

# DIVERSITY AND CONSERVATION STATUS OF THE PHILIPPINE RATTANS

by

Edwino S. Fernando\*

Department of Forest Biological Sciences,  
College of Forestry, and the Museum of Natural History,  
University of the Philippines at Los Banos College, 4031 Laguna, Philippines

Rattan is now regarded as one of the most important forest products of Southeast Asia closely following timber. In the Philippines rattan has been a major component of the furniture export trade for decades, as well as a significant source of domestic products and livelihood for many forest- and non-forest dwelling households.

## Diversity

The rattans (Palmae: Calamoideae) of the Philippine Islands comprise four genera, viz. *Calamus*, *Daemonorops*, *Korthalsia* and *Plectocomia*. Beccari (1919) and Merrill (1922) both recorded a total of 54 species for the Philippines with 36 species in *Calamus*, 13 in *Daemonorops*, four in *Korthalsia* and one in *Plectocomia*. More than half a century later, Dransfield (1980) added four new records (two in *Calamus* and one each in *Korthalsia* and *Plectocomia*), all from Palawan. The *Plectocomia* from Palawan was subsequently described as a new variety by Madulid (1981). Later, the Palawan Botanical Expedition in 1984, sponsored by Hillebrand Forestry AB (Hillebrand, 1985), yielded an additional five new records in *Calamus*.

Three new varieties have been added in *Calamus* by Baja-Lapis (1987) who also elevated one other variety to species rank, but at the same time reduced another species to varietal status. More recently Fernando (1988) described two new species and one new variety in *Calamus* and another new species in *Daemonorops*.

In all there are now recognised about 66 rattan species for the Philippines; 71% of these are endemic (Fernando, 1989). *Calamus*, as elsewhere in South East Asia where rattans occur, is the largest genus with about 45 species. In *Daemonorops* there are 14 species, in *Korthalsia* five, and in *Plectocomia* two.

Thirty-two of the 45 Philippine species of *Calamus* are endemic. Two of these and a new

variety still need to be formally described. Of the 13 non-endemic species at least two, including *C. symphysipus*, occur on Sulawesi and the 11 others on Borneo, extending to the Malay Peninsula, South Thailand, Sumatra and Java.

In *Daemonorops* all the species, with the exception of two, are endemic. The non-endemics are *D. longipes* of Borneo, Sumatra and the Malay Peninsula and *D. margaritae* of South China. Of the latter species, the Philippine taxon, confined to Palawan, is regarded as a distinct variety.

Of the five species in *Korthalsia*, only two, i.e. *K. merrilli* (Figure 1) and *K. scaphigeroides*, are endemic. The three non-endemic species include the widespread *K. laciniosa*, *K. rigida* of South Thailand, the Malay Peninsula, Sumatra and Borneo and *K. robusta* of Sumatra and Borneo.

In *Plectocomia* one species, *P. elmeri*, is endemic. The second species, *P. elongata*, is common in Thailand, the Malay Peninsula, Sumatra, Java and Borneo, and is represented in the Philippines by a distinct variety (Figure 2).

A checklist of the Philippine rattan, modified after Fernando (1990), is here presented as Table 1.



Figure 1: *Korthalsia merrilli* Becc. in forest on ultramafic rocks, c. 50 m alt., Puerto Princesa, Palawan, January 1987.

\*Present address: The John T. Waterhouse Herbarium, School of Biological Science, University of New South Wales, P.O. Box 1, Kensington, N.S.W. 2033, Australia.

Table 1. Checklist of the rattans of the Philippine Islands (after Fernando 1990).

Species	Vernacular names	Distribution
<b>I. KORTHALSIA</b>		
1. <i>K. laciniosa</i> (Griff.) Mart.	Danan, Tambuanga, Planug, miling-piling	Luzon, Polillo, Catanduanes, Leyte, Panay, Mindanao [Andaman and Nicobar Is., Burma, Thailand, Indo-China, Malay Peninsula, Sumatra, Java]
2. <i>K. merrillii</i> Becc.	Buragat	Palawan
3. <i>K. rigida</i> Blume	-	Palawan [S. Thailand, Malay Peninsula, Sumatra, Borneo]
4. <i>K. robusta</i> Blume	Kalalias	Palawan, Balabac [Sumatra, Borneo]
5. <i>K. scaphigeroides</i> Becc.	Kapnigid	Mindanao, Basilan
<b>II. DAEMONOROPS</b>		
1. <i>D. affinis</i> Becc.	Bag-bag	Mindanao
2. <i>D. clemensiana</i> Becc.	-	Mindanao
3. <i>D. curranii</i> Becc.	Pit-pit, Saranoi	Palawan
4. <i>D. gracilis</i> Becc.	-	Palawan
5. <i>D. longipes</i> (Griff.) Mart.	Labsikan	Palawan [Malay Peninsula, Sumatra, Borneo]
6. <i>D. loheriana</i> Becc.	-	Luzon
7. <i>D. margaritae</i> (Hance) Becc. var. <i>palawanica</i> Becc.	Pin-pin	Palawan [The variety endemic; the species in S. China]
8. <i>D. mollis</i> (Blco) Merr.	Ditaan, Quwen mangnaw, Nanga, Gatasan, Sumulid, Badbaran	Throughout the Philippines
9. <i>D. ochrolepis</i> Becc.	Sumulid, Palaklakanin, Ditaan, Nokot, Taletol, Pagit, Saroringan	Luzon, Polillo, Catanduanes, Panay, Biliran, Leyte, Mindanao
10. <i>D. oligolepis</i> Becc.	Rogman	Mindanao
11. <i>D. pannosa</i> Becc.	Sabilog	Mindanao
12. <i>D. pedicellaris</i> Becc.	Hanamham, Delot, Logman, Hiyod, Oban-oban, Rogman	Leyte, Mindanao
13. <i>D. polita</i> Fernando	Lapa-utong	Mindanao
14. <i>D. urdanetana</i> Becc.	Sahaan	Mindanao
<b>III. CALAMUS</b>		
1. <i>C. aidae</i> Fernando	Ulisi, Ulasi, Inhian	Luzon, Samar, Biliran, Dinagat, Mindanao
2. <i>C. arugda</i> Becc.	Quwen lunhuy, Arugda	Luzon
3. <i>C. balerensis</i> Fernando	Rituuk	Luzon
4. <i>C. batanensis</i> (Becc.) Baja-Lapis	Valit	Batanes
5. <i>C. bicolor</i> Becc.	Sambunotan, Lasi, Rasi, Obanan	Mindanao
6. <i>C. caesius</i> Blume	Sika	Palawan [Sumtra, Malay Peninsular, Borneo]

Table 1 contd. Checklist of the rattans of the Philippine Islands (after Fernando 1990).

Species	Vernacular names	Distribution
7. <i>C. cumingianus</i> Becc.	Ubut, Dowung-dowung	Luzon, Mindanao
8. <i>C. diepenhorstii</i> Miq. var. <i>exulans</i> Becc.	Abuan	Luzon, Polillo, Palawan [The variety endemic; the species in Malay Peninsula, Sumatra, Borneo]
9. <i>C. dimorphacanthus</i> Becc.		
9a var. <i>dimorphacanthus</i>	-	Luzon, Sibuyan, Panay
9b var. <i>montalbanicus</i> Becc	-	Luzon
9c var. <i>zambalensis</i> Becc.	-	Luzon, Mindoro, Leyte
9d var. <i>benguetensis</i> Baja-Lapis	-	Luzon
9e var. <i>halconensis</i> (Becc) Baja-Lapis	Lambutan, Umbanan, Oban-oban	Luzon, Mindoro, Panay Mindanao
10. <i>C. discolor</i> Mart.		
10a var. <i>discolor</i>	Kumaboi	Luzon
10b var. <i>negrosensis</i> Becc.	-	Negros, Siargao, Mindanao
11. <i>C. elmerianus</i> Becc.	Tagiktik, Panlis, Sababai, Samanid	Luzon, Dinagat, Mindanao
12. <i>C. erinaceus</i> (Becc.) Dransf.		
12a var. <i>erinaceus</i>	-	Palawan [S. Thailand, Malay Peninsula, Sumatra, Borneo]
12b var. <i>nov.</i> (ined.)	-	Palawan
13. <i>C. filispadix</i> Becc.	Pangan-panganan, Nokut, Kangnobnob	Luzon, Polillo, Catanduanes, Masbate, Samar, Palawan, Mindanao
14. <i>C. foxworthyi</i> Becc.	-	Palawan
15. <i>C. grandifolius</i> Becc.	Saba-ong	Luzon, Catanduanes
16. <i>C. javensis</i> Blume	Arorog	Palawan [S. Thailand, Malay Peninsula, Sumatra, Borneo]
17. <i>C. jenningsianus</i> Becc.	-	Mindoro
18. <i>C. malawaliensis</i> J. Dransf.	-	Palawan [Malawali]
19. <i>C. manillensis</i> (Mart.) H.A. Wendl.	Lituku, Giwi, Lintukan	Luzon, Dinagat, Mindanao
20. <i>C. marginatus</i> (Blume) Mart.	Labsikan	Palawan [Sumatra, Borneo]
21. <i>C. megaphyllus</i> Becc.	Magbagaki, Banakbo	Leyte, Mindanao
22. <i>C. melanorhynchus</i> Becc.	Dalimban	Mindanao
23. <i>C. merrillii</i> Becc.		
23a var. <i>merrillii</i>	Palasan, Quwen babuyan, Pasan, Nanga, Acab-acab	Luzon, Masbate, Panay, Palawan, Leyte, Mindanao Basilan
23b var. <i>merrittianus</i> (Becc)Becc.	-	Mindoro
23c var. <i>nanga</i> Becc.	Nanga	Mindanao
24. <i>C. microcarpus</i> Becc.		
24a var. <i>microcarpus</i>	Korayot, Tandulang-gubat, Potian, Obanon	Luzon, Polillo, Mindoro, Leyte, Mindanao
24b var. <i>diminutus</i> Becc.	Kamlis	Luzon
24c var. <i>longiocrea</i> Baja-Lapis	Cham-may, Damayon	Luzon
25. <i>C. microsphaerion</i> Becc.		
25a var. <i>microsphaerion</i>	Kulakling, Labit, Pin-pin, Sik-sik, Sika-sika	Luzon, Culion, Palawan [Borneo]
25b var. <i>spiniosior</i> Becc.	-	Palawan
26. <i>C. mindorensis</i> Becc.	Timalim	Luzon, Mindoro

Table 1 contd. Checklist of the rattans of the Philippine Islands (after Fernando 1990).

Species	Vernacular names	Distribution
27. <i>C. mitis</i> Becc.	Tevdas, Matkong	Batan Is., Babuyan, Luzon
28. <i>C. moseleyanus</i> Becc.	Sarani	Mindanao, Basilan, Malanipa Is.
29. <i>C. multinervis</i> Becc.	Bugtungan, Balala, Ubli	Mindanao
30. <i>C. ornatus</i> Blume		[The variety endemic; the species in S. Thailand, Malay Peninsula, Sumatra, Borneo, Java, Sulawesi]
30a var. <i>philippinensis</i> Becc.	Limuran, Quwen gamangan, Kalapi	Luzon, Polillo, Mindoro, Negros, Panay, Leyte, Mindanao, Basilan
30b var. <i>pulverulentus</i> Fernando	Mananga, Borongan	Palawan, Mindanao
31. <i>C. ramulosus</i> Becc.	Panlis	Palawan, Mindanao
32. <i>C. reyesianus</i> Becc.	Apas, Lukuan	Luzon, Mindoro, Mindanao
33. <i>C. samian</i> Becc.	Tagsa-on, Samian	Luzon, Leyte, Mindanao
34. <i>C. scipionum</i> Lour.	Bastonan	Palawan [S. Thailand, Malay Peninsula, Sumatra, Borneo]
35. <i>C. siphonospathus</i> Mart.		Luzon
35a var. <i>siphonospathus</i>	Biri, Tallawan	Mindanao [Sulawesi]
35b var. <i>dransfieldii</i> Baja-Lapis	Pasan-pasan	
35c var. <i>farinosus</i> Becc.	-	Luzon
35d var. <i>oligolepis</i> Becc.	-	Luzon
35e var. <i>polylepis</i> Becc.	Sukol	Luzon
35f var. <i>sublevis</i> Becc.	Sipay, Papakin	Luzon, Mindanao
36. <i>C. spinifolius</i> Becc.	Kurakling	Luzon, Panay, Mindanao
37. <i>C. symphysipus</i> Mart.	Apas, Bolanog	Luzon, Catanduanes, Bucas Grande, Mindanao [Sulawesi]
38. <i>C. subinermis</i> H.A. Wendl. ex Becc.	Bugtung	Palawan [Borneo]
39. <i>C. trispermus</i> Becc.	-	Luzon
40. <i>C. usitatus</i> Blco.	Tandulang parang, Talora, Tamarura	Throughout the Philippines [Borneo]
41. <i>C. vidalainus</i> Becc.	Butarak, Taguiti, Quwen lantok	Luzon, Panay
42. <i>C. vinosus</i> Becc.	-	Mindanao
43. <i>C. viridissimus</i> Becc.	Akal	Mindanao
44. <i>C. sp. nov.</i> (ined.)	-	Luzon, Mindanao
45. <i>C. sp. nov.</i> (ined.)	-	Masbate
<b>IV. PLECTOCOMIA</b>		
1. <i>P. elmeri</i> Becc.	Ungang	Mindanao
2. <i>P. elongata</i> Mart. ex Blume var. <i>philippinensis</i> Madulid	Pason, Panog, Kalaanan Laanan, Paa sa daga	Palawan, Biliran, Leyte, Mindanao [The variety endemic; the species in S. Thailand, Malay Peninsula, Sumatra, Java, Borneo].



Figure 2: *Plectocomia elongata* Mart. ex Blume var *philippinensis* Madulid, in logged-over dipterocarp forest, c. 200 m. alt., Agusan Prov., Mindanao, July 1984.



Figure 3: *Calamus siphonospathus* Mart., in dipterocarp forest, Sierra Madre Mountains, c. 450 m alt., Isabela Prov., Luzon, April 1987.

The account is still preliminary as there remain some botanically undercollected areas in the archipelago. The rattan flora of many islands for example, including the large ones such as Samar and Negros, are still poorly represented in herbaria. It is likely that with further floristic inventory of currently inaccessible and less-explored areas of the archipelago, many more rattans will be discovered.

#### Ecology and Distribution

Rattans comprise nearly half of the entire palm flora of the Philippine Islands. They are prominent components of most forest formations ranging from sea level in mangrove swamps (e.g. *Calamus erinaceus*) up to 2000 m alt. in upper montane rain forests (e.g. *Calamus dimorphacanthus*) (Fernando, 1989). The majority of species, such as *Calamus discolor*, *C. mitis* and *C. siphonospathus* (Figure 3) are confined to lowland and mid-elevation forests. A number of species (e.g. *Calamus melanorhynchus*, *Daemonorops oligolepis*, *D. pannosa* and *D. urdanetana*) are, thus far, known to be restricted to montane rain forests above 1000 m alt. Others, however, such as *Calamus elmerianus*, *C. filispadix*, *C. merrillii* (Figure 4), *C. microcarpus*, *C. moseleyanus* and *Daemonorops ochrolepis* (Figure 5) have a wider altitudinal range extending from low altitudes and ascending up to 1200 to 1800 m.

*Calamus vidalianus*, *C. usitatus*, *Daemonorops ochrolepis* and *Korthalsia laciniosa* have been observed to occur on a variety of substrates from humus-rich soils to limestone rocks. *Korthalsia merrillii* appears to be confined to soils derived



Figure 4: *Calamus merrillii* Becc., Quezon National Park, c. 350 m alt., Quezon Prov., Luzon, October 1983.



Figure 5: *Daemonorops ochrolepis* Becc., in lowland forest near a river, c. 50 m alt., Baler, Aurora Prov., Luzon, June 1985.

Table 2. Diversity, endemism and distribution of the Philippine rattans.

Genus	Total no. of species in genus	Total no. of species for the Philippines	No. of species endemic to the Philippines	Total for Luzon/ No. of endemic species	Total for Mindanao/ No. of endemic species	Total for Palawan/ No. of endemic species
<i>Calamus</i>	370	45	32	27/4	24/5	14/1
<i>Daemonorop</i>	115	14	12	3/1	9/6	4/2
<i>Korthalsia</i>	26	5	2	1/0	2/0	3/1
<i>Plectocomia</i>	16	2	1	-	2/1	1/0
Total	527	66	47	31/5	37/12	22/4

from ultramafic rocks (Dransfield, 1981). One, yet unnamed species in *Calamus*, is apparently restricted to limestone hills.

Mindanao, the second largest island in the Philippine archipelago, has the biggest concentration of rattans (Table 2). More than half (c. 37) of the known species in the Philippines are found on this island, with 12 species strictly restricted there (Fernando, 1989). No less than nine of the 14 species of Philippine *Daemonorops* occur on Mindanao.

On Luzon, the largest island in the archipelago, there are 31 species with only five strictly confined there. The genus *Plectocomia* is not represented on Luzon.

Palawan has 22 species with only four endemics. Most of the species there are generally Bornean elements.

### Conservation Status

In recent years the ever increasing demand for rattan canes has put severe pressure on wild stocks in Philippine forests, often resulting in uncontrolled and excessive harvesting. This, together with the destruction and alteration of their habitats, has greatly threatened many species with extinction. Even those in strict forest reserves and national parks, such as Mt. Makiling and the Quezon National Park on Luzon and Mt. Apo on Mindanao, are now no longer safe from illicit rattan gathering.

The endemic *Calamus merrillii*, for example, previously abundant has now become very rare. In some areas the remaining populations of this species have already been decimated (Siebert and Belsky, 1985). On Mt. Makiling and in the Quezon National Park it has been reduced alarmingly to a few small, mostly juvenile populations.

*Plectocomia elmeri*, another Philippine endemic confined to Mt. Apo, is now believed to be extinct as it has never been recollected in the area despite several attempts (Madulid, 1982).

Both *C. merrillii* and *P. elmeri* have now been included in the list of endangered Philippine plants (Tan *et al.*, 1986). Several other Philippine rattans such as *C. ornatus* var. *philippinensis*, *C. mindorensis*, *C. reyesianus*, including the small-caned *C. caesius* of Palawan (Connelly, 1985) and *Daemonorops pedicellaris* of Leyte and Mindanao have also become very vulnerable and seriously threatened.

Two species are considered very rare. *C. jenningsianus* is still known only from Mt. Halcon on Mindoro at 1500 m alt. while *C. vinosus* has never been recorded outside of Mt. Hilong-hilong (Mt. Urdaneta) on Mindanao at 1450 m alt.

Because of the unrelenting and rapid rate at which Philippine forests - the very habitats of rattans - are disappearing, coupled with uncontrolled cutting of canes in the wild, virtually all the Philippine species of rattan are, in fact, potentially threatened. It has thus become an urgent priority to develop and increase rattan plantations on the main islands, set up living collections and strict rattan reserves in order to protect and preserve the genetic diversity of this very important and valuable plant resource.

### Acknowledgements

I am indebted to Dr John Dransfield, Royal Botanic Gardens, Kew for the helpful advice and much encouragement on my research on the Philippine rattans and for assistance in various ways. Field and herbarium work have been supported, in part, by the International Development Research Centre, Canada (IDRC), the Philippine Council for Agriculture and Resources Research and Development (PCARRD)

contd. p.21

and the University of the Philippines at Los Banos (UPLB) Basic Research Program Grant No. 85-4.

## References

- Baja-Lapis, A. (1987). An account of taxa related to *Calamus siphonospatus* complex. *Sylvatrop* 12(1-2): 61-85.
- Beccari, O. (1919). The palms of the Philippine Islands. *Philipp. J. Sci. (Bot.)* 14(3): 295-362.
- Conelly, W.T. (1985). Copal and rattan collection in the Philippines. *Econ. Bot.* 39(1): 39-46.
- Dransfield, J. (1980). On the identity of sika in Palawan, Philippines. *Kalikasan* 9(1): 43-48.
- Dransfield, J. (1981). A synopsis of *Korthalsia* (Palmae: Lepidocaryoideae). *Kew Bull.* 36(1): 163-194.
- Fernando, E.S. (1988). Four new taxa of Philippine rattans (Palmae: Calamoideae). *Gard. Bull. sing.* 41(2): 49-58.
- Fernando, E.S. (1989). Rattan resources of the Philippines (Summary). In *Plant Resources of Southeast Asia: Proceedings of the PROSEA First International Symposium, 22-25 May 1989, Jakarta, Indonesia* (J.S. Siemonsma & N. Wulijarni-Soethipto, eds.) pp. 256-257, Pudoc, Wageningen.
- Fernando, E.S. 1990. A preliminary analysis of the palm flora of the Philippine Islands. *Principes* 34(1): 28-45.
- Hilleshog Forestry AB. (1985). *The Palawan Botanical Expedition: Final Report*. 89 p. Hilleshog, Landskrona, Sweden.
- Madulid, D.A. (1981). A monograph of *Plectocomia* (Palmae: Lepidocaryoideae). *Kalikasan* 10(1): 1-94.
- Madulid, D.A. (1982). Plants in peril. *Filipinas J. Sci. Cult.* 3: 8-16.
- Merrill, E.D. (1922). *An enumeration of Philippine Flowering Plants*. Vol. 1. Bu. Printing, Manila.
- Siebert, S.F. and J.M. Belsky (1985). Forest-village product trade in a lowland Filipino village. *Econ. Bot.* 39(4): 522-523.
- Tan, B.C., E.S. Fernando and J.P. Rajo (1986). An updated list of endangered Philippine plants. *Yushania* 3(2): 1-5.

### NEW PUBLICATION

The state of the rattan and bamboo trade by N. Manokaran. *RIC Occasional Paper No. 7*

*This publication is based on the report submitted to the International Development Research Centre of Canada (IDRC). The author was awarded an internship for the study of the rattan and bamboo resource base, trade and research and development in the Asia-Pacific region.*

**Available: December, 1990.**