

Bird-liming in West Africa: Notes Towards a Geographical Appreciation

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“La coutume de tender des gluaux s'est propagée, généralisée et continuée en tous pays: tirée du suc des plantes ou de l'industrie, la glu est un des moyens les plus efficaces pour les destructions en masse, qui permet d'opérer sans bruit ni appareils compliqués et encombrants à transporter.”

Edouard Mérite *Les Pièges* (1942/2011:239)

Èyẹ kí lo máa pa tí ò nífi àkùkọ ẹ oògùn àtẹ?

What sort of bird do you hope to kill that you use a cock as the birdlime charm?

(It is unreasonable to expend something of great value in pursuit of something of lesser value)

A Yoruba proverb from Owomoyela (2005:168)

Introduction

The use of sticky substances of vegetal origin to trap birds has been practised since antiquity across at least¹ three continents (Africa, Asia and Europe). Lagercrantz (1950) provides in just over two pages probably the only overview of bird-liming for

Africa. His accompanying map—see Annex A—showing what he calls a “remarkable distribution on Madagascar and Zanzibar, as well as in the coastal region of the Tanganyika territory and the tracts around Lake Nyassa” is advanced as another point in favour of an outdated argument² he first made in his 1938 thesis linking the origins of the practice to Indonesia. The paucity of West African examples in Lagercrantz's map (six dots) visually supports his theory of a westwards spread of the technology, but there is no supporting evidence to show how thorough his research was³ and absence of the technology is not mapped. Lagercrantz's African field experience is unknown, but for anyone who has come into direct contact with sticky plant latex or seen insects and other things adhered, it should come as no surprise that people have put these properties to uses such as bird-catching⁴: multiple convergent evolution is clearly a valid alternative hypothesis.

For a geographer, understanding the distribution of bird-liming and its absence in West African societies is but a gateway to wider questions about the method, such as who practises it, where, when, how and for what purposes. My interest in this subject was piqued during some exploratory ethno-ornithological research in Liberia, in which informants reported bird-liming as a practise which had no doubt enhanced their knowledge of birds. Wanting to find out more about this activity, I explored the literature and discovered only slim pickings. Herewith is a first attempt to assemble what little seems to have been documented with the intention that by highlighting the gaps, it may eventually result in a richer geographical appreciation.

Limitations: This note was put together without being able to pursue obscure print references as I usually do, and thus has several lacunae which will hopefully be addressed in the future. Chief amongst these is John McEwen Dalziel's 1937 *The Useful Plants of West Tropical Africa*. Some of the bird-liming information in this work made it into the six-volume revision edited by Humphrey Burkill between 1985 and 2004. Thanks to the Global Plants database⁵ I was able to search this revised version through free text searches for “birdlime” and “bird-lime” and when I refer to this source, I use the acronym UPWTA. However, by chance possessing a page from Dalziel's original, it is evident that much of his details on bird-liming didn't make it over to Burkill's revision. At times relevant information gleaned in UPWTA is referenced to Dalziel's original and other sources, some of which are I presume collecting notes: when this is the case, I give the references in italics within square brackets.

Structure: The data assembled are presented by country starting in Niger and working clockwise round to Senegal. No data have so far been found for seven countries (Benin, Burkina Faso, Guinea Bissau, Mali, Mauritania, The Gambia and Togo). The note ends with a tentative summary.

1 Though Blench (2012) states there is no record of bird-liming in the New World, this is incorrect. A quick internet search finds for example a passing reference of “Indians” catching birds with lime in Florida for export in the early 19th century (Dodd, 1946) and Penard & Penard (1925) describe in some detail this activity in Surinam. Anell's (1960) review of trapping in Australia and Oceania mentions it only in Tahiti. Though in all these instances it is possible the technique was imported and thus has limited historical depth, I believe the likelihood of indigenous innovation remains high. More research is needed into its global practise, but that is beyond the scope of this note.

2 See Blench (2007a) on the origins of the 'Indonesia-Africa' hypothesis. Although outdated in many aspects, there is nonetheless increasing evidence of cultural contact between Indonesia and East Africa.

3 I use the regional term to cover the fifteen continental nations as per the UN subregion definition.

4 MacPherson (1897: XXIX) also makes this point.

5 <https://plants.jstor.org>

Niger

The evidence gathered so far of bird-liming in Niger is uncertain. In Bargery's renowned *Hausa-English Dictionary* (1934), there is an entry referenced to the relatively small Tessaoua dialect area of central Niger for *ma'daro*, which is described as “A kind of bird-lime made from the shrub *ayyara*.” Blench (2007b) identifies this as the shrub *Euphorbia balsamifera*. This is a fairly localised name for a plant more widely known as *aguwa* and indeed Blench links it to the Katsina dialect, which neighbours Tessaoua but over the border in Nigeria. The UPWTA entry for this *Euphorbia* using a modified Hausa orthography, notes: “The latex is viscously tacky and is used in N Nigeria to make a bird-lime (*maḍoro*: Hausa) to catch crickets, etc.” The implication is that it is perhaps not sticky enough⁶ to catch birds on its own, but that is not to say it may not be used for this purpose—see below.

For the Kel Dinnik Tuareg who live in the Tamesna region north of Tahoua, Nicolas (1957) indicates that their word *tāyalt* is used for both *Euphorbia balsamifera* and birdlime. Again this reference doesn't provide any evidence of bird-liming to catch birds as the French term employed (*glu*) is not necessarily unique to this use.

With the above imprecision regarding the use of the sticky properties of *Euphorbia balsamifera* latex to catch birds, this requires documentation to be resolved. Without it, generalised claims to this use, as found for example in Arbonnier's (2002) guide to the woody elements of the West African dry zone, I don't think should be taken at face value.

* * *

Nigeria

The northernmost evidence for bird-liming in Nigeria I have found so far comes again from Bargery's Hausa dictionary (1934) where the entry *barami* is described as “a type of bird snare in which bird-lime is used” for which he gives the Katsina (*burkyal*) and Daura (*birkeli*) dialect homonyms. Unfortunately I have found no other reference to this trap which might reveal its mechanism and the type of bird-lime used with it. Though the *Ficus* discussed below is a likely source, it can also be speculated that the less sticky properties of *Euphorbia balsamifera* latex could be amplified with such a trap. Whilst this remains to be determined, it can be noted that traps combined with birdlime are widely known—Mérite's (1942/2011) chapter devoted to “les gluaux” provides probably the best, albeit meandering, overview of them—but I am not aware of any examination anywhere as to why they are employed together in certain circumstances.

For latitudes extending further south, Dalziel (1937:281) provides the following information regarding *Ficus platyphylla*:

“In N. Nigeria the latex, heated or chewed, is used by hunters to catch the Ground Hornbill, the sticky substance being smeared on the head of a dummy bird carried on the hunter's head as a decoy. It is used as bird-lime wherever the tree occurs.”

The adhesive strength of this *Ficus* would appear significant if it can hold, however briefly, a large

⁶ Perhaps of relevance, Chevalier (1933: 534) notes that despite great colonial hopes for the potential economic value of its latex in the period 1895-1900, tests showed that after coagulating through boiling, it soon dries to a hard, brittle resin.

bird such as the Ground Hornbill (*Bucorvus abyssinicus*) which weighs about 4 kg. However, there are reasons to be a little cautious with this claim. The Hausa term *burtu* is used both for this hornbill and the decoy which is often made from its skull, bound in leather atop a wooden S-shaped neck (Burmeister, 2000). Though there might be reasons to catch a *burtu* with a *burtu* in this manner, these decoys are typically employed to lure mammals and birds either into traps or within shooting distance (*ibid.*). Questions also have to be asked about the potential stickiness of a substance that is first chewed. In this regard Brand (1940) provides a fascinating overview of how the colonial authorities in northern Nigeria tried to re-stimulate trade in this latex after the decline of the wild rubber trade⁷ with American chewing gum 'interests'. This led to a survey in 1936 which enumerated nearly a quarter of a million trees in a “definite zone between latitudes 11 and 13” across Kano, Katsina, Sokoto and Zaria provinces. This trade was however short-lived collapsing after 1938-39 because “The gum, it seems, has some undesirable characteristic that the chewing gum chemists at first thought they could overcome but which later defeated them.”

UPWTA provides three references to plants used for bird-liming in Nigeria. Starting first in the north, perhaps, with the mistletoe/tree parasite, *Globimetula oreophila*, it notes: “In the NE State of Nigeria the plant is used in preparation of bird-lime” [Ref. Chapman 3740]. As the African Plant Database entry for this species⁸ only maps a record in SE Nigeria, the locality in the UPWTA entry may be erroneous.

In the Middle Belt, starting around 9° latitude in the gallery forests of the southern Guinea savannas and extending into the tropical forests to the south, grows a large liana that also played a bit part role in Nigeria's wild rubber trade, *Landolphia hirsuta*. The UPWTA entry notes: “When coagulated by boiling and stirring a sticky product results which has been widely used as bird-lime, and is an excellent adhesive. Coagulation can also be achieved by addition of lime-juice.” One of the Yoruba names given for this vine is useful: “*ate* general for any plant yielding birdlime, but especially this sp. [Mackay]”. The Yoruba proverb cited at the beginning of this note indicates that the name *àtè* can refer to both the plant and the product, as in the Tamacheq example from Niger. This proverb has an interesting footnote that adds a further morsel of information as to how the craft of bird-liming can, in some places, be practised: “Birdlime’ is a sticky trap for birds to which a charmed or magical item may be added to make it more effective” (Owomoyela, 2005:168).

The final UPWTA entry relevant to Nigeria is for the shrub or small tree *Voacanga africana* found in the south of the country, for which it simply notes: “Latex from the fruit is used in Nigeria to make a bird-lime [Chesters *fide* 5].”

From the southern forest region come four other sources of information on bird-liming in Nigeria. The first is a somewhat unclear entry in Melzian's (1937) dictionary for the Edo (also called Bini) language of Benin: “*uho* [...] a trap for birds: lime obtained from a creeper.” Perhaps this is another case of a trap that utilises bird-lime, but hopefully enquiries around Okomu National Park will provide clarification in due course.

In the isolated Efik community of Creek Town in Calabar, Simmons (1957:91) notes:

“Small boys hunt birds with birdlime, arrows and traps. All species of birds are hunted except those regarded as omens or harbingers of good fortune such as the vulture. Branches are rubbed with latex to catch small birds.”

7 I have yet to find a countrywide work on this relatively short-lived trade for Nigeria, which started at the end of the 19th century and declined within about 20 years, but Fenske (2012) gives a useful overview for the Benin Kingdom.

8 <https://africanplantdatabase.ch/en/nomen/25683>

The third is from the British colonial administrator, Sir Alfred Moloney, whose name we will encounter again shortly, who provides the following reference in his pioneering book on West African forests in the section on the Liliaceae (1887: 434): “The seeds of an unknown species of *Smilax* are used by the natives of Lagos to make bird-lime. — Kew Museum. Coll. Mr. Barter.” The collector referred to is Charles Barter who was the Kew botanist on the 1857 Niger Expedition from which he didn't return—see Hepper (2005) for an account of his work on this ill-fated journey. More details may lurk in the Kew collection⁹. I suspect that this may be the source of the information for the dot on Lagercrantz's (1950) map for an area he describes as “southern Nigeria” but falls on the Lagos area.

The final source is unique in the information assembled in this note in that it is the only one emanating from ornithologists. Putting aside the *burtu* method described above, it also stands out in being the only known documentation of a bird-liming method in the region that is closer to active hunting than the more conventional passive trapping method¹⁰. It concerns the exploitation of the massive roost of Barn Swallows (*Hirundo rustica*) that is found between October and March in the five metre high elephant grass near the village of Ebbaken-Boje in the Mbe Mountains of south-eastern Nigeria. In 1995 European ornithologists began to investigate this roost of millions of birds, whose numbers are hard to quantify but is thought to be the largest on the continent. John Ash's early report (1995: 8) notes:

“Information we gathered suggests that local people have exploited these Swallows as a source of animal protein for at least sixty years in this protein-starved land.

Those harvesting the Swallows use an ingenious technique on moonlit nights so as not to over-exploit the resource, at least on a seasonal basis. It also permits the birds to recover of there is over-disturbance.”

Though he doesn't describe this method, the follow-up Nigerian Swallow Project that was subsequently launched to provide alternate protein sources for the village had a painting in their publicity flyer of a man in the roost holding upright a long pole topped with what Griffin (2006:6) later described as “...an umbrella contraption made of palm fronds, coated with a forest-sourced “glue””. Sam Olukoya writing about the pre-project situation for the British newspaper The Independent describes the technique a little differently in an article¹¹ dated 18 February 1996:

“Each evening, before the swallows return, the villagers lay in ambush in the grass with home made traps in hand. These consist of a yam cut in half with a long stick at its base. Twigs are inserted all over the rounded side of the yam. Homemade adhesive of palm resin and water is spread over the twigs. Once the swallows begin the dive into the grass, the device is raised and swung in the air.

A sad end awaits any swallow that falls in contact with the trap. Glued to the twigs, they are pulled off and thrown into sacks after their wings have been broken. Back in the village, they are prepared in a stew. Villagers say the

9 Barter letter to the Director of Kew, Professor Sir William Hooker, sent from Lagos on the 6th February 1859, may be useful: a summary is available at <https://www2.calmview.co.uk/kew/calmview/Record.aspx?src=CalmView.Catalog&id=DC%2f59%2f74&pos=7>

10 Though it appears to be the far rarer method in the albeit limited global documentation of bird-liming, Kimpouni *et al* (2014) describe a similar technique among the Tsaaya of the Massif du Chaillu in northern Congo-Brazzaville which seems to be used on non-roosting birds. Mérite (1942/2011: 241-242) also describes, sadly in scant detail, a similar long pole method in India.

11 <https://www.independent.co.uk/news/world/nigerians-taste-for-a-bird-proves-hard-to-swallow-1319583.html>

swallows taste good. "God has created these birds to be eaten," says Boniface Ofre, chairman of the community.

Those birds they don't eat they sell in neighbouring villages, to generate much-needed income. Ferdinald Obi a 15-year-old student, says he sold hundreds of the birds to pay his school fees. Ornithologists reckon that as many as 200,000 are caught and eaten each winter. ”

* * *

Ghana

In a letter dated 3rd December, 1889 outlining the West African indigo trade, the former Acting Governor of the Gold Coast, then Governor of Lagos Colony, Alfred Maloney, ends with the following note¹²:

“On such a wide and well established basis to work as I have here briefly sketched, surely there is room for further enterprise and hope in indigo, as an addition to our exports from West Africa, especially when so often so much comes from so little, for as an instance you know that from the bird lime of the Tchis of the Gold Coast, the coagulated juice of the landolphia and wild fig, there has resulted since 1882 a rubber industry of the value to that Colony of £244,177, or nearly a quarter of a million of money.”

At the time of writing, in some circles, Alfred Maloney was considered the founder of the Gold Coast rubber trade, but as Dumett (1971) shows, this was an exaggeration. What is undoubtedly true however, as he states himself above, is that he developed tapping methods of *Landolphia owariensis* vines on the basis of knowledge he had gained from Tchi (Twi) bird-limers. These vines produced a rubber called 'white ball' or 'Krepi ball' which was graded ahead of most other African rubbers and had a price almost equal to Brazilian Para rubber (*ibid.*). The downside was that *Landolphia* vines were more dispersed and much harder to exploit than the abundant *Funtumia elastica* trees that produced a lower grade rubber that was nonetheless the mainstay of the Colony's trade. For a start the harvesting method was both destructive and hard work as the vines needed chopping and hauling down from the trees they entwined. Far more problematic however was the extremely quick coagulation time for the latex following air contact (*ibid.*). Dumett (*ibid.* p. 88) describes the solution but unfortunately doesn't elaborate on it's origins:

“The purity of white ball rubber (about 90 per cent caoutchouc) was ensured by a clever method of extraction wherein the tapper, first smearing his hand with lime juice to prevent sticking, rolled the latex out of small cuts in the vine through his fingers into a ball like silk into a cocoon.”

The UPWTA entry for *Landolphia owariensis* indicates some important nuances in the coagulation challenges of this vine that suggest that Dumett has over-simplified them:

“Usually it coagulates immediately, but at some seasons or at certain places it remains fluid enough to run into a collecting vessel when coagulation is done by

12 Source: JSTOR Primary Sources, 01-01-1890 Available at: <https://www.jstor.org/stable/60229548>

lime-juice or salt-water [*Dalziel, 1937*]. The resultant rubber is of good quality, but latex from some lianes will not coagulate and remains tacky.”

Examination of the arts of bird-liming among the Twi could be revealing in terms of vine selection and latex handling strategies and may also help identify the role of the wild fig Maloney mentions. One likely candidate is *Ficus natalensis leprieurii* which under the name *F. leprieun* is known to be used for this purpose in Ghana (Abbiw, 1990). It is interesting to speculate, but harder to determine, if bird-lime sources changed with the over-exploitation of *Landolphia* vines during the rubber years as Dummet (1971:88) suggests they were diminishing by the end of the 19th century. Curiously Abbiw (1990) only notes *Landolphia dulcis* and *L. hirsuta* as birdlimes in Ghana but not *L. owariensis*.

Lagercrantz (1950) gives a passing reference to bird-liming “from Ashanti (e.g the Akwapim)”. Since Asante and Akuapem are often grouped together as Twi dialects of Akan, it is possible that his source here relates back to Maloney. Lagercrantz also maps a second location for Ghana lying on the lower Volta river, which is perhaps outside the Akan language area. Not far from this map point is a brief more contemporary record of bird-liming in the Ho District in a entry [for *Asamoah, 1985*] in Falconer & Koppell's (1990) annotated bibliography which states that the gum of the tree *Chlorophora excelsa* is used here as a bird trap.

* * *

Côte d'Ivoire

Summarising a 1995/6 hunters survey that interviewed more than two thousand people across the country, Caspary (1999:77) notes that 16% of hunters used a category of tools he calls “other traps (obstruction, wrist, lime trap)”. For the purposes of

this note, this is an unhelpful grouping and he goes on to describe, rather poorly, that a lime trap is “used to trap birds by means of a board painted with strong lime extracted from liana. The trap is not selective.” Fortunately two other passing references provide a little more detail.

Bonnéhin (2000: 27) notes the following use of the fruit of the tree *Tieghemella heckelii*:

“La pulpe, parce qu'elle contient du latex, est utilisée dans la chasse traditionnelle comme piège à oiseaux et rats et comme appât pour les poissons.”

With specific reference to two forest reserves in the west of the country (Haut-Sassandra and Scio) Tra Bi *et al.* (2005:173) note:

“*Landolphia membranacea* is sought for its sap. The sap is mixed with lemon juice or extract of the stem of *Costus afer* (*Zingiberaceae*), which gives a viscous substances used to catch small rodents and birds.”

* * *

Liberia

From the 13th February to 2nd March 1928, George Schwab and his wife who constituted the Peabody Museum Expedition team to Liberia, made anthropological investigations among the Mano. They undoubtedly received help in this regard from the missionary doctor George Harley who hosted them at Ganta and contributed to the belated writing up of the report in which the following is noted (Schwab, 1947: 79):

“Birdlime. Birds are limed by spreading on tree branches a sticky substance obtained from the latex of vines, trees, or fruit. In Mano we met a birdlimer carrying a small pot of it which he called *de*. A vine like the one from which the substance had been obtained happened to be growing near the trail. Our boy from the Cameroun recognized it as one that his people used for the same purpose. The Gio use a sticky, rubber-like substance washed out from the fruit of a magnificent forest giant which is called "rubber tree" by the Liberians.”

Somewhat confusingly in the report's glossary, *de* is said to mean a pot of birdlime whereas *dèè* is actually the Mano term for latex and by extension birdlime and rubber and nowadays also plastic. The “rubber tree” referred to is either *Funtumia africana* or *F. elastica* but I suspect it is the former. Several authors have noted the two species are similar and easy to confuse (e.g Cooper & Record, 1931) and they also share the same Mano name, *sekelay* (Marshall & Hawthorne, 2013). A key difference is their latex, that of *F. africana*, called the False Rubber tree by Unwin (1920:79) who states “the rubber is useless, being sticky, like birdlime”, whereas the True Rubber tree, *F. elastica* has a rubber latex.

The German anthropologist Etta Donner, who made two trips to Liberia (1934/5 and 1936), visiting Sanniquellie on both occasions, recorded some historical notes from a Mano informant called Cole who was the market inspector at this town. It contains the following snippet of relevance (Donner: 1939: 177):

“Die Mano-Leute kamen herunter und bauten sich ein Dorf. Ihre Genossen erhoben sich, sie sagten: wir gehen Vogelleim (Gummi) setzen. Sie gehen und bereiten den Vogelleim, dann toten sie Vogel. Wie sie Vogel toten, schicken sie sie zu ihren Genossen ins Dorf. Sie taten dies oft. Da erhoben sich die Dorfleute und gingen (auch) dahin. Es blieb am Dorf; den Dorfnamen den sie ihm geben ist Gummi-Platz: Dekapeá”

“The Mano people came down and built a village for themselves. Their comrades got up, they said: we are going to put bird glue (rubber). They go and prepare the bird glue, then they kill bird. As they kill birds, they send them to their comrades in the village. They did this often. Then the villagers got up and (also) went there. It stayed with the village; the village name they give him is gum place: Dekapeá”

George Harley, who was to continue his work at Ganta until 1960, in his book on African medicine, that was focussed on practises among the Mano, notes (1941:84) in passing that *yei zolo*, the herbaceous climber *Cissus Barteri*, is a source of bird lime.

A fourth reference to bird-liming among the Mano comes from Kjell Zetterström's ethnographic research in Yarmein clan (November 1966 to October 1970) and probably more specifically in Bonah where he was based. He notes (1976: 55), making, for unknown reasons, a comparative reference to Lagercrantz's thesis mentioned in the introduction:

“Bird lime is used by the Mano. It is however, not used very much today and only a few, old specialists know of this method (cf. LAGERCRANTZ, 1938 pp. 125f.)”

In April-May 2014, I trialled a method to elicit Mano bird names using a locally relevant selection of the Chappuis recordings (2000) in the town of Lugbeyee, which neighbours Bonah cited above. This was done over three sessions and in one of them a man participated who said he had learnt many bird names because an old pappeh had taught him how to make birdlime from the *kpo* tree (*Tieghemella heckelli*). He noted that when this is placed near a drinking spot in the dry season, it is possible to catch lots of small birds. Unfortunately I didn't ask him any further questions, but his knowledge gained from this activity was clear in the session in which he participated.

In July 2015, I repeated the bird-naming exercise in much better conditions in the town of Seyi Geh, the other side of Bonah, about 23 km from Lugbeyee, where a different dialect of Mano is spoken. At the second session, on 19th July, the recording of the Little Greenbul (*Eurillas virens*) elicited the name *pùlù*, which led to an eight minute recorded discussion on bird-liming, which was not only a practice of at least one of my three informants, but also of my translator. The following provides a summary of the information obtained:

- The name *pùlù* derives from the verb to jerk out something such as a thorn because when this bird is caught, it talks too much so you jerk it off the lime stick. The same name was also elicited from the recording for this species at Lugbeyee though the meaning of it was not known. It should be noted that until a bird-liming session is observed, it can't be certain that the Little Greenbul is the trapped bird in question: it is one thing to recognise its distinctive and ubiquitous call, but another to relate this hard-to-see and rather nondescript bird with similar species in the hand unless, perhaps, it has a familiar distress call. That said, this species was found to be the most common bird of both the rain forest interior and deforested zone sites in a Liberian study (Kofron & Chapman, 1995), so is a highly likely capture candidate.
- Bird-liming can be done by children, but given the skill needed to effectively set out the limed sticks, experienced men are more likely to get a bigger catch.
- Limed sticks are typically set up near a stream in the dry season to entice them to perch after bathing. The calls of the glued birds apparently attract others including different bird species and sometimes even snakes, which can then get trapped.
- It was claimed that in a good session, up to 400 birds could be taken. Once again, participant observation of bird-liming sessions are essential to verify this claim. Whilst mixed species parties are a common feature of Afrotropical forests, these numbers are higher than numbers recorded (Craig, 2022): perhaps though they are different phenomena, more of an aggregation or the multiplier effect of calling trapped birds should not be discounted.
- Bird lime is also sometimes placed on the cleared ground around a certain tree (not identified) and if it is “bugabug” time, i.e. when the termite alates take wing, typically around the first rains at the end of the dry season, they can be used to bait the lime.
- Troublesome raptors preying on chickens can be caught by baiting a limed stick with a chick whose distress vocalisations will attract the felon.
- The birdlime is made from the pulp of the fruits of the *kpo* tree (*Tieghemella heckelli*) which are available from January to February—Voorhoeve (1965) however notes they ripen earlier than this (October to December). These trees are not common in the area, it is both naturally rare (*ibid.*) and a popular timber species, but at least three were known locally.
- After peeling, the pulp is mashed and washed which turns it to chiclet (chewing gum). This

then needs to be heated in a pot to activate it, but not too hot, so it becomes soft and can be wrapped around clean sticks. Birdlime that has already been used and is full of feathers can apparently be re-heated, cleaned and used again.

References to birdliming elsewhere in Liberia are scarce. Voorhoeve (1965) notes the use of *Tieghemella heckelli* for this purpose without being specific, though he gives Mano, Dan and Krahn names for the tree, so it is likely to be more widespread.

In their dictionary of the Kpelle language, Leidenfrost & McKay (2007: 227) have an entry, which we will see in the following section is mirrored in a Guerzé (also called Guinea Kpelle) dictionary, where a tentative identification is presented. The full entry is presented here to aid future confirmation:

“**pili**: tree species; strangler fig, grows as a parasite on other trees like a vine; color light brown, sap is white. Sap is used with lime juice to catch birds. It is placed on long sticks 45 degrees above bathing place for birds. Bark is boiled to set bones.”

* * *

Guinea

Father Jean Leger (1975:166) has the following entry in his Guerzé (also called Guinea Kpelle) dictionary, which is remarkably similar to the Liberian Kpelle entry for the same word in Leidenfrost & McKay (2007) presented in the preceding section: there is no evidence however that they influenced each other:

“**pili (puli)** n Espèce de ficus parasite : il pousse toujours sur un autre arbre; il finit souvent par tuer son support et devient alors lui-même un arbre, ne gardant que le tronc de celui qu'il a tué ; ses fruits ressemblent à des figues, mais on ne les mange pas car elles sont très amères, on les laisse aux escargots et aux porc-épics ; on attrape les oiseaux avec sa glu; on prépare beaucoup de remèdes avec ses feuilles (**pili-la**)

Deux variétés : **pili-la-pèlè** Variété à petites feuilles.

pili-la-kpea-kpea Variété à larges feuilles”

In the UPWTA entry for *Ficus tesselata* (synonyms *F. camptoneuroides* and *F. winkleri*) are the Guinea Kpelle (and Toma) names *pili*, sourced to the unknown initials FB, but I have yet to find evidence that this is a strangler fig, so this identification remains tentative. Leger (1975: 92) also has this entry on one birdliming target:

“**kpala-wèni** n Petit oiseau insectivore, à gorge rouge ; vit dans la savane ; on les prend avec-de la glu, et on en fait des brochettes.”

The second part of this name is the generic word for bird and the first is perhaps from the verb to dry up or to lose weight, which could refer to the small brochettes obtained from it. Unfortunately the description is inadequate to permit a firm identification. However, very tentatively, if the insectivorous element is ignored, perhaps the best candidate with red near the throat and living in

savannas is the Black-winged Red Bishop (*Euplectes hordeaceus*). Being a known rice pest that forms small flocks this may enhance the reason and ease of targeting it, but field confirmation is required: it certainly could be much better described if it is this species.

Lagercrantz (1950) maps and mentions that the Koniagi and Basari use birdlime. These people are two sub-groups of the Tenda who live in the border region of north-west Guinea and south-east Senegal. I suspect Lagercrantz's source for their birdliming is Delacour (1913:149) who notes in relation to those on the Guinea side:

“L'art de prendre les animaux au piège n'est pas inconnu : ils savent utiliser les pièges à trébuchet (anyèdye) pour capturer des animaux de petite taille, ils savent étrangler les oiseaux à l'aide de lacets (anyeb) et les prendre avec de la glu (*ipè*) fabriquée avec l'écorce d'un arbre.”

Based on fieldwork with these populations in this area in 1946 and 1948-49, the anthropologist Monique de Lestrangé (1955: 26) notes simply:

“Les pièges sont aussi employés: les enfants prennent les oiseaux à la glu ou avec des lacets d'écorce.”

Work in the area with her future husband, fellow anthropologist Robert Gessain, was then terminated by Sékou Touré's revolution and they shifted their studies on the Tenda over the border to the Kédougou region of Senegal (Gessain, 1989). Here a wealth of long-term multi-disciplinary studies on topics such as diets and various ethnobiological topics were conducted over many years and it is hoped more details on bird-liming will in due course be located within them.

Lagercrantz (1950) also maps and mentions that the Susu use bird-lime but his source of information is unknown. Though the majority of the Susu live in the south of the Guinée-Maritime province, they also extend over the border to north-west Sierra Leone.

* * *

Sierra Leone

UPWTA provides four references to bird-liming in Sierra Leone. In alphabetic order, these start with the shrub or tree *Anthostema senegalense*, for which it notes:

“Latex is present in the bark, young shoots, leaves, flowers and fruit. It is very toxic, acrid and vesicant. It is harmful to mucous membranes and it is known to all races as being very dangerous to the eyes and capable of causing blindness..... It is used in Sierra Leone [Deighton 1342, K., Macdonald 6/1922 K and Savill & Fox, 1967], as a bird-lime on account of its great tackiness.”

Savill & Fox (1967) actually add a possibly important detail that this latex is *sometimes* used for this purpose which perhaps implies it is a less popular source than others.

It then has relevant entries for two species of *Landolphia* vines. The first for *L. dulcis* states:

“The bark yields an abundant white latex which does not coagulate but yields a sticky substance used in Sierra Leone as a bird-lime [*Dalziel, 1937* and *Scott Elliot 4294, K*].”

The second for *L. owariensis*, quoted already in the Ghana section, adds this further detail:

“This is commonly used as a bird-lime to catch small birds and other animals [*Pichon, 1953: 109–28*], especially on rice farms in Sierra Leone to trap birds depredating the crop at ripening time.”

The reference is undoubtedly Pichon's monograph on the *Landolphia* genus which I have yet to locate, but it may contain further details on this interesting pest targetting use.

The final relevant UPWTA reference is for the liane, *Vahadenia caillei*, for which it simply notes:

“The latex is tacky and is used in Sierra Leone as bird-lime.”

In contrast to their 'sometime' use of *Anthostema senegalense* for bird-liming, Savill & Fox (1967: 191) have this interesting note:

“The latex from *Ficus vogelii* (Miq.) Miq. was tapped in Sierra Leone in 1911 to produce a second grade rubber and the latex from this, and other species, is commonly used today in the preparation of bird lime.”

The final source of information for Sierra Leone is from an entry in Gordon Inne's Mende dictionary (1969):

“*kali* LH n. snake (general name)...*kali yeyakɔ* plant whose fruit is crushed to make bird-lime”

A very good candidate species for this plant is the woody vine *Rhigiocarya racemifera* for which UPWTA gives the Mende name¹³ *kali-yeakɔ*, but indicates no relevant usage. However, the entry for this species in Schmelzer & Gurib-Fakim (2008: 489) is revealing:

“The Mendes [sic] people of Sierra Leone prepare a snake repellent from the pulped stem, with clay and water; the mixture is rubbed on to the body.....Glue from the fruit pulp is used in crafting and as birdlime.

* * *

Senegal

Use of the dangerous to the eyes latex of *Anthostema senegalense* has been covered in the Sierra Leone section. UPWTA adds that in Senegal it is used “with the sap of *Hibiscus cannabinus* (Malvaceae) or allied species [*Dalziel, 1937: 136*].” What these additions do to the birdlime remains to be determined.

¹³ The source referenced here are the initials FCD, which is presumably to Deighton, F. C. (1957) *Vernacular Botanical Vocabulary for Sierra Leone*. London: Crown Agents for Overseas Governments and Administrations.

UPWTA has one further Senegalese birdliming reference, noting for an unidentified *Ficus* the Bedik name “*gi-twm* sap to make bird-lime (FG&G)”. The source of this information is unknown, but the initials do not seem to correspond with the authors of the major studies on Tenda ethnobotany, which I have not yet been able to consult—see Guinea section.

In their work on the ethnobotany of figs in Senegal, Diop *et al.* (2012) list four species whose latex is used for birdlime: *F. elasticoides*, *F. lutea*, *F. thonningii* and *F. trichopoda*. For the last species, they note that it is mixed with karité butter (also known as shea butter from the tree *Vitellaria paradoxa*) and specify that it is used for small birds, which perhaps implies it is not such a strong lime.

* * *

Geographical Round-up

If all the bilingual dictionaries of West African languages could easily be consulted and those with entries for

birdlime shown on a corresponding language map, the potential prevalence of bird-liming in the region would no doubt¹⁴ stand in stark contrast to Lagercrantz's (1950) cartographical effort—see Annex A. The information assembled here shows less visually that it is, or has been, practised across West Africa but thorough documentation¹⁵ is markedly absent bar perhaps the rather unique example at the massive swallow roost of Ebbaken-Boje. As far as I am aware, not a single case study of bird-liming exists akin to Kimpouni *et al.*'s (2014) in northern Congo-Brazzaville. However, with what has been gathered here, some very tentative outline answers to the basic geographical questions posed in the introduction can nonetheless be attempted. Though very provisional in character, by noting them here by way of a conclusion, it is hoped they can be examined and modified in the light of future detailed studies of the activity.

WHO? Although hunting and trapping are cross-culturally predominantly adult male activities, women and children sometimes engage in them in various and sometimes less visible ways (see for example Bonwitt *et al.* (2017) for a Sierra Leone study). Though no female involvement in bird-liming has, to my knowledge, been documented in West Africa, it's likely perceived lesser dangers¹⁶ compared to hunting and other forms of trapping may present lower barriers to involvement. On the other hand, three instances of children bird-liming have fleetingly been reported (see Guinea,

14 In the preceding sections I only included bilingual dictionary entries where they give some information about the practise. A quick scan of other dictionaries available to me finds simple birdlime entries for Grebo in Liberia (Anon, 2005), Nupe in Nigeria (Banfield, 1916) and Temne in Sierra Leone (Thomas, 1916). Furthermore, the absence of a birdlime entry in a bilingual dictionary may be the omission of the lexicographer rather than an indication of no bird-liming among the language speakers. Narrow translations of words to 'latex' or 'glue' may also hide bird-liming.

15 Oddly I have found no mention so far of this activity in two regionally orientated publications I would have thought highly likely to cover it, Notes Africaines and The Nigerian Field. Furthermore it remains to be seen whether it has ever been mentioned in Malimbus, the journal of the West African Ornithological Society and its predecessor, the Bulletin of the Nigerian Ornithologists' Society.

16 Women's exclusion from various activities dominated by men, be it trapping or cutting oil palm fruit, is often justified on the grounds of danger (e.g. Bonwitt *et al.* 2017 in relation to trapping). The hypocrisy of this is evident in for example women in the forest regions wading around in water bodies when basket and dam fishing. It should however be noted that bird-liming is not necessarily danger free: some plant latexes are harmful to the eyes and the calls of entrapped birds may attract snakes etc.—see Kimpouni *et al.* (2014) in relation to the *kisuesuege* method.

Liberia and Nigeria sections above) but without noting their gender. As children's bird-liming can easily be overlooked and under-reported it requires tailored research, especially as there may be cultural factors encouraging their participation in this activity that don't apply to adults.

In a somewhat unique bushmeat study purposefully focussed on a game-poor area of Senegal (a Sereer village in the Fatick region), Vincke *et al.* (1985) found that birds, by number were the most consumed class of animal and that children aged 8-16 were specialised in their capture by methods which sadly they do not elaborate. The explanation for their specialisation is to rectify a food “injustice” whereby meat is reserved for adults: they cite further examples of this among other ethnic groups in Senegal and go as far as to state this exclusion, which may also apply to women, is almost universal in Africa. As a result hunting by children can become a hidden activity:

“C'est ainsi que les enfants et même les adolescents ne ramènent souvent pas le produit de la chasse à la maison, mais le font griller en brousse et le consomment sur place.” (*ibid.* p.142)

In Sierra Leone, Bonwitt *et al.* (2017) note likewise that due to the mirroring of the Mende family hierarchy in food distribution practises, where children come last after women, they are disinclined to bring home any wild meat they procure and may prefer to eat it covertly in the bush at events called “boy's cooking”.

A potentially significant corollary of this food injustice is that because catching birds and other small game may be a speciality of children, teenagers and adults who to do so can face social opprobrium—among the Sereer they are mockingly called mouse-eating adults (Vincke *et al.*, 1985). Shame in some social settings in West Africa could therefore be a factor limiting disclosure about bird-liming.

Extending a little further the reflection on who engages in bird-liming, it is worth considering that in some instances it could also, by virtue of it's less arduous nature compared to other means of acquiring animal source foods, be a particular practise of those with reduced physical activity such as the elderly.

WHERE? The information assembled in this note doesn't permit the determination of any spatial patterning in the practise of bird-liming. There are however grounds to hypothesise that it might be more prevalent in the forest zones of the south. One structural influence for this could be the availability of birdlime producing plants. It has been suggested that at the global scale the number of latex producing plants increases in lower latitudes (Lewinsohn, 1991) though this has been challenged (e.g. Moles *et al.* 2011). However, at a finer scale, this increase has been demonstrated in Nigeria at study sites from 7° to almost 13° (Papi & Onaji, 2019).

It should be stressed however that in and of itself, a greater choice in bird-liming products is not a determining factor: social influences such as those shaping dietary choices and appropriate ways to acquire animal source foods are ultimately more significant. Limited knowledge of the range of bird-liming techniques employed in West Africa also hinders our ability to examine potential factors shaping the activity: whilst it may be possible to catch chicken hawks with birdlime in all settings across the region, differences in bird aggregating behaviour in different habitats may influence the effort needed to achieve larger food orientated catches and thus the popularity of the technique.

WHEN? The temporal elements of bird-liming can be reduced to two basic dimensions, seasonal and historical. A clear seasonality in the practise was expressed by my Mano informants in Liberia and obviously harvesting could only occur at Ebbaken-Boje in the months when the swallows were roosting. I suspect that throughout the region when pursued for food acquisition, bird-liming will have a marked seasonal dimension, be it because of bird behaviour, availability of birdlime sources or for those involved, their time availability and/or their food needs.

In terms of historical trends in bird-liming, these are likely to vary at a local scale. Predicting its demise, as we have seen with my Mano information is unwise. That said, there may be grounds to speculate on change directions. Increases may occur where there has been a decline in the availability of other animal source foods: a increased role of birds in local diets, though not acquired with birdlime, has for example been noted for this reason in Benin (Malimbus 2022 ref). Changes in the opposite direction could occur with livelihood shifts such as an increased role of non-farm activities or changes in children's free time through increased schooling. Regarding children and bird-liming, it has occurred to me that the increased availability of strips of durable industrial rubber has made catapults more accessible and bird-hunting with “rubber guns” as they are called in Liberia, has increased due to its greater sporting appeal than the patience required for bird-liming. Only detailed case-study research can reveal any such trends.

HOW? Despite the lack of detail on bird-liming practises assembled in this note, it is clear it can be done in a variety of ways: simply smeared on perches, baited with termite alates or a chick, primed with a charm, combined with traps and also as an active hunting strategy on a long pole.

With more documentation I strongly suspect further techniques will be found. To give some examples of other methods from Central Africa the Ngandu of the Tshuapa Province in north-west DR Congo place birdlime on partly submerged sticks (Takeda, 1996) and among the Tsaaya of northern Congo-Brazzaville, Kimpouni *et al.*(2014) recorded five named methods. These include using a bird-caller to lure birds in, placing it directly on nestlings and ripe fruit and perhaps the most ingenious, though only occasionally practised, is placing limed perches in the path of an advancing column of driver ants.

In terms of birdlime sources, the information gathered here has found evidence of the use of 23 plants, though four of these require confirmation—see summary table in Annex B. UPWTA lists an additional six plants found in West Africa and used for this purpose but without providing country specific references—see Annex C. In due course, further plants are likely to be identified. Apart from some incomplete details from my Mano enquiries, little can be said about how these plants are prepared, though three of them are reportedly used in combination with other plants (see Annex B). More details are certainly required here. In some settings, there is likely to be a potential range of choice in birdlime sources and it is important to understand what shapes user preferences for some over others. Potential factors could be seasonal availability, cultural preferences, accessibility, ease of preparation, storage factors and perhaps also according to deployment technique and possibly even the target birds.

A final word on how bird-liming is done in the region is to highlight the importance of investigating potential local rules and customs surrounding the technique. The case of harvesting swallows at the Ebbaken-Boje roost suggests it may have been managed for at least 60 years as a common property resource with the activity limited to moonlit nights to avoid over-exploitation and roost disturbance. If other cases emerge of regular roosts being exploited with birdlime, the existence of such rules

should be considered. Individual bird-liming activities may also turn out to be governed by perhaps less obvious customs and local rules shaping for example how often favoured liming sites can be harvested and by whom, or proscribing the activity in certain areas.

WHY? Understanding bird-liming in West Africa simply as a means of procuring protein fails to see the whole picture. Conservationists have often made the mistake of thinking that a bushmeat they are concerned about can be replaced with another, typically domesticated, protein source. A more insightful approach is to first see where the food in question sits in the local animal source food spectrum and discern why and how it is appreciated, which may be taste related, the context in which it is consumed and how it is prepared. This work remains to be done for birdlime harvests.

The Edouard Mérite quote at the beginning of this note points to several factors which make bird-liming an attractive method for harvesting birds en masse (silence, simplicity and ease of transport). Setting aside its occasional use to target individual birds, it would be helpful to know more about the body size, number and species of birds caught collectively to evaluate bird-liming yields in comparative terms. My suspicion, based on the weights¹⁷ of the species noted above, is that it is most often deployed for, or successful with, smaller¹⁸ species: the only adequately documented species caught, *Hirundo rustica*, weighs 16-25 g and the two species with anecdotal or tentative evidence, *Eurillas virens*, 21-32 g and *Euplectes hordeaceus* 17-29 g. Given these low weights and further reductions before consumption, catching large numbers is clearly desirable. How large yields get remains to be seen, but I suspect they are typically modest and consequently birds are most often caught for the pot of the bird-limer and their family rather than for sale. Only with such data will the attractiveness of bird-liming compared to other methods¹⁹ of capturing the same birds in similar numbers be clear.

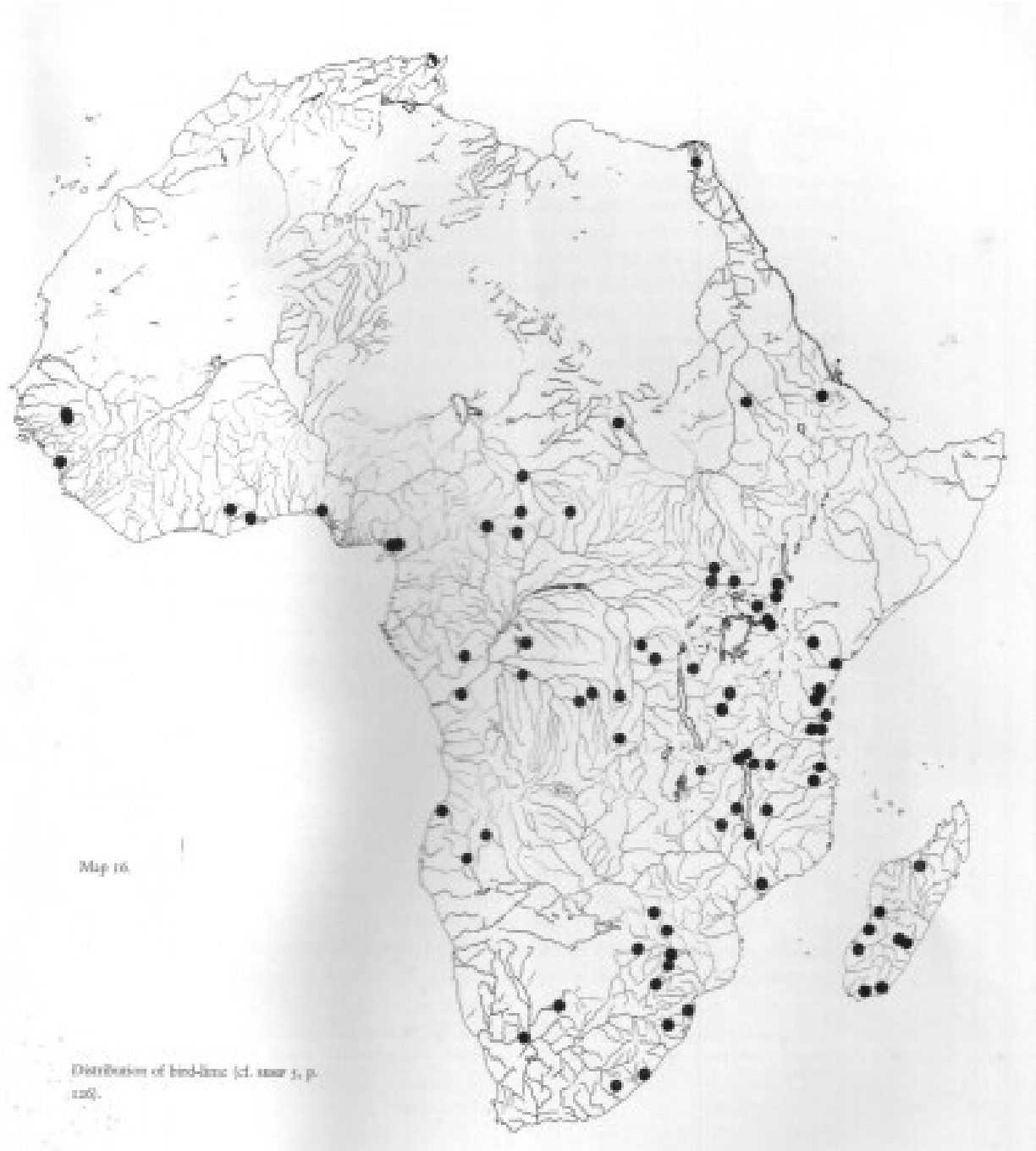
Bird-liming in West Africa is not only orientated towards food provision as the two cases of bird control mentioned above indicate, against chicken hawks in Liberia and crop pests in Sierra Leone, though ultimately these birds may be eaten. In due course I expect a couple of other purposes will be documented, namely to procure particular birds for therapeutic/cultural purposes and for the cage trade. In such instances, the immediate purpose of the bird-limer may be cash-orientated.

17 Weights from <https://www.oiseaux.net/>

18 Exceptions are bound to be documented in due course. For example, in south-east Gabon, birdlime is used to target flocks of migrating Abdim's stork (*Ciconia abdimii*) which can weigh over 1 kg (Walters, 2010: 211).

19 These might include nets, poisons or shotguns used with grit-filled cartridges—the latter method is reportedly used to kill bats in large numbers in Guinea (Bonwitt *et al.* 2017)

**Annex A:
Lagercrantz's (1950: 95) Map of Bird-Liming in Africa**



Annex B:
Country-Specific Records of Plants Used for Birdlime in West Africa

Species	Family	Parts Used	Where Used	Notes
<i>Funtumia africana</i>	APOCYNACEAE	Fruit	LB	Unconfirmed: <i>F. elastica</i> needs to be excluded
<i>Landolphia dulcis</i>	APOCYNACEAE	Latex from bark	GN, SL	
<i>Landolphia hirsuta</i>	APOCYNACEAE	Latex	GN, NG	
<i>Landolphia owariensis</i>	APOCYNACEAE		GN, SL	
<i>Landolphia membranacea</i>	APOCYNACEAE	Sap	CI	In CI mixed with lime or extract of the stem of <i>Costus afer</i> (Zingiberaceae)
<i>Vahadenia caillei</i>	APOCYNACEAE	Latex	SL	
<i>Voacanga africana</i>	APOCYNACEAE	Latex from fruit	NG	
<i>Anthostema senegalense</i>	EUPHORBIACEAE	Latex	SL, SN	In SN used with the sap of <i>Hibiscus cannabinus</i> (Malvaceae) or allied species
<i>Euphorbia balsamifera</i>	EUPHORBIACEAE	Latex	NE, NG	Use for trapping birds unproven
<i>Smilax</i> sp.	LILIACEAE	Seeds	NG	
<i>Globimetula oreophila</i>	LORANTHACEAE	? Fruit	NG	
<i>Rhigiocarya racemifera</i>	MENISPERMACEAE	Fruit	SL	Unconfirmed
<i>Chlorophora excelsa</i>	MORACEAE	Gum	GN	
<i>Ficus elasticoides</i>	MORACEAE	Latex	SN	
<i>Ficus natalensis lepreurii</i>	MORACEAE	Latex	GH	
<i>Ficus lutea</i>	MORACEAE	Latex	SN	
<i>Ficus platyphylla</i>	MORACEAE	Latex	NG	
<i>Ficus tesselata</i>	MORACEAE	Sap	GN, LB	Unconfirmed
<i>Ficus thonningii</i>	MORACEAE	Latex	SN	
<i>Ficus trichopoda</i>	MORACEAE	Latex	SN	Mixed with shea butter from <i>Vitellaria paradoxa</i>
<i>Ficus vogelii</i>	MORACEAE	Latex	SL	
<i>Tieghemella heckelii</i>	SAPOTACEAE	Fruit pulp	CI, LB	
<i>Cissus Barteri</i>	VITACEAE	Leaves?	LB	

Country Codes: CI = Côte d'Ivoire, GN = Ghana, GU = Guinea, NE = Niger, NG = Nigeria, LB = Liberia, SN = Senegal, SL = Sierra Leone

Annex C:
Non Country-Specific Records of Plants Used for Birdlime in West Africa from UPWTA

Species	Family	Parts Used	Notes: Form, distribution & uses from UPWTA entry
<i>Alstonia boonei</i>	APOCYNACEAE		A tree to 40 m high with high narrow buttresses, of the evergreen and deciduous forest in damp situations, throughout the Region from Senegal to W Cameroons. The latex is dangerous to the eyes and can cause blindness. It gives an inferior resinous coagulate which has been used to adulterate better rubbers. It has been used as a birdlime [<i>Dalziel, 1937</i>]
<i>Dictyophleba leonensis</i>	APOCYNACEAE	Latex	A forest liane occurring from Guinea to Ghana. The latex can be used as a bird-lime [<i>Dalziel, 1937</i> : as <i>Landolphia leonensis</i> Stapf.]
<i>Saba florida</i>	APOCYNACEAE	Latex	A liane of the closed-forest, fringing forest and savanna woodland, often on stream-banks, commonly throughout the Region from Senegal to W Cameroons. It is generally worthless as rubber, but occasionally good coagulum may be obtained. It has been used as an adulterant of the better quality rubbers. It is usable as bird-lime [<i>Dalziel, 1937</i> and <i>Pichon, 1953: 303–16</i> , as <i>S. comorensis</i> (Boj.)]
<i>Tabernaemontana pachysiphon</i>	APOCYNACEAE	Latex	A shrub or tree to 10 m tall in the lower storey of the closed-forest. Two varieties are recognized: var. <i>pachysiphon</i> in Togo, Dahomey and S Nigeria; var. <i>cumminsii</i> (Stapf) Huber from Ghana, Togo and S Nigeria. The plant has an abundance of white latex. It does not coagulate and has been used to adulterate better (Funtumia) rubbers. It thickens to a bird-lime and is used to trap birds and to mend broken pots and calabashes [<i>Boston C. 16, K.</i>]
<i>Voacanga thouarsii</i>	APOCYNACEAE	Latex	A tree to 13 m high, low-branching, sometimes stilt-rooted in swampy ground, of valley bottoms, ravines, swampy ground and stream-banks of the wooded savanna from Senegal to N Nigeria. The latex produces an inferior rubber, usable when mixed with others as a bird-lime and as a glue for fastening handles to knife-blades and to repair baskets [<i>Watt & Breyer-Brandwijk, 1962</i>]. The latex is vesicant on the skin and dangerous to the eyes.
<i>Cordia myxa</i>	BORAGINACEAE	Pulp	The plant is the sebesten of Egypt and of ancient cultivation. It occurs spontaneously in the Region [West Africa] around villages and old abandoned habitations. It may at one time have been cultivated in the western soudanian area. The plant has been valued from olden times for its sticky mucilaginous pulp which is edible and which is the source of the well-known medicine of the Near and Middle East called ‘sapistan’, useful for coughs and chest-complaints.....Also it has had widespread use as a birdlime.

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