AARDVARKS GO SHOPPING:

DAGOMBA CONCEPTS OF LIVING THINGS

[DRAFT CIRCULATED FOR COMMENT]

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1.1 Ethnoscience and development

Ethnoscience may be briefly defined as the attempt to map indigenous understanding of the external world against 'science', broadly conceived, or at least some external interpretative system. In its simplest form, it has tended to consist of long lists of vernacular names tabulated against their scientific equivalents. It was realised quite early that such an exercise could be misleading; that without a corresponding understanding of the underlying classificatory system the archive of checklists would grow ever more voluminous but their usefulness would be at best doubtful.

In principle, classificatory studies can be applied to almost any cognitive area; outside the natural world, colour is perhaps the most widely studied. Nonetheless, the rich biology of many tropical environments has stimulated the majority of work in this area. Ethnoscience also has a practical and indeed commercial aspect; loggers searching for timber trees, foresters trying to estimate the value of woodland and medical botanists seeking clues to indigenous pharmacopoeias have made use of compilations of vernacular names. Somewhat later, anthropologists would come to see this raw material as an excellent jumping-off point for studies of cognitive systems.

Development may not be a science, but it has certainly developed the institutional superstructure sufficient to be regarded as a discipline. During its earliest manifestations, there was little or no interest in conceptual structures, or indeed in culture of any sort. Developers are driven by assumptions similar to those of agricultural economics and all types of local specificity are hard to incorporate in planet-girdling ideologies. Gradually, however, it has become clear to some elements in this establishment that a failure to understand local concepts, whether of health, agriculture or the environment, are undoubtedly linked to the failure of projects. Equipping it with a new name, 'indigenous knowledge', has allowed developers to take an interest, despite a lack of anthropological background.

This paper argues that an understanding of how different peoples conceptualise the natural world is essential both to cognitive anthropology and to practically-oriented development. As a detailed example, it describes how the Dagomba people of North-Central Ghana classify living things and the extent to which their system can be mapped against 'scientific' models. This in turn helps understand how they interpret their environment and explains attitudes to flora and fauna which are at odds with the views of outsiders trying to improve agriculture or initiate conservation projects.

1.2 The evolution of ethnoscience

The development of ethnoscience can in the first instance be attributed to the studies of Amerindian cultures carried out by the Bureau of American Ethnology in the late 19th century in the South-Central United States. Terms such as ethnobotany first appear in the 1880s and by the early 20th century monographs were beginning to appear (see Henderson & Harrington 1914 and Robbins, Harrington & Freire-Marreco 1916 for a remarkable monograph on the Tewa Indians). This early literature already explores the links between individual organisms and broader concepts of environment and vegetation while situating living things within belief systems. However, after the First World War, this tradition seems to go underground; it is replaced by rather more pragmatic materials on the names and uses of plants and animals in different languages. This is the era of checklists and 'tropical products' and it probably would not be stretching the point to connect this with colonialism. From 1910 to 1960 there is a considerable literature published on useful plants, timber trees etc. intended as a tool for their more effective exploitation. The journal 'Economic Botany' was born during this period, while French scholars in particular were very active in the field of '*Botanique appliqué*', a tradition which has remained strong up to the present. The relatively exiguous material on zoology during this period supports the notion of a link with economics rather than conceptual enquiry.

From the 1970s, the emphasis changes. The useful plants literature focuses on medicinal plants and to a lesser extent catalogues of other uses relevant to subsistence communities, such as firewood. The academic tradition redevelops in America under the stimulus of new ideas about classificatory concepts. Ethnoscience is reborn with an emphasis on notions of structure in terminology and hierarchy in categories of thought. This particularly associated with the work of Brent Berlin in the New World (e.g. Berlin, 1992; Berlin *et al.* 1973), Ralph Bulmer in New Guinea (e.g. Bulmer 1967) and later Cecil Brown in Amerindian and Polynesian languages (1984, 1985) and Taylor (1990) in Indonesia. Features of this body of work are a notable disinterest in cultivated plants and domestic animals and considerable attention to the structure of the conceptual world of other cultures. Typically, a series of implicit or explicit categories are arrayed in ranked form and the considerable datasets of identified plants and animals placed within these ordered hierarchies.

A rather different approach can be traced to the influence of social anthropology. In this view, categories are less than absolute, and should be understood as developing and used within social contexts. This is associated with the work of Roy Ellen (e.g. Ellen and Reason, 1979; Ellen 1993). There is a sense in which this is self-evident; individual informants do not generally produce entire crypto-scientific schemas to conveniently illuminate their understanding of the natural world. Categories are confused and disputed and different subgroups in a society may have good reasons for interpreting concepts in differing fashions.

Contrasting these two approaches is partly a matter of intellectual tradition. It is possible to consider that there is no underlying absolute structure and that all naming is relative. But what may be called the Berlin school would almost certainly argue that some common intellectual structure underlies surface terminologies and it is the task of the ethnographer to make explicit the deep structure. This paper takes the view that building such an abstraction from the individual observations of informants is the primary task; understanding the situational logic of this terminology remains an essential second step.

2. The Dagomba of North-Central Ghana

The Dagomba are one of the most widespread and numerous peoples of northern Ghana (Figure 1). They have two principal centres, Tamale and Yendi, in Northern Region. Their language, Dagbani or Dagbanli, is widely known as a second language in north-eastern Ghana. Their states were established through conquest by mounted horseman and Dagomba culture is still shot through with military imagery. Dagomba society is strongly patrilineal and remains highly stratified. Each village has a chief who is given authority by higher chiefs leading back to the Yaa Na, the ruler in Tamale. Although the basis of Dagomba subsistence is agriculture, both Yendi and Tamale have been for a long time important trade centres and Tamale continues

to capitalise on this. Oppong (1973) has written a summary of Dagomba ethnography and further materials can be found in Manoukian (1952).

Population density is very variable, with very high densities immediately around Tamale and low densities in the east and south-east. Although the rainfall is higher than further north, population is overall much sparser because of the difficulties of extracting groundwater in many locales. Because of this, livestock production and hunting have traditionally played an important role in Dagomba economy.

Figure 1. Map of the Dagbani-speaking area
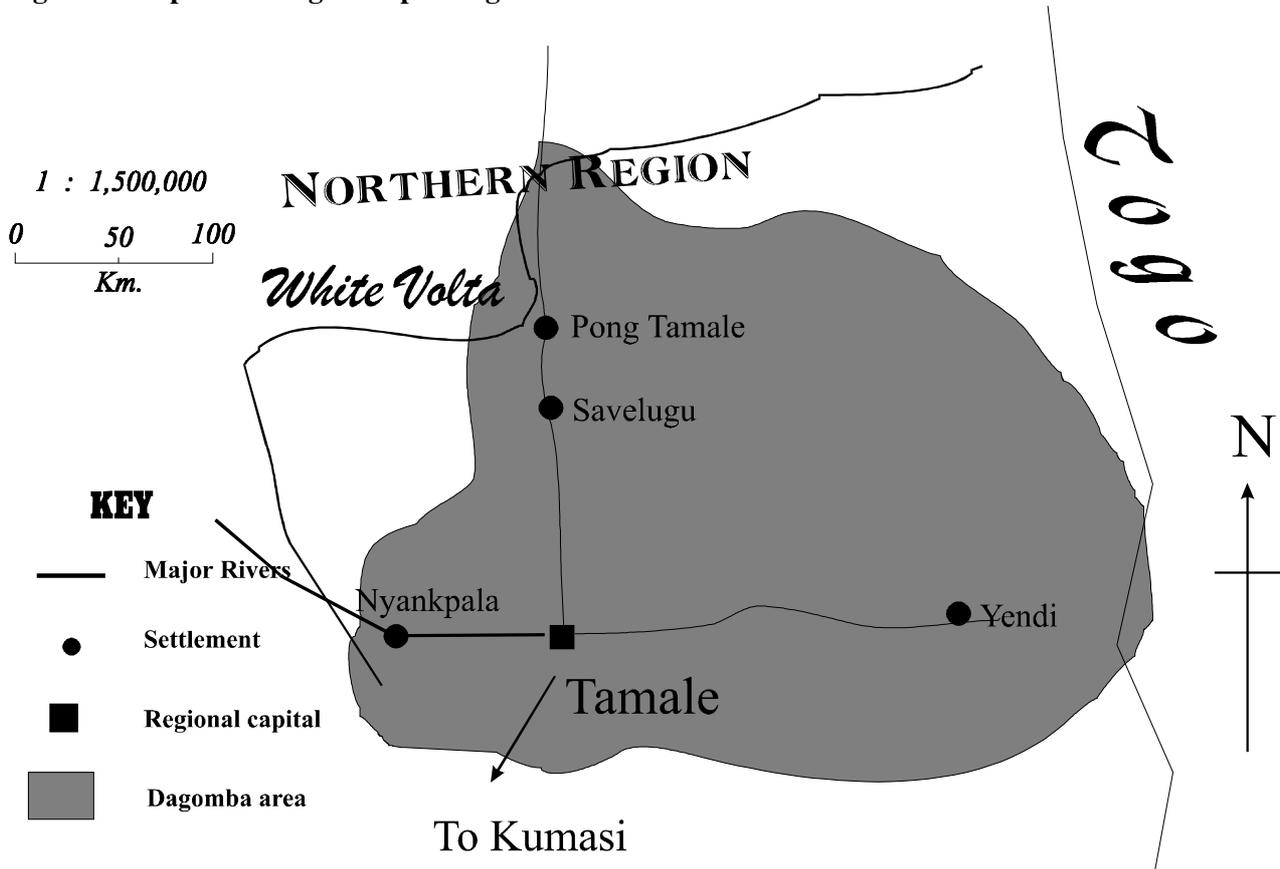
Dagbani is a member of the Oti-Volta language group, which in turn forms one major branch of the Gur family (Manessy 1975). Its closest relatives are likely to be the languages Talni and Nabti. Dagbani has two dialects, East and West, centred around Yendi and Tamale. Standard academic publications on Dagbani are (Fisch 1913; Benzing 1971; Wilson 1972; Wilson & Bendor-Samuel 1969). Transcription of Dagbani does not follow the standard orthography which is misleading but relies on the analysis of Wilson & Bendor-Samuel (1969) and Olawsky (1996).

An aspect of Dagomba conceptualisation that is of particular interest is the number of abstract terms used to classify biological entities. Compared with other African languages these seem to be quite diverse. The paper uses the division between plants and animals as a primary dichotomy to explore Dagomba concepts and then fuses them into an overall model of classification. Finally, §6. asks what sort of entities plants and animals actually and what implications this may have for their behaviour.

3. Plant classification

3.1 Data Sources

The most important source for Dagbani plant names are the lists appended to Irvine (1961). Irvine is essentially a survey of the woody plants of Ghana, but the lists are taken over, unrevised, from his earlier publication 'Plants of the Gold Coast' (Irvine 1930). This has two problems; the names listed in the Appendix sometimes refer to plants no longer included in the text, and the scientific names were not updated and are therefore sometimes outdated in relation ot the descriptions. Irvine's Dagbani lists were reprised in the first edition of 'The Useful Plants of West Tropical Africa' (Dalziel 1937). More Dagbani materials are contained in the publication in progress of the second edition (Burkill 1985, 1994, 1995) based also on herbarium specimens as well as existing literature. Finally, there is a list of Dagbani names contained in CIPSEG (1993) based on botanical surveys of sacred groves in the Tamale area.

A master-list has been prepared, unifying the transcriptions in a single form, correcting them where necessary (Blench ined.). Not all of the identifications are accurate; the presence of contradictions in the sources makes this clear. However, the great majority were confirmed by present-day informants, as were many of the uses and beliefs recorded.

3.2 Plant categories

Dagomba has no overall term for 'plant' or 'vegetation'. Dagomba vegetation terms tend to be more inclusive than European terminology and translations such as **tìá** 'tree' or **móɣú** 'grass' should be regarded with caution. Table 1 shows the Dagbani terms referring to vegetation and the 'scientific' classes of plant that fall within that category;

Table 1. Dagomba classification of vegetation

Singular	Plural	Vegetation classes included
tìá	tìhí	tree, shrub, epiphyte
móɣú	mórí	grass, sedge, herb, small plant
bínzórlì	bínzórà	vine, creeper, liana
màlèɣú	màlèrí	mushroom, fungus
tìzòó	tìzòhí	mistletoe
zòmiá	zòmíhí	parasite. *Tapinanthus sp.?*
zòkúɣá	—	moss
nóyólí	—	vegetable gall

Generally speaking these are exclusive categories. Only one is 'nested' inside another, the mistletoe, *Loranthus* sp. **tìzòó** which is considered to fall under **tìá**. Algae and lichens which are not seen as plants but as residues on rocks and are therefore not counted as alive.

Dagbani has some other terms classifying vegetation that cut across these classes. The entwining of two different species of trees or herbs, usually referring to the strangler figs, is covered by the general term **tìtáblí**. Apart from this, vegetation is also classified according to the position of the fruit or tuber, as follows;

> **bín-wóndà**   any plant which has fruits above ground
> **bín-nyárà**   any plant which has fruits or tubers below ground

Fruits, in the sense of tree-fruits, both from planted fruit trees and bush trees, are **wálì.**

3.3 Crops, semi-domesticates and woodland

The Dagomba have no term that can properly be translated 'crop', although the term **àtǎm** refers to farm produce, generally understood to be cereals. Among the crops, there is a generic term only for cereals, **chì,** which falls into the category **móɣú**. Individual crop plants are otherwise assigned to whatever classes would appropriate for wild forms. Dagomba still make use of a wide variety of bush resources, notably tubers (Blench 1998b) and they further transplant herbs and shrubs to the compound for medicinal and other use. This correlates with the absence of a clear distinction in Dagbani between 'farm' and 'bush' beloved of many anthropological schemas. Dagomba consider all land to be owned and the density of woodland simply a sign that it has not recently been farmed. Clumps of old trees are thus not considered good or attractive, simply land that has not yet been converted to farms. They may contain trees it is dangerous to cut, **tìbéé,** or sacred sites, **buɣo**, which are usually surrounded by trees.

4. Animal classification

4.1 Data Sources

The major source for Dagomba animal names is Cansdale (1970). The transcriptions are extremely garbled at times, but in most cases could be recognised. Confirming and retranscribing these names was carried out in January-February 1998[1], using the recent field guide of Kingdon (1997).

4.2. Animal categories

Between plants and animals there exists a sharp asymmetry. Dagomba implicitly recognise animal categories through a terminology constructed from the word **bín-** meaning 'thing' or 'creature'. There are two terms, **bínnióŋ** and **bínvúhírgù** which approximately translate 'animal'. There is a term, **bínnámdà**, which can apply to both plants and animals but it turns out to be a relatively recent neologism, created for biblical translation use. Table 2 shows the terms used by the Dagomba to classify animals;

Table 2. Dagomba classification of animals

Dagbani	Definition
bíngbámdígù	creeping creature. Any creature with no legs, including fish, snakes and worms
bínkóbgú	mammals. Any creature with legs, hair and that goes upon the land
bínnééŋà	insect
bínnióǹ	living creature i.e. all animals
bínvúhírgù	breathing creature i.e. all animals
bínyárgá	wild animals brought up in the house
bínyíɣírgù	flying creature

Figure 2 illustrates the system of animal classes hierarchically. In general, the lowest level divides into four almost mutually exclusive categories. The only region of overlap is where 'flying creatures' overlaps with 'insects'.

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[1] I would like to thank Joseph Ziblin for his assistance in clarifying a number of plant and animal terms. The draft dictionary by Lehmann (n.d.) was invaluable in identifying a number of alternate names for animals.

Figure 2. Dagomba hierarchical classification of animals

<div align="center">

bínnámdà
(all living things)

|

bínnióỳ = bínvúhírgù
(all animals)

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bínkóbgú	**bínyíɣírgù**	**bíngbámdígù**	**bínnééŋà**
(mammals)	(birds and insects)	(fish, snakes and worms)	(insects)
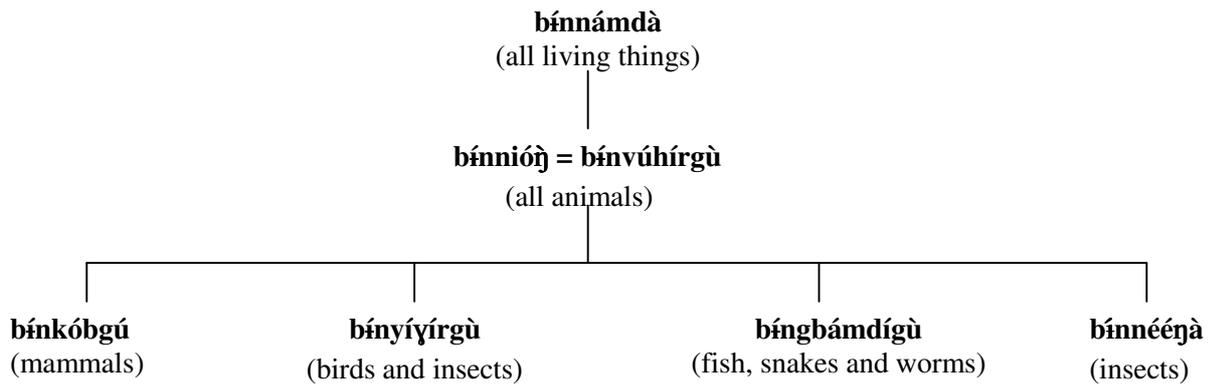
The main area of uncertainty is the classification of reptiles and amphibians. Snakes are classified with fish, but lizards, crocodiles, tortoises and frogs remain unclassified below the level of 'breathing creatures'. None of these animals have generic classes, in other words there is no term 'lizard', only the names of individual species.

4.3 Domestic animals

The Dagomba keep cattle, sheep, goats, pigs, dogs, cats, donkeys, horses, rabbits, guinea-pigs, chickens, ducks, guinea-fowl, turkeys, pigeons and bees. There is no overall term for domestic animal, although major ruminant species such as cattle and sheep have quite diversified terminology. Horses, similarly, which play an important role in Dagomba ceremonial have a rich vocabulary.

5. Classification of living things

Dagomba conceptions of flora and fauna broadly contrast in that animals are recognised as a unitary class while plants have a set of major taxons that are linguistically unrelated to each other. Living things are only united by the general term **bínnámdà**, which is a recent construct. There is an interesting asymmetry in the division of animals. Mammals are classified principally by their phenotypic features –hair and legs. Birds and insects are put together because they exploit an environment –the air. Worms, fishes and snakes are classified together by the absence of legs. Animals that cross over between these categories, such as crabs, lizards and amphibians are assigned to no class at all. Plants cannot remain unclassified, for lack of a higher level taxon and must be assigned to one of the exclusive classes.

Given these reservations, a scheme of Dagomba classification can be constructed as in Figure 3;

Figure 3. Dagomba classification of living things

Figure 3. Dagomba classification of living things
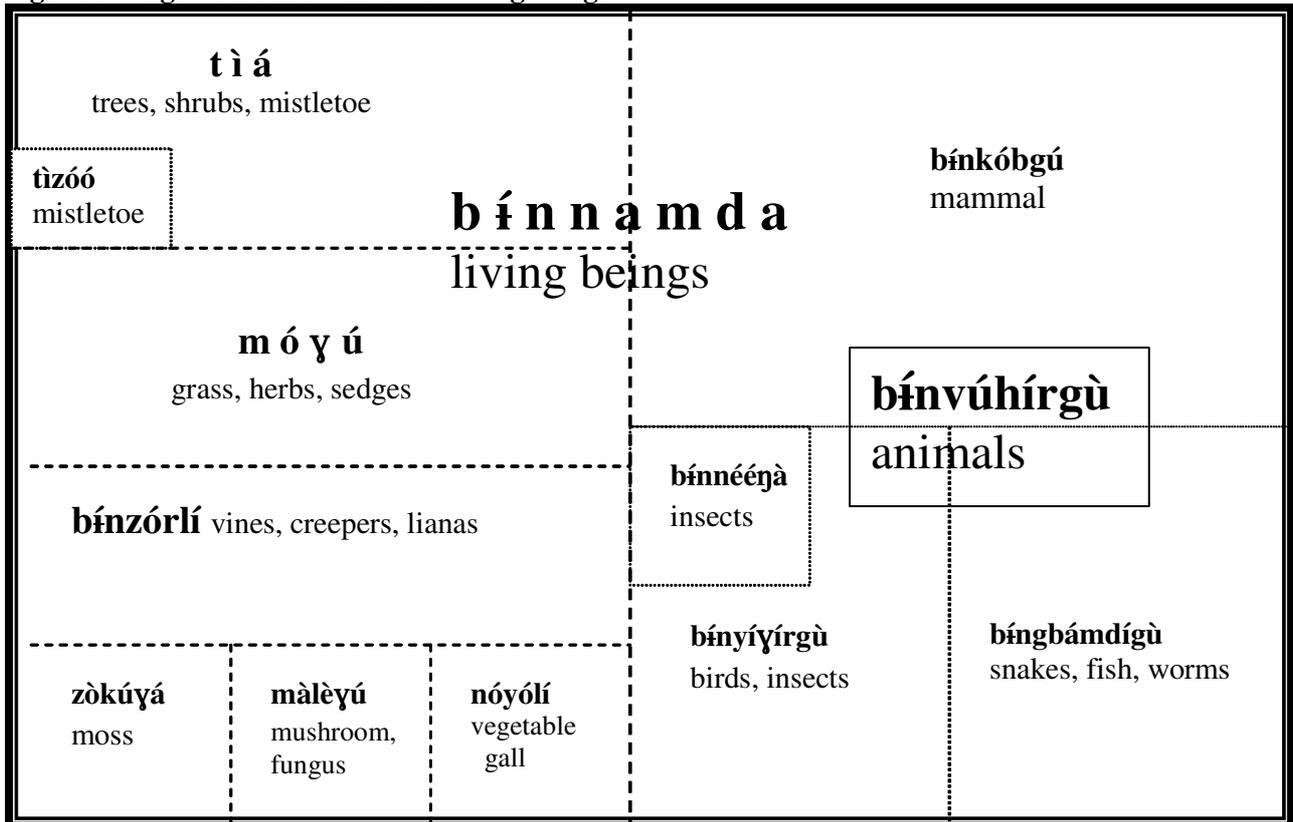
The division between plants and animals is somewhat misleading since the plant categories could really be placed anywhere in relation to the unified core of animal categories.

6. What type of entities are plants and animals?

An element of ethnoscience research that can be misleading is its tendency to regard the results as alternative science. Lists of identifications, classificatory hierarchies, medical uses of plants all contribute to the notion that a parallel scientific world is being described, which can be mapped against Western biology with sufficient application. While this is evidently valuable, it does not necessarily help understand how other societies actually think about the entities they name. Yet this may be crucial to understanding how a community will react, for example, to a conservation proposal.

In the case of the Dagomba, all entities exist in two parallel worlds, the everyday and the metaphysical. All animals, even down to insects, are thought of as having societies, inner lives, motivations and indeed human-like attributes. Termites represent a good example of this. Termites are called 'God's servants' (**nààwúní dábà**) in one Dagomba formulation, whose houses and society are highly visible. Because termites are thought of as carrying out God's will, sacrifices are regularly made on termite hills, especially after the preparation of herbal medicine. Their orderly society is seen as a model for human behaviour. Similar ideas about insect society are reported from the Mofu of the Mandara mountains in northern Cameroun (Seignobos *et al.* 1996).

Other animals, especially those whose habitat is slightly mysterious or inaccessible, are thought of as having their own parallel society. Typical of these is the aardvark (**tìmbǔŋ**), which does live in underground passageways, but is said to have its own villages and society. The aardvark, like many bush creatures, can assume other forms, including that of a human being. Hunters meeting aardvarks in the bush are sometimes invited down into their underground world and emerge with the ability to 'recognise' them, even when

transformed. Aardvarks in human guise also enter the towns and those who have visited their underground cities sometimes recognise them in the markets[2].

There is strong presumption that it is at night that identities are fluid, that animals can assume human form and humans appear as animals. Another illustration of this is the concept of **bǹn-nani**, literally 'unknown thing'. These are children who are identified not as people but animals disguised in human form. The cause of this is spirits coming to dwell in the womb of the mother during pregnancy. Such children are dangerous and can cause the death of both parents, and if the community agrees on their identification then they are taken away by individuals who are charged to deal with these matters.

Another aspect of this is the multiple names of many animals. Many mammals have special names, epithets[3], by which they are called after nightfall. The most prominent of these is the hyæna, an animal much feared throughout this region for its predatory attacks on livestock. The use of epithets is intended to deflect the animal's attention from the fact that it is being discussed and thus ward off potential attacks.

This concept of the parallel lives of wild animals has been widely reported from both West Africa and other regions of the world. Among the Teen people in nearby Côte d'Ivoire both ancestors and sorcerers manifest themselves as bush animals; if a hyæna or a leopard is killed by a hunter then someone in the community will die shortly afterward (Leenhouts 1984). Other animals representing ancestor spirits may be killed, but after they die they speak to the hunter and inform him of the required sacrifice to avert death. Elephants in particular are conceived to have human-like souls and the hunter who kills one must be purified as if he had committed murder.

The fat-tailed gecko, *Hemitheconyx caudicinctus*, **jìrìgìntólí**, has attracted a complex of beliefs among the Dagomba. Although quite rare in West Africa as a whole, this species is well-known in the Tamale area (Cansdale 1956). Although in reality it is quite harmless, its bite is said to cause leprosy. If there is one in the room when a storm is in progress it is believed the house will be struck by lightning.

Examples could be multiplied but the relevance of those already given should be clear. Dagomba views of what animals are runs strongly counter to Western science models. Conservation ideology has a strong aesthetic element and assumes that;

    a. Animals are what they appear to be
    b. That the findings of Western science are broadly accurate
    c. That all animals are embedded in a matrix of biodiversity, something valuable in itself
    d. That all species are of equal potential value and interest

It can safely be said that the Dagomba would regard these views as foolish and demonstrably irrelevant. Harmless and inedible animals, such as agama lizards, can be left to go about their lives unhindered. Well-known dangerous animals such as fat-tailed geckos or any species of chamæleon will generally be killed on sight. Larger mammals are harder to interpret, at least from the point of view of the Dagomba hunter, since they may not be what they appear to be on the surface. Only by establishing their animal or human nature can a hunter decide whether it is safe to hunt them.

The interpretation of attitudes toward plants is more complex. In much of SE Asia there is a powerful belief that plants have souls like animals (see Karim 1981 for a description of these ideas among the Ma' Betisék

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[2] I was somewhat puzzled as to what the aardvarks were doing in markets, but as my informant pointed out in response to my question they were there 'for shopping'.
[3] 'appellations' in Ghanaian English

of the Malayan Peninsular). In Northern Ghana trees and shrubs are understood to have spiritual attributes but do not seem to have individual essences (see Blench ined.).

They do, by their nature, attract spirits (**kpulkparsi** and **alizini**). Spirits can inhabit any tree but they favour certain species such as **gàà** (*Diospyros mespiliformis*)**, tìpièlgá** *Stereospermum kunthianum* **tùá** (baobab) and **nyòò** (*Daniellia oliveri*) some of which have a pan-African reputation in this regard. The generic term **tìbéé** refers to all trees, that are believed to shelter spirits. Such trees are usually subject to prohibitions, such on cutting firewood or even leaves for medicinal use and are particularly forbidden to women. Typically, even sitting under them can cause madness, and bringing branches into the compound will attract lighting strikes.

7. Conclusion: understanding attitudes to the environment

The primary conclusion from this study is that Dagomba do not perceive 'nature' or 'the environment' as any type of holistic entity. There are no overarching terms corresponding to vegetation, 'plant' etc. and no term suggesting the natural world is seen as a coherent entity. Although animals are apparently a far more salient category and are classified in more detail through their morphological features and to a lesser extent, behaviour, i.e. flying versus crawling.

There is an analogous absence of distinction in the case of domesticates. Dagomba do not perceive either crops or domestic animals as a separate category. This maps against the absence of a clear distinction between wildlands and farms (Blench 1998a). All of the bush is considered to be farmland, potential or actual with named owners and therefore at the disposal of the owner.

Animals and plants gain salience by their importance for human use, either positively, when they are eaten or used for medicine or other purposes, or negatively as when they affect humans, such as through predation. Although in recent years, the disappearance of resources has been observed, the conclusion that the community should adopt a more sustainable use of these resources has not been drawn. In part this is because although the resources of individual communities may be bounded as far as farmland goes, the larger boundaries of Dagomba are not constrained. Hunters may travel long distances into other less populated regions in search of game or medical plants.

Strategies for community conservation depend on three important factors;

   a) A conceptual mapping between the image of fauna and flora held by the outsiders and the community intended to undertake the conservation
   b) A notion of the resource as economic and thus constrained
   c) A bounded region where the resource is located

From the evidence presented here, it seems that this is far from the situation in the Dagomba area (and by inference elsewhere in Northern Ghana). If this is so, then the simple transplanting of conservation strategies, no matter how successful, from another part of Africa may not be as valuable as it first appears.

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