The Journal of Raptor Research

Observations of Predatory Behavior by White-headed Vultures

Campbell Murn (e-mail address: campbell@hawkconservancy.org), Hawk Conservancy Trust, Andover, Hampshire, SP11 8DY, U.K., and School of Biological Sciences, University of Reading, Berkshire, RG6 6AS, U.K.

J. Raptor Res. 48(3):297–299

Observations of Predatory Behavior by White-headed Vultures

Key Words: *White-headed Vulture*; Trigonoceps occipitalis; *foraging behavior*; *predation.*

Vultures are recognized as obligate scavengers, but the list of species found as food remains at nests of White-headed Vultures (*Trigonoceps occipitalis*) is long (Mundy et al. 1992) and this has led to speculation (Brown and Amadon 1968, Monadjem 2004) about predatory behavior in this species. Convincing evidence for predatory behavior has proved elusive because the species occurs at low densities (Murn et al. 2013) and is observed infrequently. Here I describe four observations of predatory behavior by White-headed Vultures in Kruger National Park, northeastern South Africa (23°59′S, 31°36′E). White-headed Vultures are individually identifiable (Murn 2012), and each incident involved different birds.

On 10 May 2008 at 1540 H, a breeding pair was observed perched on a dead tree. The female began to stare intently and then flew directly toward what had attracted her attention, landed in the top of a large bush ca. 400 m away, and stared at the ground below. The male followed ca. 5 sec later, but flew to the ground below the perched female and lunged with talons outstretched and wings/tail held back. The female immediately jumped to the ground with the male who held a live slender mongoose (*Galerella sanguinea*) in one talon. The female also grasped the mongoose, which was killed by being ripped apart quickly by the birds' bills. Both birds ate together without any agonistic behavior for ca. 5 min, while repeatedly looking around. An adult male Bateleur (*Terathopius ecaudatus*) landed on the ground nearby but was chased away immediately by both vultures who jumped and lashed out with their talons. The vultures ate for another 5 min and then flew to a dead tree ca. 300 m away. At 1552 H, the vultures departed in the direction of their nest (ca. 1000 m away).

On 6 August 2008 at 0950 H, an adult female and juvenile hunted a small (ca. 900 mm) monitor lizard (*Varanus* spp.) for approximately 45 min, having watched it approach to where they were perched together in a riparian tree. Several times the female jumped to very low perches or the ground and animatedly looked under the bushes where the lizard had stopped. The juvenile mainly watched the female, but was obviously aware of the lizard and at 1030 H performed the same searching behavior and joined in to help kill the lizard as it tried to move away. It was captured by the female at 1035 H, while both birds were on the ground. The female grasped the head and neck of the lizard and tore into the neck and shoulder area while the juvenile grasped its back. Both birds ate together without any agonistic behavior. A juvenile Bateleur landed on the ground ca. 10 m away but did not interfere. The vultures finished feeding after 15 min and then flew to perch in a tree ca. 250 m away on the other side of the river.

On 6 August 2008 at 1150 H, an adult male spent ca. 20 min on the ground, running from bush to bush in a patchily vegetated riparian zone, investigating underneath each bush and shrub. The bird used his foot to probe under the vegetation and eventually a tree squirrel (*Paraxerus cepapi*) was flushed and captured after a short pursuit on the ground. The vulture held the squirrel in both talons, ripped it apart immediately and consumed it completely in <2 min.

On 8 July 2011 at 1220 H, a breeding pair was observed on the ground ca. 150 m from their nest. The male and female appeared to act cooperatively as they sought to catch a tree squirrel concealed underneath a fallen tree. The female stood on one side of the fallen tree, staring under it intently from <2 m. The male, on the other side, moved around actively and used his foot to probe under the tree. The squirrel was flushed but escaped to reach and climb a thorn tree ca. 5 m away. The female appeared surprised by the appearance of the squirrel and gave only a half-hearted pursuit along the ground. The pair departed immediately, but did not return to their nest.

At least three behavioral aspects emerge from these observations. First, in three events there appeared to be cooperative behavior between birds when catching their prey, suggesting that this might not be unusual. Second, there was no visible agonistic behavior between birds that were involved while they were feeding. Third, the birds appeared practiced and were not apparently affected by the presence of an observer. The female from the 2011 observation turned to look briefly at me after I had stopped to watch from ca. 150 m, whereupon she resumed staring at the tree and did not look at me again. The birds observed on 6 August 2008 at 1150 H were <100 m away, but paid no attention to me at all. On all occasions I was sitting in a vehicle.

These observations indicate that the White-headed Vulture is a (possibly regular) predator, but extensive field reports are lacking. Possible reasons for this include that White-headed Vultures are seen only infrequently and it is not possible to follow a bird easily through the bush. Additionally, the birds observed on 6 August 2008 at 0950 H were under observation for ca. 180 min but the predation event occupied <15 min and the killing literally seconds. For most of the remaining time the vultures were perched in a large tree next to a river, which is not unusual behavior for a vulture. The actual killing of prey by a raptor is a fleeting event, but if it is unobserved, the evidence immediately becomes circumstantial, and piracy or scavenging cannot be excluded completely. This lack of direct evidence for predation/killing has been highlighted previously (Mundy 1982). Predation is also difficult to witness because it represents a small proportion of the daily activity of a White-headed Vulture. The estimated daily food requirement of a nonbreeding White-headed Vulture is 300–350 g per day (Mundy et al. 1992) and this could be met with one predation event. A slender mongoose weighs ca. 650 g (Skinner and Smithers 1990) and can be captured and eaten in <15 min. If this prey was supplemented with a visit to a carcass with other vultures, which might account for another 30 min of foraging time (C. Murn unpubl. data), a White-headed Vulture might spend relatively little time each day foraging. If a large meal was consumed, the bird might not be motivated to forage for another 2–3 d. These points highlight that observations of White-headed Vultures hunting will remain very rare and opportunistic events.

There are three other published reports of direct predation by White-headed Vultures; other reports are either circumstantial or second- or even third-hand. The first, from Kenya (Owino 1999), describes how a cape hare (*Lepus capensis*) was inadvertently flushed into the open by grazing gazelles, whereupon it was captured by a White-headed Vulture that had been perched nearby. The second, also from Kenya (Kirui 1999), describes a female White-headed Vulture that jumped from its nest to capture an unidentified rodent under the nest tree. In both cases the capture and killing technique was the same as I observed: prey was held in the talons while the large bill was used to inflict heavy damage, leading to rapid death. A cape hare weighs ca. 1.8 kg (Skinner and Smithers 1990), which is within the weight/size class of animals that can be subdued by a White-headed Vulture, and remains of scrub hares (*Lepus saxatilis*) have been found at White-headed Vulture nests (Mundy et al. 1992). The fact that these observations were made in East Africa suggests that predatory behavior is widespread throughout the range of this species, and not a locally adapted behavior.

The final published account (Millar 1995) reports two White-headed Vultures killing several impala (*Aepyceros melampus)* lambs over the course of a number of days on the shore of Lake Kariba in Zimbabwe. The two White-headed Vultures were also reported to have dominated a mob of ca. 30 White-backed Vultures (*Gyps africanus*) and five Cape Vultures (*Gyps coprotheres*) that also fed on the lambs. This behavior represented a high-risk and low-reward activity in terms of: (a) failure (it is difficult to overpower larger animals such as an impala lamb, which weighs >5 kg [Skinner and Smithers 1990], 20–30% more than a White-headed Vulture [Mundy et al. 1992]); (b) risk (possible injury from a protective impala ewe); (c) competition (30+ *Gyps* vultures will usually displace two White-headed Vultures from a carcass). This behavior is highly atypical for White-headed Vultures, an often solitary species that exhibits a variety of foraging modes, probably to minimize risk and avoid competition. As reported here, an important one of these foraging modes is the capture and rapid consumption of small, easily subdued prey items away from potential competitors.

I thank South African National Parks and members of the Mavalangi Hunt Club for field support. Ruth Tingay, Ara Monadjem, Cheryl Dykstra and two reviewers provided feedback that improved this letter.**—Campbell Murn (e-mail address: campbell@hawkconservancy.org), Hawk Conservancy Trust, Andover, Hampshire, SP11 8DY, U.K., and School of Biological Sciences, University of Reading, Berkshire, RG6 6AS, U.K.**

LITERATURE CITED

BROWN, L.H. AND D. AMADON. 1968. Eagles, hawks and falcons of the world. Country Life Books, Feltham, U.K.

KIRUI, P. 1999. White-headed Vulture captures rodent. *CCA Ecological Journal* 1:146–146.

Millar, G.A. 1995. Predatory behaviour by Whiteheaded Vultures. *Vulture News* 32:13–15.

Monadjem, A. 2004. White-headed Vulture *Trigonoceps occipitalis*. Pages 34–39 *in* A. Monadjem, M.D. Anderson, S.E. Piper, and A.F. Boshoff [Eds.], The vultures of southern Africa - *Quo vadis*? Proceedings of a workshop on vulture research and conservation in southern Africa. Birds of Prey Working Group, Johannesburg, South Africa.

Mundy, P.J. 1982. The comparative biology of southern African vultures. Vulture Study Group, Johannesburg, South Africa.

Mundy, P., D. Butchart, J. Ledger, and S. Piper. 1992. The vultures of Africa. Academic Press, London, U.K.

Murn, C. 2012. Field identification of individual White-headed Vultures *Trigonoceps occipitalis* using plumage patterns - an information theoretic approach. *Bird Study* 59:515–521.

———, L. Combrink, G.S. Ronaldson, C. Thompson, and A. Botha. 2013. Population estimates of three vulture species in Kruger National Park, South Africa. *Ostrich* 84:1–9.

Owino, S. 1999. White-headed Vulture preys on cape hare. *CCA Ecological Journal* 1:146–146.

Skinner, J.D. and R.H.N. Smithers. 1990. The mammals of the southern African subregion. University of Pretoria, Pretoria, South Africa.

Received 16 December 2013; accepted 14 March 2014
Associate Editor: Chris W. Briggs