans (*Pelecanus occidentalis*), Neotropical Cormorants (*Phalacrocorax brasilianus*), Great Frigatebirds (*Fregata minor*), Ruddy Turnstones (*Arenaria melanocephala*), and Ospreys (*Pandion haliaetus*) (Recher and Recher 1969, Groves 1978, Morrison et al. 1978, Szaro 1978, Schnell et al. 1983, Gilardi 1994). However, the sheer repetitive nature of the peregrine's actions suggests that this was play rather than inexperience in hunting. None of the alternative explanations appears to explain the peregrine's behavior as well as the explanation that this was play, likely being used to exercise its hunting skills. Play may therefore have an important role in the life history of Peregrine Falcons. 

References

- Bednarz, J. C. 1995. Harris's Hawk (*Parabuteo unicinctus*). *The Birds of North America, No. 146* (A. Poole and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences and Washington, D. C.: The American Ornithologists' Union.

- Bekoff, M. and J. A. Byers. 1981. A Critical Reanalysis of the Ontogeny and Phylogeny of Mammalian Social and Locomotor Play: An Ethological Hornet's Nest. In K. Immelmann, G. W. Barlow, L. Petrino, and M. Mains eds., *Behavioral Development: The Bielefeld Interdisciplinary Conference*, pp. 296-337. Cambridge University Press, Cambridge.
- Blumstein, D. T. 1990. An Observation of Social Play in Bearded Vultures. *Condor* 92: 779-81.
- Brown, L. and D. Amadon. 1968. *Eagles, Hawks and Falcons of the World, Vol. 2*. New York: McGraw-Hill.
- Buehler, D. A. 2000. Bald Eagle (*Haliaeetus leucocephalus*). *The Birds of North America, No. 506* (A. Poole and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences and Washington, D. C.: The American Ornithologists' Union.
- Cade, T. J. 1960. Ecology of the Peregrine and Gyrfalcon Populations in Alaska. *University of California Publications in Zoology* 63: 151-290.
- Dekker, D. 1995. Prey Capture by Peregrine Falcons Wintering on Southern Vancouver Island, British Columbia. *Journal of Raptor Research* 29: 26-29.
- England, A. S., M. J. Bechard, and C. S. Houston. 1997. Swainson's Hawk (*Buteo swainsoni*). *The Birds of North America, No. 265* (A. Poole and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences and Washington, D. C.: The American Ornithologists' Union.
- Ficken, M. S. 1977. Avian Play. *Auk* 94: 573-582.
- Gilardi, J. D. 1994. Great Frigatebird Kleptoparasitism: Sex-specific Host Choice and Age-related Proficiency. *Condor* 96: 987-993.
- Gill, F. B. 1990. *Ornithology*. New York: W. H. Freeman and Company.
- Groves, S. 1978. Age-related Differences in Ruddy Turnstone Foraging and Aggressive Behavior. *Auk* 95: 95-103.
- Kilham, L. 1974. Play in Hairy, Downy, and other Woodpeckers. *Wilson Bulletin* 86: 35-42.
- Lowe, C. 1978. *Certain Life History Aspects of the Red-tailed Hawk, Central Oklahoma and Interior Alaska*. M. Sc. thesis. Fairbanks: University of Alaska.
- Morris, P. I. 1993. Common and Black-headed Gulls Plunge-diving After Leaves. *British Birds* 86: 94.
- Morrison, M. L., R. D. Slack, and E. Shanley, Jr. 1978. Age and Foraging Ability Relationships of Olivaceous Cormorants. *Wilson Bulletin* 90: 414-422.
- Munro, D. A. 1954. Prairie Falcon "Playing." *Auk* 71: 333-334.
- Ortega, J. C. and M. Bekoff. 1987. Avian Play: Comparative Evolutionary and Developmental Trends. *Auk* 104: 338-341.
- Recher, H. F. and J. A. Recher. 1969. Comparative Foraging Efficiency of Adult and Immature Little Blue Herons (*Florida caerulea*). *Animal Behavior* 17: 320-322.
- Schnell, G. D., B. L. Woods, and B. J. Ploger. 1983. Brown Pelican Foraging Success and Kleptoparasitism by Laughing Gulls. *Auk* 100: 636-644.
- Smith, S. M. 1983. The Ontogeny of Avian Behavior. In *Avian Biology*, Vol. 7, D. S. Farner, J. R. King, and K. C. Parkes, eds., 85-160. New York: Academic Press.
- Szaro, R. C. 1978. Reproductive Success and Foraging Behavior of the Osprey at Seahorse Key, Florida. *Wilson Bulletin* 90: 112-118.
- Thurber, W. A. 1981. Aerial "Play" of Black Vultures. *Wilson Bulletin* 93: 97.

William Moskoff is Hollender Professor of Economics and Biology at Lake Forest College in Lake Forest, Illinois. He thanks Louis Bevier, Anne Houde, Marta Hersek, and Christopher Whelan for their comments.