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The species accounts - how to read them

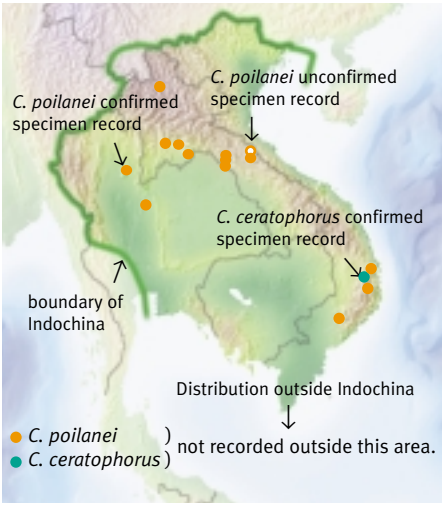
There are 31 main species which have detailed double-page accounts and 20 similar 'allied species' which have short accounts in the 'Compare box', bottom right. Allied species are mostly those which occur outside Lao, or those for which we have little information. They resemble the main species in most aspects except those specifically noted as different. The 'Compare' box also suggests other species that might be confused with the main species, and the key features for separating them.

Below the scientific name of the main species we list all the local names which we have heard used for this species in Lao. There are probably many others which we have not recorded. For more notes on local names click here.

The next line lists the four most important features you should note when you look at an unidentified rattan (click here and also see 'Parts of a Rattan').

The 'Look for' box tells you the combination of features which is special to this plant.

Next we give information on habitat (click here), fruiting and flowering (click here), uses (click here) and planting (click here), all specifically for Indochina.



On the map each species has dots of a different colour. A closed symbol marks a locality where a herbarium specimen of this species has been collected. We use a few open symbols for important records where we have not confirmed the identification. This may be because we did not see the specimen or because the specimen we saw was incomplete.

The dark green line encloses Indochina, the area where we map all records. Outside Indochina we don't map the records, we just list the main areas the species has been found (click here).

The photo includes the code number of a specimen taken from the same plant and kept at Kew. This makes the picture more useful in the future if the names of the species change. The line drawings are often based on more than one specimen, so we do not give a code number. The drawings of the rachillae and fruits are all life size although some rachillae are longer than the box so only a part is shown. The leaf and inflorescence drawings are at varying scales; an outline of a 20 cm long hand or a normal sized man is included in each picture to help you visualise the true size.

Measurements and descriptions of the parts of the plant are almost all based on specimens and field observations from Indochina. Remember that plants that are young, sick or in deep shade can sometimes have parts smaller than the ranges given here, but parts which are larger than the maximum listed are much rarer.

Local names

Rural Lao people use rattans all the time, for many purposes, so of course they have names for the different species. Some people are much more skilled at remembering and assigning these names than their friends. If you find one of these local experts you will often find that they consistently use about as many different rattan names as a botanist would use in the same forest.

Furthermore, our informal observations suggest that they assign individuals to more or less the same species groupings as a botanist would – for example, they will probably have one consistent name for most or all of the plants that we would call *Calamus viminalis*, another name for *Daemonorops jenkinsiana* and so on. Although some more detailed studies would be useful to confirm this, it seems likely that there will be many opportunities to match up indigenous knowledge of rattans with the relevant scientific names.

However, an outsider visiting a village for the first time should be *very careful* not to hear a local name and assume he or she knows which species is referred to based on experience from another place. Glancing through the local names listed in this book will show why. Each of the local names given in this book was used by local people for a specimen we collected. Although these names are often used consistently in a particular village they vary endlessly from village to village and province to province. To pick just a few examples, *wai namleuang* (yellow spine rattan) is used for at least six botanical species, *wai hangnou* (rat-tail rattan) is used for at least four species and *wai deng* (red rattan) for at least five, from three genera! We have already recorded nine local names for *Calamus viminalis* in the Lao language, let alone names in the languages of other ethnic groups. All of these lists will surely grow as more specimens are collected. Even *wai thoon*, a name usually applied to the very distinctive and valuable *Calamus poilanei*, is used for at least two other large but commercially worthless species, *Calamus flagellum* and *Plectocomia* sp, in areas where *poilanei* apparently does not occur. In Vientiane Province the name *wai nyair* is used for both *Calamus viminalis* and *Calamus tenuis* by different people – but getting these two mixed up when you start a plantation could be a disaster – one likes dry ground, one likes flooding!

The reason for this confusing situation is simple – local names only need to distinguish the 5-15 species that might occur in the limited area used by a few neighbouring villages. It doesn't matter to these users if the same name is used for another species elsewhere. But it does matter to us, working across the whole country. If we use the wrong scientific name it will cause serious mistakes. This is easily avoided. The rule is:

Never use a list of local names from one place to find out the scientific name of a rattan in another place.

In each new area that you work you should check anew which local name or names refer to each botanical species. Do this by going out into the forest with at least two of the most experienced local people you can find and asking them the names of the rattans you see. Take good specimens of each species (click here) so that the scientific names can be confirmed in a herbarium. If you don't follow this process most of the information you collect will probably be of very little use to yourself or other people.

Distribution

We map the distribution of rattans in Indochina on the basis of specimens we have seen plus a few reported in published sources. The coverage for Lao, Thailand and China is quite good, but

we were not able to visit herbaria in Cambodia or Vietnam, so the coverage of existing information is less complete for those countries. Most species probably occur in other parts of Indochina where they have not yet been collected.

We also summarise the distribution outside Indochina, based on published sources and specimens held at the Royal Botanic Gardens, Kew, UK. For this book, SE (South-east) China includes Guangxi, Guangdong and Hong Kong, NW (North-west) Yunnan is the Yingjiang area, NE (North-east) India is Assam plus the small states surrounding it and North-central India includes areas from Bihar westwards.

The distribution of rattans is not well known in Indochina. For example, in Lao some species are only known from one or two herbarium specimens, and only eight species are known from ten or more specimens. Only a few general comments are possible.

The rattan species present are fairly similar right across Indochina because the whole area experiences tropical monsoonal weather and there are no major barriers to prevent rattan species spreading between suitable habitats. However, rainfall, temperature and soils do differ so no one species is found in all parts of the region and each location has a slightly different community of species, even in sites at the same altitude.

The richness of species and genera seems to increase from north to south. This is perhaps due to a combination of less suitable climate and smaller areas of the preferred lowland habitats in the north. The area of forest used by a single village might contain 4-8 species in north-west Lao, 12-14 in central Lao.

The most widespread species within the region include *Calamus viminalis*, *C. tetradactylus*, *C. palustris* and *Daemonorops jenkinsiana*. Many species are widespread outside Indochina. These include some species which occur in the Thai-Malay peninsular, another group which ranges into South-east China and a third group which ranges into Myanmar and North-east India. *C. viminalis* and *C. tenuis* are both found as far away as North-central India and Java.

Twenty-two of the species in this book have never been found outside Indochina. There is no one area where these localised species are concentrated, but the most localised species appear to be concentrated in and around the Annamite Mountains (Sayphou Louang).

Species known from single sites include *Calamus harmandii*, *Calamus ceratophorus*, *Calamus* sp A, *Daemonorops* sp B and *Korthalsia bejaudii*. *Calamus oligostachys* is only known from two sites close together.

Rattan species richness is much lower in Indochina than in Malaysia and Indonesia. For example, Peninsular Malaysia covers an area 55% that of Lao but it has over 100 rattan species in nine genera.

Habitat

We know very little about the way Lao rattans live their lives because so little research has been done. Our observations during collecting trips allow us to make some general comments about habitat preferences.

Most Lao species are found in various types of evergreen forest. Climbing species are often most numerous in old tree fall sites or along streams where there is extra light available. Some occur mainly in unlogged forest whilst others seem to do well in degraded forest or even tall evergreen scrub. Some species are absent from logged areas, either because they can't grow there or because they were over-harvested during the period of logging.

A few species seem to be associated with other habitats. *Calamus acanthophyllus* grows only in deciduous forest and dry scrub which has regular fires. It has special adaptations to survive fire. *C. viminalis* does occur in evergreen forest but can also be found in the moister parts of deciduous forest and is most typical of dry scrubby habitats near villages. *C. tenuis* and *C. godefroyi* seem to be species of lowland floodplains and although these have mostly been deforested the two

species still grow around Vientiane in patches of scrub, especially if there is frequent flooding. A few species have been recorded in forest on karst limestone mountains, including *C. henryanus*, *C. solitarius*, *C. laoensis* and *C. flagellum*.

Each Lao species has a preferred range of altitudes. Most appear to prefer lower altitudes and the richness of species becomes less and less above about 600 m. Beyond 1300 m few species have so far been recorded, although fieldwork at these altitudes has been limited. Species typical of the highest altitudes probably include *C. acanthospathus*, *C. nambariensis* and *Plectocomia himalayana*. All altitudes in this book are approximate, to the nearest 50 or 100 m.

Flowering and fruiting

We know the flowering and fruiting seasons quite well for a few species which grow close to Vientiane but for most species we have only a few specimens and some vague reports to pinpoint the times of flower opening and fruit-ripening. This is an aspect for which more published information would be very valuable, since knowing when ripe fruit can be found is crucial to planters.

The information is presented in an unsummarised format, giving the months (as numbers from 1, January to 12, December) when flowers (in bud or open) and fruit (unripe or ripe) have been found in the various countries of Indochina. We think this is less misleading than guessing the seasons or giving vague summaries of the data. Readers can see what is known, add their own observations and draw their own conclusions. Information from outside Indochina was not included because the climate pattern differs in those areas. Readers should be aware that there may not be uniform flowering and fruiting seasons within Indochina either, particularly between Lao and Vietnam, due to the different times of the rainy seasons.

The limited evidence shows the following three features. Firstly, most rattan fruits take many months to ripen (for example, around Vientiane *Calamus viminalis* flowers in August-September and ripens in March-April of the following year). Secondly, some species may take more than twelve months for the fruit to ripen (e.g. *C. erectus* and *C. rudentum*). And thirdly, although many individual species seem to have definite flowering and fruiting seasons, these differ widely between species. For example, *C. siamensis*, although closely related to *C. viminalis*, seems to flower in March or April and ripen some time after July.

Uses

In the species accounts a simple classification has been made of the suitability for use under four headings: handicrafts, trade, food and other. This was mainly based on the opinions of experienced rural people during specimen collection. It would be worthwhile to gather the opinions of traders too, and to try to relate their trade names to botanical names.

The stems of climbing species can often be used for handicrafts or making furniture. There was a large export market in the past but exports of raw canes are now discouraged (with some exceptions). Handicrafts are exported to Thailand, France and probably other countries. Stem appearance and quality differ for each species. Flexibility, attractive colour and evenness of diameter are among the important characteristics sought by traders but rural people are less selective for many household uses. *Calamus poilanei* is outstanding among the larger diameter canes and is the preferred species for making furniture frames. Preferred small-diameter species in central Lao include *C. gracilis* and *C. solitarius*. The species sought by traders are usually the best of the abundant species – it may be that even higher quality stems exist amongst the rarer species and these should also be considered as candidates for cultivation.

Rattan shoots are eaten throughout the country but, apart from northern and eastern Thailand, locally in Vietnam and in parts of Borneo, are rarely eaten elsewhere in Asia. Most species taste bitter, although *C. rhabdocladus* is quite sweet. The nutritional value of rattan shoots has apparently not been studied. Shoots, probably mostly of *Daemonorops jenkinsiana*, appear in very great numbers in the markets of northern Lao and many other species are sold in moderate quantities elsewhere in the country. They are almost all gathered in the wild, but cultivation is spreading (click here). There is a small-scale export market serving Lao and Thai people in Europe and America and, at least occasionally, consumers in Yunnan. Exported shoots are mostly sun-dried in Lao, but in Thailand many are canned.

Other minor uses include the sale of edible fruits in local markets, thatching of houses (*Daemonorops jenkinsiana* is widely used for this in northern Lao) and the sale of decorative seeds, again of *Daemonorops jenkinsiana*, to Vietnam and China for handicrafts. We have only found two recorded medicinal uses for Lao rattans (*C. acanthophyllus* roots have been used as a malaria cure and a treatment in childbirth) but there may be others we do not know about.

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