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Full Length Research Article

BREEDING RECORDS OF HOODED VULTURES *NECROSYRTES MONACHUS* (TIMMINEK, 1823) AT KPOKAP, ZANGO KATAF LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

Ayuba R. P.[1*], Tanko D.[2], Ibrahim B.[1], Peter A.[3], Adang K.L.[2] and Bakam H.[1]

[1]Department of Biological Sciences, Kaduna State University, Kaduna
[2]Department of Biological Sciences, Federal University Lokoja, Kogi State
[3]Department of Mathematics, Kaduna State University, Kaduna

*Corresponding Author's Email Address: ayubng@yahoo.com Phone: +2348062263008

ABSTRACT
Nesting of vultures was studied alongside with their population and distribution. Vulture's nest is usually occupied by male and female for successful incubation of egg(s) and rearing of the chick(s). Continuation and preservation of an organism is achieved through conducive breeding habitat; vultures inclusive. Two nests were found at Kpokap all on Giant cola tree (*Cola gigantea*). The nests were placed each at the fork of the tree trunk. Nest 1 was located at about 9.5m above the ground while nest 2 was located at about 8.5m above the ground. The monogamous vultures fly out from their nests but hoover around whenever they felt threatened. This study is aimed at preserving the breeding pairs of vultures found at the study areas as fast as possible.

Keywords: Nests, breeding, habitat, fork of tree trunk, diameter at breast height (DBH)

INTRODUCTION
Shelter is very vital to animals and the choice of this shelter and of what this shelter is made of is unique to every animal. Birds are animals that are known for making their shelter mostly on top of trees as nests. Depending on the birds' species, some trees are found loaded with nests while some with only a nest. Vultures are kind of birds that also fall under the species that make just a nest on a tree and mostly on top of tall trees (Punjab ENVIS Newsletter, 2016 and Tanko, 2018) such as oaks, neem, pine etc. The vultures are usually found breeding on very tall trees (Tanko, 2018) where they place their nests for obvious reasons; that the nests are far from predators and persecutors. Though not all vultures place their nests on trees but all consider height in nesting to be sure of its safety (Odino *et al.,* 2014).
Vulture's nest is usually occupied by both the male and the female they are usually monogamous where they lay an egg in January (Punjab ENVIS Newsletter, 2016) or at most two eggs in the beginning of the year (Markandaya, 2006). They are monogamous in nature; the incubation of the eggs is done by both the male and female (Angelov *et al*., 2013). The chicks are nurtured together to reduce the chances of losing the chick(s) either through natural disaster or through persecution or predation. Vultures maintain their nest when the content; the juvenile or the egg(s) are intact but once the content of the nest is tempered with, the vultures destroy the nest (Punjab ENVIS Newsletter, 2016).
Nest is very important to the successful breeding of vultures because it is only then that there can be a continuation and preservation of a kind. Loss of nesting habitat is one of the outstanding causes of population decline in vultures (Markandaya, 2006). The prospects of vultures' continuity depend on the success of the preservation of their breeding pairs but there are factors militating against this such as loss of breeding habitat (Pain *et al*., 2003, Baral *et al*., 2005, Ogada *et al*., 2011and Ogada *et al*., 2016). Human activities near the nest during the breeding period can sabotage the success of the reproduction. The vegetation is very important (Baral, 2005) and the kind of vegetation that the vultures utilize for nesting therefore, the nesting habitat is very paramount and the preservation of that is needed. The preservation of the nesting habitat includes the non-intrusion by human activities close to the nests to ensure the continuation of the breeding process (Heredia and Heredia, 1997) of vultures thereby ensuring the preservation of vultures in the study areas.
The Hooded vulture is wild spread in sub-Saharan Africa including Nigeria and is generally sedentary. It is often associated with human settlements, opened grassland, forest edge, wooded savanna, deserts and long coast (Feruson-Lees and Christie, 2001). Vultures are scavenging birds (Ayuba *et al.,*2018) that are grouped into new world and world with twenty-three (23) species altogether. Hooded vultures belong to the old world vultures under the family *Accipitridae*, genus *Necrosyrtes* and species *monachus*.
These vultures like other vultures are carrion and refuse disposers from an environment which reduces and sometimes prevents epidermy (Ayuba *et al*., 2018).
The species feeds mostly on carrion but also pick insects and maggots from cattle dung. In west Africa and Kenya Ferguson-Lee and Christie (2001) reported the species to be a year round breeder but breed mostly from November-July. It is an arboreal nester and lays a clutch of 1-2 eggs. Its incubation period lasts 46-54 days, followed by a fledging period of 80-130days. The young depend on their parents for a further 3-4 months after fledging (Fugerson-Lee and Christie, 2001).
The Hooded vulture *Necrosyrtes monachus* has been up listed to critically endangered status by the International Union for the Conservation of Nature and Natural Resources (IUCN,
2007). Recent publications revealed that the population of the species is rapidly declining owing to indiscriminate poisoning, trade for medicine, hunting, persecution and electrocution as well as habitat loss and degradations (Adang *et al.,* 2019).
Across west and central Africa, the species is one of the most heavily traded, with an estimated 5, 850-8, 772 individuals traded over a 6-year period in West Africa (Buij *et al*., 2016). The hunting

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of vultures as sources of animal protein has been reported to be responsible for the local extinction of vulture outside the National Park in Northern Nigeria (Elgood *et al.,* 1994). In Nigeria, a survey of medicinal traders found that hooded vulture was the most commonly traded species of vultures (Saidu and Buij, 2013). Villagers in Emi Abumo Woro in Kogi state, Nigeria attested that the hooded vulture is being hunted for traditional medicine (Adang *et al.,* 2019). Information from Kpokap also attested to the fact that unknown persons in recent past were visiting the area to hunt for the vultures. The species is gradually disappearing from its ranges because of the aforementioned threats. This has therefore made sighting of vultures, their nest, eggs and/or young becoming very rare. This work is a report on the recently sighted hooded vultures with their nest at Kpokap village in Zangon Kataf Local Government Area of Kaduna state, Nigeria. This indicates that the population of this critically endangered species still exists in the village and can be protected to reduce the risk of extinction.

MATERIALS AND METHODS

Study Areas

The study was carried out in Kpokap in Zangon Kataf Local Government Area (09° 39/ 38.7// N and 008° 9/ 29.3// E) Figure 1 is the map of Zango Kataf LGA showing Kpokap, the study area.

Methods

Data was collected through weekly visits to the areas in March and April, 2018. Observation of the trees that are potential breeding sites for vultures was done and natives were involved especially hunters to locate the existing nests of vultures. A pair of binoculars was used to view and identify the vulture to species level by comparing was seen with the field guide by Borrow and Demey (2013). Dates of sighting of nest and vultures were recorded. The tree species on which the nest was constructed was identified and recorded (Adang *et al*., 2019). The height of the nest from the ground was estimated using a graduated bamboo stick. Once a nest is located it is noted and recorded and snapshots were made using Panasonic HC- V500. The height of the tree where a nest was located was noted, the diameter at breast height (DBH) was noted and the global positioning system (GPS) was used to take the location of the tree that is housing the nest. The position of the nest on the tree was also noted.

RESULTS

Over 20 vultures were sighted during the 3 visits made to the site. On 05/03/2018 hooded vultures were seen in flock of about 20 flying and perching on the *Parkia biglobosa* trees close to *Cola gigantea* trees located in a riparian forest. On 02/04/2018 the site was revisited and the Hooded vultures were sighted foraging on cow dung, picking and swallowing maggots/ beetles and other insects. The birds were also seen scavenging on a placenta of a cow that delivered that morning. Plate 1 is a population of Hooded vultures feeding on maggots/beetles from cow dung while plate 2 is the perched vultures on *Parkia biglobosa* trees close to *Cola gigantea*, one of the nesting trees plate 3 is the giant cola tree, one of the nesting trees. Two nests of vultures were sighted but they could not be accessed to see the contents because of the height from the ground. However, two vultures were always seen flying in and out of each of the nests. Their nests were on Giant cola (*Cola gigantea*) tree. The nests were placed at the fork of the tree trunk. Nest 1 was located at the height of 9.5 m above the ground on the giant cola tree. Plate 4 is the first nest on the fork of the giant cola tree. Nest 2 was located at a height of 8.5 m above the ground (Plate 5). The vultures on sighting the researchers flew out from the nests but hoover around.

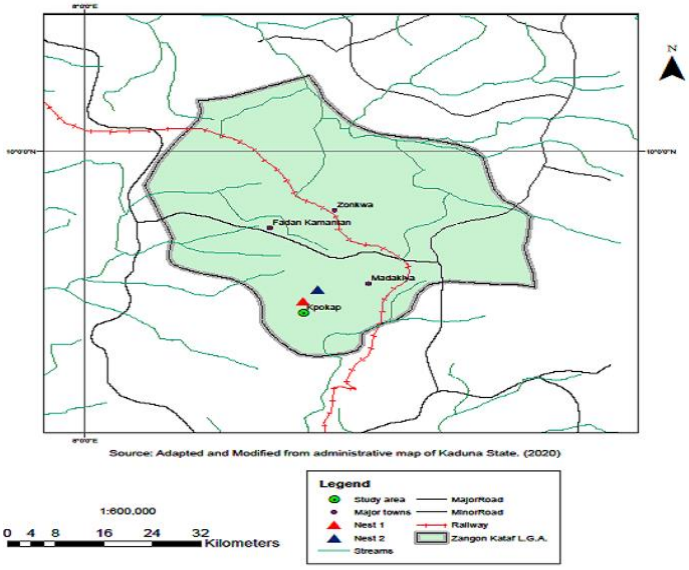

Fig. 1: Map of Zangon Kataf L.G.A. showing Kpokap (study area)

Plate1: Hooded vultures feeding on maggots/beetles emerging from the cow dung

Plate 2: Perched vultures on *Parkia biglobosa* close to *Cola gigantea*

Plate 3: *Cola gigantea* one of the nesting trees

Plate 4: First nest discovered at Kpokap on Giant cola tree (*Cola gigatea*) at about 9.5m above the ground

Plate 5: Second nest discovered at Kpokap on Giant cola tree (*Cola gigatea*) at about 8.5m above the ground

DISCUSSION

Hooded vultures were the only species sighted in this study. Adang *et al.* (2019) also reported sighting only the Hooded vulture at Emi Abumo Woro in Kogi state Nigeria. Grimes (1987) reported sighting only Hooded vultures at Accra plains. Sighting of vultures in these areas may be due to the fact that the area still has tall trees that are potential nesting sites for the vultures. Tanko (2018) reported that vultures breed on tall trees where the breeding birds are free of disturbance and predators attack. Sorley and Andersen (1994) opined that vultures' population correlates positively with conservation areas. Mundy *et al.* (1992) reported that vultures concentrate their activities around the nesting sites during the breeding season.

The sighting of Hooded vultures and the nest in this community is an indication that patches of vultures still prevail in some parts of Africa, therefore investigating these patches/niches with vulture population is timely.

The absence of vultures in some of the days of visits could be probably due to the fact that the vultures utilizes more than one habitat/ community based on the availability of food. Birds could have roosting/nesting sites different from the feeding sites. Boshof *et al.* (1984) reported that birds can move large distances in search of food.

Sighting of vultures in March and April indicates that the birds breed in this period in the area. This period agrees with the period reported as the breeding season of the species at Emi Abumo Woro, Kogi state by Adang *et al.* (2019). Elgood *et al*. (1994) reported the breeding of the species occur between October to March. Barlow *et al*. (1999) reported that Hooded vultures breed mainly in the dry season which span from November to March in this study site. The choice of March to April as breeding period in Kpokap may be due to availability of food for the young. These months mark the beginning of rains in the area which is the period of emergence of maggots and beetles of the cow dung. This was evident by the fact that the nesting trees where closed to cattle and the birds were often seen foraging on the cow dung. Denis *et al.* (1991) reported food availability as one of the factors that determine choice of breeding season in birds.

The nests sighted were constructed on tall *Cola gigantea* trees. Vultures according to Adang *et al.* (2019), Tanko (2018) and Monadjem (2003) built their nest in tall trees, often in riparian habitats. The *Cola gigantea* trees were in a riparian forest in a stream that holds water throughout the year.

The height of the first nest was constructed at about 9.5 m and the second nest was constructed at about 8.5 m respectively. Tanko (2005) opine that birds may place their nest high to escape predators that may approach the nest by climbing from the ground. Welty and Batista (1990) however, claimed that the significance of nest height is difficult to assess as a multiplicity of environmental factors such as microclimate, storm damage, density of foliage, food availability, type of substrate and predators may affect the height at which a bird chooses to build its nest.

In conclusion, it is evident from this study that Hooded vultures are still available in some patches of Nigerian environment like Kpokap. This sighting calls for urgent conservation attention at the site and other sites where vultures have been sighted recently in the region and Africa in general. Further studies to unfold the prevailing environmental factor that enable the species to still thrive in the community should be investigated with the aim of improving them

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