1996

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KEY WORDS: Brunei Darussalam, Borneo, ethnobotany, Dusun, human-rainforest interactions.

INTRODUCTION

For more than 100 years botanists, agricultural scientists, and foresters working in island Southeast Asia have collected indigenous names for plants (e.g. Burkill 1935, Corner 1940, Ochse 1931, Quisumbing 1951). The reasons for this are plain. There needs to be some provisional way of identifying species new to science, scientists need to communicate with local people about plants, and various government departments require a convenient set of names for efficient administration. Unfortunately, it is also hazardous to use names and other isolated fragments of local knowledge about plants outside of the ethnobotanical context from which they are drawn (Ellen, this volume). Terms and associated data have not always been collected carefully, sometimes displaying linguistic and cultural ignorance. In the case of Brunei, Ashton's (Ashton 1964, also Pukul & Ashton n.d.) use of indigenous terms for trees keyed to scientific terms is open to confusion. Native terms are used as if they were vernacular synonyms for species names, but there is an unexplained overlap of names. In some cases where there are no known vernacular names new ones are suggested.

This paper presents a preliminary report on the overall structure of Brunei Dusun folk-botanical classification system, and may go some way towards illustrating some issues and problems of which rainforest biologists should be aware.

Brunei is an excellent location for an ethnobotanical study seeking to lay bare general principles of classification. The tropical rainforests of Southeast Asia have one of the highest biodiversities on earth, and in Brunei, through good fortune and effective planning, they are well-preserved. The cultures of the Austronesian peoples who have lived in Borneo for over two thousand years have co-evolved with the rainforest environment, and their survival has depended upon knowledge of the forest (Ellen, in press). Bornean groups have always relied on forest products, not only for food but to obtain materials needed for medicine, clothing, and other aspects of technology. The extraction of forest products, both for consumption and for trade, has long been an essential element of the economies of traditional Bornean populations, even those who define themselves first and foremost as 'farmers' (King 1993, pp. 77-102). With rapid socio-economic change occurring throughout Borneo (Cleary & Eaton 1992) traditional patterns of rainforest use have undergone massive change, and are now in decline.

The Area and its Inhabitants

The field site for the project reported here is the Dusun village of Merimbun, located in the Rambai *mukim* (administrative sub-district) in Tutong district. Tutong, one of Brunei's four districts, is the traditional homeland of the Dusun, who are among seven ethnic and linguistic groups constitutionally recognized as native Bruneians. Hence they are classified

D. S. Edwards et al. (eds.), Tropical Rainforest Research – Current Issues, 435–450.

for government purposes as 'Malay', and for this reason there are no contemporary statistics on the number of Dusun. A well considered estimate (Antaran 1993, p. 19) is that there are 5,000 non-Muslim Dusun in Brunei. It is clear, however, that the Dusun population is decreasing as the result of marriages to Malays and Chinese. Furthermore, traditional Dusun language and culture is not being effectively reproduced (Kershaw 1992). In large part, this is due to social and economic mobility: with a large public sector economy, Bruneians are abandoning traditional economic pursuits to join labour forces away from their villages. As this occurs, traditional social formations, and the cultural knowledge which sustains them, decline.[1] Another crucial factor in the transformation of Brunei's traditional indigenous peoples is conversion to Islam.

Traditional Dusun culture revolves around the cultivation of dry rice and fruit orchards. Values relating to these activities are expressed in ritual and belief, for example in the shamanic *temarok* ceremony and in bird omenism. Other major economic pursuits include hunting, fishing, and the collection of various forest products. Until recent years rubber cultivation and tapping also contributed to the Dusun economy.[2]

Merimbun village is situated at a large lake (*tasek*), and this is a source of fish for all villagers. It is also a bathing spot and a source of potable water when other supplies are depleted. Like most of Brunei, it is also surrounded by forests. The forests in this region are of mixed dipterocarp type, and are the source of many of the economic products that provided the subsistence of the traditional Dusun.

The Merimbun area has been made accessible by metalled roads leading into the village, and has been developed as a recreation site by the provision of bridges, pavilions, and toilets. On Sundays and public holidays it is a favoured spot for picnickers and nature-lovers. It is considered that the area has been degraded ecologically by this development by increased water pollution due to the use of motor boats, among other reasons. Heavy use of walking paths and the construction of roads has also disturbed and even destroyed local habitats (Wong 1992). Villagers note that fish are less plentiful than in bygone days, and that they now have to walk increasingly further to reach game-hunting grounds. But it is the rapid social, cultural, and economic change, rather than environmental degradation, that is leading to what seems the inexorable decline of forest use and ethnobotanical knowledge. Much of the folk botanical lexicon may no longer be in use in 20 years time as Malay (and English) supplant the Dusun language.[3]

A Framework for Ethnobiological Classification

Folk-classification differs in several important respects from the scientific, biotaxonomic classification of plants which is primarily a reflection of the position of a plant in evolution. In scientific taxonomies, reproductive and genetic criteria are highly significant: classifications are based to a great extent on the structure of reproductive parts (flowers, fruits, or spores). Folk classification, on the other hand, is relatively unconcerned with these matters, though it does reflect empirical criteria - particularly morphology, ecology, and (in the case of animals) behaviour - that are used in scientific classification. However, these are never entirely independent of other cultural criteria, as the present analysis will demonstrate.

Berlin (1992) suggests that plant classifications everywhere display evidence of certain universal regularies. He claims that the reason non-literate peoples have elaborated extensive domains of ethnobiological knowledge - and why these are strikingly similar in structure and content - is "human beings' inescapable and largely unconscious appreciation of the inherent structure of biological reality" (Berlin 1992, p. 8). The identity of a plant is immediately apprehended, due not to cultural logic but to the perception of 'discontinuities in nature'. For Berlin, folk classification relies upon the "natural system" of classification, in which plants and animals are categorized in accordance with "their overall morphological structure,

or morphological plan" (ibid., p. 9).

Berlin claims, additionally, that living things are classified in terms of the following ranks, listed below from most inclusive to most specific.

(1) **kingdom:** a taxon with one member including all taxa of lesser rank.

(2) **life form:** a taxon containing a small number of highly distinctive morphotypes based on the recognition of gross morphological structure and ecological adaptation.

(3) **intermediate:** a taxon grouping together a small number of generic taxa, most commonly members of life-form taxa, showing marked perceptual similarities.

(4) **generic:** a taxon naming the smallest fundamental biological discontinuities easily recognized in any particular habitat.

(5) **specific:** a taxon partitioning the generic taxa into two or more members, differing in a few ways.

(6) **varietal:** a taxon further dividing specific taxa.

In this model, generally, taxa at all ranks except for those of kingdom and intermediate are lexically labelled; taxa at those ranks are usually unlabelled (covert), and some life-form taxa may also be unlabelled. Another axiom of Berlin's model is that terms at the generic rank are primary, meaning that they "are precisely the names of common speech" (Berlin 1992, p. 53). Psychologically, they are more salient than names at other ranks.[4]

The significance of Berlin's theory is that it challenges the idea that folk classifications of plants bear no resemblance to biotaxonomic classifications, but rather are determined to a great extent, if not completely, by cultural values, culture-specific logic, or the structure of language.

In this paper I use Berlin's model as a framework to discuss my data on one aspect of Dusun ethnobotany: the grouping of generically-named plants into more inclusive, 'higher-order' categories. I use the terms "life-form", "intermediate" and "generic" accepting the model of a ranked order they presuppose. I agree with Berlin that categories are predominantly constructed on the basis of their biological distinctiveness, and not because of independent cultural valuation and classification systems. At the same time I share the view of some of his critics, such as Ellen (1986, 1994) and Morris (1993), that categories derived from criteria that are neither morphologic nor phenotypic may intrude into the 'natural system of classification', even though such categories are indistinct. For this reason I include in my analysis higher-order categories elicited in the course of fieldwork that do not fit comfortably in the Berlin scheme. I conclude not only that higher-order categories occur at different ranks, but that they are weighted differently, and that it is possible to differentiate the most salient categories from less salient ones.

THE PROJECT AND ITS FIELD METHODS

The University of Kent - Brunei Museum project on human-rainforest interaction has among its aims the documentation of the current significance of rainforest resources and the ecological parameters and opportunities presented by rainforest in the lives of rural Brunei Dusun. By extension, it seeks to further our understanding of other comparable parts of Southeast Asia. The project also aims to contribute to knowledge about human impacts and dependency on rainforest (indigenous and commercial), and the realistic valuation of rainforest as an economic resource. As part of the research it was necessary to obtain data on people's knowledge and uses of specific rainforest plants. This was accomplished primarily through the collection of voucher specimens.

Plant collection was undertaken in the Merimbun area for four months in 1992 and three months in 1993. Four principal informants were engaged in this work. All were in their late fifties or older, with an extensive knowledge of forests, having spent most of their lives

engaged in traditional subsistence activities, including hunting. Normally, only one informant collected plants on any one trip; however, on certain occasions two informants were used simultaneously. At the time of collection the informant would provide the Dusun name of the plant, the name of the location and the kind of habitat in which it was found, information about its uses, and any other information about the plant. Optionally at first, but later more regularly, the informant was asked to categorize the plant. Each evening, following collection, plants were preserved for further processing. Specimens were sometimes shown to other informants to obtain their identifications, before they were removed for processing.

Five hundred and thirty-five herbarium specimens of various kinds were collected, for which 426 different names (exclusive of synonymous or alternative names for identical plants) were provided. Collections were made in uncultivated areas, and almost no cultivated plants were included.[5] These specimens are currently being identified by the Royal Botanic Gardens at Kew and the Forestry Centre in Brunei. At the time of writing, about 300 of the specimens have been identified. A further 132 additional plant names were collected where no specimens were taken, through inventories enumerating each plant found within circumscribed areas of forest. For this exercise two informants named every plant they could recognize. Most plants were identified at the generic rank, while some were identified at a sub-generic rank; those plants for which generic names were unknown were identified at a more inclusive rank. In the course of the exercise, involving the identification of many thousands of plants, only one plant could not be identified to any category.

Other plant names were elicited in the course of interviews in which informants were asked to name plants similar to those given in prompts. The names of plants were put to several informants, consisting mainly of people not involved in plant collection work. They were asked to state what kind of plant it was and give any other information they could about it.

Another technique used was to present informants with sets of cards containing the names of plants which they were then asked to sort into groups that were similar in some way. For illiterate informants the names of plants were read aloud. They were then asked what the plants so grouped had in common, and how they contrasted with those in other groupings.

NOMENCLATURE AS EVIDENCE FOR CATEGORIZATION

The names of plants provide a major key to the ordering of an ethnobotanical domain, though not an entirely reliable one (Conklin 1962). There is no overall name for all plant life which would correspond with the kingdom rank. From the names of plants themselves the following list of category names may be drawn up: **akau** (vine or liana), **bulu'** (bamboo), **kayu** (tree), **kulat** (mushroom), **usak** (alternatviely **bunga**) (flower), **umbus** (vegetable), and **uwai** (rattan). These terms are used regularly in Dusun as the first element in a polynomial plant name (e.g., **akau gamuri, kayu baru, kulat kamanci**). These are all higher-order categories, groupings of generically named plants. They are the most inclusive groupings within the un-named domain 'plant'. These names, among others, were elicited when informants were asked, given a certain plant, what sort of a plant it was. How is it possible to determine which of these terms represent culturally salient categories corresponding with Berlin's "life-form" rank?

The specification of this term is difficult. It indicates, as Wierzbicka (1985) states, "a category of categories" (p. 189), "a kind including many different kinds" (p. 192). **Usak** (flower) and **umbus** (vegetable) are excluded on grounds that they are not completely distinctive: a plant can belong simultaneously in one of these categories and in some other group. **bulu'** (bamboo) is associated with other, non-life-form categories, though it does not

overlap with any of them. For this reason it does not seem distinctive enough to be a life-form, despite the fact that it is, in a way, a category of categories. The remaining categories, **akau, kayu, kulat,** and **uwai** are treated here as life-forms.

The distinction between trees and vines is general though not universal in folk-classification (Brown 1977), and these are extremely common features of the forest environment. The focal perceptual difference between a tree and a vine is immediately apprehendable, and it is doubtful that there is much cultural variation in the construction of these categories in clear cases. Berlin (1976, p. 385) considers them (along with herbs) to represent "such distinct perceptual discontinuities that their recognition may constitute a substantive near-universal in prescientific man's view of the plant world."

The distinction between a tree and a vine is based on morphology (stem growth pattern), but is not recognized in scientific biological taxonomy. Plants whose stem growth pattern is intermediary between that of a "tree" and a "vine" must be included in one of these categories, and the basis of such a plant's categorization seems arbitrary in terms of morphology.

Rattans (climbing palms) are a distinctive category in Dusun terms, but they meet at least some of the specifications for 'vines' as well. While recognizing the similarity between **akau** and **uwai**, the Dusun do not consider **uwai** to be a kind of **akau**. In conducting my plot inventories I found that informants would initally identify rattans as vines at first, but then correct themselves when I repeated the name to them. It appears that the focal definition of **akau** excludes rattans. One non-palm was identified at the time of collection by a highly reliable informant as **uwai asu-asu** (JHB 280),[6] though I questioned him as to whether it really was **uwai**, and in my field notes for the specimen I wrote : "Sort of a lake grass, said to be a rattan. Not found on dry land. Useless, except for binding." The specimen was subsequently identified as *Flagellaria indica*.[7] I have also collected, with another informant, **uwai asu-asu bukid** (JHB 377, not yet identified), which like **uwai asu-asu** was thornless, though I did not question that it was a rattan.

Of 210 kinds of plants collected that were categorized as **kayu** (some ambiguously so; see below), the names of only ten were prefixed by the life-form name; one name included the term alternatively; one name ended with the term.

Turning to the **akau** category, of 71 kinds of plants collected, the names of 32 were habitually prefixed by the word **akau**, two alternatively used the prefix, and one included the life form name as the second term.

In the **uwai** category all but one of 16 kinds contained the life-form name **uwai** as a first term. In the **kulat** category all 13 kinds contained the word **kulat** as the first term.

It will be seen that in the case of **kayu**, the category term is rarely obligatory, for **akau** it is commonly obligatory, for **uwai** it is nearly always obligatory, and for **kulat** it is always obligatory. This fact underlies the high salience of **kayu** and the decreasing salience of the other categories, and supports Brown's (1977) theory that 'tree' is the first life-form term to emerge in an evolutionary sequence in any language.[8]

In other categories, as well, the category name appears as part of the name: **usak** (alternatively **bunga**) ('flower') and **bulu'** ('bamboo').[9] There are several other kinds of plant, but their category-labels are not similarly used. While these are higher-order groupings, they do not correspond to the 'life-form rank' as defined. The **usak** category seems roughly equivalent to 'herbaceous plant', which is often a life-form (Brown 1988), but the Dusun term is not used consistently to denote this. The criteria for the category seem not to be purely morphological but to be influenced by what Wierzbicka (1985) points out is not exactly "function" or "utility" but more generally a *relation to people*. Some woody plants are called **usak,** and this is probably due in part to their size. Some, but by no means all, plants in the **usak** category are "decorative plants." Finally, the **usak** category is not culturally salient. Only 13 specimens were placed primarily in this category, though some

marginal plants, difficult to place in *any* life-form category, were placed here, as well as in one or more other categories. Furthermore, in an enumeration of plants in forest plots, two informants were more frequently unable to provide names at the generic rank for these than for other life-forms; in many cases **usak** were said not to have a name. **bulu'** is represented by no more than five different kinds, and is not considered to be completely distinct from some other kinds of plants.

It must be noted that viewing **kulat, uwai,** and possibly **akau** as life-forms violates Berlin's third principle of ethnobiological nomenclature, which holds that life-form and generic taxa should have primary names, while subgeneric taxa should (with exceptions) have secondary names (Berlin 1992, p. 29).

Berlin (1992, p. 27) distinguishes between primary and secondary plant (and animal) names. A primary plant name may be simple (e.g. oak) or complex (e.g. skunk cabbage, forget-me-not). To give an example of a secondary name, and explain the difference between such a name and a complex primary name, Berlin (1992, p. 28) writes:

> "*Sugar **maple*** can be shown unambiguously to be a secondary plant name in that (a) one of the name's constituents, *maple*, is also the name of the taxon that immediately dominates the category labelled by the expression *sugar maple*, and (b) *sugar maple* occurs in a contrast set whose members are also laeled by names that include that same constituent (*red **maple**, Norway **maple**, Oregon **maple**, vine **maple**, . . . n **maple***). In contrast, complex primary names such as *tulip tree* or *catfish* do no show this distributional pattern. These expressions occur as the names for taxa in contrast sets some of whose members are labelled by simple primary names such as *hickory, ash,* and *poplar* (all kinds of *tree*), or *bass, crappie*, and *carp* (all kinds of *fish)*"

According to the third principle of ethnobiological nomenclature mentioned above, any category name that habitually appears in a taxon, as is the case in **uwai** and **kulat,** should not be a life-form but a genus. My difficulty in applying this principle to Dusun ethnobotany is that it is at odds with the definition of a life-form as a kind including 'many different kinds' (though it must be admitted that such a vague criterion begs the question). Furthermore, the category prefix **akau** appears in about a half of generically-labelled vines. There seems to be no difference between the categorizing function of the term **akau** and that of **uwai** or **kulat**.

No ethnobiologist appears to have recognized rattans as a life-form (Brown 1977); Bartlett (1940) even presents his data on rattans as exemplifying the concept of folk-genus. But to see **uwai** as a generic we would have to accept the premise that the primary names of all 19 kinds of **uwai** are not generic but specific.[10] The generic level taxon would be empty, for there is no focal, generic, unmarked **uwai**. This contradicts Berlin's axiom that generic taxa are primary in any folk-biological system of nomenclature (Berlin 1992, pp. 52-101). The main evidence that **uwai** is not a folk-generic in Dusun is that it contrasts with **kayu** and **akau**, at the life-form rank. If **uwai** were a folk-generic it would presumably be included in some other life-form, probably as **akau**.

The same scepticism about the life-form status of rattans holds for **kulat** (fungi). Fungi are completely distinct from all other life-forms; they are infrequently encountered in forests. Some informants said that mushrooms growing out of the ground could be put into the more inclusive category of **sakot**, roughly translated as 'weed' (see below). However, **kulat** meets a fundamental criterion of a life-form: it is a kind that includes many different kinds. Unlike folk-specifics fungi differ not in a few distict ways but in many general ways.

Life-Forms

I will argue that **kayu** is the most salient plant life-form. As I have indicated, far more forest plants in that category were collected than in any other, meaning that they are encountered and recognized more often than other kinds of plants.

That trees are the most prominent and frequently-occurring feature of the forest environment is obvious enough, and this is reflected at the level of folk terminology in our analysis of two randomly selected patches of land, both on hilly slopes, one categorized as *entalun* ('forest', never previously cleared in known memory) and the other categorized as *gapu'* (secondary growth, cleared about 20 years ago). In enumerations made by one informant, in both the *entalun* and *gapu'* plots, 13 of the 20 most frequently mentioned plant-names were in the **kayu** category, followed, again in both cases, by 4 in the **akau** category. Considering the *entalun* survey only, this informant provided the names for 103 kinds of **kayu**, 26 kinds of **akau**, 8 kinds of **uwai**, and 21 names for all other kinds of plants, not counting plants he could not identify or remember the names for. A second informant (who surveyed an adjacent area half the size the one surveyed by the first informant) named 114 kinds of **kayu**, 19 kinds of **akau**, 10 kinds of **uwai**, and eight kinds of other plant.

As mentioned above, the difference between **kayu** and **akau** is not so much phylogenetic as morphological. Plants in both categories have many of the same uses: edible fruit and/or leaves; medicines, poisons, and antidotes; and numerous specialized uses, especially for leaves. The fruit of vines is rarely important in the trade economy compared with those of trees. But it is the role of trees in providing wood for building things that gives trees their unique cultural, social, and economic precedence in the plant world. The stereotypical purpose of vines, on the other hand, is as binding material. This purpose is not, however, unique to the **akau** category, but is shared with rattans (**uwai**). While this is a reason to reject a purely utilitarian explanation of life-form categories (such as that offered by Randall & Hunn 1984), it does seem plausible that utilitarian factors play some role in their relative salience.

The categories **kayu** and **akau** are semantically oppositional and dialectical, with **kayu** being primary. While about half of the kinds of **akau** are referred to habitually as **akau X**, very few trees are referred to habitually as **kayu X** rather than simply **X**.[11] Some terms occurred in both **akau** and **kayu** categories:

Akau	Kayu
1. **Akau melia'** (JHB 155) *Dichapetalum*?	**Melia'** (JHB 275) *Diospyros*
2. **Akau Sengkarai** (JHB 321) *Agelaea borneensis* (Hook.f.) Merr.	**Sengkarai** *Polyathia* sp. (Brunei checklist)
3. **Akau tis** (uncollected)	**Tis** (JHB 149) *Galearia fulva* (Tul.) Miq.
4. **Akau terakang** (JHB 277) *Oxyceros*	**(kayu) terakang** (uncollected)
5. **Bagu akau** (JHB 137) *Gnetum*	**Bagu kayu** (JHB 147) *Gnetum*

The fact that the life-form **akau** is marked in three cases seems to substantiate the claim that constituents of the **kayu** category are psychologically and culturally primary *vis-à-vis* those of the **akau** category (Brown 1984, cf. Berlin 1992, pp. 27-28). The use of the category term following the generic term in the case of **bagu** is explained by the premise that while the other plants are different things, **bagu akau** and **bagu kayu** are two kinds of one thing, and hence the category names are used as adjectives. Another example of this structure is found in the names of two kinds of cassava (*Manihot utilissima*), e.g. **ubi kayu** ('woody cassava') and **ubi bogo** ('creeping cassava').

An exception to the generalization that the **kayu** form is primary because it is unmarked *vis-à-vis* genera in other life-forms is **kayu tungod** (JHB 212, *Saurauia*), which contrasts with **tungod** (JHB 174, *Pentaphragma*), a 'grass' in the **telasai** category, the salience of which is low.

There is another instance of a term being identified nomenclaturally as both **kayu** and **akau**:

Akau piantok (JHB 264) (unidentified at time of writing)
Kayu piantok (JHB 126) Rutaceae?
Piantok (JHB 165) Celastraceae?

All of these plants are usually categorized as **akau** rather than **kayu**. Informants did not group it together with other **kayu**. As one informant said, **kayu piantok** "is considered **kayu**, but in reality it is **akau**. It is sliced and made into chopsticks (*supit*)". It seems to be a marginal type. In field notes both **akau piantok** and **kayu piantok** are described as 'vines', while **piantok** is described as a small plant. In this case plants that are different both phylogenetically and morphologically but are used in the same way occupy a single category.

A similar anomaly is **kayu sangga** (JHB 247, *Schefflera*), categorized by all informants as **akau**.

The categories **kayu** and **akau** are sufficiently complex and rich that informants knowledgable about forests are able to categorize them according to various dimensions such as hardness and size. Many trees and vines are associated with specific, distinctive purposes, such as the manufacture of a certain object or a role in a certain ritual. **Uwai** (rattans), on the other hand, is a much smaller category. With the exception of **uwai pios** (JHB 13, *Calamus comptus* J. Dransf.), which is used in a rice planting ceremony, rattans have only five contemporary uses: binding, weaving, frame-building, edible fruit, and edible shoots.[12]

Another phylogenetically focused group, that I consider to meet the criteria for a life-form, is **kulat**. Unlike **kayu, akau,** and **uwai**, they are not ubiquitous in the forest, and they are relatively insignificant culturally and economically.

Fungi are unmistakably different from all other kinds of living things, but are regarded by Dusun as plants. A certain number are edible, and one or two varieties may fetch high prices, but they are not an important part of either Dusun diet or economy, or of the forest landscape. An indicator of the very specific utility of **kulat** (as food) is that my informants were unable to provide generic names, for most inedible mushrooms lack generic names, even though it was recognized that they vary one from the other. Inedible mushrooms may be called **kulat andi kanon** (inedible mushroom) or **kulat raat** (bad mushroom).[13] However, **kulat jelundong** (JHB 289) (literally 'shade mushroom') is generically named, and the category so identified is even subdivided further: **kulat jelundong purak** (white shade mushroom) and **kulat jelundong gapu'** (secondary growth shade mushroom). None of the edible mushrooms collected were identified at a sub-generic rank.

An alternative possibility is that **kulat** is not a life-form but a folk-generic unaffiliated with any life-form (see discussion of 'unaffilated generics' below). By this analysis edible mushrooms as well as inedible **kulat jelundong** are marked off from generic **kulat** at the rank of folk-species. I resist this conclusion because it seems to me that the differences between the various kinds of inedible fungi are perceptually recognized as different genera without being coded.[14]

Intermediate categories

I have identified life-forms through category names that appear as proper parts of generic rank taxa. Some generically-named plants fall outside all life-forms, but are grouped in other categories. Berlin (1992) properly calls these categories 'intermediate', since they occupy a rank between generic and life-form.

Among Dusun ethnobotanical categories are those that may be glossed as 'grasses', 'gingers', 'bananas', and 'ferns', as well as various kinds of palms. These do not constitute life-forms as they are not labelled by any single over-arching term. For example, several kinds of ginger (including those called **encalongon** [JHB 41, *Plagiostachys crocydocalyx*], **kunyit** [*Curcuma*], **sagang** [JHB 43, *Etlingera ?punicea*], and **sumbang** [JHB 39, *Hornstedtia reticulata*]) were said to be sorts of **tumid**, while others (those called **terabak**)

Table 1. Higher-order Dusun plant categories (excluding cultivated plants).

Life-forms
kayu (tree)
akau (vine)
uwai (rattan)
kulat (fungus/mushroom)
Intermediates
Licuala plams (**silad-benjiru-ukang**)
Grasses (**kumpau-telasai-rumput**)
Ferns (**gerajai-paku-limputong-engkubuk-kuban**)
Gingers (**tumid-lingkuas-layoh**)
Bananas (**punti-rutai-binci-encarawan-powow**)
Problematic higher-order categories
usak (flower)
sakot/sakot tanah ('weed')
raun (leaf)
umbus/sancam (vegetable)

were categorized as kinds of **lingkuas**. It is possible that other gingers, called **layoh (layoh lamatai** JHB 372, *Globba brachyanthera* K. Schum. var *rubra* R.M. Smith; **layoh entalun** JHB 467, not yet identified), are not included in either of these groupings. While there is a clustering around focal members of these groups, the categories are also reciprocally related to one another. Although there is no term for a single category uniting all gingers, such a grouping is recognized by Dusun. The idea of covert categories in ethnobotanical classification, as proposed by Berlin, Breedlove & Raven (1968) is now generally accepted, but identification has proved to be a controversial matter (e.g. Berlin 1974, 1992, Brown 1974, Ellen 1993, Hunn 1977, Taylor 1984).

Another set of plants that do not fit into any other higher-order grouping but are related to each other are *Musa* spp. ('banana') plants. True bananas (*Musa sapientum*) are called **punti**, but several other genera are found in the wild: **rutai**, (JHB225, *Musa gracilis*) **binci**, **encarawan**, and **powow** (all uncollected).

'Grasses' seem a plausible candidate for life-form status, as Dusun **kumpau**, can be glossed by *rumput*, the Malay word for 'grass'.[15] However, in the course of research I found that several plants categorised by Dusun informants as **rumput**, and which I considered 'grasses', were said *not* to be **kumpau. Kumpau** occurs as a folk-generic name for *Paspalum conjugatum* Berg. (Graminae) (JHB 316), but also refers to an overarching category of grasses each of which have separate folk-generic names. Most grasses are included under this overarching cover-term, although tall grasses in both the Gramineae and Cyperaceae families are excluded. **Telincim** (JHB 230, *Paramapania*, and JHB 318, *Mapania sumatrana* (Miq.) Benth. ssp. *sumatrana*) and **telasai** (e.g. **telasai biasa**, JHB 219, *Scleria*), both Cyperaceae, were said *not* to be **kumpau**. A Gramineae, **kumpai** (JHB 298, no generic identification), as well as two Cyperaceae grasses, **purun**, (JHB 287, *Lepironia articulata*) and **tarupuk** (JHB 347, *Phragmites karka* (Retz.) Steud.) were classified as **telasai. Kumpau** and **telasai,** therefore, seem to suggest two prototypes around which similar folk genera may be clustered conceptually.

Similarly, ferns are classified as **engkubuk**, **gerajai** (alt. **derajai, rajai**), **gerintik, limputong, paku,** and **kuban**, without there being an overall Dusun term for 'ferns'. They are not grouped together as a life-form, though there is some reciprocal labeling, e.g. **gerajai**

classified as a kind of **limputong**. Informants classify them as **rumput** or **sancam** ('vegetable'). One informant, asked to classify **engkubuk** (JHB 223), was able to reply only: "not **kayu**, not **akau**."

The final covert intermediate cluster includes palms of the *Licuala* genus and possibly an *Areca*. The three *Licuala* are **benjiru** (*L. spinosa*,[16] cf. JHB 80), **silad** (JHB 60, 61, *L. orbicularus*), and **ukang** (JHB 168). These were categorised reciprocally: **silad** was said to be a kind of **benjiru** and vice versa; there was no overall category name. Another palm, **landai tiwow** (JHB 181, *Areca minuta*), was also said by two informants at the time of collection to be a kind of **ukang**; another informant subsequently classified it as **kayu**. Other informants who had heard of this plant could not classify it at all.

Two other categories of palm are clustered around salient, focal members. The first grouping consists of palms similar to **pinang**, (*Areca catechu*, the betel-nut palm). As with the grass **kumpau** and **telasai** (see above), **pinang** is a folk generic that is the focal member of a larger grouping. Five palms of this kind have been collected. One is **pinang derato**[17] (JHB 465, not yet identified), the binomial directly indicating that it is folk-species of the folk-genus **pinang**. Another is **landai tiwow** (JHB 181, *Areca minuta*), the name of which means "peacock's tail-feathers". However, four other palms in this group have uninomials, including **barang** (JHB 216, *Pinang salicifolia*) and **raring** (JHB 278, *Cyrtostachys renda*).[18] Such names do not subdivide a recognized folk-genus. Sub-generic taxa should, according to Berlin, be labelled with *secondary names*: "linguistically complex expressions, one of whose constituents indicates a category superordinate to the form in question" (Berlin 1992, p. 28) - unless one taxon is the prototype of the genus or is of "major cultural significance" (ibid., p. 30). The betel-nut palm (*Areca catechu*) is without doubt highly significant culturally throughout Southeast Asia, but **barang** and **raring** are decidedly *in*significant.

Another palm category has as its focal member **luba** (uncollected), and includes **tiad** (JHB 182, *Eugeissonia minor*), **bidang** (*Borassodendron borneense* [19]), **ramok** (JHB 161, *Arenga undulatifolia*) and **iyul** (uncollected).

Problematic higher-order categories

Four or five supra-generic categories used by the Dusun in classifying plants have some of the characteristics of life-forms, but seem very different in other ways. They appear to be able to contrast with life-forms, and are treated like life-forms by Dusun informants who, when given a plant name and asked to classify it, provided the category terms to be discussed. They differ, however, in two important respects: they are not based on morphological or phenotypic stereotypes or indeed on any kind of visual cognitive prototype, and they are used idiosyncratically. Some members of these categories may belong in other categories. Others are placed in these categories by default, as they do not belong in any of the main groups. The categories are labelled (1) **usak** (Malay: **bunga**) (2) **sakot** or **sakot tanah**, (3) **sancam** (Malay: **sayur**) or **umbus**[20], and (4) **raun** (Malay: **daun**). These groupings occupy much of the same classificatory space as a comprehensive 'herbaceous plant' life-form, which does not exist in Dusun. However, none of these categories can clearly be described as life-forms since they do not specify rank.

The term **usak**, besides meaning 'flower', is used in Dusun in the same way as other life-form terms. Thus, if a Dusun informant is asked what kind of plant **X** is, he or she is able to respond: '**usak**'. This term seems to mean 'decorative plant', 'shrub', or 'small herbaceous plant'. However, it overlaps with other categories, including **kayu**: a woody plant such as **usak bila pinggan,** (JHB 8, 192, *Ixora*, and 91, *Pavetta*?, both Rubiaceae, plus 378, 385, and 416, unidentified) is classified primarily as **usak**, though it is also considered **kayu**. Usually a low shrub, it can grow up to four meters high. An attribute of **usak** is that it is close to the ground. A plant classified primarily as **usak** may be optionally included in

other categories. The reverse is not the case. **Usak** as a plant category seems in some ways to imitate a life-form, but it may also include growth stages of plants which when mature are obviously members of other, more clearly-defined, life-forms.

The word **sakot** refers to any detritus lying around that cannot be identified. It may refer to rubbish. In the case of plants the term **sakot tanah** (or **sakot bumi**) is often used, suggesting a literal translation of 'ground detritus' (or 'earth detritus'). More idiomatically, it seems similar to English 'weed': a useless or even undesirable, relatively small plant. In Malay the term **rumput** generally has this connotation. And indeed the boundary between the 'grasses' and **sakot** is permeable. **Miau-miau** (JHB 37, *Lophatherium gracile* Brogn.) is categorized by some as **sakot**, and by others as **kumpau** or **rumput**. But plants lexically classified elsewhere may also be placed into this group, e.g. **bunga rampai** (JHB 152, *Dianella*) and **akau belan** (JHB 48, *Merremia borneensis*). Grasses, such as those in the **telincim** group are categorized as **sakot**. **Galugut** (JHB 116, moss) is put in this category, as are those mushrooms that grow out of the ground. A few informants put **basulok** (JHB 345, *Senna alata* (L.) Roxb.) in this category. There is considerable variation between informants as to which plants they classify as **sakot**. But the category is not haphazard, nor is it a "special purpose" category (Berlin *et al.* 1966, p. 274), as it does not have any single, 'special' purpose. Nor, on the other hand, can all plants described in this way be said to be useless, annoying, or disvalued, as the term 'weed' implies, since a number have medicinal or other uses. **Sakot** seems to be less a category with a clearly defined focus than a residue including culturally less important species that tend to be small and not noticed as individual plants but rather as clusters or clumps.[21] **Usak**, in contrast, groups plants in ways closely resembling those of a life-form, and it may perhaps be considered a 'pseudo-life-form'. Unlike a true life-form it lacks an ethnobiological focus and does not specify rank.

The categories **sancam** ('vegetable') and **raun** ('leaf') are different. They are also residual, used for plants that do not belong in the main groupings. The terms are most often used for **lamba** (JHB 72, *Curculigo vilosa* (Kurz) Merrill). This is a big leafy plant with no stalk. Informants varied in how they classified it. The generic category **lamba** is quite complex, and not all its consituents are edible. **Lamba gabuk** ('macaque lamba') (JHB 19, *Curculigo racemosa* Ridley), like **lamba** (alternatively called **lamba biasa**, 'ordinary lamba'), is an edible member of the family Hypoxidaceae. **Lamba-lamba**[22] (JHB 146, 160, *Corymborkis*) and **lamba entalun** ('forest lamba') (JHB 198, 392, *Niewiedia*) are both orchids, and are not eaten.

Eight other plants were classified as **sancam** or **sayur**.[23] For example, one informant categorized the shrub **kelupak manuk** ('chicken kelupak') (JHB 33, not yet identified) as **sayur**, saying that it was neither **kayu** nor **akau**.

Besides the **lamba** group, Araceae plants such as **latu** (including **raun latu,** JHB 199, *Homalomena cordata* (Houtt.) Schott) are classified as **raun**. Allocating a plant to the category of **raun** indicates that an attempt to put it into any other overarching category would be unsuccessful, but that it is possible to single out its outstanding characteristic. Like **usak**, **raun** is the term for a part of a plant. As for **sancam** (vegetable), it appears to be a functional category, like English 'toy' (Wierzbicka 1984), defined in terms of the use of its fleshy parts. Wierzbicka argues that such functional categories should not be treated as collective groupings. By this argument **sancam, umbus**, or **raun** may not be plant categories at all, and plants such as **lamba** and **kelupak manuk** may be 'unaffiliated generics' (see below).

Unlike the categories of folk genera and life-forms, the objects grouped together under the heading of **usak, sancam, raun, sakot,** or **umbus** lack any "inherent physical nature or 'essence'" (Atran 1993, p. 198) uniting them. However, the categories *are* natural in that they appear in natural discourse; **sakot** in particular is used contrastively with **kumpau**, **kayu**, **akau**, and the others as a category grouping together various genera. These

problematical categogies are not exclusively contrastive: a plant could belong primarily to a category such as **sakot** and secondarily to a life-form. Plants occupying the fuzzy zone between **kayu** and **akau**, such as **kayu piantok** (JHB 126 Rutaceae?, also **piantok**, JHB 165, Celastraceae?), or **nunuk** ('strangling figs', e.g. JHB 445, not yet identified) cannot similarly be included in both categories.

Unaffiliated generics?

Three kinds of plant are unaffiliated to any of the life-forms, intermediate-rank categories, or the problematical categories just described. Like life-forms they are 'kind of kinds', contrasting with other such groupings. Unlike life-forms, there are only a few members of each grouping, and these are closely related biologically, rather than "cross-cut[ting] biologically natural groupings of organisms" (Berlin 1992, p. 167). In the case of the first two categories to be considered, it is awkward to consider them as folk genera. Berlin (1992, pp. 171-176) has addressed the problem that unaffiliated generics "cannot easily be removed from the contrast set they share with full-blown life-form taxa" (ibid., p. 174). If one accepts Berlin's ethnobiological rank system, one must agree with him that one cannot have one's cake and eat it too (Berlin 1992, p. 175) by placing a category in both life-form and generic ranks. If Berlin's schema is correct, then a taxon may occupy only one ethnobiological rank. Rank, however, is distinguished from 'taxonomic level' (ibid., p. 64), which refers to structural position within a hierarchy as well as cognitive aspects.[24]

Bamboos are uncommon in the Merimbun area. Only two kinds of bamboo were collected, **bulu' baluy** (JHB 21, Graminae, JHB 430, not yet identified) and **bulu' embiling** (JHB 431, not yet identified). I also collected Dusun terms for four other bamboo: **bulu' aur, bulu' batong, bulu' gana**, and **bulu' ranap**.[25] Linguistically, **bulu'** suggests a folk-genus. But unlike other folk-genera sub-divided and labelled at the folk-specific rank, there is no unmarked, or 'regular' (*biasa*), 'genuine' (*bonor*) **bulu'**. Also, informants did not classify **bulu'** into any life-form or other higher-order category. Rather, they classified members of this group simply as **bulu'**. Thus it seems that **bulu'** could be described as a life-form. Some informants considered **bulu'** to be affiliated with certain palms, such as **tiad** (JHB 182, *Eugeissonia minor*) and **raring** (JHB 278, *Cyrtostachys renda*).

A clearer example of an unaffiliated generic is **bamban**, members of the Marantaceae family, including **bamban** (JHB 289, *Donax*), **bamban aig** (JHB 249, *Schumannianthus* prob. *dichotomus* (Roxb.) Gagnep.), and **bamban batu** (JHB 517, not yet identified). They are affilated with, and may be compared to, **bulu'** in that they have a similar general structure and may be used in the same way (constructing fish-traps and similar object), but in terms of their basic categorization they stand alone in the **bamban** category.

CONCLUSION

The goal of this paper has been to provide a provisional outline of Dusun ethnobotanical classification in terms of its most inclusive categories. From this study we can see how the Dusun order knowledge of the forest environment with which they have interacted. Through the collection of forest plants of all kinds, along with sociocultural information about those plants, a series of general, inclusive, higher-order categories emerge. By analyzing these it can be seen that they do not have the same cognitive or logical status. I have interpreted my data using as a starting point the concepts and terminology developed by Berlin (1992). The results lead me to conclude that Dusun general ethnobotanical categories are not symmetrical but lopsided, and may shade into each other, and that non-taxonomic categories of the sort Berlin would exclude are an *intrinsic* feature of Dusun ethnobotanical classification, and provide only ambiguous evidence for completely separate cross-cutting 'special purpose'

classifications.

In the social and psychological process of classification there is a yearning to find symmetry, but if we agree with Berlin's premise that ethnobiological classification follows nature's plan, the appearance of asymmetry should not be surprising - natural discontinuities are not evenly distributed. My data show that the general rules set forth by Berlin for recognizing categories at various ranks hold in the main, but become unworkable in certain cases.

The Dusun evidence shows that higher-order ethnobotanical categories do not have equal weight. Life-forms are more salient than other categories, but even the life-forms show differential salience. On the basis of nomenclatural evidence, prominence in the environment, and knowledge about different kinds, **kayu** is the most salient life-form, followed by **akau**, **uwai**, and **kulat**. As life-form salience decreases, categories are more easily treated as folk-genera. Likewise, some polytypic unaffiliated folk-genera have some characteristics of life-forms. In marginal cases, deciding whether a category is a highly polytypic unaffiliated generic or a minor life-form is almost a matter for subjective judgment, taking into account number of members and degree of biological focus. Bulmer (1974, p. 23) calls attention to this problem, and ultimately dispenses with Berlin's concept of life-form and indeed the whole rank system. And Ellen's (1993, p. 116) finding for Nuaulu ethnozoology holds true Dusun ethnobotany: "there is a gradation of inclusive categories, some highly salient culturally and widely shared, others - decreasingly - less so." Ellen, too, is moved to question the existence of life-forms and the reality of ethnobiological rank. But I find that these concepts ring true in the main: they provide a helpful framework in which to make sense of most of Dusun ethnobotanical classification. I agree with Hays (1983, p. 593) that while Berlin's system requires "slight modifications. . . critics' insistence on the need for a radically different approach in folk biology is unwarranted."

Categories of intermediate rank, constructed around prototypes, include various plants not included in life-forms. Other categories based on selected characteristics rather than overall morphology may be used as life-forms in classifying plants. These heterogeneous, non-taxonomic categories intrude in the 'natural' system of classification which Berlin says is paramount.

Anomalous plants may be categorized marginally in several groups, though never in more than one major life-form. **Patagar anak** (JHB 100, *Schizaea dichotoma* Swartz), for example, is ambiguous, being woody but tiny, and growing straight out of the ground. It has been classified as **kayu**, **usak**, and **sakot**. Similarly, **badoi** (JHB 256, *Costus globosus* Bl.) is classified variously as **usak**, **ukit**, **uwai**, and **tumid**. It may be ascribed to one of these categories on the basis of its use, for example, as a minor food, or as binding material; or because of the way it grows low to the ground. Where perceived features do not result in a conclusive, unambiguous category, informants seeking to categorize a plant must consider use. Thus, a plant may be categorized with rattans (**uwai**) on the grounds that it is used to manufacture the carrying basket, *saging*. Certain plants may not be fully accommodated in any larger groupings, even though they may have affinities with plants in other categories.

ACKNOWLEGMENTS

The research described in this report was made possible by U.K. Economic and Social Research Council award R000 23 3028 to Roy Ellen for a study of "The Ecology and Ethnobiology of Human-Rainforest Interaction in Brunei". Travel funds to attend the RGS/UBD conference were provided by the British Academy. I thank the Brunei Museum (particularly the Ethnography Section) for its collaboration, and The Royal Botanic Gardens, Kew, and the Department of Forestry in Brunei for their assistance. Bantong Antaran of the

Brunei Museum collaborated in the collection of data and provided helpful suggestions on this paper. Above all I thank Roy Ellen not only for critically reading several earlier drafts of the paper but also for his guidance and support through all stages of the study.

LITERATURE CITED

ANTARAN, B. 1993. *The Brunei Dusun: An Ethnographic Study*. M.Phil. thesis, University of Hull.

ASHTON, P.S. 1964. *A Manual of the Dipterocarp Trees of Brunei State*. Oxford University Press, London.

ATRAN, S. 1993. Folk biological cognition. *Current Anthropology* 34:195-198.

BARTLETT, H.H. 1940. The concept of genus. I. History of the generic concept in botany. *Bulletin of the Torrey Botanical Club* 67:349-362.

BERLIN, B. 1972. Speculations on the growth of ethnobotanical nomenclature. *Language in Society* 1:51-86.

BERLIN, B. 1974. Further notes on covert categories and folk taxonomies: a reply to Brown. *American Anthropologist* 76:327-331.

BERLIN, B. 1976. The concept of rank in ethnobiological classification: some evidence from Aguaruna folk botany. *American Ethnologist* 3:381-399.

BERLIN, B. 1992. *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton University Press, Princeton, NJ.

BERLIN, B., BREEDLOVE, D.E. & RAVEN, P.H. 1966. Folk taxonomies and biological classification. *Science* 154:273-275.

BERLIN, B., BREEDLOVE, D.E. & RAVEN, P.H. 1968. Covert categories and folk taxonomies. *American Anthropologist* 70:290-299.

BROWN, C.H. 1974. Unique beginners and covert categories in folk biological taxonomies. *American Anthopologist* 76:325-327.

BROWN, C. H. 1977. Folk-botanical life-forms: their universality and growth. *American Anthropologist* 79:317-342.

BROWN, C.H. 1984. *Language and Living Things: Uniformities in Folk Classification and Naming*. Rutgers University Press, New Brunswick, NJ.

BULMER, R.N.H. 1974. Folk biology in the New Guinea highlands. *Social Science Information* 13:9-28.

BURKILL, I.H. 1935. *A Dictionary of Economic Products of the Malay Peninsula*. Crown Agents for the Colonies on behalf of the Governments of the Straits Settlements and Federated Malay States, London.

CONKLIN, H.C. 1962. Lexicographical treatment of folk taxonomies. In Householder F. W. & Saporta S. (eds). *Problems in Lexicography*. Indiana University Research Center in Anthropology, Folklore, and Linguistics.

CLEARY, M. & EATON, P. 1992. *Borneo: Change and Development*. Oxford University Press, Singapore.

CORNER, E.J.H. 1940. *Wayside Trees of Malaya*. 2 vols. Government Printing Office, Singapore.

DRANSFIELD, J. 1992. *Rattans of Sarawak*. Royal Botanic Gardens, Kew, Surrey.

EDER, J. 1988. *On the Road to Tribal Extinction: Depopulation, Deculturation, and Adaptive Well-Being among the Batak of the Philippines*. University of California Press, Berkeley.

ELLEN, R. 1986. Ethnobiology, cognition and the structure of prehension: some general theoretical notes. *Journal of Ethnobiology* 6:83-98.

ELLEN, R. 1991. Grass, grerb or weed: a Bulmerian meditation on the category *monote* in Nuaulu plant classification. In Pawley A (ed.). *Man and a Half: Essays in Honor of Ralph Bulmer*. Uniprint, Aukland.

ELLEN, R. 1993. *The Cultural Relations of Classification: An Analysis of Nuaulu Animal Categories from Central Seram*. Cambridge University Press, Cambridge.

ELLEN, R., in press. Modes of subsistence and ethnobiological knowledge: between extraction and cultivation in Southeast Asia. In Warren & Slikkerveer (eds). *Pithecanthropus Centennial, Vol. C*. Pithecanthropus Foundation, Leiden.

ELLEN, R. 1994. Review of Ethnobiological Classification, by B. Berlin. *Man*.

ELLEN, R. (this volume). Putting plants in their place: Anthropological approaches to understanding the ethnobotanical knowledge of rainforest populations.

ELLEN, R. & BERNSTEIN, J., in press. *Urbs in rure*: cultural transformation of the rainforest in Brunei. *Anthropology Today*.

HAYS, T.E. 1983. Ndumba folk biology and general principles of ethnobotanical classification and nomenclature. *American Anthropologist* 85:592-611.

HUNN, E.S. 1977. *Tzeltal Folk Zoology: The Classification of Discontinuities in Nature*. Academic Press, New York.

KERSHAW, E.M. 1992. *Final shifts: some why's and hows of Brunei Dusun convergence on Malay*. Paper presented at Borneo Research Council 2nd Biennial International Conference, Kota Kinabalu.

KING, V.T. 1993. *The Peoples of Borneo*. Basil Blackwell, Oxford.

MORRIS, B. 1993. Review of Ethnobiological Classification, by B. Berlin. *American Anthropologist* 95:733-734.

OCHSE, J.J. 1931. *Vegetables of the Dutch East Indies*, English edition. Department Landbow, Buitenzorg.
PERANIO, R.D. 1972. The Bisaya. In LeBar F. M. (ed.). *Ethnic Groups of Insular Southeast Asia, Volume I: Indonesia, Andaman Islands and Madagascar*. Human Relations Area Files, New Haven.
PERANIO, R.D. 1977. *The Structure of Bisaya Society: a Ranked Cognatic Social System*. Ph.D. thesis, Columbia University.
PUKUL, H. & ASHTON, P. n.d. *A Check List of Brunei Trees*. Brunei Forestry Department, Bandar Seri Begawan.
QUISUMBING, E. 1951. *Medicinal Plants of the Philippines*. Technical Bulletin no. 16, Department of Agriculture and Natural Resources, Manila.
RANDALL, R. & HUNN, E.S. 1984. Do life forms evolve or do uses for life? *American Ethnologist* 11:329-349.
RIDLEY, H.N. 1925. *The Flora of the Malay Peninsula*. L. Reeve, Ashford, Kent.
TAYLOR, P. 1984. "Covert categories" reconsidered: identifying unlabeled classes in Tobelo folk biological classification. *Journal of Ethnobiology* 4:105-122.
TAYLOR, P. 1990. *The Folk Biology of the Tobelo People: A Study of Folk Classification*. Smithsonian Contributions to Anthropology, no. 34. Smithsonian Institution Press, Washington.
WIERZBICKA, A. 1984, Apples are not a "kind of fruit": the semantics of human categorization. *American Ethnologist* 11:313-328.
WIERZBICKA, A. 1985. *Lexicgraphy and Conceptual Analysis*. Karoma Publishers, Ann Arbor.
WONG, M. 1992. *The Future of Tasek Merimbun*. Unpublished Position paper, Brunei Museum, Bandar Seri Begawan.

ENDNOTES

1. Compare Eder (1987) on 'deculturation' - the loss of cultural and social identity. See also Ellen & Bernstein, in press.

2. The only complete ethnographic description of the Brunei Dusun is Bantong Antaran's thesis (Antaran 1993). However, these people are very closely related - culturally, socially, and linguistically - to the Bisaya of Sarawak (see Peranio 1972, 1977). The main difference between the two groups is a political one: they occupy territories in different states.

3. Comparative studies have shown that specialised terms such as those for plants are among the last to disappear from a lexicon. However, in the Dusun case that knowledge of the plant world needed to preserve this part of the lexicon is itself disappearing in the younger generation, not only because traditional subsistence is giving way to wage employment, but also because parents now tend to speak to their children in Malay rather than Dusun (Kershaw 1992).

4. Wierzbicka (1985) challenges the universality of this claim, offering as counter-evidence the primacy of higher-level (viz. life-form) terms in English - especially **bird**, **tree**, and **fish**. The case, she says, is the same in other European languages. She suggests this may be due to the fact that native English-speakers do not live close enough to nature for various kinds of some plants and animals to be important. See also Berlin (1972).

5. On cultigens and cultivars see Antaran 1993, pp. 71-79. The author provides Dusun terms for 17 types of common vegetable, 32 types of seasonal fruit tree, and 12 types of non-seasonal fruit. He also provides names for 15 varieties of rice, and discusses the cultivation of tobacco and sago.

6. JHB followed by a number refers to a specimen in the herbarium of the University of Kent - Brunei Museum Tasek Merimbun project. Sets are held at the Brunei Forestry Centre, the Royal Botanic Gardens, Kew, and the University of Kent. At the time of writing only 55 percent of specimens have been identified. I indicate genus and species name if available, providing family names only in instances where I wish to show a contrast.

7. *F. indica* is also categorized as a rattan in Malaysia, Java, and Sumatra (Burkill 1935, pp. 1024-1025; see also Bartlett 1940, p. 353).

8. The Dusun ethnobotanical data do not support the rest of Brown's evolutionary theory, in which 'grerbs' (grasses plus herbs) emerge as life-forms before 'vines', and in which herbaceous plants and bushes but not rattans are life-forms.

9. Because of its lack of complexity, **buluh** is considered an unaffiliated generic rather than a life-form, and is described under the section heading, 'Unaffiliated generics?'.

10. In rattans as in other plant classes, my herbarium specimens and other data are not by any means complete. Dransfield (1992) has documented, for Sarawak (Brunei's neighbour), 102 species of rattans in 13 genera.

11. This points to a distinction between uninomial (one-word) and binomial (two-word) nomenclature. When the life-form term in not included in a binomial plant name, the first term is as a rule the generic name and the second name is a sub-generic modifier. Dusun ethnobotanical classification below the genus level will be discussed in another paper.

12. Before the introduction of metal scrapers rattan was also used to scrape cassava tubers.

13. It is unclear from my study that other Dusun communities also lack generic names for inedible mushrooms. It may also be the case that women's ethnomycological knowledge exceeds that of men.

14. Cf. Taylor's (1990, p. 64) discussion of 'residue' and 'residual taxa'.

15. For interesting discussions of the ethnobiological rank or status of 'grass' see Brown (1984, pp. 20-21) and Wierzbicka (1985, p. 190).

16. The identification of a specimen in the Brunei Checklist Project, Royal Botanic Gardens, Kew.

17. Derato is a god in Dusun cosmology. The nuts of this palm are believed to be used and preferred by Derato. Hence this palm is 'Derato's pinang'.

18. Two other palms, uncollected, were also included in this grouping:- **dudor** and **uwat endali'**.

19. Specimen in the Brunei Checklist Project Database.

20. I provisionally consider these terms to be synonymous, but it is possible that some distinction exists between plants grouped as **sancam** and those grouped as **umbus**.

21. Ellen (1991) has considered the classificatory status of a very large but heterogeneous collection of plants, called 'monote', among the Nuaulu. Like Dusun **sakot**, they are a residual grouping and lack focal members. Ellen considers and ultimately rejects the term 'weed', with its underlying criterion of dis-utility, as a gloss for monote.

22. The use of reduplication in this case seems to mean 'like **lamba**, or **lamba**-ish.'

23. Additionally, two plants are identified in their names as **umbus**, which also means 'vegetable': **umbus kenawai** (JHB 353) and **umbus tunjong** (JHB 132), neither identified as yet.

24. Berlin considers level to be "trivially easy to define," while the definition of 'rank' is "quite slippery" (1992, p. 65). However, he never explains exactly what he means by level.

25. The staff of the Royal Botanic Gardens, Kew, have provided me with a listing from their Brunei Checklist Project Database, still in progress at the time of writing. The Kew database includes the following Dusun terms for bamboos.
Buloh baden (alt. **badan**) *Dinochloa*
Buloh gana *Gigantochloa*
Buloh betung (alt. **abang**) *Gigantochloa* aff. *levis*
Buloh nanap *Schizostachyum latifolium*
The Checklist also includes two specimens identified, though not specifically in the Dusun language, as **buluh balui** (*Gigantochloa* and *Gigantochloa* sp. nov.).