6 LATIN AMERICAN REGION

New World palms and their products is the subject of this chapter. The region is defined as extending north-south from Mexico to Chile and Argentina, and including the islands of the Caribbean.

Palm species diversity in this region is second only to Asia. Glassman (1972) recognized over 1,100 palm species in the Americas (including the United States). However, in a field guide to New World palms, Henderson et al. (1995) consider there to be only 550 palm species native to the Americas. This significant difference in species totals is attributable to the many synonymous names included in the higher figure and the fact that Henderson *et al.* (1995) follow a broad species concept resulting in the lower number.

Over the last two decades, research in the biological and social sciences has helped to generate a reliable body of knowledge about the utilization patterns and scientific names of Latin American palms. This knowledge has come from several different approaches, and can be illustrated by the following examples grouped into five categories.

General palm studies. The survey of the major underutilized palms of tropical America (FAO/CATIE, 1984) is an excellent source of information. Papers in the palm symposium proceedings (Balick, 1988b) primarily deal with the Latin American region. Balick (1984, 1989) also has provided surveys of palm ethnobotany and diversity of use in the region. A natural resource approach was used by Kahn (1991) in a study of palms in swamp forests of the Amazon. Kahn and de Granville (1992), in their study of palm forest ecosystems of Amazonia, provide data on leaf and fruit productivity which have direct relevance to exploiting palm products. A literature survey of South American palms as sources of medicine was carried out by Plotkin and Balick (1984). Schultes (1974) examined the relationship between palms and religious beliefs among indigenous people in the northwest Amazon.

Indigenous palm use. South America has been the focus of a number of studies. The palm use of the Shipibo in Peru was studied by Bodley and Benson (1979), as previously shown in the case study in Chapter 2. Anderson (1978) investigated indigenous palm names and uses by the Yanomama in Brazil. An ethnobotanical study of the Chácobo Indians in Bolivia by Boom (1986) documented palm use. Gragson (1992) studied palm utilization by the Pume Indians and Beckerman (1977) by the Bari Indians, both in Venezuela. Palm use in coastal Ecuador among the Cayapas and Coaiqueres was investigated by Barfod and Balslev (1988). Balick (1979b) documented palm use by the Guahibo in Colombia and the Apinayé and Guajajar Indians in Brazil (1988c). Indigenous and folk communities of the southwestern Amazon in Brazil were investigated for their palm uses by Campos and Ehringhaus (2003).

Taxonomic revisions and geographic area studies. Systematic floras and national palm books often include information on usage. Such is the case with the revisions of *Aiphanes* (Borchsenius and Bernal, 1996); *Allagoptera* (Moraes, 1996); *Bactris* (Henderson, 2000); *Euterpe* and *Prestoea* (Henderson and Galeano, 1996) and *Roystonea* (Zona, 1996). The flora of Bolivia contains detailed utilization data (Moraes, 2004).

A comprehensive study of Brazilian palms (Lorenzi *et al*., 2004) includes information about the distribution of species and utilization. The book is important because Brazil has the most

diverse palm flora of the Neotropics. A new revised edition is in preparation, to be published in 2010 in both Portuguese and English versions.

Examples of other national palm books include the Dominican Republic (Hoppe, 1998), Trinidad and Tobago (Comeau *et al*., 2003), Chile (Grau, 2006) and a detailed book on Ecuadorian palms (Borchsenius *et al*., 1998). The Amazon forest is richly endowed with useful palm fruits which furnish edible fruits; Miranda *et al*. (2001) is an excellent reference source on this subject.

Other studies on palms and their utilization deal with specific geographic areas, such as: the Caribbean Region (Read, 1988), Cuba (Moya López and Leiva Sánchez, 2000), French Guiana (Granville, 1999), the Dominican Republic (Horst, 1997), the island of Dominica, (James, 2009), Mexico (Quero, 1992) and Colombia (Bernal, 1992). Borchsenius *et al*. (1996) did a study of Ecuadorean palm use; and Kahn (1988), Mejía (1988, 1992) and López Parodi (1988) all researched the subject in parts of eastern Peru. Pinheiro and Balick (1987) edited and translated material on Brazilian palm use.

Oil palm studies. The American oil palms have been the subject of several investigations relative to their economic potential. Lleras and Coradin (1988) provide an overview of the oil-bearing palms of the region and Balick (1979a) examined the subject in the Amazon. Balick (1986, 1988a) also looked in detail at oil palms in the genus *Oenocarpus*). Anderson *et al*. (1991) studied in depth the potential of the babaçu palm (*Attalea speciosa*) in Brazil. Pesce (1985) and Miranda *et al*. (2001) provide information on the characteristics of Amazonian palm oils.

Management and domestication studies. Apart from American oil palms, management of other wild palm stands has been the subject of research. Anderson (1988) in the Lower Amazon in Brazil, and Urdaneta (1981) in the Orinoco Delta in Venezuela, each studied management of the açaí or manaca palm (*Euterpe oleracea*). Voeks (1988) examined management of the piassava palm (*Attalea funifera*) in Bahia, Brazil. Pinard and Putz (1992) researched palm demographics and management which included a dozen New World palms. Ecuadorian palms with agroforestry production potential were the subject of a book by Borgtoft Pedersen and Balslev (1990). Coradin and Lleras (1988) provided an overview of New World palms with domestication potential.

The only fully domesticated native palm of the region, pejibaye (*Bactris gasipaes var. gasipaes*) has been the object of a number of studies (Clement, 1988, 1998, 2008; Mora-Urpí *et al*., 1996), the results of which may be applicable to other species in the region. Another palm receiving attention for its management potential is the multipurpose moriche palm (*Mauritia flexuosa*), which occurs in nearly pure stands and in great numbers in the Amazon Basin.

Threatened Latin American Palms

The foregoing discussion provides background for an assessment of natural native palm populations which have reported uses and are also under threat in the wild. Table 6-1 lists 28 genera and their species which are known to be utilized as well as threatened by a combination of factors. Criteria for inclusion in the table on the basis of utilization were that

uses are contemporary or historical with the possibility of renewal; certain examples of very minor and occasional use are omitted.

It should be noted that there are a number of threatened species which do not appear in Table 6-1 because they have no current utility. Also, information on the conservation status of some forest palms in remote areas is unknown. Within the Latin American region, the chief threats to native palms populations are deforestation or degradation related to timber harvest, forest clearing and conversion to pastures for cattle raising; as well as traditional practices of shifting cultivation. Palm species which require an understory habitat are particularly sensitive.

Discussion

The main purpose of Table 6-1 is to draw attention to those products derived from threatened palms, products which should not be promoted for commercial production if they rely upon wild palm stands. It is advisable to distinguish in general between subsistence uses and commercial uses. Subsistence-level exploitation, especially by indigenous groups of forest-dwellers, in most cases poses no significant threat to wild palm populations. But commercialization of the products of threatened palms which inevitably must lead to an increase of pressure on wild palms can bring about adverse effects. Overexploitation of leaves and fruits impairs natural regeneration of populations of standing trees. Digging of palm seedlings for ornamental use has the same effect if insufficient numbers of reproducing plants are not left in place. Felling trees themselves for products such as palm heart or fruit can result in the most serious impact of extractive activities on native palms.

The predominant uses in Table 6-1 are leaves for thatching as well as for weaving in basketry; food and feed products derived from fruits, palm heart and palm sap; and construction material from palm stems. Certain of the palms listed warrant discussion.

Table 6-1 Threatened Latin American Palms with Reported Uses*

Scientific Names	Selected Local Names!	Distribution	Products/Uses and Selected References
Aiphanes linearis	*chirca (Col)*	*Colombia*	*edible fruit (Borchsenius & Bernal, 1996)*
Allagoptera arenaria; *A. brevicalyx*	*1. cacando (Bra);* *2. burri da Praia (Bra)*	*1 & 2. Brazil*	*1 & 2. edible fruit*
Astrocarvum aculeatissimum; *A. malybo;* *A. triandrum*	*1. birejauva (Bra);* *2. anchamba (Col);* *3. cabecenegro (Col)*	*1. Brazil;* *2 & 3. Colombia*	*1. leaves for brooms & hats, stems for construction; liquid endosperm used as medicine;* *2. veins of young leaflets used to make mats, baskets;* *3. stems used for fencing & construction*
Attalea amygdalina; *A. crassispatha;* *A. oleifera;* *A. tessmannii*	*1. taparo (Col);* *2. carossier (Hai);* *3. catoIé (Bra);* *4. coco (Bra), conta (Per)*	*1. Colombia;* *2. Haiti;* *3. Brazil;* *4. Brazil, Peru*	*1. edible & oil -bearing seed;* *2. seeds eaten by children;* *3. leaves for thatching, oil-bearing seed;* *4. endocarp burned to smoke rubber*
Brahea aculeata; *B. dulcis*	*1. palmilla (Mex);* *2. palma de sombrero (ElS), suyate (Hon), capulin (Mex)*	*1. Mexico;* *2. Mexico to El Salvador; Nicaragua*	*1. leaves for thatching;* *2. stems for construction, leaves for thatch, leaf fibers for rope, edible fruit*
Butia eriospatha	*butiá (Bra)*	*Brazil*	*fruits used to flavor alcoholic drink*
Calyptronoma rivalis	*coquito (DR); Palma (Hai); palma manaca (PR)*	*Dominican Republic, Haiti, Puerto Rico*	*young leaves for weaving, mature leaves for thatching (Zona, 1995)*
Ceroxylon spp.	*palma de cera (Col), palma de ramo (Ecu), ramo benedito (Ven)*	*Bolivia, Colombia, Ecuador, Peru, Venezuela*	*leaves cut for Palm Sunday, stems for fences & construction, fruits fed to pigs*

Scientific Names	Selected Local Names!	Distribution	Products/Uses and Selected References
Chamaedorea spp. (all except C. tepejilote)	*canelilla, guaya, guaita, molinillo, pacaya, pacayita, palmilla, sangapilla, tepejilote, xaté*	*Mexico to Brazil; Bolivia*	*cut foliage, whole plants & seed for ornamental use. (Bridgewater et al., 2006; Endress et al., 2004, 2006; Hodel, 1992)*
Coccothrinax borhidiana; *C. crinita;* *C. ekmanii*	*1. guano (Cub);* *2. guano barbudo(Cub);* *3. gwenn (Hai)*	*1 & 2. Cuba;* *3. Haiti*	*1,2 & 3. leaves for thatching*
Colpothrinax wrightii	*palma barrigona (Cub)*	*Cuba*	*leaves for thatching, stem for canoe, water barrels, etc., fruits fed to livestock (Evans, 2001)*
Copernicia brittonorum; *C. ekmanii;* *C. gigas*	*1. jata de costa (Cub);* *2. om de pay (Hai);* *3. barrigón (Cub)*	*1 & 3. Cuba;* *2. Haiti*	*1, 2 & 3. leaves for thatching*
Cryosophila guagara; *C. williamsii*	*1. guágara (CR);* *2. mojarilla (Hon)*	*1. Costa Rica;* *2. Honduras*	*leaves for thatching;* *edible palm heart (Evans, 1996)*
Euterpe catinga; *E. edulis;* *E. luminosa*	*1. açaí da catinga (Bra), asaí de sabana (Col), manaca (Col) Ven);* *2. yayih(Arg) juçara, (Bra);* *3. guayaquil (Per)*	*1. Brazil, Colombia, Peru, Venezuela;* *2. Argentina, Brazil, Paraguay;* *3. Peru*	*stems for construction, leaves for thatching. fruits to make drink;* *edible palm heart (see Table 9-19 for nutritional composition) (EMBRAPA, 1987; Reis & Reis, 2000;* *stems for poles*
Gaussia maya	*palmasito (Bel), cambo, (Mex)*	*Belize, Mexico*	*stems used for construction*

Scientific Names	Selected Local Names!	Distribution	Products/Uses and Selected References
Geonoma congesta	*cortadera (Col), caña de danta (CR), suita (Hon)*	*Colombia, Costa Rica, Honduras, Nicaragua, Panama*	*leaves for thatching*
Itaya amicorum (monotypic)	*xila (Bra), marimiipa (Col)*	*Brazil, Colombia, Peru*	*leaves for thatching*
Jubaea chilensis (monotypic)	*palma de coquitos (Chi)*	*Chile*	*nuts sold as snack food, tapped for sap*
Mauritia carana	*caraná (Bra, Col, Ven), canangucha desabana (Col), aguaje (Per)*	*Brazil, Colombia, Peru, Venezuela*	*leaf sheath fibers to make brooms, leaves for thatching (Gonzalez et al., 2009)*
Oenocarpus distichus	*bacaba (Bra)*	*Bolivia, Brazil*	*fruits used to make a beverage and to extract oil*
Parajubaea sunkha; *P. torallyi*	*palma sunkha (Bol);* *janchicoco (Bol)*	*1 & 2. Bolivia*	*1 & 2. leaf sheath & petiole fiber woven into rope (Enssle et al., 2006; Moraes, 1996; Vargas, 1994)*
Phytelephas seemannii; *P. tumacana*	*tagua (Col, Pan)*	*Colombia, Panama*	*seeds for vegetable ivory, leaves for thatching (Dalling et al.,1996)*
Pseudophoenix ekmanii; *P. lediniana*	*1. cacheo (DR);* *2. pal (Hai)*	*Dominican Republic;* *Haiti*	*1. former source of palm wine by felling tree;* *2. fruits collected for livestock feed* *(Zona, 2002)*
Sabal pumos; *S. uresana*	*1. palma real (Mex);* *2. palma blanca (Mex)*	*1 & 2. Mexico*	*1. fruit mesocarp edible, leaves for thatching;* *2. leaves for thatching*

Scientific Names	Selected Local Names!	Distribution	Products/Uses and Selected References
Syagrus botryophora; *S. harleyi;* *S. pleioclada;* *S. smithii;* *S. werdermannii*	*pati (Bra);* *coco de raposa (Bra);* *coqueirinho (Bra),* *catolé (Bra);* *coco de vassoura (Bra)*	*1,2,3 & 5. Brazil;* *4. Brazil, Colombia, Peru*	*1. stems in construction, seeds for oil;* *2. waxy leaves as fuel;* *3. leaves to make brooms;* *4. leaves for thatching, seeds eaten;* *5. leaves to make brooms & strainers*
Trithrinax brasiliensis	*carandaí (Bra)*	*Brazil*	*leaflets used to weave hats*
Wettinia fascicularis; *W. hirsuta;* *W . longipetala*	*macana (Col);* *palma mazorca (Col);* *no common name*	*1. Colombia, Ecuador;* *2. Colombia*	*1,2 & 3 . stems used for construction (Bernal, 1995)*

Notes:

* See also Table under Chapter 13.

1. An index of common names appears in Henderson et al. (1995).

2. There are numerous common names for Chamaedorea palms and they vary from place to place; for more detail see Hodel (1992).

Source: Henderson et al., 1995 and others as indicated.

Table 6-1 groups species of *Ceroxylon* and *Chamaedorea*. Eleven species of *Ceroxylon* are recognized. *Ceroxylon* palms are unique because they represent, for the palm family, some of the tallest palms in the world (up to 60 m in height) and those occurring at the highest elevations (to 3,150 m). These palms grow in montane rain forests, areas under intense pressure as a result of logging and land clearing for agriculture and livestock raising. As indicated, the palm stems are a source of construction material. Formerly, palms were felled to extract the wax covering the stems of *Ceroxylon*. Remaining stands of these palms should be protected and exploitation for any of their products discouraged.

Chamaedorea palms are also grouped in a single entry, with the exception of *C. tepejilote* as noted. This represents the largest New World palm genus, with about 110 species. The habitat of *Chamaedorea* palms is the understory of tropical rain forests ranging from sea level to 2,600 m. About ten species of *Chamaedorea* are important in ornamental horticulture and for cut foliage, particularly in the United States and Europe. *Chamaedorea seifrizii* (xaté or bamboo palm) and *C. elegans* (parlor palm or neanthe bella) are the two most important commercial species. This is not the place to go into a detailed discussion of commercial species of *Chamaedorea*, a subject covered in detail by Hodel (1992). It will suffice here to point out the key issues related to wild populations.

Without question, the chief threat to chamaedoreas is the destruction of their natural forest understory habitat, for the palms cannot survive without it. Gathering of wild *Chamaedorea* seed and cutting leaves for the florist trade both have adverse effects on wild populations. Seed collection results in reduced natural regeneration and removal of more than a few leaves per stem can decrease plant vigor and diminish fruit production.

Fortunately, increasing cultivation of chamaedoreas for seed is reducing the pressure on wild palms, except in the case of certain species (e.g. *Chamadorea elegans*) which are difficult to grow without artificial pollination. The main sources of wild collected seed are Mexico and Guatemala. Cut leaf exports originate from Mexico, Guatemala and Costa Rica. In northern Guatemala, there is a project to try to manage sustainably the harvest of leaves of wild *C. elegans*, with some hopeful results (Reining and Heinzman, 1992). More recent studies in Belize and Mexico on leaf harvest have provided an economic assessment of collecting practices (Belize) and the impact of leaf harvesting on leaf production (Mexico) (Bridgewater *et al*., 2006; Endress *et al*., 2004, 2006). Most promising in the long run is to encourage local farmers to cultivate the desirable palm species to satisfy the demand for seed and cut foliage (Vovides and Garcia Bielma, 1994).

Euterpe edulis is a single-stemmed palm native to the Atlantic Forest of eastern South America. To a major degree, its inclusion in Table 6-1 is because of exploitation for commercial palm heart production in Brazil, Argentina and Paraguay. In Brazil, wild stands were reduced to near uneconomic levels, forcing many palm heart companies to shift operations to the Lower Amazon and the exploitation of *E. oleracea*. Nevertheless, naturally-occurring *E. edulis* is still being cut in southern Brazil; industries continue to operate there as well in the neighboring countries.

Nowhere is the practice sustainable. If replacement plantings were done in the forest to replace harvested trees, sustainable production of palm heart from *E. edulis* could be achieved. In Brazil, *E. edulis* has been studied in detail as an attempt to conserve and sustainably manage wild populations for palm heart production (Reis and Reis, 2000). Also, efforts are being made in Brazil to cultivate the palm on plantations and to produce a hybrid

between *Euterpe edulis* and *E. oleracea* with a clustering stem that could make cultivation production price competitive with the harvest of wild *E. edulis* (EMBRAPA, 1987).

Two threatened South American palms, *Itaya amicorum* and *Jubaea chilensis*, are represented by monotypic genera; with a single species in the genus. From a conservation standpoint, monotypic species merit special attention because of the unique biodiversity they represent.

Non-threatened Latin American Palms

Table 6-2 Non-threatened Latin American Palms with Reported Uses

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Acrocomia aculeata	*mbocayá (Arg), totaí (Bra), macaúba Bra), corozo (Col, Ven), tamaco (Col), coyol (CR, EIS, Hon, Mex), carosse (Hai)*	*El Salvador, Haiti, Honduras, Mexico; Costa Rica to Argentina; Bolivia, Paraguay*	*multipurpose palm including oil-bearing seed & sap for palm wine (Balick, 1990)*
Allagoptera campestris; *A. caudescens;* *A. leucocalyx*	*1, 2 buri (Bra);* *3. tacuchicoco (Bol), coco da chapada (Bra);*	*Argentina, Brazil, Paraguay;* *Brazil;* *Argentina, Bolivia, Brazil, Paraguay*	*1.edible immature fruits;* *2. stems in construction, leaves for thatching, edible fruit;* *3. mesocarp & seeds edible*
Aphandra natalia	*piassaba (Bra, Ecu), tagua (Ecu)*	*Brazil, Ecuador, Peru*	*leaf sheath fiber for making brooms, leaves for thatching, edible immature fruit, male inflorescences fed to cattle (Borgtoft Pedersen, 1992; 1996)*
Asterogyne martiana	*cortadera (Col), pico (Ecu), capoca (Gua), pacuquilla (Hon), pata de gallo (Nic)*	*Colombia, Ecuador, Guatemala, Honduras, Nicaragua*	*leaves for thatching*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Astrocaryum aculeatum; *A. campestre;* *A. chambira;* *A. jauari;* *A. mexicanum;* *A. murumuru;* *A. standleyanum;* *A. vulgare*	*1. chonta (Bol), tucum (Bra), awara (Guy), cemau (Sur), tucuma (Ven);* *2. jarivá (Bra);* *3. tucuma (Bra), charribira (Col, Ecu, Per), cumare (Col. Ven), coco (Col, Fen);* *4. jauri (Bra), güiridima, (Col, Ven), yavarí (Col), chambirilla, (Ecu, Per), sauarai (Guy), liba awara (Sur);* *5. lancetilla (Hon), chocho (Mex);* *6. chonta (Bol), murumuru (Bra), chuchana (Col. Ecu). huicungo (Per);* *7. guérregue (Col), accord (Ecu); tucum (Bra), swarra (Sur);* *8. tucumã (Bra), awarra (FrG, Sur)*	*1. , Bolivia, Brazil, Colombia, Guyana, Suriname, Trinidad Venezuela;* *2. Bolivia, Brazil;* *3. Brazil, Colombia, Ecuador, Venezuela;* *4. Brazil, Colombia, Guyana, Peru, Suriname, Venezuela;* *5. Belize, El Salvador, Honduras, Mexico, Nicaragua;* *6. Bolivia, Brazil, Colombia, Ecuador, Guianas, Peru, Venezuela;* *7. Colombia, Costa Rica, Ecuador, Panama;* *8. Brazil, French Guiana, Suriname*	*1. fruit mesocarp edible, oil-bearing seed (Kahn & Moussa, 1999; Moussa & Kahn, 1997);* *2. young leaf fiber to make fishing nets, fruits edible;* *3. young leaf fiber to make hammocks. fishing nets, bags (Holm Jansen & Balslev, 1995):* *4. leaf rachis used for weaving, endocarps for necklaces, fruits as fish bait, edible palm heart;* *5. young inflorescence & endosperm eaten, leaves for thatching & stems for tool handles (Ibarra-Manrriquez, 1988)* *6. mesocarp eaten, leaves for thatching, stems for construction;* *7. stems for construction, fruit fed to pigs, young leaves for weaving (Borgtoft Pendersen, 1994; Velásques Runk, 2001);* *8. fruit mesocarp to make mash, flavor ice cream & a beverage (Mousa & Kahn, 1997)*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Attalea allenii; *A. butyracea;* *A. cohune;* *A. colenda;* *A. exigua;* *A. funifera;* *A. maripa;* *A. phalerata;* *A. speciosa*	*1. taparín (Col), igua (Pan);* *2. palla (Bol), jací (Bra), palma de vino (Col), palma real (CR, Pan), corozo (CR, Gua, Mex, Ven), canambo (Ecu), coquito (Gua), coyol real (Mex), shebon (Per), palma. de agua (Ven);* *3. cohune (Bel, Gua, Hon, Mex), corozo (EIS, Gua, Hon), manaca (Hon):* *4. palma real (Col, Ecu);* *5. babaçu (Bra);* *6. piaçqava (Bra);* *7. cusi (Bol), anajá (Bra), güichire (Col) inayo (Ecu), maripa (FrG, Sur), kukarit (Guy), mayuga (Per), cucurito (Ven);* *8. motaca (Bol) urucuri (Bra), shapaja (Per);* *9. cost (Bol), babaçu (Bra)*	*1. Colombia, Panama:* *2. Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Panama, Peru, Venezuela;* *3. Belize, El Salvador, Guatemala, Honduras, Mexico;* *4. Colombia, Ecuador;* *5. Brazil;* *6. Bolivia, Brazil, Ecuador, French Guiana, Guyana, Suriname, Trinidad;* *7. Colombia. Venezuela;* *8. Bolivia, Brazil. Paraguay, Peru;* *9) Bolivia, Brazil, Guyana, Suriname*	*1. leaves cut for Palm Sunday, fruit edible;* *2. leaves for thatching (Standley & Steyermark, 1958);* *3. oil from seeds, eaves for thatching (McSweeney, 1995);* *4. seeds collected for commercial oil extraction (Blicher-Mathiesen & Balslev, 1990; Feil, 1996);* *5. endosperm used to make candies & sweeten food;* *6. leaf base fiber is commercially exploited (Monteiro, 2009; Voeks, 1988, 2002);* *7. leaves for thatching;* *8. leaves for thatching, endocarps burned to smoke rubber;* *9. seeds collected for commercial oil extraction (Anderson et al., 1991, Balick, 1987)*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
1. Bactris barronis; *2. B. brongniartii;* *3. B. concinna;* *4. B. ferruginea;* *5. B. guineensis;* *6. B. major;* *7. B. maraja;* *8. B. plumeriana:*	*1. lata (Col), alar (Pan);* *2. marajá (Bra), chaearrá (Col), bango pal in (Guy), ñejilla (Per), caña negra (Ven);* *3. marajaú (Bel), marajá (Bra), chontilla (Ecu), ñejilla (Per);* *4. rnané véio (Bra);* *5. corozo (Col) biscoyol (CR), coyolito (Nic), uvita de monte (Pan), piritu (Ven);* *(Per), macanilla (Ven);* *6. hones (Bel), marayú (Bol), marajá (Bra), lata (Col), huiscoyol (Els,Gua,Hon,Nic), jahuacté (Mex), caña brava (Pan), cubarro (Ven);* *7. chontille (Bol, Col, Per), marajá Bra), Chacarrá (Col), uvita (Pan), ñeja (Per), piritu (Sur,Ven), uva de montaña (Ven);* *8. coco macaco (Cub), coco macaque (Hai), prickly pole (Jam)*	*1. Colombia, Panama;* *2. Bolivia, Brazil, Colombia, Guianas, Peru, Venezuela;* *3. Brazil, Colombia, Costa Rica, Ecuador, Panama, Peru, Venezuela;* *4. Brazil;* *5. Nicaragua;* *6. Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panamá, Venezuela,* *7. Bolivia, Colombia, Costa Rica, Panamá, Peru, Suriname, Venezuela;* *8. Cuba, Dominican Republic, Haití, Jamaica*	*1. split stems as flooring;* *2. fruits eaten;* *3. fruits eaten by humans & livestock;* *4. leaf fiber woven into fishing line;* *5. stems formerly once used to make walking sticks for export, fruit to make a drink;* *6, 7, 8. fruits eaten (Clement, 2008);*
Chamaedorea tepejilote	*Palmito dulce (CR), pacaya (EIS, Gua, Mex), caña verde (Pan)*	*Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Panama*	*immature male inflorescence as food from cultivated & wild plants (Castillo Mont et al., 1994); see Table 9-9 for nutritional composition of this product*
Chelyocarpus chuco	*hoja redonda (Bol), caranaí (Bra)*	*Bolivia, Brazil*	*leaves for thatching & to weave hats*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Coccothrinax argentata; *C. argentea;* *C. barbadensis;* *C. miraguama*	*1. silvertop (Bah), thatch palm (Cay), yuruguana de costa (Cub), silver thatch (Jam), knacás (Mex);* *2. guano (DR), latanye maron (Hai);* *3. latanier bala¡ (Gud, Mar), palma de abanico (PR);* *4.miraguano (Cub)*	*1. Bahamas, Cayman, Cuba, Honduras, Jamaica, Mexico;* *2. Dominican Republic, Haiti;* *3. Guadeloupe, Martinique, Puerto Rico;* *4. Cuba, Dominican Republic, Haiti*	*1. stems for construction, leaves for thatchíng;* *2 & 3. leaves for thatching;* *4. leaves for weaving & thatching*
Copernicia alba; *C. prunifera;* *C. tectorum;* *C. macroglossa, C. baileyana, C. cowellii, C.hospita, C. rigida*	*1. caranday (Arg, Bol, Par), carandá (Bra);* *2. carnaúba (Bra);* *3. sará (Col), cobija (Ven);* *4. yarey, jata, guano cano (Cub)*	*1. Argentina, Bolivia, Brazil, Paraguay;* *2. Brazil;* *3. Colombia, Venezuela;* *4. Cuba*	*1. stems for construction & utility poles, leaves for weaving (Markley, 1955; Moraes, 1991);* *2. leaves source commercial wax (see Table 9-15 for wax composition & properties) & to weave hats & mats (Johnson, 1972);* *3. leaves for weaving & thatching, stems for construction;* *4. leaves to weave hats & baskets, thatching, stems for fence posts*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Desmoncus cirrhiferus; *D. giganteus;* *D, mitis;* *D. orthacanthos;* *D. polyacanthos*	*1. matamba (Col), boira negra (Eco);* *2. jacitara (Bra), vara casha (Per);* *3. jacitara (Bra), bejuco alcalde (Col), barahuasca (Per);* *4. basket tie (Bel), bayal (Bel, Gua, Hon, Mex), urubamba (Bol), matamba (Col, CR, Pan), jacitara (Bra), karwari (Guy), bambamaka (Sur), camuari (Ven);* *5. jacitara (Bra), bejuco alcalde (Col), vara casha (Per), voladora (Ven)*	*1. Colombia, Ecuador;* *2. Brazil, Colombia, Ecuador, Peru;* *3. Belize, Bolivia, Brazil, Colombia, Ecuador, Guatemala, Mexico, Venezuela;* *4. Bolivia, Brazil, Colombia, Costa Rica, Guyana, Honduras, Panama, Suriname, Venezuela;* *5. Bolivia, Brazil, Colombia, Peru, Venezuela*	*1. stems used to weave baskets & fish traps, fruit edible;* *2. stems used to weave various products (Henderson & Chávez, 1993);* *3. stems use for basketry & to tie beams in construction (Galeano, 1991);* *4. stems for basketry;* *5. stems for basketry & sieves (Hübschmann et al., 2007)*
Dictyocaryum fusicum; *D. lamarckianum;* *D. ptarianum*	*1. palma araque (Ven);* *2. barrigona (Col), palma real (Ecu), basanco (Per);* *3. bombona paso (Col), pona colorada (Per)*	*1. Venezuela;* *2. Bolivia, Colombia; Ecuador, Peru;* *3. Brazil, Colombia, Peru, Venezuela*	*1.wood used in cabinetry:* *2. stems used for construction;* *3. stems used in construction, leaves for thatching*
Elaeis oleifera	*caiaué (Bra), nolí (Cot)*	*Central America; Northern South America; Brazil, Colombia*	*mesocarp oil extracted for cooking & other uses (Schultes, 1990)*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
1) Euterpe oleracea; *2) E. precatoria*	*1. açaí (Bra), naidí (Col), manaca (Ven);* *2. açaí (Bra), asaí (Bol, Col), uasi (Per), manaca (Ven)*	*1.Brazil, Colombia, Ecuador, Venezuela;* *2.Central America; Bolivia, Brazil, Colombia; Ecuador, Guianas, Peru, Venezuela*	*1.stem cut for commercial palm heart (see Table 9-19 for nutritional composition), fruits made into drink (Anderson, 1988; Pollak et al., 1995, Strudwick & Sobel, 1988; Tabora et al., 1993); Urdaneta, 1981);* *2. stems cut for commercial palm heart, stems used for construction, fruits made into drink*
Geonoma spp.	*(selected) ubim, assai-rana, jatata, palmiche, cortadera, ubimacu, huasipanga, daru*	*wide neotropical distribution*	*leaves of many species used for thatching, most important is G. deversa (jatata) in Bol & Per (Rioja, 1992), stems of some spp. used for construction,*
Iriartea deltoidea (monotypic)	*copa (Bol), paxiúba barriguda (Bra), barrigona (Cot), maquenque (CR), bomba (Ecu), huacrapona (Per), barriguda (Ven)*	*Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Peru, Venezuela*	*stems split for construction, canoes & other wood uses (Anderson, 2004; Johnson & Mejía, 1998; Pinard, 1993)*
Leopoldinia piassaba	*piassaba (Bra), chiquichique (Col, Ven)*	*Brazil, Colombia, Venezuela*	*stem fiber gathered & traded locally, fruits used to make a drink (Putz, 1979)*
Lepidocaryum tenue	*caraná (Bra, Col), caraña (Per), morichito (Ven)*	*Brazil, Colombia, Peru, Venezuela*	*leaves for thatching, esp. in Peru (Kahn & Mejía, 1987) species used in construction*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Manicaria saccifera	*terniche (Ven), bussú (Bra), jiquera (Col), troolie (Guy), guágara (Pan)*	*Brazil, Colombia, Ecuador, Guyana, Panama, Peru, Venezuela*	*leaves for thatching (Wilbert, 1976)*
Mauritia flexuosa	*caranday-guazú (Bol), buriti (Bra), aguaje (Per), moriche (Col, Ven)*	*Northern South America; Bolivia, Brazil, Colombia, Peru, Venezuela*	*multipurpose palm edible fruit mesocarp (see Table 9-24 for composition), oil from fruit, leaf fibers for rope, baskets, wine & starch from stem (Holm et al., 2008; Manzi & Coomes, 2009; Padoch, 1988, Ruddle & Heinen, 1974; Sampaio et al., 2008)*
1. Oenocarpus bacaba; *2. 0 bataua;* *3. 0. mapora*	*1. bacaba (Bra), manoco (Col), unguraui (Per), seje pequeño (Ven);* *2. batauá (Bra), seje (Col), chapil (Ecu), unguraui (Per), aricaguá (Ven);* *3. bacaba (Bol), bacabai (Bra), pusuy (Col), ciamba (Per), mapora (Ven)*	*I & 2. Northern South America; Brazil, Colombia, Peru, Venezuela* *3. Bolivia, Brazil, Colombia, Costa Rica, Panama, Peru, Venezuela*	*1. fruits used to make beverage;* *2. fruits contain edible oil, also used to make beverage, leaves woven into baskets, stems in construction (Balick & Gershoff, 1981);* *3. fruits used to make beverage, leaflet midveins used for basketry*
1. Phytelephas aequalorialis; *2. P. macrocarpa;* *3. P. schottii*	*1. tagua (Ecu);* *2. yarina (Col, Ecu, Per);* *3. cabecinegro (Col)*	*1. Colombia, Ecuador;* *2. Bolivia, Brazil, Peru;* *3. Colombia*	*1, 2 & 3. seeds for vegetable ivory (Barfod, 1989; Barfod et al., 1990; Calera Hidalgo, 1992; Koziol & Borgtoft Pedersen,1993; Ziffer,1992*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Pseudophoenix vinifera	*cacheo (DR), katié (Hai)*	*Dominican Republic, Haiti*	*leaves for thatching, fruits fed to livestock, former source of palm wine obtained by felling tree*
Raphia taedigera	*jupatí (Bra), pángana (Col), yolillo (CR), matomba (Pan)*	*Brazil, Colombia, Costa Rica, Nicaragua, Panama*	*petioles used as poles, petiole strips used to make shrimp traps & bird cages (Carney & Hiraoka, 1997)*
Roystonea borinquena; *R. regia*	*1. palma caruta (DR), palmis (Hai), palma real (PR);* *2. yagua (Hon, Mex), palma criolla (Cub), Palma real (Cub, Hon, Mex)*	*Dominican Republic, Haiti, Puerto Rico;* *Caribbean; Cuba, Honduras, Mexico*	*1. fruits fed to livestock (Zanoni, 1991, 1996);* *2. stems cut into planks for construction, fruits fed to livestock, leaves for thatching (Zona, 1991, 1996)*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
1. Sabal causiarum; *2. S. domingensis;* *3. S. maritima;* *4. S.mauritiiformis;* *5. S. mexicana;* *6. S. palmetto;* *7. S. pumos ;* *8. S. uresana;* *9. S. yapa*	*1. palma cana (DR), palma de sombrero(PR);* *2. palma cana (DR), latanier-chapeau (Hai);* *3. guana cana (Cub), bull thatch (Jam);* *4. botán (Bel, Gua), palma amarga (Col), palma de guagara (Pan), carata (Ven);* *5. Palma de sombrero (EIS), palma de micharo (Mex);* *6. guana cana (Cub);* *7. palma real (Mex);* *8. thatch palm (Bel), botán (Bel, Gua), palma guano (Cub), cana (Mex);* *9. palma blanca (Mex)*	*1. Dominican Republic, Haiti;* *2. Cuba, Dominican Republic, Haiti;* *3. Cuba,Jamaica;* *4. Belize, Colombia, Guatemala, Mexico; Panama, Venezuela;* *5. Central America; El Salvador, Mexico;* *6. Bahamas, Cuba;* *7. Mexico;* *8. Belize, Cuba, Guatemala, Mexico;* *9. Mexico*	*leaves for thatch & weaving hats, mats, etc ; mesocarp of S. pumos edible (Joyal, 1996; Martínez-Ballesté et al., 2008; Zona, 1990)*
Socratea exorrhiza; *S. montana*	*1. pachuba (Bol), paxiúba (Bra), zancona(Col), bombón (Ecu). jira (Pan), cashapona (Per), macanilla (Ven);* *2. gualte (Ecu)*	*1. Central America; Bolivia, Brazil, Colombia, Ecuador, Panama, Peru, Venezuela;* *2. Colombia, Ecuador*	*I & 2. outer part of lower stem split to make house floors and walls*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
1. Syagrus cardenasii; *2. S. cornosa;* *3. S. coronata;* *4. S. flexuosa;* *5. S. inajai;* *6. S. oleracea;* *7. S. petraea;* *8. S. romanzoffiana* *9. S. sancona;* *10. S. schizophylla;* *11. S. vagans*	*1. corocito (Bol);* *2. babo (Bra);* *3. ouricuri (Bra);* *4. acum;* *5. curua rana (Bra);* *6. catoIé (Bra);* *7. cocorito (Bol), coco de vassoura, (Par);* *8. pindó (Arg, Par), jeribá (Bra);* *9. sumuqué (Bol), sarare (Col, Ven);* *10. aricuriroba (Bra);* *11. pindoba (Bra)*	*1. Bolivia;* *2. Brazil;* *3. Brazil;* *4. Brazil;* *5. Brazil, Guianas;* *6. Brazil, Paraguay;* *7. Bolivia, Brazil;* *8. Argentina, Bolivia, Brazil, Paraguay, Uruguay;* *9. Bolivia, Peru, Venezuela;* *10. Brazil;* *11. Brazil*	*1 & 2. edible fruit;* *3. edible fruit, oil from seed, edible palm heart, leaves fed to livestock, wax from leaves (Crepaldi, et al., 2004);* *4. edible fruit;* *5. leaves for thatching, edible fruit;* *6. edible fruit, edible palm heart;* *7. leaves for brooms & basketry;* *8. edible fruit, edible palm heart, stems in construction;* *9. stems for fencing and to conduct water;* *10. edible fruit;* *11. leaves & inflorescences fed to livestock, leaves fed to livestock, leaves for thatching & weaving hats*
Thrinax morrisii; *T.radiata*	*1. miraguano (Cub), palma de escoba (PR);* *2. guano de costa (Cub), guanillo (DR) latanier-la-mer (Hai) chit (Mex)*	*1. Caribbean; Cuba, Puerto Rico;* *2. Caribbean; Belize, Dominican Republic, Haiti, Honduras, Mexico;*	*1& 2. leaves for thatching, stems as poles*
1. Trithirnax campestris; *2. T. schizophylla*	*1. sago (Arg), caranday (Uru);* *2. carandillo (Arg, Bol), buritÍ (Bra)*	*1. Argentina, Uruguay;* *2. Argentina, Brazil, Paraguay*	*1. leaves for thatching;* *2. stems in construction, leaves for thatching & making hats, baskets*

Scientific Names1	**Local Names2**	**Distribution**	**Products/Uses and Selected References**
Welfia regia	*Amargo (Col, Pan) palma conga (CR) camara (Per)*	*Northern South America; Colombia, Costa Rica, Panama, Peru*	*leaves for thatching, stems in construction*
1. Wettinia aequalis; *2. W.Kalbreyeri;* *3. W.maynesis;* *4. W.praemorsa;* *5. W.quinaria*	*1. ratonera (Col),* *2. gualte (Col, Ecu) 3. corunta(Col), gualte (Ecu), camonilla (Per);* *4. mapora (Col); prapa (Ven);* *5. memé (Col), gualte (Col, Ecu)*	*1. Colombia, Ecuador; Panama;* *2. Colombia, Ecuador;* *3. Colombia, Ecuador, Peru;* *4. Colombia, Venezuela;* *5. Colombia, Ecuador*	*1-5. stems used in construction*

Notes:

1. Scientific names follow Henderson et. al., (1995).

2. See Note 2, Table 6-1.

Sources: Henderson, el al., 1995; Quero, 1992; Read, 1988 and others as indicated.

A slightly longer list of palms is presented in Table 6-2, which includes 33 genera; 18 of which are not included in Table 6-1. The 15 genera common to both tables demonstrate that exploited palm species within the same genus may be either threatened or non-threatened in the wild, depending upon the circumstances. Palms in Table 6-2 were selected on the same basis as those in Table 6-1, that is there is documented current or past use. Uses in the latter category are included if there is a possible resumption of the exploitation. Again, a small number of palms are excluded because the level of utilization is very minor or only occurs occasionally.

Discussion

At current exploitation levels, apart from any other factors, the palms listed in Table 6-2 do not appear to be negatively impacted to any serious degree by their utilization. Major commercial products derived from palms in the region fall into four product groups: edible palm heart; vegetable oil from palm fruits; leaf and leaf base fiber; and wax from palm leaves. The following discussion is comprised of general comments about some of the respective products and palms, and is intended to highlight those utilizations which may lead to problems of sustainability in the near future.
Species of the *Acrocomia, Astrocaryum, Attalea, Elaeis* and *Oenocarpus* comprise the most important oil-bearing palms of the region. In the past, indigenous peoples depended upon these palms as a subsistence source of vegetable oil and utilization continues to this day. These palms produce high quality oil; *Oenocarpus* oil, for example, has been compared favorably to olive oil. But unfortunately the quantity of oil in these wild palm fruits is low.

Two major problems hinder large-scale industrialization of oil production from these New World palms. One, the palms are wild or semiwild and hence fruit collection is inefficient and productivity per unit area is low. Two, national and international markets are dominated by other palm oils, e.g. African oil palm and coconut, as well as oils from annual crops such as soybeans. The first problem could be overcome by domestication and breeding of superior American oil palm species; but the second problem currently is insurmountable because of high productivity per unit area of the competing vegetable oil crops. The best potential for expanded utilization may rest with the management of natural palm stands to increase population densities and promote growth along with development of village-level vegetable oil industries to serve local markets, or to develop new niche markets.

Internationally, the most significant contribution of the American oil palms thus far concerns *Elaeis oleifera*, which is being used as a source of germplasm for a breeding program to improve disease resistance in *E. guineensis*.

Leaf and leaf base fibers constitute both subsistence and commercial activities in the region. As indicated in Table 6-2, many palm leaves are used for thatching. As long as leaf harvest from individual trees is not excessive, this use is sustainable. Where the palm-like Panama hat plant (*Carludovica palmata*) occurs in Central America and northern South America, it represents an often preferred source of leaf material for weaving, reducing pressure on the palms.

In Brazil, palm leaf base fibers are collected from *Attalea funifera* (Bahia piassava, Atlantic Forest) and *Leopoldinia piassaba* (Pará piassava, Central Amazon) and primarily used to manufacture brushes and brooms. Collection of these fibers is a benign and sustainable form of exploitation providing that the trees themselves are not damaged in the process.

Over its natural range in Mexico, Central America and Colombia, the pacaya palm (*Chamaedorea tepejilote*) occurs in considerable numbers. It is also an exception within the genus. It is the tallest (to 7 m) and tolerates disturbance and more open habitats. This palm is also widely cultivated for its edible, immature male inflorescence which resembles an ear of maize. Pacaya (the palm and the food product share the common name) is a traditional food of local people and is eaten fresh as well as preserved in jars or tins (Castillo Mont *et al*., 1994). A small industry exists in Guatemala to preserve pacaya for markets in the region; a quantity is exported to supply emigrant populations in the United States and Canada. Little known outside the region or the ethnic groups in other countries, pacaya has the potential of being promoted as an exotic food item.

The carnaúba palm (*Copernicia prunifera*) represents the region's chief commercial source of hard vegetable wax. Carnaúba palms constitute almost pure stands in seasonally-flooded river valleys in northeastern Brazil. Leaves of this fan palm have a coating of hard cuticle wax which is obtained by cutting and drying the leaves and then mechanically chopping them into small pieces to dislodge the wax particles. Although in recent decades carnaúba wax has been replaced in many of its former applications by synthetics, it still retains a market for high quality floor and automobile polishes, and is used in the food, pharmaceutical and cosmetic industries because of its high melting point and because it is edible. Current levels of exploitation could be expanded with more efficient harvest techniques and new markets for the wax.

The genus *Desmoncus* represents the New World counterpart to the true rattans of the Old World. The stems of several species of this climbing palm are used in Latin America to weave baskets and other objects. In recent years, as part of a search for new wild rattan supplies, importers in the United States have investigated the possibility of exploiting *Demoncus* populations. However, the small cane diameter and general physical properties of *Desmoncus* are not well suited for making quality rattan furniture. Henderson and Chávez, 1993; and Hübschmann *et al*., 2007, describe the utilization of these liana palms. No species of *Desmoncus* is currently classified as threatened, but that could be because the conservation status of these palms is poorly known. Moreover, the genus needs systematic revision to determine valid species names. Any proposed exploitation of wild populations should be preceded by taxonomic and conservation studies.

South America is the source of most of the world's commercial palm heart. Industries based on the exploitation of natural stands of *Euterpe oleracea*, *E. precatoria* and (to a lesser degree) *E edulis* operate in Brazil, Guyana, Venezuela, Colombia, Ecuador, Argentina, Peru and Bolivia. The first two species are widely distributed in South America and occur as major tree species, the third has far more limited numbers because of the loss of so much of its natural habitat in the Atlantic Forest. All three have high quality palm heart. Exploitation is destructive because the individual tree is killed to extract the tender apical meristem.

The basic difference between *Euterpe oleracea* and together *E. edulis* and *E. precatoria* is that *oleracea* is a clustering palm, bearing ten or more stems per cluster, whereas the two others are single-stemmed species. As to the question of sustainability of this wild plant resource, the clustering species has real potential as long as annual harvest only takes the large stems and one mature stem is left per cluster to serve as a seed source for natural regeneration. Harvesting the wild single-stemmed species is unsustainable, although some level of managed regeneration may be feasible. Natural populations of *E. precatoria* will likely, in the next decade or two, follow the pattern of *E. edulis* with populations reduced to

uneconomic levels. In terms of palm heart production, economic development efforts should be directed toward practical management systems for or cultivated of *E. oleracea*.

Palm heart is identified as a major wild palm product in northern South America (Broekhoven, 1996) and generally in Latin America (Shanley *et al*., 2002).

Mauritia flexuosa is Latin America's most abundant palm, occurring as dense stands in permanently swampy areas, particularly in the Amazon Basin. From an economic development standpoint the moriche palm has considerable potential because it is the source of so many different products. Management of natural stands could enhance fruit and leaf production to provide food items and fiber. Stem starch and sap production for palm wine could also be promoted as a means of diversifying economic output from a management unit. The references cited in Table 6-2 indicate there is renewed interest in this palm, which might lead to its management and ultimate domestication, following the example of the peach palm,

Vegetable ivory is the hardened endosperm of palms in the genus *Phytelephas*. Two species of this palm are included in Table 6-1 because they are threatened, whereas three species appear in Table 6-2 because at present they are not. Vegetable ivory was used in the 19th and early 20th century for making buttons, until plastics replaced it. In the 1990s, Conservation International, Washington, D.C., established the Tagua Initiative, to revive vegetable ivory products including buttons, jewelry and carvings. Promotion focused on the items being natural products and an alternative to animal ivory. Raw materials come from *P. aequatorialis* stands Ecuadorian coast, where the industries are also located. The Tagua Initiative has achieved modest success, and vegetable ivory is being harvested and processed to benefit local communities.

About one-half the genera in Table 6-2 indicate stem wood as a product. Palm stems are cut and used whole for poles and in construction. Split stems may also be used as floor and wall coverings, as well as fashioned into spears, bows and other objects. Palm wood can be sawn into parquet pieces and used on the floors and walls of public buildings and in modern homes. Palm wood from the genera *Bactris, Iriartea, Socratea* and *Wettinia* is reported to be of the highest quality. There are many abundant palms species in these four genera which could be exploited for specialized wood products. One of the unusual uses for the *Iriartea* palm stem is to make a temporary canoe (Johnson and Mejía, 1998).

As the foregoing examples clearly demonstrate, subsistence-level and commercial palm products are important in the Neotropics.

Figure 6-1 Collecting pacaya inflorescences (Chamaedorea tepejilote) in Guatemala. Photograph by Don Hodel.

Figure 6-2 Babaçu fruits (Attalea speciosa) being sun-dried in Northeast Brazil. Photograph by Dennis Johnson.

Figure 6-3 Tucum fruits (Astrocaryum aculeatum) for sale in Manaus, Brazil. Photograph by Dennis Johnson.

Figure 6-4 The huasaí palm (Euterpe precatoria) in habitat near Iquitos, Peru. Photograph by Dennis Johnson.

Figure 6-5 Spear and bow carved from buri palm wood (Allagoptera caudescens) in Bahia, Brazil. Pataxos Amerindians living near Monte Pascoal National Park make these objects to sell to tourists. Photograph by Dennis Johnson.

Figure 6-6 Palm leaf products (from Euterpe oleracea and other palms) for sale in Belém, Brazil. Photograph by Dennis Johnson.

Figure 6-7 Bundles of recently-harvested piassava leaf base fiber (Attalea funifera). Bahia, Brazil. Photograph by Dennis Johnson.

Figure 6-8 Pejibaye palm (Bactris gasipaes var. gasipaes) cultivated in a germplasm collection near Manaus, Brazil. Photograph by Dennis Johnson.