

Ethno-ornithological knowledge and uses of birds in Omi-aro and Labaka villages, Kwara State, Nigeria

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Summary

Information was gathered in two villages of western Nigeria on the vernacular names, food value, ornamental value, use in traditional healing, associated superstitions and augury, folklore, proverbs and quotes, and behavioural aspects such as feeding, mating, nesting and vocalizations, of 21 species of bird. Guided interviews using a questionnaire were employed to elicit responses from the informants, complemented by photographs of the 21 species. The villagers provided vernacular names and information on the cultural significance of the 21 bird species shown to them. Thirteen of the 21 species are common food sources, four species have magico-medicinal uses, feathers of six species are used in ornamentation and ten species are objects of superstitions. Birds are important in the language, with proverbs, idioms, wise sayings and poems rich in local bird names. The villagers in Omi-aro and Labaka have a strong relationship with birds, which have considerable cultural and economical significance to them. Further studies on traditional healing practices using birds, hunting methods and seasonality in hunting, are needed to improve understanding of the harvesting of birds for these purposes.

Résumé

Connaissances ethno-ornithologiques et utilisations des oiseaux dans les villages de Omi-aro et Labaka, Etat de Kwara, Nigeria. Des informations ont été recueillies dans deux villages de l'ouest du Nigeria sur les noms vernaculaires, la valeur alimentaire, la valeur ornementale, l'utilisation par les guérisseurs, les superstitions et présages associés, le folklore, les proverbes et

citations ainsi que sur des aspects comportementaux tels que l'alimentation, l'accouplement, la nidification et le chant pour 21 espèces d'oiseaux. Des entretiens semi-directifs conduits en se servant d'un questionnaire, complété par des photos des 21 espèces, ont été menés pour obtenir les réponses des informateurs. Les villageois ont fourni les noms vernaculaires et les informations sur l'importance culturelle des 21 espèces d'oiseaux qui leur ont été montrées. Treize des 21 espèces sont habituellement consommées, quatre espèces sont utilisées pour la magie ou la médecine traditionnelle, les plumes de six espèces servent d'ornements et dix espèces sont l'objet de superstitions. Les oiseaux sont importants dans le langage, avec des proverbes, des expressions, des dictons et des poèmes riches en noms d'oiseaux donnés localement. Les villageois d'Omi-aro et Labaka ont une relation forte avec les oiseaux, qui ont une signification culturelle et économique considérable pour eux. Des études ultérieures sur l'utilisation des oiseaux dans les pratiques de médecine traditionnelle ainsi que sur les méthodes de chasse et la saisonnalité de la chasse sont nécessaires pour améliorer la compréhension sur les prélèvements d'oiseaux correspondants.

Introduction

Ethno-ornithology, the study of birds in cultures, combines anthropological, cognitive and linguistic perspectives with natural science, in order to describe and interpret people's knowledge and use of birds (Tideman & Gosler 2010). Ethno-ornithological studies can improve the effectiveness of conservation and advance scientific knowledge, particularly of enigmatic forest birds in the tropics (Berkes 1999). Although local people are often considered as collaborators in environmental conservation, their traditional and local ecological knowledge is rarely incorporated into the management and protection of avifauna (Gilchrist *et al.* 2005). Over generations, indigenous peoples have accumulated knowledge in their interactions with the natural world, by conception, thought and experiment (Arbon 2008, Trafzer *et al.* 2008). This knowledge is culturally transmitted using symbols, narratives, rituals, music and dance (Toledo 1992).

In Nigeria, Adeola (1992) reported the importance of wild birds and their parts in the culture, religious festivals and traditional medicine while Dedeke *et al.* (2006) reported on the utilization of some birds in southwestern Nigeria. Soewu (2008) studied the uses of wild animals in ethno-zoological practices among the Yoruba people of southwest Nigeria, and their implications for conservation. Cocker (2000) and Nikolaus (2001, 2011) focused on bird exploitation for traditional magico-medicinal uses, and Cocker & Mikkola (2001) described the cultural responses to owls in Africa and their implications for conservation. Among West African countries, Nigeria leads in bushmeat consumption (Nikolaus 2011), and Cocker &

Mikkola (2000) noted that about a million birds from about 80 species are killed annually in West African countries like Benin, Ghana, South Africa, Togo and Nigeria for the fetish markets. According to Nikolaus (2011) several birds of prey are threatened with extinction due to the fetish culture in Nigeria.

Nigeria has about 940 species of bird (Clement 2000) and more than 650 local languages (Lewis *et al.* 2013). Therefore a great variety of knowledge about man–bird relationships might be expected in the different languages. The present study was carried out to explore this in Omi-aro and Labaka villages in Kwara State, western Nigeria.

Methods

The villages of Omi-aro and Labaka, in Ifelodun local government (8°32'22"N, 5°2'31"E), are located close to Ilorin, the capital of Kwara State (Fig. 1). The villages are in a rural setting with hills, scanty vegetation and forest patches, and with a river flowing through them. The region is inhabited mainly by Yoruba and Fulani peoples, occupied principally in hunting, fishing and farming.

Informants were selected based on the recommendations of the villagers, who identified some local people as experts with rich knowledge about animals. These experts acquired their knowledge mainly through oral information passed from their parents and from their personal interaction with nature, particularly through hunting and healing. Those regarded as the most experienced were selected as key informants, and altogether seven adult males were interviewed. All of the informants were Yoruba speakers.

Interviews were conducted from 30 March to 2 April 2013, between 17h00 and 19h00. A semi-structured questionnaire (Table 1) was employed to elicit responses from key informants as described by Martin (1995) and Maundu (1995). As the last three of the subjects in Table 1 did not elicit any positive replies, they are not considered further in this paper. To complement the interviews, a visual presentation including photographs of 21 species of birds common in Kwara State (listed in Results) was shown to the informants on a laptop computer for their comments. Photographs of the birds taken in Kwara State earlier in 2013 by WSW and NSP were used in the visual presentation, and the identity of the birds in the photographs has been verified by A. Tye (pers. comm.).

Yoruba is written using 21 letters of the English alphabet; the letters C, Q, V, X and Z are not used. The Yoruba alphabet also has four additional letters including two vowels (*E/ẹ* pronounced as English ER and *O/ọ* pronounced as English OR, *i.e.* with the R not sounded in both cases) and two consonants (*GB/gb* as a G and B pronounced together, and *Ṣ/ṣ* pronounced as English SH). Yoruba tone marks are written above the vowels using three signs to represent three musical tones: low (DO), high (MI) and middle (RE). For example in the name *Àgbéḅò* (Domestic Chicken), *À* and *ò* are low tone, while *é* is high; an absence of mark above a vowel means it has middle tone.

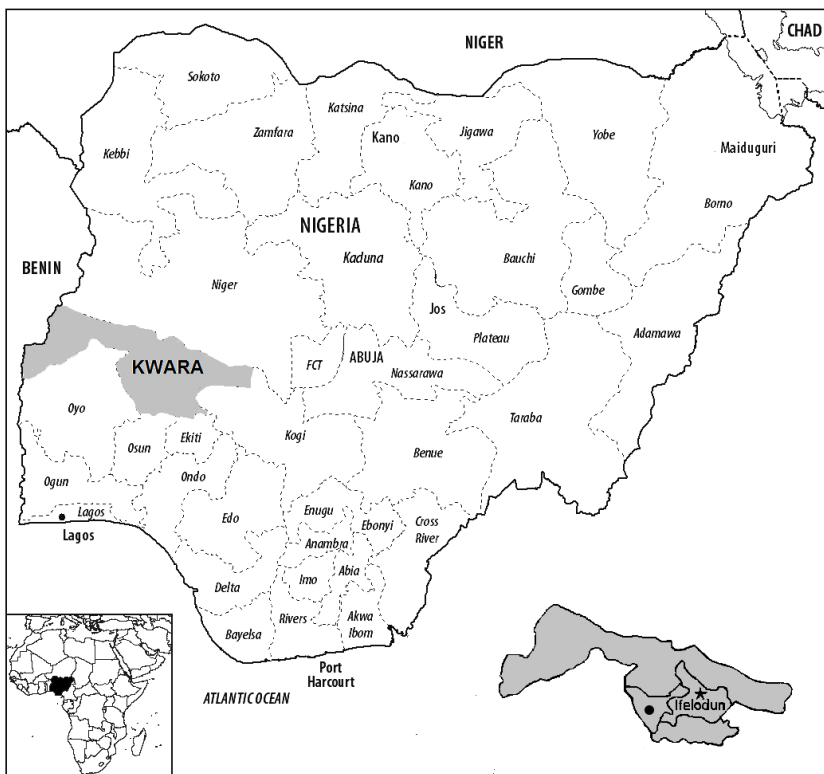


Figure 1. Map showing the location (the star) of the studied villages, Omi-aro and Labaka, in Ifeiodun local government in Kwara State, Nigeria, and the location of the state capital city Ilorin (black dot).

Results

***Bubulcus ibis* Cattle Egret.** Known as *Lékeléke*; both meat and eggs are eaten. It is believed to have white feathers and black meat. Its feathers are used in the ceremony known as *Hyá Efun* which is literally translated as “white woman ceremony”. This is celebrated annually to appease *Yemoja* (one of the River Gods or *Osun*), in which the women (*Osun* devotees) are dressed in white clothes and adorned with white feathers. During the ceremony, the *Osun* devotees so attired process through the streets each holding a Cattle Egret, after which they congregate in a shrine. After chanting prayers and panegyrics in praise of the River God, the birds are released. The Cattle Egret is related to the proverb *Lékèlèkèkè ló ni efun*, which means that white belongs to the

Table 1. The subjects and specific questions included in the questionnaire of the ethno-ornithological study at Omi-aro and Labaka villages, Kwara State, Nigeria.

Subject	Questions
Vernacular name	What is the name of this bird?
Edibility	Are they edible? What is eaten in them? Eggs or meat?
Bird songs/calls	How does this bird sing? What is the meaning of its call?
Medicinal value	Which parts are used in any medicinal purposes and for what type of diseases?
Ornamental value	Do these birds have any ornamental value? How do you use them as ornaments?
Superstition	Do these birds have any associated superstition? What is the superstition?
Folklore	Are these birds connected to any folklore? What is the folklore of these birds?
Prediction	Do these birds have any predictive ability? What can these birds predict?
Egg laying	Where do they lay their eggs? How many eggs and what colour are they?
Nesting habits	Do these birds build nests? Where and what do they use in building their nest?
Value as pets	Do you use them as pets?
Pests of crops	Do these birds cause any damages to your crops? Which crops?
Diseases that they spread	Do these birds cause diseases?

Cattle Egret. This phrase is used to refer to anything that is pure white. The Cattle Egret is believed to call when danger is around. It is known to eat insects and ticks and to construct its nest of sticks in trees on the riverbank. Said to lay two eggs per year (fewer than the actual mean clutch size: Brown *et al.* 1982).

***Milvus migrans* Black Kite.** Known as *Àsá*; both meat and eggs are eaten. It is connected to the saying *Wọn gba òròmọdẹ lówó ikú, ó ní wọn òjẹ kí òhun lẹ àkitaṅ lẹ jẹ*, which means that although the chick [of the Domestic Chicken] is saved from the Black Kite it complains that it is not allowed to feed at the midden. This phrase is used when young people, after being saved or rescued from a dangerous pursuit, insist on their own rights to discover things or on doing the same again. The Black Kite is believed to call when it is hungry. It is known to make its nest with dry branches on the top of trees, to lay two eggs in a clutch, and to feed on animals that can be carried such as small birds, rodents, snakes and lizards, all of which is fairly accurate (Brown *et al.* 1982).

***Gyps rueppellii* Rüppell's Griffon Vulture.** Known as *Igun*; not eaten, and forbidden because, according to traditional lore, disaster may befall those who kill them. Vultures in general are known to congregate in large numbers to eat dead animals, and

are therefore believed to bring omens of death. They are connected to the saying *Igúnugún bà lé òrùlé, ojú tòlé ojú tóko*, which means that when a vulture perches on the roof, it sees everywhere. This is used to insinuate that a person is watching everything. Another expression, *Ení pa gúnugún kíl kádún*, means that a person who kills a vulture never lasts a year. This phrase is used when people believe that the death of someone was plotted by another. Feathers of vultures are taken for preparing a spell to be invisible which is known as *Òògùn* or *Àfẹ̀ẹ̀rì*.

***Accipiter badius* Shikra.** Known as *Áwòdì*; both meat and eggs are eaten. It is connected to the proverb: *Áwòdì òkè kò mọ̀pé ará ilẹ̀ nwo òhun*, which means that the hawk does not know that people are watching. This phrase is used to refer to a person with evil plans, as the local people have a belief that those who have evil plans are revealed through their own actions. It is connected to the proverb *Òròmọ̀diẹ̀ ò mọ̀ àwòdì, iyá ẹ̀ ló mò àsá*, which means that a chick of the Domestic Chicken does not know the hawk but its mother does. This phrase is used to warn young people about dangers that may loom ahead. It is said to call when hungry and to feed on animals that can be carried such as small birds, rodents, snakes and lizards. It is said to predate on Domestic Chickens and Common Garden Bulbuls *Pycnonotus barbatus* too.

***Gallus gallus* Domestic Chicken.** The common name for both males and females is *Adiye*, the rooster is *Àkùkọ̀*, the hen is *Àgbébọ̀* and the chicks are *Òròmọ̀diye*; both meat and eggs are eaten. Although not completely revealed by the villagers, chicken meat is used with herbs for curing some sicknesses. The chicken is used as *Adiye irànọ̀*, that is, to pave the way for the soul of the departed. A cleansing ritual is performed using a live chicken when a corpse is carried to the burial area. A son or a brother of the dead person will carry the “cleansing chicken” in front of the escort of the corpse, removing all feathers one by one and throwing them on the road. It is believed that the cause of the disease will follow the trail of feathers and may thus get buried with the dead person. The eating of the cleansing chicken is considered forbidden. Hence, the Domestic Chicken is related to the proverb: *Adiye irannà kíl ẹ̀e oun àjẹgbe*, which means that a cleansing chicken is not eaten without consequences. Another saying related to the chicken is: *Babaláwóló to ẹ̀e àfẹ̀erí fún aayán ló se àrinnàkò fún adiye*, which means that a native witchcraft practitioner who made a disappearing charm for a cockroach also provided a meeting charm for the chicken. This phrase is based on folklore: once, a cockroach went to the witchcraft practitioner and appealed for a charm to protect it from the chicken. The witchcraft practitioner made a disappearing charm and the cockroach disappeared whenever the chicken arrived. Realizing that it was impossible to catch the cockroach as usual, the chicken went to the witchcraft practitioner. On the appeal of the chicken, the witchcraft practitioner made a “meeting charm”. With that, the chicken could catch the cockroach. This phrase is used when someone who caused a bad thing to happen made a good one happen too. Feathers of the Domestic Chicken are used in personal adornment by spiritualists and herbalists. The rooster calls in the early morning as *Kùkùrúùkù* and is said to give a special alert call when danger is around. The hen is known to have a specific call for the chicks especially when danger is

perceived and to show the chicks sources of food. It is known not to make nests but to lay eggs in concealed areas on the ground, or in dark spaces provided by their owners.

***Streptopelia senegalensis* Laughing Dove.** Has three names, *Adàbà*, *Atàbà* and *Òdèrè-kòkò*; both meat and eggs are eaten. It is considered to be gentle and therefore believed to be the source of gentleness, peace, fortune and love. It is attached to the phrase: *Oniwà tútú bí Adàbà*, which means as gentle as a Laughing Dove. It is used for appealing for peace by sacrificing feathers. Its call “*Òdèrè-kòkò*” is interpreted as a laugh performed in the morning and afternoon. It is known to construct its nest with grass in tree branches, to lay two eggs per year, and to eat grains and seeds (cf. Urban *et al.* 1986).

***Centropus senegalensis* Senegal Coucal.** Known as *Èlúlú*; both meat and eggs are eaten. It is important in traditional healing. It is also considered that it protects its nest from venomous snakes by sticking noxious animals like bees to the nest. It is used in rousing fortune (*Áwùrè*) by sacrificing feathers, claws and beaks. Feathers of this bird are used in personal adornment by spiritualists and herbalists. It is said to construct a spacious nest, and is known to eat grasshoppers and snakes.

***Glaucidium perlatum* Pearl-spotted Owlet.** Known as *Òwíwí*; taboo to be eaten. It is considered forbidden for sacrifices due to the belief that this will bring disaster. Because it hunts at night, it is associated with witches and is referred to as a bird of witches. Its feathers are used in personal adornment by spiritualists and herbalists. It is said to build its nest in spacious holes in tree branches and trunks, abandoned buildings and cracks among rocks, and to lay two eggs per year, whereas this species normally only nests in trees, and clutch size can be 2–4 (Fry *et al.* 1988). It is believed to eat rabbits, rats and other small mammals, whereas this species takes mostly smaller prey than this but including some small mammals (Fry *et al.* 1988). However, we do not think that this lack of precision regarding biological characteristics indicates misidentification of the owl species, because in the study area there are only two common small owl species: Pearl-spotted Owlet and African Scops Owl *Otus scops*, with the former more often seen by day (WSW and NSP pers. obs.), and our studies in seven other states in Nigeria have consistently produced the same name for Pearl-spotted Owlet (unpubl. data).

***Halcyon leucocephala* Blue-breasted Kingfisher.** Known as *Akun o koyo*; not eaten. It is considered as the appeasement of the river goddess, since this bird resides near waterways. It is used in the *Èròpèsè* practice in which it is sacrificed in order to gain relief from pain, stress and discomfort. It is believed to call when food is in the vicinity. It is said to make its nest near the river and to be fond of eating fish. Although this species is often found near water, it is primarily terrestrial and found in almost any bushland habitat; it rarely catches fish, and mostly eats grasshoppers (Fry *et al.* 1988). However, we have seen Blue-breasted Kingfisher near the river through the villages. There is a possibility that the villagers were confusing kingfisher species here, but only two large kingfishers, Blue-breasted Kingfisher and Woodland Kingfisher *H. senegalensis* are common in the area and both are primarily terrestrial. In some

neighbouring areas, Blue-breasted and Woodland Kingfishers are known by a single local name, whereas in others they are given different names (pers. obs. unpubl.).

***Coracias abyssinicus* Abyssinian Roller.** Known as *Ẹyẹ Ọ́kín*; not known to be eaten. It is believed to excavate a hole in a tree branch as its nest, whereas this actually species uses pre-existing holes (Fry *et al.* 1988).

***Tockus nasutus* African Grey Hornbill.** Known as *Tioko*; both meat and eggs are eaten. The skulls of hornbills are used in decorating hunters' homes to commemorate their hunting expeditions. Various body parts are used in the preparation of charms. Believed to bore holes in woody stems, make the lining of the nest with its feathers, then lay two eggs (whereas it actually uses existing holes, lines the nest with dry leaves and bark flakes, and lays 3–5 eggs: Fry *et al.* 1988) and remain there until the eggs are hatched. It is believed that the adult and chicks grow their feathers simultaneously and the feathered chicks and adult leave the nest together (whereas the female usually leaves first and the chicks reseal the nest for some days more: Fry *et al.* 1988). It calls *tioko* at any time and the villagers do not link their vocalizations to any predictions, forecasting or other occurrence. Said to feed on grasshoppers, guinea corn and leaves, whereas true diet is insects and fruit (Fry *et al.* 1988).

***Lybius dubius* Bearded Barbet.** Known as *Ẹyẹ ígbo*; both meat and eggs are eaten. Known to nest in pre-existing holes in tree trunks and branches.

***Dendropicos goertae* Grey Woodpecker.** Known as *Ákókó*; both meat and eggs are eaten. The head and the beak of this bird are sacrificed to the gods for the “money ritual” known as *Ọ̀ògùn-Owó*, by which people expect to become rich. It is believed to make a *kokoko* sound while pecking a woody stem, (although this species in fact rarely drums: Fry *et al.* 1988), and to excavate a hole for its nest in tree trunks and branches. Because it makes holes in trees, it is favoured by witch doctors who prepare charms or jinxes (*Ọ̀ògùn*), although we did not discover why. It connects to the expression: *Ákókó tó fí ẹnu kan Ọ̀gùn, Ọmọ ogun tiwa níí ẹ*, which literally means that when the woodpecker pecks the god of iron the followers' prayers will be answered. This means that when the woodpecker pecks a tree the deity of metal-works will answer the prayers of craftsmen such as blacksmiths. It is believed to eat insects in stems, and wood sap.

***Turdus pelios* African Thrush.** Known as *Àsósó*; not eaten due to small size. Said to use grass and mud to make its nest, to lay 3–4 eggs per clutch, and to eat insects including grasshoppers (fairly accurate in all respects: Urban *et al.* 1997).

***Turdoides plebejus* Brown Babbler.** Known as *Ọ́lópẹ̀ẹ̀ẹ̀*; both meat and eggs are eaten. It is known to construct its nest with grass in tree branches, and to eat insects and fruit.

***Corvinella corvina* Yellow-billed Shrike.** Known as *Tiátá*; not eaten due to its small size. It is used for witchcraft and in sacrifices for good luck and fortune. It is used in the superstitious practice known as *Áwúre* to improve fortune by sacrificing feathers, claws and beaks. It calls *tia tia* and is known to eat insects.

***Dicrurus adsimilis* Fork-tailed Drongo.** Known as *Sekúnşẹ*; not eaten. It is believed that it does not defecate directly on the ground but on other animals, and to call an

alarm when monkeys are around. It is known to construct its nest with grass in tree branches and to eat insects.

***Corvus albus* Pied Crow.** Known as *Kanokánó*; both meat and eggs are eaten. It is used in traditional healing practices and is believed not to lay eggs but to hatch from eggs of other birds. It is said to call to alert the other crows to the presence of food and danger. It is used in sacrifices for good luck and fortune (*Áwúre*), such as by sacrificing feathers, claws and beaks. Its feathers are used in personal adornment by spiritualists and herbalists. It is considered to eat palm fruits and eggs.

***Lamprotornis chloropterus* Lesser Blue-eared Glossy Starling.** Known as *Àròni*; not eaten. It is used in traditional healing practices. It is believed that it has a supernatural power to disappear. It is known to be a hole nester using natural cavities in trees, and is regarded as *Ọba-ẹyẹ* which means the king of birds, because the nest is supposedly made to give so much comfort with a cushioned interior and grassy exterior. Although the nest hole may have only one entrance, the bird is said to disappear when danger arrives, therefore it is related to the expression: *Àròni tó so igba òogùn mọyà, tó bá ko oníkòlà kùlẹ mọ bá ẹnibánibẹ*, which literally means that the *Àròni* with 200 charms tied on its neck disappears when danger arrives. Hence, the feathers are used in preparation of charms to make one invisible. It is used in sacrifices for good luck and fortune (*Áwúre*) by sacrificing feathers, claws and beaks. Feathers of this bird are used in personal adornment by spiritualists and herbalists. It is said to eat insects and flowers and to call *tintin*.

***Lamprotornis caudatus* Long-tailed Glossy Starling.** Known as *Yóríyórí*; both meat and eggs are eaten. Feathers taken from it are mixed with some herbal and animal products in the preparation of a spell to be invisible. It calls *keuheukeu*, and is known to eat insects and fruit.

***Ploceus cucullatus* Village Weaver.** Known as *Lankele*; both meat and eggs are eaten. Known to construct its nest with grass in tree branches, to lay two eggs per nesting attempt and to eat insects and fruit.

Discussion

The importance of birds to the indigenous people lies in their diet, superstitions, ornaments, healing systems, speaking (proverbs, idioms and wise sayings) and folklore, *i.e.* birds have economical, biomedical, ecological, aesthetic and socio-cultural importance.

Omi-aro and Labaka people had names for all 21 bird species shown to them. Some birds were given more than one name. The names derive from their behaviour, vocalizations, feeding patterns, habitats, physical features such as feather colours and shape of the beak, and habits, indicating that people closely observe the birds. Some of the birds are mainly identified by their vocalizations, and many Omi-aro and Labaka names are onomatopoeic, *e.g.* *Kanokánó* (Pied Crow), *Tiàtià* (Yellow-billed

Shrike), *Àkókó* (Grey Woodpecker), *Òdèré-kókò* (Laughing Dove) and *Tioko* (African Grey Hornbill).

During the present study, photographs of birds in their natural habitats shown via a laptop computer resulted in obtaining all the local names and related information. Although Diamond & Bishop (1999) reported that New Guinea hunters mainly identified birds by size, voice, behaviour and posture (characteristics that are absent in two-dimensional pictures) and Kennedy *et al.* (2000) had mixed success in obtaining vernacular bird names by showing A4-size colour photographs and drawings, the Omi-aro and Labaka villagers were able to identify the bird photographs without any hesitation. It seems that they can readily and correctly identify most common species, as well as quickly provide information on bird uses, which are aspects of their day to day lives. But when asked about biological characteristics such as nesting habits, how many eggs, and nesting material, they sometimes became confused, and may never have considered those aspects before. Such biological information may be valuable for science, but not for the villagers.

Thirteen of the 21 bird species considered for this study were reported as being edible and both their meat and eggs are consumed. The utilization of birds as food reflects the existence of a bush-meat trade in Omi-aro and Labaka villages. Five bird species were not eaten due to their small size, and are considered as not having sufficient meat in their bodies. It is forbidden to kill the Pearl-spotted Owlet and vultures because, according to traditional lore, this may bring disaster to those who kill and eat them.

Four species among the 21 species in the study, namely Domestic Chicken, Senegal Coucal, Lesser Blue-eared Glossy Starling and Pied Crow, are important in magico-medicinal healing. The villagers were not willing to disclose exhaustive information about traditional healing practices, believing it might bring bad luck. Although it was not revealed completely due to the beliefs in witchcraft and wizardry, it is understood that body parts such as claws, feathers, beaks and organs such as liver, heart and blood are used for charms, traditional healing and during cultural activities. Further studies may reveal in depth information about the secrets of using birds.

Ten species among the 21 are deployed as objects of superstitions and ritualistic practices such as in sacrifices, charms and jinx. The birds of superstition are used as sacrificial tokens to various gods in order to obtain success, wealth, peace, hygiene and relief. Generally, the villagers use birds for six different rituals, namely *Adiye iràno*, *Àwùre*, *Efun*, *Èròpèsè*, *Òògùn Àfẹ̀rì* and *Òògùn Owó*. Nikolaus (2001) reported the medical or other beneficial effects ascribed to bird species in Nigeria, among which Cattle Egret brings money and good luck, birds of prey help against weakness of the body, Hooded Vulture *Necrosyrtes monachus* brings good luck, large vultures help against mental disturbance, epileptic problems and bad eye sight, owls and Pied Crow provide protection from witchcraft, coucals and weavers bring blessing, rollers give beauty, hornbills give protection and security and woodpeckers improve business. Nikolaus (2011) reported the presence of 11 species (including

Cattle Egret, African Thrush, Yellow-billed Shrike and Village Weaver: common commodities in Omi-aro and Labaka villages) and ten groups of birds (including birds of prey, vultures, cuckoos and hornbills) in Nigerian fetish markets. Soewu (2008) reported Black Kite, Cattle Egret, Harrier Hawk, Pied Crow, Hooded Vulture *Necrosyrtes monachus*, Barn Owl *Tyto alba*, Red-eyed Dove *Streptopelia semitorquata* and Greater Blue-eared Glossy Starling *Lamprotornis chalybaeus* in the markets in Ogun State, Nigeria. According to Soewu (2008) vultures are related to several aspects of superstitious belief such as protection against evil influences, manipulation, fertility for women, appeasing witches and seeking marital partner, while owls are fortune improvers and preventers of accidents. Cocker (2000) particularly described the man-owl relationship in West Africa, noting that owls are deeply feared as omens of ill health, death and bad luck. According to Cocker & Mikkola (2001) owls are killed mainly for superstitious beliefs to avoid bad luck and to make (magic) medicine, but also to avoid their noise, for sport hunting and to be eaten as a relish. Cocker (2000) considered this a serious cultural challenge to the conservation of owls in Africa. Throughout the African continent there is a complex, varied, sometimes contradictory body of beliefs and mythology about the family Strigidae, of which many species are threatened (Cocker & Mikkola, 2001).

Six species of the 21 were used in ornamentation, with feathers the most important body part so used. Feathers of the Senegal Coucal, Pearl-spotted Owlet, Pied Crow and Lesser Blue-eared Glossy Starling are used in personal adornment by spiritualists and herbalists (*Babaláwo*).

Nine of the 21 species are related to wise sayings, quotes, proverbs and idioms, which are derived mainly from characteristics of the birds. The villagers predict future events based on the behaviour of some birds.

Local knowledge about behavioural characteristics such as habitat selection for nesting, material used in construction of nests, methods of lining the interior and egg laying was considerable but not always accurate. For example, the clutch sizes and food of several species differ from those indicated by the informants. Despite this, their traditional knowledge can be used to promote conservation of birds if wisely used. For example, this kind of information can be used in conservation awareness programmes, by incorporating folklore, wise sayings and folk poems into posters and leaflets, in order to praise and appreciate the villagers for protecting both birds and ethno-ornithological knowledge. These materials can be blended with valuable scientific information or conservation messages, such as information about the conservation status of birds and the reasons for their declines, and ways to protect them.

Bush-meat, including birds, can contain more protein than meat from domestic animals (sheep, pigs) (Malaisse & Parent 1982), and wildlife hunting is encouraged by the high prices of these animals, which have led hunters to maintain a supply from ever-decreasing wildlife populations (Okiwelu *et al.* 2009). According to Fa *et al.* (2006) birds make up a small proportion of the bush-meat for sale in markets in southern Nigeria, but smaller birds are often consumed by hunters and their families

rather than traded (Fa & García-Yuste 2001). On the other hand, Nikolaus (2001) reported a strong demand for some birds in fetish activities in Nigeria, and Cocker (2000) reported about 80 species of birds in fetish markets in West African countries, including Cattle Egret, Black Kite, Shikra, Pearl-spotted Owlet, Senegal Coucal, Abyssinian Roller, African Grey Hornbill, Bearded Barbet, Grey Woodpecker, African Thrush, Brown Babbler and Pied Crow, which were found to be killed in Omi-aro and Labaka villages too. Although Laughing Dove, Long-tailed Glossy Starling and Village Weaver were not recorded by Cocker (2000) in fetish markets, Omi-aro and Labaka villagers eat them and use them for superstitious practices, indicating that market surveys alone do not provide a complete picture of bird uses.

A number of species that appear to be seriously affected by habitat loss, or other threats including pesticides, feature strongly in traditional African medicine, such as owls and hornbills (Cocker 2000), or are widely hunted for sale for other purposes (Nikolaus 2011). Quantifying the economic value of birds at the village level could contribute to national scale evaluation of bird use and assist in planning bird conservation.

Understanding how indigenous peoples view the world, and how their knowledge is generated, owned and recorded, is important to understand and appreciate local perspectives on creatures such as birds (Medin & Atran 1999), and therefore it is hoped to build on this preliminary study as a platform for further research. There is an urgent need to document systematically the uses of birds in indigenous communities, because the old folks are usually the custodians of such information and, with the rapid disappearance of traditional cultures and natural resources arising from urbanization and industrialization, such information could be lost forever (Igoli *et al.* 2005). Such knowledge may be beneficial for health care, ecological management, and biodiversity conservation. Conservation of birds and their habitats can be promoted by demonstrating these values to the public as well as to policy makers. The interest of the Omi-aro and Labaka people in birds, and the value of many bird species to them and in traditional conservation ethics, could provide a sound basis for conservation action at the local level, especially if better understood.

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References

- ADEOLA, M.O. (1992) Importance of wild animals and their parts in the culture, religious festivals and traditional medicine in Nigeria. *Envir. Conserv.* 19: 125–134.
- ARBON, V. (2008) Indigenous research: aboriginal knowledge creation. *Ngoonjook* 32: 80–94.
- BERKES, F. (1999) *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Taylor & Francis, London.
- BROWN, L.H., URBAN, E.K. & NEWMAN, K. (1982) *The Birds of Africa*, vol. 1. Academic Press, London.
- CLEMENT, J.F. (2000) *Birds of the World: a Checklist*. Cornell University Press, Ithaca.
- COCKER, M. (2000) African birds in traditional magico-medicinal use — a preliminary survey. *Bull. Afr. Bird Club* 7: 60–66.
- COCKER, M. & MIKKOLA, H. (2001) Magic, myth and misunderstanding: cultural responses to owls in Africa and their implications for conservation. *Bull. Afr. Bird Club* 8: 30–35.
- DEDEKE, G.A., SOEWU, D.A., LAWAL, O.A. & OLA, M. (2006) Pilot survey of ethno-zoological utilization of vertebrates in southwestern Nigeria, Indilinga. *Afr. J. indig. Knowl. Sys.* 5: 87–96.
- DIAMOND, J. & BISHOP, K.D. (1999) Ethno-ornithology of the Ketengban people, Indonesian New Guinea. Pp. 17–45 in MEDINA, D.L. & ATRAN, S. (eds) *Folkbiology*. MIT Press, Cambridge MA.
- FA, J.E. & GARCÍA-YUSTE, J.F. (2001) Commercial bush-meat hunting in the Monte Mitra forests, Equatorial Guinea: extent and impact. *Anim. Biodiv. Conserv.* 24: 31–52.
- FA, J.E., SEYMOUR, S., DUPAIN, J., AMIN, R., ALBRECHTSEN, L. & MACDONALD, D. (2006) Getting to grips with the magnitude of exploitation: bush meat in the Cross-Sana'a Rivers region, Nigeria and Cameroon. *Biol. Conserv.* 129: 497–510.
- FRY, C.H., KEITH, S. & URBAN, E.K. (eds) (1988) *The Birds of Africa*, vol. 3. Academic Press, London.
- GILCHRIST, H.G., MALLORY, M.L. & MERKEL, F. (2005) Can local ecological knowledge contribute to wildlife management? Case studies of migratory birds. *Ecol. Soc.* 10(1): 20 <<http://www.ecologyandsociety.org/vol10/iss1/art20/>>
- IGOLI, J.O., OGOLI, O.G., TOR-ANJIN, T.A. & IGOLI, N.P. (2005) Traditional medicine practice amongst the Igede people of Nigeria, Part II. *Afr. J. trad. complem. altern. Med.* 2: 134–152.
- KENNEDY, R.S., GONZALES, P.C., DICKINSON, E.C., MIRANDA, H.C. & FISHER, T.H. (2000) *A Guide to the Birds of the Philippines*. Oxford University Press, Oxford.
- LEWIS, M.P., SIMONS, G.F. & FENNING, C.D. (2013) *Ethnologue: Languages of the World*. 17th ed., SIL International, Dallas.

- MALAISSÉ, F. & PARENT, G. (1982) Rodents of the miombo woodland area; a nutritional ecological approach. *Ecol. Food Nutrit.* 11: 211–216.
- MARTIN, G.L. (1995) *Ethnobotany: Methods Manual* Chapman & Hall, London.
- MAUNDU, P. (1995) Methodology for collecting and sharing indigenous knowledge: a case study. *Indig. Knowl. Devel. Monit.* 3: 3–5.
- MEDIN, D.L. & ATRAN, S. (1999) *Folk Biology*. MIT Press, Massachusetts.
- NIKOLAUS, G. (2001) Bird exploitation for traditional medicine in Nigeria. *Malimbus* 23: 45–55.
- NIKOLAUS, G. (2011) The fetish culture in West Africa: an ancient tradition as a threat to endangered birdlife? Pp. 145–150 in SCHUCHMANN, K.-L. (ed.) *Tropical Vertebrates in a Changing World*. Zoologisches Forschungsmuseum Alexander Koenig, Bonn.
- OKIWELU, S.N., EWURUM, N. & NOUTCHA, M.A.E. (2009) Wildlife harvesting and bush meat trade in Rivers state, Nigeria: species composition, seasonal abundance and cost. *Scient. Afr.* 8: 1–8.
- SOEWU, D.A. (2008) Wild animals in ethnozoological practices among the Yorubas of southwestern Nigeria and the implications for biodiversity conservation. *Afr. J. agr. Res.* 3: 421–427.
- TIDEMANN, S. & GOSLER, A. (2010) *Ethno-ornithology: Birds, Indigenous Peoples, Culture and Society*. Earthscan, London.
- TOLEDO, M.P. (1992) What is ethno-ecology? Origins, scope and implications of a rising discipline. *Etnoecológica* 1: 5–21.
- TRAFZER, C.E., GILBERT W.S. & MADRIGAL, A. (2008) Integrating native science into a tribal environment protection agency. *Amer. behav. Scient.* 51: 1844–1866.
- URBAN, E.K., FRY, C.H. & KEITH, S. (eds) (1986) *The Birds of Africa*, vol. 2. Academic Press, London.