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Life on Edge: Environmental Disordering and the Decline of Some Avian Species in Akwa Ibom State, Nigeria

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Abstract: Birds are conspicuous and important components of the Nigerian biodiversity assemblage, with about 850 species recorded. Some of these species are very common and numerous, while others are naturally rare. However, environmental disorders through human impacts have produced more species in the rare category. In Akwa Ibom State, the existence of several species such as *Necrosyrtes monachus*, *Malimbus scutatus*, *Tockus fasciatus*, *Scopus umbretta*, *Psittacus erithacus* and some species of woodpeckers (*Dendropicos* and *Campethera* species), is on edge. The forcing factors in this decline include scarcity of preferred substrates for nest building, competitive exclusion, likelihood of toxic effects, local and international trades in some species, poaching of eggs for ritual purpose, and outright killings for meat. Birds are useful as indicators of environmental change and many people derive aesthetic satisfaction by watching them *in-situ* in aerial displays. The success of some terrestrial mammals depends on the efforts of birds in creating cavities in living trees or snags, which they share with the mammals. The extinction of such birds would certainly lead to collateral extinctions of some bird-dependent mammals.

Keywords: Environmental Disturbances, Declining Avian Densities, Akwa Ibom.

INTRODUCTION

The avian fauna in Nigeria is well endowed in variety, possibly as a consequence of the country's large geographical size, varied vegetation zones, and diversified food resources and hence feeding grounds. In the middle of the twentieth century when vegetation in the countryside remained relatively intact, and human population was low, there was an amazing variety of plants (especially flowering plants) for birds to use as food sources and nesting sites. By then, in the now South-south geopolitical zone of Nigeria where Akwa Ibom State (Fig. 1) belongs, the village weaver, *Ploceus cucullatus*, was a delight to watch, as it nested in dense colonies in the foliage of the wine palm (*Raphia hookeri*) close to human habitation, and feeding voraciously on mature seeds of maize in nearby farms, and hunted by village boys. Nason (1992) pointed out that because people of Africa were keen observers of the natural world (around them), many animals (birds inclusive) featured prominently in African folktales. Indeed, this psyched the young ones who listened to these tales to know the animals involved, enabling them to develop the love and respect for nature. It is doubtful if this culture still persists in this part of the country today, where everyone (even a pupil in elementary school) is occupied with the concern to eke out a living daily and even the adult cannot remember the local names of common bird species.

There is a causal relationship between human activity and the viability of avian populations worldwide (see Boersma and Parrish, 1998). Some of these activities relate to excessive harvesting pressure as on the passenger pigeon *Ectopistes migratorius* of North America, in an open-access scenario, and habitat destruction through various targeted and non-targeted approaches (Miller, 2001; Cunningham, Cunningham, and Saigo, 2005). Biodiversity is often described as renewable resources, and Dayanandan (2011) states that a renewable resource is a resource whose stock is not fixed; rather, it is subject to variation (i.e. can be increased or decreased). It will increase if the stock is allowed to regenerate. This paper seeks to bring to the knowledge of the conservation-conscious public, human actions which challenge the renewability of some avifaunal species in Akwa Ibom State, Nigeria. It is not based on a strict empirical study but rather, on observations in the wild made during biodiversity-based studies in various locations in the state.

METHODOLOGY

Field observations were made on the relative occurrence and sighting of some ecologically and or culturally significant species of birds in Akwa Ibom State. Observations were made by direct sighting of birds with the aid of a pair of binoculars, and photographs were taken as appropriate with a Nikon D3200 camera. No quantitative data were recorded. Anecdotal accounts by knowledgeable individuals were also taken.

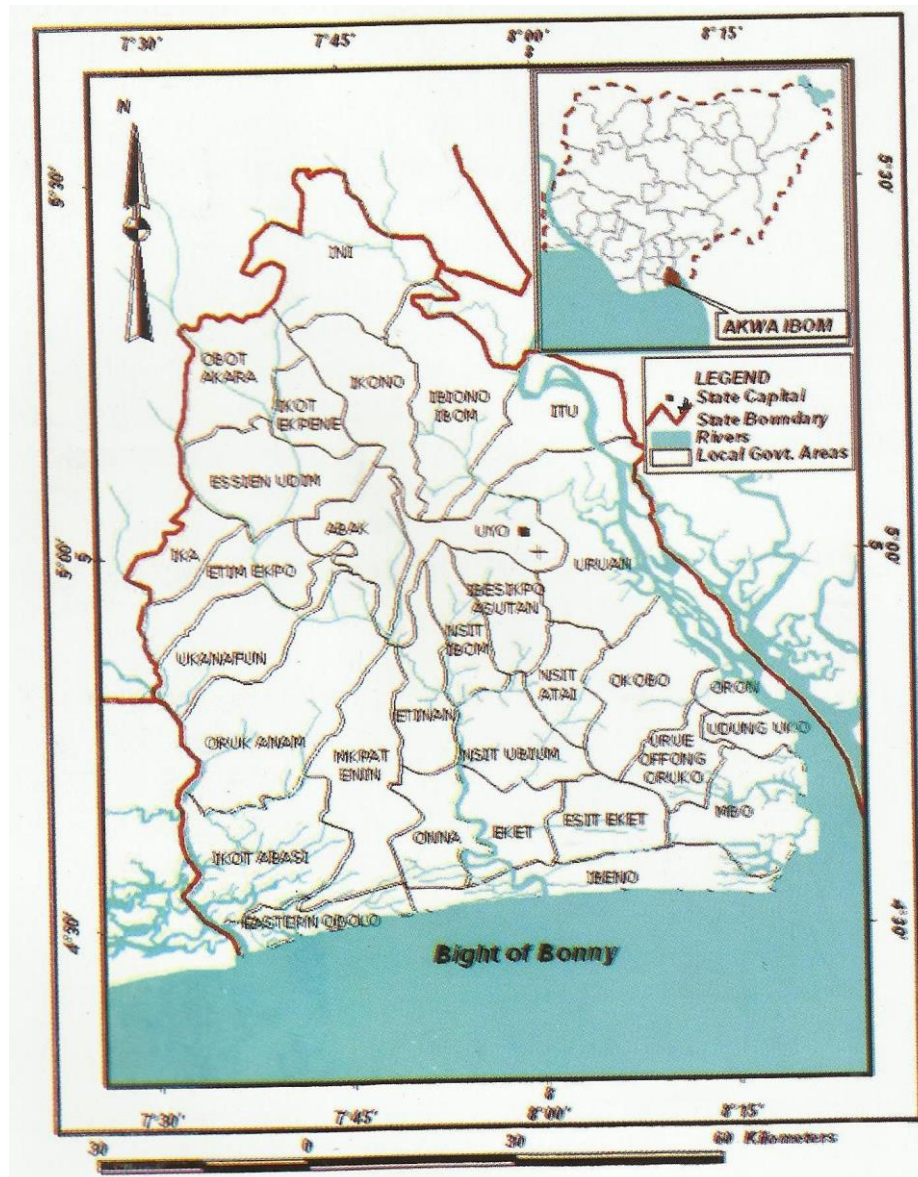


Fig. 1: Map of Akwa Ibom State. Inset: map of Nigeria showing position of Akwa Ibom State

RESULTS AND DISCUSSION

Necrosyrtes (= Neophron) monachus

This species of vulture known as the hooded vulture has a wide geographic distribution across western Africa (Borrow & Demey, 2008). It is a common sight in abattoirs and wherever animals are slaughtered during ceremonies. Although it is regarded as a bird of omen just like owls, and disdained by a significant percentage of the population, yet some people in this locality interpret the absence of vultures at sites of slaughtered animals during ceremonies as ominous. The vulture is a scavenger and people see it as a “dirty” bird, without being able to see the nexus between its ecological role and environmental health in relation to humans.

In this State, a keen observation will reveal that the population of *Necrosyrtes monachus* is in decline. Here in Uyo metropolis the recent absence of this species at the massive refuse tip by Udo Street is very conspicuous. In its place are found pied crows

(*Corvus albus*) in large numbers, and the black kite, *Milvus migrans*. In the villages, the number of individuals of *Necrosyrtes monachus* visiting slaughter locations is not impressive as it used to be. These may be indications of an insidious attack on this species, yet to blossom into a fully-fledged calamity of the proportion that occurred in the Indian subcontinent at the turn of this century. The use of **Diclofenac** (a non-steroidal anti-inflammatory drug administered to farm animals to treat inflammation) was discovered to have been responsible for the death of millions of vultures across the Indian subcontinent (Wright & Boorse, 2011). This drug is reported to be toxic to animals by causing renal dysfunction leading to the deposit of uric acid on and within the visceral organs (Wright and Boorse, op.cit). Nathan (1996) reported the extinction of 14 species of birds (mostly raptors) in Israel in events related to human pressure, especially in pest control applications (Mendelsohn and Leshem, 1983).

Another problem against renewability of this species in this locality is the glaring lack of nesting sites. Serle, Morrel, and Harting (1977) stated that this species builds its nest in a strong tree fork, often near towns and villages. In this area, vultures used to nest on top of very tall palm trees (*Elaeis guineensis*) that are no more yielding fruits and so abandoned. Trees of this description are rare presently due to large scale encroachment occasioned by expanding human settlements and some industrial projects, building of roads and schools. Other nesting trees such as Iroko (*Milicia excelsa*), silk cotton (*Ceiba pentandra*) etc., have been deliberately cut down in villages under superstitious belief of their harbouring or being meeting places for witches (covens). This human siege on the vulture's breeding sites is unrelenting. Nason (1992) gives interesting reasons for the scarcity of the vulture presently: because they live on carrion, fewer wild animals are left and towns are cleaner, resulting in less carrion for the vultures to feed on, though her reference to cleaner towns in Nigeria is debatable.

A very surprising problem that lies in wait for the vulture is the mad rush to make millions of naira by many Nigerians, which has driven them to absurdities – hunting for vulture eggs for ritualistic purposes. Though Nigerians are very religious (more than the early missionaries), some are, contemporaneously, making a fetish of vulture eggs. The low reproductive capacity of this species (a single egg clutch) and this senseless hunting of its eggs, pose a great danger to renewability of *Neocrosyrtes* species within this geographic boundary. It is of interest to note that Olatunji (2017) gave information on vulture decline in Osun, Ogun and Ondo States as published in the Vanguard Newspaper of August 13, 2017. The news was described as “alarming”, with reports of hundreds of tonnes of the vulture trafficked monthly, ending up as derivatives used in traditional medicine. Thus, both the egg and the whole animal are trafficked. The vulture (*Neocrosyrtes monachus*) is listed in the IUCN 2017 Red List of Endangered species as “critically endangered”.

Neocrosyrtes monachus, and indeed other species of vulture, play a significant role in the environment by rapidly disposing of carcasses of dead animals whether in the cities or countrysides. Nason (1992) describes them as “flying dustmen” by reason of this ecological role. By doing this, vultures reduce or eliminate the risk of diseases (especially contagious ones) that could affect a community if carcasses of dead and rotten animals are left undisposed. Though there is no report of empirical studies of the status of the vulture in this locality, the decline in numerical abundance is indisputable. We suggest that this decline may be due to the following factors: i) the result of interspecific competition between *Neocrosyrtes monachus* and *Corvus albus*, in which

the latter becomes stronger and therefore, outcompetes the former, and this competitive exclusion of *Neocrosyrtes* seems to indicate that there has been no niche differentiation between these two competing scavengers; (ii) significant mortality occasioned by serious pollution effect as it forages at dumpsites picking up food fragments that are inadvertently laced with toxic chemicals; (iii) many urban gutters do not drain because they are filled with sand and rubbish; toxicants washed into these and similar pools by overland flow remain and become concentrated, and so birds that drink from such pools could be poisoned; other unexploited water resources (e.g. Champion Breweries effluent collection pits) are heavily polluted and could affect animals that drink from them, as reported in Israel by Yosef and Malka (1998); and (iv) scarcity of nesting sites due to widespread deforestation, coupled with low clutch size. The pied crow seems to have competitive nesting advantage because it is not so specific in requiring very tall, matured trees. The current veterinary practice in the livestock industry and pest control in agriculture and in homes, may require a re-examination to see what drugs are being used, and their toxicity.

***Malimbus scutatus* (Red-Vented Malimbe)**

This is one of the species in a group of birds called “Malimbos”. Borrow and Demey (2008) describe them as “distinctive black-and-red forest weavers”. The local name also relates them with weavers. Although the species, *Malimbus scutatus* under consideration was not very common and gregarious as the village weaver, yet they were not rare. Even children in villages then, could identify the species that constructed the intricately woven and intelligently designed long-spouted nest (Fig. 2) that used to hang from the leaflets of the wine palm (*Raphia hookeri*). Whereas the village weaver (*Ploceus cucullatus*) could build their nests on any tree of their choice, the red-vented malimbus is partial to the raffia palm, whether in the hinterland or along riparian zones of streams and in freshwater swamps where raffia palms were the dominant trees. They usually occurred in small flocks and Serle *et al.* (1977) indicated that two (2) eggs are produced in a clutch.

The challenge that this species faces is the loss of nesting sites. Their preferred tree, *Raphia hookeri*, is fast disappearing in this territory for various reasons: (i) after the Nigerian Civil War in this part of the country, thatch houses were no more fashionable, and people saw no need cultivating this crop since they can build modern houses with moulded blocks and corrugated roofing sheets; (ii) *Raphia hookeri* does not attract appreciable commercial benefit when compared to the oil palm (*Elaeis guineensis*) in this region. It takes more than ten (10) years to mature and be tapped. On tapping, it does not yield the wine for a long time to generate reasonable income to the owner.

Therefore, nobody is prepared to waste land for that duration and yet earn a paltry income that is not commensurate with the energy expended. And so the red-vented forest weaver loses in the hinterland and very few flocks may be sighted in swamp forests. With only two eggs in a clutch and increased rate of loss of nesting sites, this species is at risk in this region.

Despite the numerous benefits derivable from this palm tree, its cultivation presently is no more fashionable because of pressure from religious bigots who claim that drinking the wine is anathema to anyone. Yet, never in the history of this territory has palm wine been cherished and drunk as now, but the source of the wine is dwindling, being largely found in freshwater swamps, with a sprinkling of cultivated stands around homes mostly by those who do not accede to the religious bigotry. The Fadama Agricultural Crusade is also causing loss of the raffia trees in preference for vegetables and cassava. Ikot Ekpene urban in Akwa Ibom State is popularly known as “raffia city”. This is because of a thriving industry of using the raffia (strips of the lower epidermis of the tender leaflets of the palm) to manufacture assorted items such as bags, shoes, hats, lawyers’ wigs, etc. Every part of this palm is useful (Etukudo, 2003). It is inconceivable and irrational for *Raphia hookeri*, a tree full of benefits, given by nature, to be disdained, and its cultivation jettisoned.

***Tockus fasciatus* (African Pied Hornbill)**

This bird also known as the Black-and-white-tailed hornbill or Allied hornbill (Fig. 3) used to be common in villages some decades ago, but now are not so common, occurring mostly in patches of forests with few relatively tall trees. This species is a cavity nester in ready-made tree holes that could have been bored by a woodpecker or created with the aid of fungal decay after a dead branch falls off the tree. The hornbill shown in Fig. 3 was photographed when the male perched close to the knot-hole (the black spot above the bill of the hornbill), surveying the environment possibly to scare off intruders before delivering food to the chicks within the hole. At the time of taking the photo, there was an intruder – a squirrel – racing towards the hole, with the male *Tockus* vocalizing noisily. The dearth of suitable nesting trees is quite exemplified here by the interspecific competition between the squirrel and hornbill for nesting access to this particular cavity.

The reproductive success and hence abundance of hornbills in this area is seriously threatened. The threat comes from loss of nesting sites due to willful felling of large, tall trees which were previously abundant, with numerous holes per tree. Aged red-flowered silk cotton tree (*Bombax buonopozense*) used to have several holes per tree, each of which was used by different individuals of the hornbill and other

species of birds and rodents. Other trees such as the iroko (*Milicia excelsa*), African walnut (*Coula edulis*) and similar trees, provided such holes to nesting hornbills. Old and unproductive stands of *Elaeis guineensis* in old settlements were also good substrates for hornbill nests.

The trees (especially those near human settlements) have been cut down on a frivolous premise that they have become abodes for witches. This phobia is pervasive and is disgusting to people with sane minds. Yet many trees in both urban and rural settings have been eliminated with their ancillary services to the avian realm. In urban environments vegetation is not only fragmented but severely deficient at mid and upper levels, with more coverage at the ground level than in rural environments (Beissinger and Osborne, 1982). This does not encourage nesting by hornbills unless there is adaptation as they become used to altered environments. The *Gmelina arborea* tree with the knot-hole used by the hornbill in Fig. 3 is located on the verge of the ravine behind University of Uyo Senior Staff Club. If the rate at which land is currently lost to the ravine continues, it will not be long and this tree with its hole is also lost. The loss of this tree and its hole would invariably mean the loss of a nesting site that would have been available for use by other nesting female hornbills; in effect, the loss of generations of hornbill chicks that should be recruited to replenish the dwindling stock of the species.

***Scopus umbretta* (Hammerkop)**

In the Niger Delta region, this species (Fig. 4) is a conspicuous member of the avifauna of the mangrove forests. Serle *et al.* (1977) noted that it is found frequently in swamps, rice fields, ponds, pools on the course of rivers and streams, and especially estuaries and mangrove creeks. Nason (1992) describes this species as curious and strange-looking. It is dull brown all over, ugly-looking with a stout bill. *Scopus umbretta* builds a massive roofed nest (fig. 5) of sticks, grass and mud in the fork of a tree over water. Nason (op.cit) stated that the nest provides a refuge also for other species of birds, particularly the Barn owls and kingfishers.

The specificity of the Hammerkop’s nest site (the fork of a tree over water) (Nason op.cit) may be its undoing in this area. There is a massive felling of mangrove trees in the Niger Delta mangrove ecosystem (Fig. 6) for various purposes such as timber, electric poles, firewood, construction of mud houses, etc. Moreover, extensive swathes of mangrove trees have been decimated by the invasive nipa palm (*Nypa fruticans*) which now dominates those “conquered” territories. The loss of *Rhizophora* and *Avicennia* trees by unrestrained human exploitation and “nipa warfare”, will certainly affect adversely the survival and reproductive success of this species in the Niger Delta mangrove ecosystem. Now, tall and mature trees are

scantier, and the survival/reproductive success of the Hammerkop are on edge.

***Psittacus erithacus* (Grey Parrot)**

The grey parrot (Fig. 7) is an unmistakable bird, known to many people either in the wild or in captivity. Many decades ago, it used to be common in the hinterland of Akwa Ibom State, often flying in flocks. Presently, they could be found in the mangrove forest belt and in some areas of the inland waters (rivers) where there are remnants of tall forest trees. They occupy an ecological niche different from many other birds, preferring the highest level of the forest canopy. Nason (1992) pointed out that Grey parrots are threatened species and once they are caged they will no longer breed. Indeed the Grey parrot is

threatened in Akwa Ibom State. Apart from suffering from inadequate number of appropriate trees with requisite knot-holes for nesting, the mangrove wetland stock of this species is dwindling at a fast rate due to international pet trade.

In the year 2001 in the island of Emereoke in Eastern Obolo Local Government Area, I met a man who claimed to be a Ghanaian. According to him, his mission in that island was to catch Grey Parrots and sell them either in Lagos or Accra where it would fetch huge amounts in dollars. It may not be in this area alone that this species is known to be a highly marketable item of international trade.



Fig. 2: Long-spouted *Malimbus scutatus* nest



Fig. 3: Hornbill perched close to a knot-hole on a *Gmelina arborea* tree



Fig. 4: *Scopus umbretta* on a *Rhizophora* tree



Fig. 5: *Scopus umbretta* nest in the fork of a tree



Fig. 6: Deforested mangrove patch in Eastern Obolo mangrove wetland

Psittacus erithacus (Grey Parrot)

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Psittacus erithacus, a highly intelligent bird, has been kept as pet in many homes locally, possibly due to its intelligence and amazing ability to imitate human voices. And so the species faces many-pronged attacks: scarcity of nesting sites, local and international trades, and outright killing by hunters for meat. With a low clutch size of three (3) eggs, the rate of renewal by the few remaining individuals may not be considerable to recharge the dwindling populations.

Woodpeckers (*Dendropicos*, *Campethera*)

From the distribution map of woodpeckers in western Africa (Borrow and Demey, 2008) there are four species in Nigeria (Gabon woodpecker, *Dendropicos gabonensis*; Little green, *Campethera cailliautii*; Buff-spotted, *Campethera nivosa* and Grey woodpecker, *Dendropicos goertae*). However, Nason (1992) presents two species *Dendropicos gabonensis* and *Mesopicos (Dendropicos) goertae* as occurring in Nigeria. Woodpeckers are familiar birds of forest and

secondary regrowth vegetations. The reverberating resonance of their pecking is part of the sounds in the forest. Their foraging activities are beneficial as they control forest insect pests such as wood-boring beetles that create galleries behind the bark and kill trees. They also eat ants which may be tendering mealybugs. They can serve as indicator species, demonstrating the quality of the habitat. Their hole/cavity-making abilities make their presence in an area an important part of the ecosystem because these cavities are used by many bird species as well as some mammals, for breeding and roosting. This is because such species are unable to excavate their own holes (Nason, op.cit).



Fig. 7: *Psittacus erithacus*, perched on a *Rhizophora* branch in Eastern Obolo mangrove wetland

Some species of woodpeckers are under threat as their habitats are being destroyed almost on a daily basis, and some species are no more common, for example the Gabon woodpecker *Dendropicos gabonensis* (Nason, 1992). The rarity of some of these species is linked to extensive disappearance of forest trees. In Akwa Ibom State, the tropical rainforest is no more, therefore snags (dead or dying trees in the forest) are hard to come by. Snags from mature forest trees naturally provide extensive support for the woodpeckers to excavate the holes, either for nesting or in foraging, as they feed on the worm-like larvae (grub) of beetles in decaying wood (Nason, op.cit). Removal of snags and similar structures from a habitat simplifies the habitat and leads to reduction or loss of biodiversity (Wright and Boorse, 2011). Being woodland birds, deforestation and mass-clearing of land for agriculture and other purposes can reduce their populations drastically. Table 1 is the summary

of threats facing some avian species in Akwa Ibom State and suggested mitigating measures.

Table 1: Summary of Threats facing some avians in Akwa Ibom State and suggested mitigating measures.

Species	Source of impact	Effect	Mitigating and ameliorating measures
<i>Necrosyrtes monachus</i>	Deforestation, loss of nesting trees, chemical toxins including tobacco (snuff), poaching of eggs	Reproductive failures, decline in population	Review of current drugs used in veterinary practice, protection of tall trees, enforcement of endangered species Act 11 of 1985.
<i>Malimbus scutatus</i>	Restricted nesting preferences, slow maturation of palm and decreasing inclination to plant new stands	Lack of suitable nesting sites	Deliberate planting of palms and protection of river/streams valleys
<i>Scopus umbretta</i>	Restricted nesting preferences, deforestation, invasive species	Lack of suitable nesting sites, threat to reproductive success	Protection of local habitats
<i>Psittacus erithacus</i>	Restricted nesting preferences, international pet trade and trafficking, deforestation.	Decline in population, contracting range of suitable territory.	Protection of local habitats, enforcement of Act 11 of 1985
<i>Dendropicos</i> and other spp.	Deforestation, lack of suitable trees and pecking snags	Declining population, loss of nesting habitat to cavity-dependent animals	Afforestation, protection of mature trees

CONCLUSION

For us and future generations not to be deprived of our avian assemblage and heritage, a deliberate effort at afforestation and protection of rural and urban gardens and tree stands should be encouraged. Most chemicals used in the agricultural sector of our economy are organochlorines which are persistent and bioaccumulating through the food chain; they are not water soluble. Broad-spectrum pesticides are not target-specific. This paper is a wake-up call on governments and researchers to rise to this challenge so as to avoid a situation reminiscent of the “silent spring” of Rachel Carson.

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