Naming Consistency for Forest Plants in some Rural Communities of Northeast Thailand

Lyndon Wester and Sekson Yongvanit

Research

Abstract

Consistency of naming forest plants was subjected to a field test in a rural community of Northeastern Thailand. Local experts supplied names for a set of trees and vines in a surveyed plot. Results showed a high level of agreement among the informants for more than half of the plants and less than 10% of the plants were not named consistently by the majority of informants. Disagreement on names largely took the form of non-responses or degrees of specificity. In general, vines and immature understory plants produced the greatest diversity of opinion. Of the names collected, 53% were recorded in standard botanical references but about half were linked with more than one Latin binomial, often in different families. Many false links could be quickly resolved if voucher specimens of the plants were compared with herbarium specimens.

Introduction

The only real determinant of "correctness" in the use of a common name for a plant is if it communicates information accurately. A "correct" name therefore is one that any group of people agree to and use consistently to identify an object. However, outside of that specified cultural context, the name may have no meaning, or worse, may inadvertently convey incorrect information, if the same word has been attached by another group of people to a different object.

In a large and culturally diverse region as Thailand, now with a highly mobile population, the possibility for confusion in the use of common names is great. The scientific binomial system solves the problem of cultural and linguistic context by referring a Latin name to an actual type specimen or detailed written published descriptions of it. However, even if a local name of an individual plant can be validly linked to a Latin binomial, there is no assurance that the two name categories have exactly the same scope of meaning. Nevertheless, local plant experts are commonly used to assist in ecological or ethnobotanical field surveys to help differentiate taxa.

The question of the consistency of application of local names, and the equivalency of local names and Latin binominals, was subjected to a field test in a forest plant community in Northeastern Thailand. Studies elsewhere have shown that there is often a broad level of agreement between indigenous and scientific naming systems, although the indigenous systems may make finer distinction among plant groups that are of cultural importance (so called "over differentiation") or fewer distinctions for those that are less valued ("under differentiation") (Berlin 1992, Martin 1995). However, the primary purpose of this study was to compare plant identifications of several local experts under typical, but less than optimum conditions, and to establish the amount of agreement on local names of particular plants within one rural community. Furthermore, the study provides a basis for discussing the frequent practice of taking names supplied by local informants and attempting to link them to Latin binomials listed in standard published reference works.

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Voucher specimens of selected plants were taken for independent identification by a botanist trained in the Linnean system to compare the level of agreement with names supplied by the local informants. The plants that are the subject of this study represent what one might realistically encounter in an ecological or ethnobotanical field study. These are not plants that necessarily possess the most desirable diagnostic parts for identification but are the plants one would find in any random plot of forest with specimens that included individuals in different stages of maturity as well as suppressed by competition in the understory.

Methodology

The study site was a forest of mixed evergreen and deciduous species in Northeast Thailand. The region had been selectively logged in the 1970's and there had been seasonal camps near the site at least since 1945 but no permanent village until 1972 (Yongvanit & Thongchan 1993). The survey plot was located near a temple, which probably gave it more protection from human disturbance than the fact that it was in a forest reserve. Nevertheless, it would still be classified as a significantly disturbed and degraded forest community (Wester & Yongvanit 2006).

Selection of Informants.

Members of local communities identified eleven herbalists as experts; none were self defined (Table 1). All were from different villages and **tambon** (village clusters) scattered over three different **amphur** (counties) and all but one lie adjacent to the border of Kalasin and Khon Kaen provinces. The exception was one informant who was from a village in **amphur** Khon Sarn, Chaiyaphum province, located more than 200 kilometers away from the other villages. All the informants were male and practicing herbalists, either for their family or the community, or herb collectors who gather plant material for wholesalers as a source of income. Their ages ranged from 52 to 85 with a median age of 70. All informants were Thai nationals but ethnically Lao (Isaan) and would have learned the local dialect as their first language. Although Thai and Lao are generally regarded as regional dialects, a speaker of only one language often has great difficulty understanding the other.

Field Identification Survey.

A transect 50 x 10 meters was surveyed and the dimensions and location of all trees and vines over two meters tall were recorded and tagged. Each informant was taken to the site independently and asked to identify and name each of the surveyed trees or vines. If the informants were aware of more than one name for any particular plant, they were asked to supply it. All communication and data recording was done in Thai or Lao and names were recorded in Thai script.

Voucher specimens were collected for all of the taxa named by informant "A" and were identified as precisely as possible with the assistance of a Linnaean botanist with much experience in Thai forests and with reference to material in Chiang Mai University herbarium.

Results and Discussion

A total of 96 plants in the forest transect were the basis of this study. Most of the informants supplied names for more than 50% of the plants. Although one informant could name only 37%, another supplied a name for all of them (Figure 1). In all, 77 different names were used by informants and are listed in Table 2. Although informants were asked to be as specific as possible when supplying names, the responses are clearly a mixture of primary names, such as **wa** (which in Thai generally refers to genus *Sygyium*), and secondary names, consisting of a primary name with a more specific modifier, such as **wa khao** meaning "white *Sygyium*" (Table 3). In this study, if there is agreement among informants at the level of the primary name, this will be specified. Otherwise, agree-

Table 1. List of Informants.

INFORMANT	AGE	PROVINCE	AMPUR	TAMBON	OCCUPATION
A	85	Chaiyaphum	Khon sarn	Nam Um	Herb collector and herbalist
B	52	Khon Kaen	Kranuan	Huai Yang	Village head man, herbalist
C	70	Kalasin	Thakantho	Kung Kao	Herb collector and wholesaler
D	60	Kalasin	Thakantho	Kung Tao	Farmer, herb collector
E	72	Kalasin	Thakantho	Natan	Herb collector and herbalist
F	78	Kalasin	Nong krung si	Dong Mun	Herb collector and herbalist
G	68	Kalasin	Thakantho	Na Taln	Herb collector and herbalist
H	70	Kalasin	Thakantho	Kutjik	Herb collector and herbalist
I	70	Kalasin	Nong krung si	Nong Yai	Farmer, herb collector, herbalist for family
J	53	Kalasin	Nong krung si	Koko Kuer	Farmer, herb collector, herbalist for family
K	68	Kalasin	Nong krung si	Kut Kaeng	Herb collector

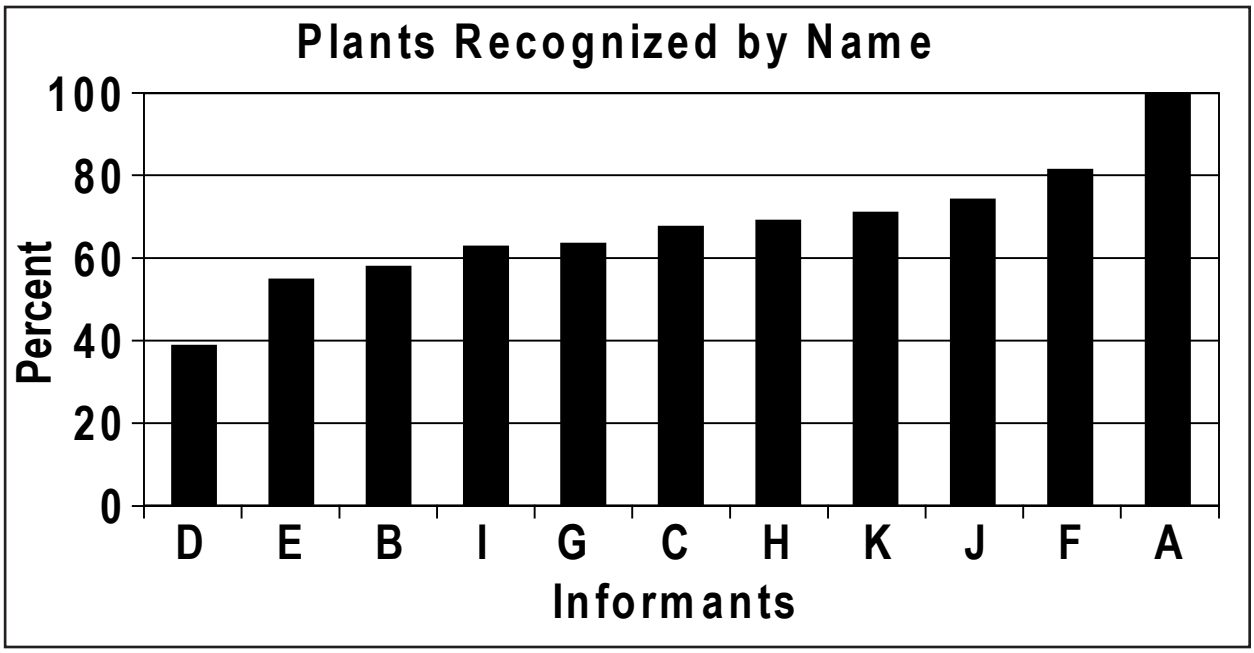

Figure 1. Ability of informants to name ninety six plants.

Table 2. List of plant names that were used by informants.

PLANT NAME	INFORMANTS											TOTAL	Binomial[1]	Families[2]
	A	B	C	D	E	F	G	H	I	J	K			
khai nao	1	1	1	1	1	1	1	1	1	1	1	11	4	2
khae pa	1	1	1	1	1	1	1	1	1	1	1	11	4	1
mueat ae	1	1	1	1	1	1	1	1	1	1	1	11	1	1
salak dam	1	1	1	1	1	1	1	1	1	1	1	11	1	1
kean tao	1	1	1	1	1	1	1	1	1	1	1	11	0	0
kom som	1	1	1	1	1	1	1	1	1	1	1	11	0	0
ma kha tae	1	1	1	1	1	1	1	1	1	1	1	11	1	1
tamor	1	1	1	1	1	1	1	1	1	1	1	11	0	0
kha pia	1	1	1		1	1	1	1	1	1	1	10	3	2
ta baek	1	1	1		1	1	1	1	1	1	1	10	2	1
duk sai	1	1	1		1	1	1	1	1	1		9	1	1
kra bao hin		1	1	1	1	1	1	1	1	1		9	1	1
lam jong	1	1	1		1	1	1	1		1	1	9	0	0
pradu	1				1	1	1	1	1	1	1	8	1	1
tin tang	1	1	1			1	1	1			1	7	3	1
tin nok	1					1		1	1	1	1	6	6	3
wa khao		1	1		1	1	1			1		6	1	1
nam choi		1	1			1	1		1			5	1	1
pha yung	1	1						1	1		1	5	1	1
ta baek lueat		1	1			1			1	1		5	1	1
saen pun			1				1	1		1	1	5	0	0
dimi	1				1	1		1				4	5	4

PLANT NAME	INFORMANTS											TOTAL	Binomial[1]	Families[2]
	A	B	C	D	E	F	G	H	I	J	K			
po					1	1	1			1		4	4	3
bora phet	1					1				1	1	4	2	2
phrik				1	1	1				1		4	2	2
mueat bai yao			1			1	1		1			4	0	0
khem khao			1				1			1		3	5	3
kradai ling				1	1				1			3	1	1
mueat pla sio			1			1	1					3	1	1
sasu	1				1			1				3	1	1
daeng dong						1		1				2	6	5
kra bao klak			1								1	2	1	1
kra bao ling			1							1		2	1	1
chom chuen kao			1				1					2	0	0
kuer tay dip			1			1						2	0	0
nam ka jorn		1				1						2	0	0
pra dong	1										1	2	0	0
wa jam joi			1			1						2	0	0
di ngu									1			1	7	5
mueat										1		1	5	4
som kop	1											1	5	5
mueat khon	1											1	4	3
po daeng								1				1	4	2
sam phan ta				1								1	4	2
ham ao		1										1	3	3
khem				1								1	3	3
kheng				1								1	3	3
wa								1				1	3	2
ko	1											1	2	1
khi thao		1										1	1	1
mueat som											1	1	1	1
wa khi mot											1	1	1	1
duk				1								1	0	0
duk yai											1	1	0	0
herd dong		1										1	0	0
khai kao	1											1	0	0
kuer daeng phun	1											1	0	0
kuer fuk kao	1											1	0	0
kuer houng sui		1										1	0	0
kuer kao gerb	1											1	0	0
kuer kaen teaw								1				1	0	0
kuer suer kong	1											1	0	0
kuer saen phun		1										1	0	0

PLANT NAME	INFORMANTS											TOTAL	Binomial[1]	Families[2]
	A	B	C	D	E	F	G	H	I	J	K			
mueat kaeo	1											1	0	0
nam luek lea						1						1	0	0
pi phorn									1			1	0	0
po kie kwai			1									1	0	0
po kum		1										1	0	0
po tan kao			1									1	0	0
po tan yai			1									1	0	0
phrik tong		1										1	0	0
saen sam kae			1									1	0	0
som soi										1		1	0	0
som sui		1										1	0	0
ta baek kao		1										1	0	0
tom toi		1										1	0	0
wa cha mod								1				1	0	0
NAMES USED	29	26	29	15	20	30	23	24	21	24	22			
UNIQUE NAMES	9	10	4	4	0	1	0	4	2	2	3	39		

1. Number of Latin binomials matched to this name in Smitinand (2001)
2. Number of families into which Latin binomials fall.

ment will be based the more exacting standard of secondary names. Differences in specificity of response might be the result of different skill level of the informants or the fact that some individual plants lacked many diagnostic characters that allowed them to be identified more precisely. In many cases, informants showed they were aware of many secondary names and sometimes supplied both primary and secondary names for some individual plants but, in other cases, used only primary names without further specification.

Some primary names appear to be applied to taxa more than one genera, or even family, according to the Linnaean system. The common primary name **mueat** represents an extreme case. Phinthong (1989), in his authoritative dictionary of the Isaan language, notes that the name is applied to “various types of bushes or trees, some with edible leaves, some used medicinally”. In the plant list of Smitinand (2001) there are no less that 87 entries under this primary name, although most of them are associated with members of the genera *Aporusa* (Euphorbiaceae), *Helicia* (Proteaceae), *Memeycylon* (Melastomataceae) or *Symplocos* (Symplocaceae). In this study, three plants referred to as types of **mueat** by one informant were identified from voucher specimens as *Memecylon umbelatum* Burm. (**mueat ae**), *Hydnocarpus ilicifolia* King (Flacourtiaceae) (**mueat kaeo**) and *Suregada multiflora* (A.Juss.) Baill. var. *multiflora* (Euphorbiaceae) (**mueat khon**). Clearly the conception behind the local naming system either departs radically from the Latin binomial system.

All informants used a suite of eight names suggesting at least a core of shared vocabulary (Table 2). A further nine other names were used by a majority of the informants. There were only a few instances where particular infor-

Table 3. Three examples of plants identified with multiple secondary names.

Example 1	Example 2	Example 3
mueat	**po**	**wa**
mueat bai yao	**po daeng**	**wa cha mod**
mueat khon	**po kie kwai**	**wa jom joi**
mueat pla sio	**po kum**	**wa khao**
mueat som	**po tan kao**	**wa khi mot**
mueat ae	**po tan yai**	
mueat kaeo		

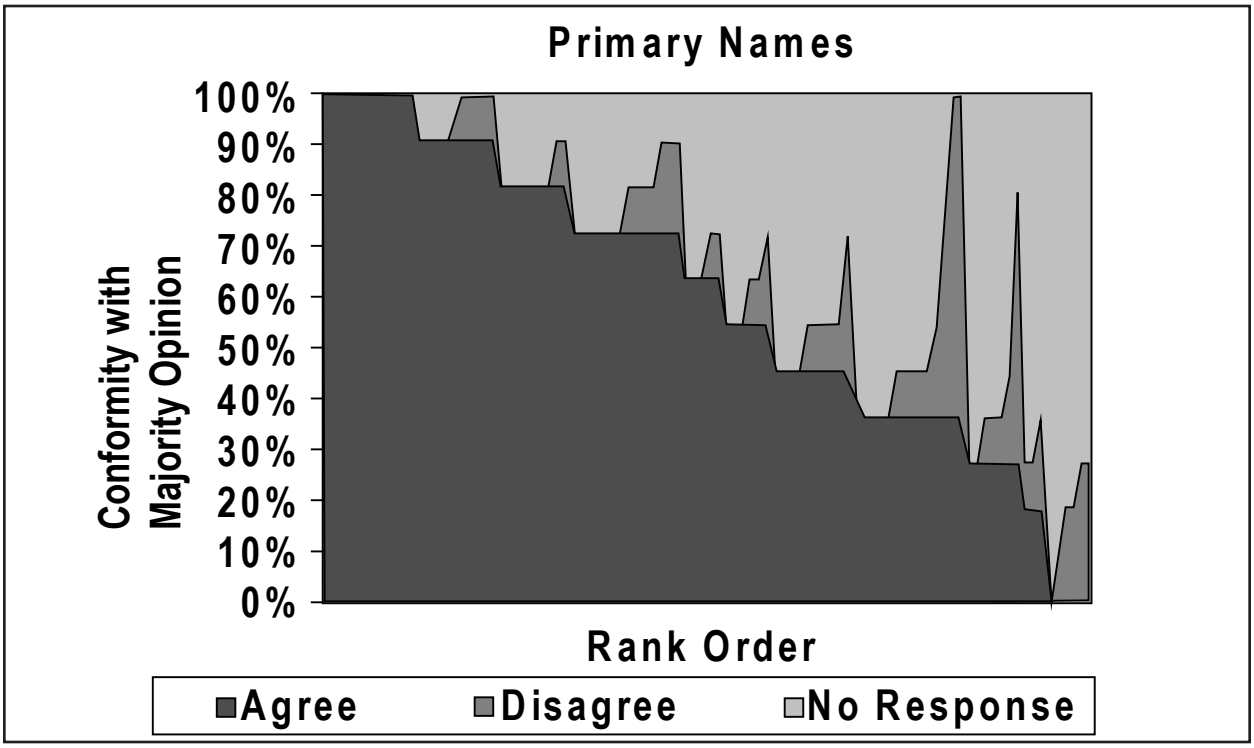

Figure 2. Degree of agreement among informants on common names of plants.

mants gave a name for plants that was consistently different from the majority and these are listed below.

Name supplied by majority of informants	Alternate name	Informant
kaen tao	**ham ao**	B
mueat	**khai khao**	A
kha pia	**sam phun ta**	D
kra bao hin	**kra bao klak**	K

Of these names, Smitinand (2001) records that both the names **kra bao hin** and **kra bao klak** appear to be synonyms applied to *Hydnocarpus ilicifolia* King. In one instance several informants indicated that there were two generally accepted names for a plant (**kom som** and **kom peow**) and gave both. This situation is not surprising since there has been considerable immigration of people from other provinces and regions in recent decades. However, except in these few cases, there is no obvious evidence to suggest more than one distinct naming tradition among this set of informants.

Although there were many instances where informants gave no response, the majority of those who supplied names agreed about the primary name for almost all of the plants, but sometimes disagreed about secondary names (Figure 2). For eleven plants (11.5%) representing seven different taxa, all informants named the plants and unanimously agreed on the primary name of it. For 49 plants (51.0%) there was also complete unanimity among those who supplied names. Where there were differences of opinion about the identity of a plant, the majority of informants were in agreement. Those who disagreed with the majority also disagreed with each other. Figure 2 shows that, although some plants elicited only a small number of responses, there were only nine plants for which there was no majority opinion. It is to be noted that much of the disagreement was the result of informants not feeling sufficiently confident to supply any name for a plant and this is shown in the figure as “no response”.

In the cases where individuals supplied names different from the majority (Figure 2), much of the disagreement focused on a few individual specimens and in some cases there was a very wide difference of opinion. This is illustrated in Figure 3 showing the numbers of different names applied to each of the 96 plants in the survey. As noted earlier 49 plants (51.0%) were recognized by the same primary name. The level of agreement drops slightly to 40 plants (41.6%) if the more exacting standard of agreement to the level of secondary names is applied. A small number of individual plants, only four, had more than four primary names applied to them. In the extreme instance, one specimen was identified by six different primary names by eight people (Figure 3). When secondary names are considered of course the level of disagreement rises somewhat but it is evident that much of the disagreement is at the primary level and not at lower taxonomic levels.

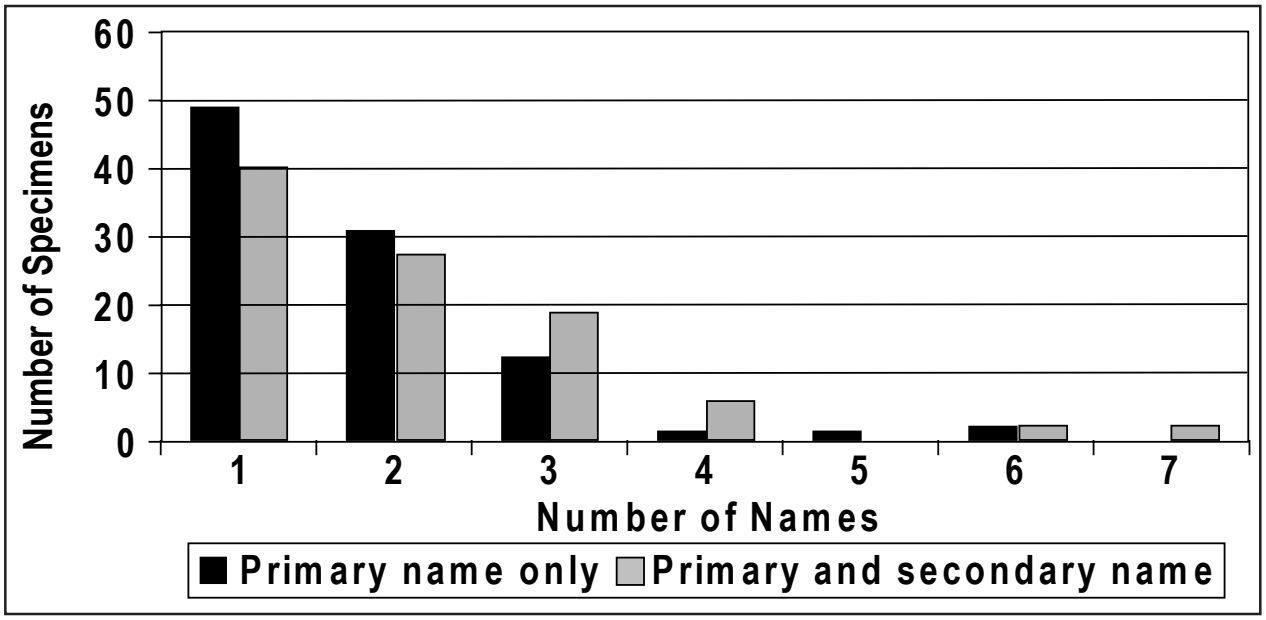

Figure 3. Numbers of different names applied to individual plant specimens.

Among the ten plants to which more than four different primary or secondary names were assigned, half were vines (**kuer**). This may indicate vines in the understory are particularly difficult to differentiate. In one case the vine may have been confused with the host plant in the recording of the data as the measured dimension of the plant does not accord with a vine habit.

One major source of uncertainty seems to lie in a set of 39 names that were recorded only once. Most informants gave at least one such singleton name that no other informant applied to the plants at the site. These names represent almost half of all those recorded.

A comparison of the extent to which individual informants agreed with each other was calculated by tallying the number of instances where they gave the same primary and secondary names for a particular plant. This is shown in Table 4, which displays the agreement score for all possible pairs of informants. The highest level of agreement was among informants A, J, F and K who all scored over 50 out of a possible 96 with at least one other person. When the total of all the scores for each informant are tallied, the same informants appear at the top of the rankings for scoring the highest amounts of agreement with all informants (Table 5). The lowest agreement scores all seem to be associated with informant D. His agreement with every other person was the lowest and all below 25. Furthermore, he named the least number of plants and used the fewest number of names. This suggests perhaps he was the least knowledgeable of the group rather than representing a different linguistic or social tradition.

Table 4. Pairwise comparison of agreement between informants of name for each plant. The maximum possible value, representing complete agreement, would be 96. (Informants are identified by letter A through K).

	B	C	D	E	F	G	H	I	J	K
A	32	31	21	36	52	42	46	44	53	57
B		27	18	28	33	30	29	29	32	26
C			16	28	39	36	30	31	34	30
D				24	24	23	23	22	23	21
E					41	39	39	35	40	36
F						47	46	42	54	51
G							41	38	45	42
H								38	45	45
I									40	41
J										51

Table 5. Ranking of informants based on the overall degree of agreement with other informants. The value of "total agreement" was calculated by summing the number of instances where the name given for a particular plant coincided with the name given by other informants. The maximum possible value, representing complete agreement with all informants for all plants, would be 960.

Informant	Total # agreement	# plants	# names used	# unique names
F	429	78	30	1
J	417	71	25	2
A	411	96	29	9
K	400	69	22	3
G	383	61	24	0
H	382	66	25	4
I	360	60	21	2
E	346	53	20	0
C	302	65	30	4
B	284	55	29	10
D	215	37	15	4

There exist a number of important compilations of Thai plants names that have been recorded by botanists mostly associated with the Royal Forest Department of Thailand (Bunkerd 1982, Smitinand 1980, 2001, Vidal 1959, Winet 1940) and these have served as important tools for researchers. Typically local names are recorded when voucher specimens are made and noted on sheets in the Royal Forest Department Forest Herbarium and this is probably the source of much of the data found in the publications cited above. The province where these local names were recorded is indicated in most published lists. Of the 77 different names provided by informants of the plants in our survey site, we found that in 23 cases (24.0%) the same local name is applied to more than one species defined in the Linnean system (Table 2). This is not surprising considering the great cultural and linguistic diversity of Thailand. In extreme cases, the name **di ngu** is applied to seven species in five different families and **dean dong** is applied to six different species in five different families. A total of 36 local names (46.7%) given by informants were not found at all in these published lists. Of these names, all informants used three of them and a total of eleven were used by more than one informant suggesting they are in common local usage. Clearly the inventory of common names in the scientific literature is far from complete.

Voucher specimens were taken and identified independently with reference to existing herbarium materials. The Latin names so derived showed some agreement with the Latin names attached to local names in the literature (Table 6). However, in only five cases (18.5%) was there a match at the species level and in three of these cases the same common name was also applied to species in different families. There were six cases (22.2%) where there were name matches within the same genus and two cases (7.4%) of matches within the same family. In four cases (14.8%) there were no matches except in different families.

Conclusions

Close knit and isolated groups might be expected to have a very coherent plant vocabulary that is generally understood and agreed upon and based on similar first hand direct observations. In contrast, within culturally mixed communities, or those that have strong social and linguistic connections to the wider world, one might expect more nomenclatural confusion because of differing shared experiences and exposure to a variety of naming traditions.

Locally recognized herbalists in a rural agricultural community in Northeast Thailand were asked to name the same tagged trees and vines in a forest. The results suggested they shared at least a core set of plant names that were fairly consistently applied even though one informant came from a village 200 kilometers from the others. There was no strong indication from the data of more than one naming tradition even though the region has recently received significant immigration from other parts of Northeast Thailand and elsewhere. One informant was a fairly conspicuous outlier who gave fewer responses, and used a smaller set of names, which suggested he might be less knowledgeable than the others.

Much of the total disagreement among informants took the form of non-responses, which is to say that some individuals did not feel sufficiently confident to attach a name to a plant and so, under the definition adopted here, they were considered to "disagree" with any who gave a name. In other cases, disagreement took the form of degrees of specificity. Informants may have agreed about the primary name but not the more specific modifier or secondary

TABLE 6. Comparison between the Latin names of plants identified from voucher specimens, the common names attached to them in the published scientific literature and the common names given by informants. Latin names cited are consistent with Smitinand (2001).

Latin names	**FAM**	**Smitinand (2001)**	**Informant**	**Match**
		Common name	**Name**	**Level**
Hymenopyramis cana Craib	VRB	**kha pia**	**kha pia**	species
Sindora siamensis Teijsm. & Miq.	CAE	**ma kha tae**	**ma kha tae**	species
Suregada multiflora (A. Juss) Baill. var. *multiflora*	EPH	**duk sai**	**duk sai**	species
Tinospora crispa (L.) Miers ex Hk.f Thoms.	MEN	**bora phet**	**bora phet**	species
Vitex peduncularis Wall. ex Schauer	VRB	**tin nok**	**tin nok**	species
Capparis micracantha DC ssp. *micracantha*	CAP	**chai chu**	**sasu**	genus
Diospyros bejaudii Lecomte	EBE	**i do**	**salak dam**	genus
Diospyros malabarica (Desr.) Kostel	EBE	**ma khuea theun**	**dimi**	genus
Gardenia sootepensis Hutch	RUB	**khai nao**	**khai nao**	genus
*Markhamia stipulat*a (Wall) Seem. K. Sch var. *stipulata*	BIG	**khae hua mu**	**khae pa**	genus
Memecylon umbelatum Burm.	MLS	**mueat ae**	**mueat ae**	genus
Anogeissus acuminata (Roxb. Ex DC) Guill.	CMB	**ta khian nu**	**sang kham**	family
Uvaria rufa Bl.	ANN	**ting tang**	**tin tang**	family
Anogeissus acuminata (Roxb. Ex DC) Guill.	CMB	**mak piak**	**ta baek**	no match
Hydnocarpus ilicifolia King	FLA	**kra bao hin**	**mueat kaeo**	no match
Pterocarpus macrocarpus Kurz	PAP	**pradu pa**	**pha yung**	no match
Suregada multiflora (A. Juss) Baill. var. *multiflora*	EUP	**mueat lot**	**mueat khon**	no match
Aporusa sp.	EUP		**kai khao**	no record
Bauhinia sp.	CAE		**daeng phun**	no record
Colona flagrocarpa (Cl.) Craib	TIL	**thao**	**kean tao**	no record
Combretum latifolium Bl.	CMB	**kae dam**	**kao gaaeb**	no record
Dalbergia ovata Grah. ex Bth.	PAP	**du laeng**	**pradong**	no record
Diospyros buxifolia (Bl.) Hiern	EBE	**lambit (D. ferrea)**	**lam jong**	no record
Microcos paniculata L.	TIL	**khom**	**kon som/ kom preow**	no record
Passiflora edulis Sims	PAS	**kra thok rok farang**	**fuk kao**	no record
Rothmannia winitii (Craib.) Brem.	RUB	**mak mo**	**ta mo**	no record
Strychnos rupicola Pierre ex Dop.	LOG	**khi ka khruea**	**seur kong**	no record

name. However, there remained a significant number of cases where distinctive and apparently unrelated names were applied to the same plant. A small number of individual plants accounted for most of this disagreement. In one case a single plant was given six different primary names by eight different people. These plants given many different names tended to be small, immature individuals that often lacked diagnostic parts or they were vines. One common vine (**borra phet**) however, was consistently recognized and it is notable that this is a common and useful medicinal plant with a distinctive stem. Otherwise vines tended to be the plants where there was the greatest divergence of opinion. The level of disagreement among local experts in this study demonstrates the desirability of obtaining more than one opinion about the local name for a plant.

Of the common names collected in this study, a large proportion (46.7%) was not found recorded in the standard reference sources for Thai plants. In 24.1% of the cases the names were applied to more than one species, often in different families. This clearly suggests different naming traditions exist within the culturally and linguistically diverse regions of Thailand and illustrates the danger of attempting to use the standard reference works in botany to assign Latin names to plants that have been identified only by their common names.

Common names can be a useful aid to help link to Latin names for a plant as long as voucher specimens are taken and checked against diagnostic descriptions or herbarium materials identified by competent taxonomists. In this study only 23.4% could be linked through standard references to single Latin binomials, but 29.9% of the names were linked to more than one binomial, often in different families. These many false links are the reason why plant list dictionaries can be so badly misused and why the practice of simply looking up Latin names from common names should be discouraged.

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