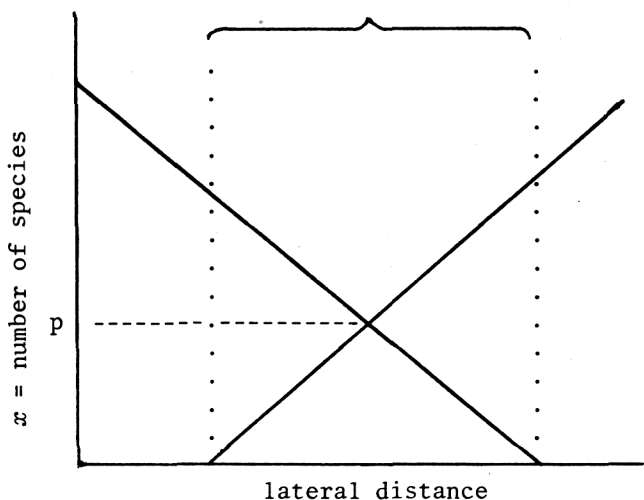


transition zone

(WALLACEA)



4. The completeness of an ethnozoological list and the possibilities for achieving this are related to the problems of the very notion of complete. It also begs the question as to the validity of the unit used to compile the 'complete' list. This applies generally to classificatory theory.
5. This is contrary to earlier speculation and supersedes existing published statements on the matter (Ellen 1972:225, table 1, items 10 and 11; 1975:203).
6. James Menzies has pointed out to me that in New Guinea there appears to be a general tendency among coastal peoples, with as diverse a fauna as that for highland regions, to employ a very limited series of terms. In this case, as with the Kalam and Nuaulu, an inventory does not necessarily reveal the extent of zoological knowledge of different species. Needless to say, the subject of this paper is the relationship between *named* categories and biological taxa.
7. There is also evidence that the hypothesis is not borne out for certain *analytic* classifications, where - as with the human body - classification proceeds through the separation of parts of a natural totality. However, the hypothesis would appear to hold for different levels and segregates within such domains. The fit is altogether better with synthetic systems - largely ethnobiological - which can be characterized as being composed of units arranged by a process of aggregation into units with still greater extension (Ellen 1975a:1-5).

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# THE RED FOREST OF THAILAND

## A study in vernacular forest nomenclature

P.A. Stott

While much has been written about the Thai vernacular names of flowering plants, both from the scientific or ethnographic viewpoint (see in particular: Winit Wanandorn 1948, 1960; McFarland 1969: addenda 14 - 39; and Simmonds in this volume, p. 128) and at the popular level (e.g. Smitinand 1975), virtually nothing exists in the literature concerning the folk nomenclature of vegetation formations, particularly forest types (*cf.*, however, Ryan & Kerr 1911). The interest in the plants themselves is easily understood; their religious, medicinal, taxonomic, ornamental, horticultural, agricultural and symbolic value provides a natural explanation. Yet the lack of published information on vernacular names for vegetation should not be taken as an indication that such nomenclatures are absent or devoid of intrinsic interest. Such is far from the truth, as this paper hopes to elucidate; rather, there is a fascinating and tantalising gap in our knowledge of 'phytolinguistics', if I may be permitted to coin a word, which needs to be filled.

During a detailed phytosociological analysis of the dry deciduous dipterocarp forests of Thailand (Stott 1976), carried out in close co-operation with the Faculty of Forestry, Kasetsart University, the author collected information on the vernacular names for this representative formation of the savanna forests of mainland South East Asia. In all, four distinctive and highly descriptive Thai (and Lao) 'terms' were discovered. Each of these is discussed at length in the key part of this essay, after a general introduction to the biogeography and ecology of the dry deciduous dipterocarp forests.

### THE DRY DECIDUOUS DIPTEROCARP FORESTS OF SOUTH EAST ASIA

Just penetrating westwards into India (Sen Gupta 1939), dry deciduous dipterocarp forest is widespread in Burma (Kurz 1877; Stamp 1925; Champion 1936; Edwards 1950; Davis 1960; Hundley 1961), Thailand (Neal 1967; Smitinand 1969; see also fig. 10), Cambodia (Rollet 1953; Legris and Blasco 1972; see also Carte Internationale du Tapis Végétal à 1/1,000,000, *Cambodge*, 1971), Laos (Ly Van Hoi 1952; Vidal 1956, 1960), and Viet-Nam (Maurand, 1943, 1965). In the main, it is characteristic of areas with hot bioclimates which have a dry season of five to six months and an average annual rainfall of between 1000 and 1500 mm (Gausson *et al.* 1967), climatic conditions that distinctly favour the spread of forest fires in the dry

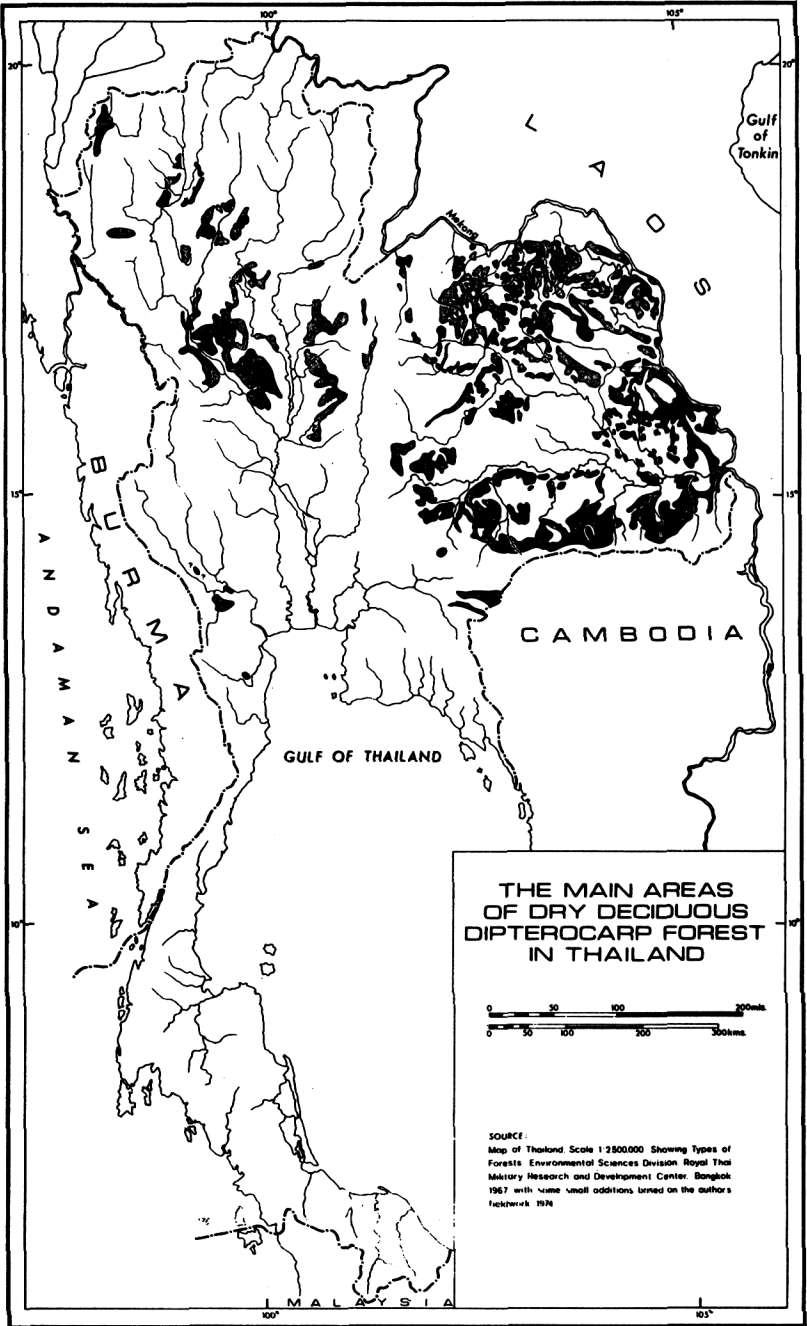


Figure 10. The main areas of dry deciduous dipterocarp forest in Thailand.

season and the consequent degradation of soils. Fire, spontaneous or kindled by man, is, undoubtedly, a fundamental ecological control in the functioning of dry deciduous dipterocarp forest ecosystems, and the spread of this forest type in many regions of mainland South East Asia is probably closely related to a long history of shifting cultivation. However, certain workers have regarded dry deciduous dipterocarp forest as essentially an edaphic climax or sub-climax vegetation, which is developed on poor, acid soils of the Red-Yellow Podzolic Group that either have a high degree of stoniness or a strongly lateritic character (Stamp 1924; Schnell 1971; see also Bloch 1958).

Throughout its distribution, dry deciduous dipterocarp forest is dominated by five deciduous or xerophytic tree species of the family Dipterocarpaceae, that are endemic to the Indo-Malaysian Sub-Kingdom (Palaeotropical Kingdom) of Good (1974), and which are confined to India and mainland South East Asia (Smitinand 1963), with only a few extensions into North-west Malaysia. Within South East Asia, therefore, they belong to either the Indo-Burmese or Indo-Chinese floristic elements. The Indo-Burmese elements are four in number, namely *Dipterocarpus obtusifolius* Teijsm., *D. tuberculatus* Roxb., *Pentacme suavis* A. DC.<sup>1</sup>, and *Shorea obtusa* Wall. ex Blume. All four species are recorded from Burma, Thailand, Cambodia, Laos and Viet-Nam, but only three are known in India, namely *Dipterocarpus obtusifolius* and *Shorea obtusa*, and *D. tuberculatus*, which just crosses the Indo-Burmese border into Manipur State (Sen Gupta 1939). The distribution of *Pentacme* extends into North-west Malaysia to about latitude 7°N, where it is characteristic of beach forest and of vegetation on coastal limestone rocks in the Langkawi Islands, Perlis and north Kedah (Foxworthy 1932; Symington 1943). At these sites, and at similar habitats in peninsular Thailand, the leaf-form of *Pentacme* is different from the more usual type found in the dry deciduous dipterocarp forests, in that it tends to be completely glabrous, narrower in shape and to possess an incipient drip-tip (see specimens in BK, for example Kerr 6888, 12334, 13918, 18898 and Put 2369; and in BKF, Thai-Danish Botanical Survey 12295 and 12353). This form was once known as a distinct species called *P. malayana* King (Craib 1931). The Indo-Chinese element is represented by *Dipterocarpus intricatus* Dyer, which is confined in its distribution to Thailand, Cambodia, Laos and Viet-Nam.

In addition to the five trees mentioned above, a sixth species of dipterocarp, namely *Shorea roxburghii* G. Don (Syn. *S. talura* Roxb. - for nomenclatural revision, see Kashyapa 1961) is quite frequently a dominant of the dry deciduous dipterocarp forest.<sup>2</sup> This Indo-Burmese element is either evergreen or shortly deciduous, and is known from India and all the countries of mainland South East Asia, including Western Malaysia. In the latter country, it is characteristic of coastal *Schima*-bamboo forest, and it grows with *Pentacme* on the limestone hills of Langkawi, Perlis and Kedah (Symington 1943).

Within Thailand, dry deciduous dipterocarp forests cover some 147,000 sq. km., and comprise between 46 and 47 per cent of the total forested area (Neal 1967; Sabhasri & Wood 1967), although in many regions they are much disturbed and form little more than scrub woodland. They are almost confined in their distribution to the north, north-east, east and south-west of the country (fig. 10), where the dry season is strongly marked, and they are virtually absent from the south-east and the peninsula, as well as the central plain, which being the 'rice bowl' of Thailand, is for the most part under cultivation. By far the largest area is found in the vast Korat Plateau of the north-east and east, a structural unit made up of a series of sandstone formations, Late Triassic to Cretaceous in age. These readily give rise to the poor sandy soils so characteristic of dry deciduous dipterocarp forests, which account for nearly 80 per cent of the Plateau's forest vegetation. In the north of Thailand, dry deciduous dipterocarp forests are well developed on a wide range of outcropping sandstones, on areas of old alluvium, and on steeper slopes in granite country.

To this day, dry deciduous dipterocarp forests remain an important source of timber and other forest products, such as wood oil, for the Thai people, and even for export (cf. Martin 1971, for Cambodia). They provide a number of basic building timbers, including, of course, the highly prized *teng* (*Shorea obtusa*) and *rang* (*Pentacme*), as well as a good range of decorative woods, such as *Dalbergia* spp. and *Pterocarpus macrocarpus* Kurz. Unfortunately, the destruction of many areas of dry deciduous dipterocarp forest by shifting cultivators and squatter farmers, coupled with rather weakly enforced forest protection laws, now means that some of these woods are in short supply and are being priced out of the market for many people.

As stated in the introduction, dry deciduous dipterocarp forest is known by at least four different vernacular 'terms' in Thailand. Each of these is now analysed in detail.

### *p̂a tengrang*

*p̂a tengrang* is the nearest one comes in Thai to a 'technical term' for the dry deciduous dipterocarp forest. As well as being the term most frequently used by professional foresters, it is widely understood by educated Thais and is often the only term comprehended in Central Thailand and Bangkok. On one field excursion to the Korat plateau, students from Kasetsart University in Bangkok were baffled by my use of *p̂a kh̄k* (see p. 171), but showed a sudden enlightenment when I inadvertently referred to *p̂a tengrang* instead. This was a forest type they recognised from their books, lectures and general conversation.

*p̂a tengrang* simply means 'forest of *teng* (*Shorea obtusa*) and *rang* (*Pentacme suavis*)', two of the most highly characteristic



species of the dry deciduous dipterocarp forest. However, the term is used more widely than one might expect and is frequently applied to stands of savanna forest that are either poor in *Shorea obtusa* and *Pentaacme* or which altogether lack one or both of these species. In his phytosociological classification of the dry deciduous dipterocarp forests of Thailand (Stott 1976), the author has defined four vegetation associations, only one of which (the *Shoreeto-Pentaacmetum siamensis* Stott 1975) is actually dominated by *teng* and *rang*. Yet the term *pà tengrang* is applied regularly to all four associations, even where the forest is clearly dominated by mixtures of *Dipterocarpus intricatus*, *D. obtusifolius*, *D. tuberculatus*, *Pinus merkusii* Jungh. & De Vriese and a wide range of other tree species.

The choice of *teng* and *rang*, however, as the key designatory species is not surprising, for they have proved to be two of the most valuable timbers in the dry deciduous dipterocarp forest. Their wood is hard and durable and makes excellent railway sleepers and bridges, as well as being useful for general construction purposes (cf. Rodger 1963). Although surface cracking occurs during seasoning, it is not an important fault when the main uses of the wood are considered, which are comparable with those of the celebrated *sāl* (*Shorea robusta* Gaertn. f.) of India. The construction of the North Eastern Railway line to Korat, its extension through Eastern Thailand and the construction of the railway to Chiang Mai in the North all largely depended on *teng* and *rang*, which provided most of the telegraph posts, bridge timbers and sleepers (*Siam: Nature and Industry* 1930: 158-162). In the North and North East, they also form an important element in local trade, especially where teak is not available, for house posts. Unfortunately, both *teng* and *rang* are now in short supply and prices are rising sharply. Information recently received from Mancha Khiri Saw Mill, Amphoe Ban Phai, Khon Kaen (Somsak Sukwong pers. comm., July 9, 1975) gives the buying price of *teng* and *rang* as 1050 baht (m<sup>3</sup>) and the selling price as 90 baht (ft<sup>2</sup>).

There is little doubt, therefore, that the importance of these two species in dry deciduous dipterocarp forestry and their widespread use both nationally and locally are the reasons why *pà tengrang* has become the 'technical term' most generally employed in Thailand.

### *pà daeng*

*pà daeng*, on the other hand, is a term only readily understood in parts of Northern Thailand (cf. Deignan 1945:24). Simply meaning 'red forest' (hence the title of this essay), it is, however, extremely difficult to be perfectly certain about the origins of the term. At least four explanations are possible (eschewing a fifth temptation to see the forests as a refuge for communist guerillas).

Wide tracts of dry deciduous dipterocarp forest, especially stands referable to the *Dipterocarpetum obtusifolio-tuberculati* Stott 1975, are found on lateritic soils of the Red-Yellow Podzolic Group (cf. Bloch 1958). These soils are reddish in colour and often possess a layer of lateritic nodules some 50 cm. down. The floor of the forest, particularly in the dry season, is often a deep red-brown and this could be, although it is unlikely, a part explanation.

A more likely explanation, however, is the widespread occurrence of trees, including a good range of economic species, which possess red wood. Of particular note in this context are *Xylia kerrii* Craib & Hutch., which has a reddish-brown heartwood and is actually known in Thai as *mai daeng* (the 'red tree'), and *Pterocarpus macrocarpus* Kurz, in which the hard and close-grained wood is of a warm red colour, sometimes with a beautifully curled and mottled figure. Moreover, the timber colour of some of the more dominant species, including *Dipterocarpus obtusifolius* and *D. tuberculatus*, falls within the reddish-brown range. Foresters, however, are not convinced that this high incidence of red wood is the real reason for the term, readily pointing out that such timbers are known from a wide range of formations.

A third possibility is the deciduous character of the forest, which, between late December and March, gives it a very distinctive aspect, easily detected from a distance. In most cases, however, the dominant colour is not red, although admixtures of red, orange and yellow are common.

A fourth explanation, however, is the one most emphasised by my informants. They insisted that the appellation *pà daeng* refers first and foremost to the dry season appearance of the forest, when, particularly in the vicinity of roads and tracks surfaced with lateritic materials, the trees, shrubs and ground vegetation become coated in a thick red dust. On trees this dust either coagulates in bark fissures or impregnates the whole trunk with a fine red sheen. The distinctive character of such dry season forest has been beautifully portrayed by Prajuab Thirabutana in her partly autobiographical novel *Little Things*, which describes the life of a young girl, Sumlarn Meesin, as she grows from childhood to maturity in a village in North East Thailand. At one point in the story, 'Larn takes up a teaching appointment at a place some distance from her own village and at week-ends she has to walk home through the forest. As she makes these weekly journeys, she notices how the forest changes with the seasons and it is during her reflections on the yearly cycle that she paints the dry season portrait of *pà daeng*:

'At the end of the hot season when it did not rain for so long all the trees seemed exhausted, weary and sad. Their leaves were covered with dust, especially the ones

near the highway which were completely covered with thick red dust. When the soft hot breeze came they waved slowly like old people who disapproved of their offsprings' conduct and were tired of life. The old leaves were going to fall, but before they left their stem the stalks gave them their last beauty: some of them turned bright red, bright orange and bright yellow. When you looked at them you knew for sure that they were old leaves but still you had to confess that they were pretty. It was not like in human beings at all, where you would have beauty only when you were young while the older you were the more withered you would be and the more you tried to cover it the uglier and more piteous you would become.'

If the above portrait encapsulates a true perception of these forests, then the term *pǎ daeng* refers above all to their dry season appearance, with 'autumnal' tints and a coating of thick, dark red dust. There is, however, one serious objection to this explanation, which would be difficult to refute without research into the history and antiquity of the term. It is only within the last seventy years or so that these forests have been opened up by lateritic roads and tracks and it is arguable that before these incursions there would have been little dust about, even in the dry season. Certainly, today, the forests are dustier and 'redder' near to roads and tracks and one has only to follow a Land Rover to feel some degree of empathy with *pǎ daeng*!

*pǎ* (*khî*) *páe*<sup>3</sup>

A third term for dry deciduous dipterocarp forest is *pǎ páe*<sup>?</sup>, which is short for *pǎ khî páe*<sup>?</sup>. It is not easy to translate this phrase without being indelicate, for it literally means 'forest of goat droppings' or 'goat dung forest'. This somewhat startling designation, which is found in both the North (cf. Garrett & Kerr 1925:9) and North East,<sup>5</sup> refers to a distinctive characteristic of the soil surface under certain stands of dry deciduous dipterocarp forest (especially of the *Dipterocarpetum obtusifolio-tuberculati* and the *Mesopentacmetum suavis* Stott 1975), where the ground is covered by a layer of small lateritic nodules. The open canopy of most dry deciduous dipterocarp forest means that the processes of erosion are constantly at work on the forest floor and the resultant degradation of the soil brings to the surface these lateritic concretions, particularly in areas where the forest has been disturbed by cutting and felling. The term *pǎ páe*<sup>?</sup>, therefore, is frequently encountered in pedological studies (e.g. Bloch 1958).

*pǎ khôk*

In the North East, especially around Korat (Nakhon Ratchasima), a commonly heard name is *pǎ khôk*, or 'small hill

forest', a term which is also widely used in neighbouring Laos (Vidal 1960). Around many villages in the undulating plateau-land of the North East, on slightly higher ground, where the slopes and soils are unsuitable for wet rice cultivation and the land has not yet yielded to upland cash crops, small pockets of dry deciduous dipterocarp forest linger, a distinctive element in the landscape. Some are burial forests; others have been much disturbed by cutting. These 'small hill forests' are often the only relief and vie with ornate temples to catch the eye. In the country as a whole, dry deciduous dipterocarp forest is rarely found above 1000 m above sea level. The highest elevation from which it has been recorded is 1300 m, on Doi Suthep, near Chiang Mai, in the North. This is the highest locality for any group of dipterocarp species in Thailand, the more common altitudinal limit being around 1000 m above sea level.

#### ECOLOGY AND LANGUAGE

The above study, although preliminary and limited in scope, hints at the wealth of vernacular forest names that probably exists in mainland South East Asia. The four Thai 'terms' analysed are all referable to one forest type, the dry deciduous dipterocarp forest, and, together, they give us a remarkable cameo of its basic ecology.

Such studies of vernacular forest names possess many strands of interest. Firstly, they encapsulate those characteristics of vegetation that are perceived and thought important in different cultures. Secondly, they may reveal different perceptions of vegetation discontinuities and may not tally with scientifically defined associations. Thirdly, they are yet another line of evidence that folk ecology may provide a sounder basis for conservation and management theory, which could then be rooted in traditional values. For these reasons, and more, this essay is first and foremost an attempt to encourage the development of what may be termed 'ecolinguistics' or 'phytolinguistics'.

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## NOTES

1. In this publication, my interpretation of the genus *Pentacme* A.D.C. follows that of Smitinand (1958). However, this interpretation ignores the fact that the oldest species name is the *Shorea siamensis* of Miquel that was transferred to *Pentacme* by Kurz in 1870, and Dr P.S. Ashton (pers. comm. 1974) has recently completed a manuscript for publication in which he returns *Pentacme* to *Shorea* Roxb. This will necessitate a revision of Smitinand's interpretation.
2. In Thailand, *Shorea thorellii* Laness. is also recorded in dry deciduous dipterocarp forest, for example, near Tak.
3. In Central and North East Thailand, *páe*? becomes aspirated to *pháe*?

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