

**Family:** *Areaceae*

**Taxon:** *Bactris gasipaes*

**Synonym:** *Bactris dahlgreniana* Glassman

**Common Name:** peach palm

*Bactris macana* (Mart.) Pittier

*Bactris speciosa* var. *chichagui* H. Karst.

*Bactris utilis* (Oerst.) Benth. & Hook. f. ex He

*Guilielma gasipaes* (Kunth) L. H. Bailey

Questionnaire :	current 20090513	Assessor:	Assessor	Designation: L
Status:	Assessor Approved	Data Entry Person:	Assessor	WRA Score 2
101	Is the species highly domesticated?	y=-3, n=0	y	
102	Has the species become naturalized where grown?	y=1, n=-1	y	
103	Does the species have weedy races?	y=1, n=-1	n	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High	
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High	
203	Broad climate suitability (environmental versatility)	y=1, n=0	n	
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y	
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	n	
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y	
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n	
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n	
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n	
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n	
401	Produces spines, thorns or burrs	y=1, n=0	y	
402	Allelopathic	y=1, n=0	n	
403	Parasitic	y=1, n=0	n	
404	Unpalatable to grazing animals	y=1, n=-1	n	
405	Toxic to animals	y=1, n=0	n	
406	Host for recognized pests and pathogens	y=1, n=0		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n	
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n	
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n	

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	y
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: L

WRA Score 2

## Supporting Data:

101	1994. Hernando Bermejo, J.E./Leon, J. (eds.). Neglected Crops: 1492 from a Different Perspective. FAO, Rome, Italy	[Is the species highly domesticated? Yes] "The degree of domestication reached at the time of contact with Europeans differed depending on the region. This is still reflected in characteristics such as fruit size. Thus, the cultivar developed in Bolivia from <i>Bactris insignis</i> represents an incipient stage of domestication because of its small fruit size and high fibre content, while the cultivar of the Vaupés River in Colombia reflects an advanced domestication process through its large fruit size and high starch content. The variety or species which gave rise to this cultivar has still not been determined."
101	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is the species highly domesticated?? Yes] "This palm was domesticated in Tropical America in pre-Colombian times for its fruit." ... "Seeds from an archaeological site in Costa Rica indicate that the peach palm may have been used as early as 1700-2300 BC (Mora Urpi, 1994)."
102	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Has the species become naturalized where grown? Yes] "It naturalizes easily wherever it can be grown."
103	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Does the species have weedy races? No evidence] "Wild peach palm (var. <i>chichagui</i> ) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps, while cultivated peach palm (var. <i>gasipaes</i> ) only occurs in ecosystems created by humans. Extensive natural stands of wild peach palm have not been reported (see population structure above), nor are wild palms harvested today."
103	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Does the species have weedy races? No evidence]
201	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Species suited to tropical or subtropical climate(s) 2-High] "Native: Southern America; Brazil: Brazil - Acre, Mato Grosso, Rondonia; Western South America: Bolivia - Santa Cruz; Colombia - Antioquia, Bolivar, Guajira, Norte de Santander, Risaralda, Sucre, Valle; Ecuador - Manabi, Pichincha; Peru - Cuzco, Madre de Dios, Pasc"
202	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Quality of climate match data 2-High]
203	1988. Morton, J.F.. Fruits of warm climates - Pejibaye ( <i>Bactris gasipaes</i> ). J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton/pejibaye.html">http://www.hort.purdue.edu/newcrop/morton/pejibaye.html</a> [Accessed 23 Sep 2013]	[Broad climate suitability (environmental versatility)? No] "The pejiyaye requires a tropical climate. It is generally restricted to elevations below 6,000 ft (1,800 m). Fruiting is reduced above 5,000 ft (1,500 m). The ideal average annual temperature ranges between 64.4° and 75.2°F (18°-24°C). At low elevations with excessive rainfall, the palm cannot succeed. Optimum rainfall is 78 to 156 in (200-400 cm), rather evenly distributed the year around."
203	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Broad climate suitability (environmental versatility)? Potentially. Elevation range of 1 variety may exceed 1000 m] "One variety is widely and commonly cultivated throughout tropical areas of Central and northern South America, mostly found below 1000 m elevation. The second variety is found on Andean slopes and adjacent lowlands, in lowland or montane rain forest on terra firme, to 1100 m elevation."
203	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Broad climate suitability (environmental versatility)? No] "The palm needs warmth, water, and a rich, free-draining soil. It grows fastest in full sun and cannot withstand any but the lightest frost, making it adaptable only to zones 10 and 11, with protected specimens found in 9b"
203	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Broad climate suitability (environmental versatility)? Potentially. Elevation range may exceed 1000 m] "Climatic amplitude (estimates) - Altitude range: 0 - 1200 m - Mean annual rainfall: 2000 - 5000 mm - Rainfall regime: uniform - Dry season duration: 3 - 4 months - Mean annual temperature: 24 - 28°C - Mean maximum temperature of hottest month: < 28°C - Mean minimum temperature of coldest month: > 18°C - Absolute minimum temperature: 10 - 12°C"

203	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Broad climate suitability (environmental versatility)? No. Elevation range exceeds 1000 m near equator] "A tropical plant. These palms have good wind resistance. They have a moderate tolerance of drought. They grow from sea level to 1200 m altitude in regions near the equator. It suits the wet tropics. It is grown from approximately 17°N to 16°S of the equator. It is most productive on deep well drained soils in the tropics below 800 m altitude and with a well distributed rainfall of 2000- 5000 mm per year and a temperature above 24°C. It suits hardiness zones 11-12."
204	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	" <i>Bactris gasipaes</i> Kunth var. <i>gasipaes</i> ... Widely and commonly cultivated throughout tropical areas of Central and northern South America (Fig. 29A), and almost always associated with current or past human dwellings, at 25-1200 m elevation." ... " <i>Bactris gasipaes</i> Kunth var. <i>chichagui</i> ... Colombia (Antioquia, Bolivar, Guajira, Norte de Santander, Risaralda, Sucre, Valle del Cauca), Venezuela (Barinas, Zulia), Ecuador (Manabf, Pichincha), and the western Amazon region of Peru (Cusco, Madre de Dios, Pasco), Brazil (Acre, Mato Grosso, Rondonia) and Bolivia (Santa Cruz) (Fig. 29B); on Andean slopes and adjacent lowlands, in lowland or montane rain forest on terra firme, at 100-1100 m elevation."
205	1987. Hamilton, R.A.. Ten Tropical Fruits of Potential Value for Crop Diversification in Hawaii. Fruits and Nuts. RES-085. College of Tropical Agriculture and Human Resources (CTAHR), Honolulu, HI	[Does the species have a history of repeated introductions outside its natural range? No] "This palm is not well known or widely grown in Hawaii, but experimental plantings at the University of Hawaii experimental farms at Waiakea and Kona produce good quality fruit."
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? No. Cultivated within native range] "It is widely and commonly cultivated throughout humid tropical areas of Central and northern South America at altitudes below 1200 m. The palm is almost always associated with current or past human settlements." ... "It has been grown successfully in South-East Asia (e.g. in botanical gardens), but is not yet grown as a tree crop outside the New World Tropics."
205	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Does the species have a history of repeated introductions outside its natural range? Papua New Guinea] "Importance: It has been introduced to Papua New Guinea. An important food in South America. In Papua New Guinea it occurs mostly only on research farms and knowledge of how to use the food is lacking."
205	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range?? No] "Peach palm is still almost exclusively a Neotropical crop, with only experimental areas in Africa, Asia and Oceania."
301	1988. Morton, J.F.. Fruits of warm climates - Pejibaye ( <i>Bactris gasipaes</i> ). J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton/pejibaye.html">http://www.hort.purdue.edu/newcrop/morton/pejibaye.html</a> [Accessed 23 Sep 2013]	[Naturalized beyond native range? Presumably Yes] "This useful palm is apparently indigenous to Amazonian areas of Colombia, Ecuador, Peru and Brazil, but it has been cultivated and distributed by Indians from ancient times and is so commonly naturalized as an escape that its natural boundaries are obscure."
301	2010. Guezou, A./Trueman, M./Buddenhagen, C.E./Chamorro, S./Guerrero, A.M. et al.. An Extensive Alien Plant Inventory from the Inhabited Areas of Galapagos. PLoS ONE. 5(4): e10276: doi:10.1371/journal.pone.0010276.	[Naturalized beyond native range? Cultivated in Galapagos] "Table S1. Complete list of the alien vascular plant taxa encountered in the inhabited areas of Galapagos" [ <i>Bactris gasipaes</i> - Cu] Cultivated (introduced for cultivation, not naturalized)]
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No evidence]
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No evidence]
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No evidence]
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No evidence]

401	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Produces spines, thorns or burrs? Yes] "Stems solitary or cespitose, 4-18 m tall, 8-25 cm diam., spiny or rarely not spiny on internodes. Leaves 7-20; leaf spines scattered or somewhat clustered, slightly flattened, brown or yellowish brown, to 1 (-3) cm long, often in 3 longitudinal rows on petiole, sometimes scattered, often on abaxial and adaxial surface of rachis, rarely absent; sheath and petiole 0.7- 1.3 m long, sheath, petiole, and rachis whitish tomentose abaxially, occasionally densely spinulose; ocrea absent on adult plants, present on juveniles and basal shoots; rachis 1.8-3.5 m long; pinnae 90 141 per side, irregularly arranged in obscure clusters of 2-5, spreading in different planes, linear, unequally bifid with midrib terminating subapically; middle pinnae 0.5-1 m x 2-3(-4) cm."
401	2003. Riffle, R.L./Craft, P.. <i>An Encyclopedia of Cultivated Palms</i> . Timber Press, Portland, OR.	[Produces spines, thorns or burrs? Spineless forms available] "Because of its importance as a crop, this species has many local cultivars throughout tropical America, including spineless forms and forms with seedless fruit."
401	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Produces spines, thorns or burrs? Yes] "B. gasipaes is a monoecious, multi-stemmed, suckering, very spiny feather palm, 6-24 m tall and 12-26 cm diameter." ... "B. gasipaes is fiercely spiny with spines on stems, leaves and inflorescences. Selected spineless forms are of interest for palm heart production."
401	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit &amp; Nuts</i> . Cabi Publishing, Wallingford, UK	[Produces spines, thorns or burrs? Yes, but spineless forms exist] "Fruit from spineless peach palm is typically collected by climbing the stem and lowering the fruit bunches to the ground with a rope or dropping them into a net. Most peach palms have spiny stems, however, and these are very difficult to climb."
402	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Allelopathic? No evidence]
402	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Allelopathic? No evidence]
402	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit &amp; Nuts</i> . Cabi Publishing, Wallingford, UK	[Allelopathic? No evidence]
403	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Parasitic? No] Palmae [Arecaceae]
404	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. <i>Peach Palm, Bactris Gasipaes Kunth. Promoting the conservation and use of underutilized and neglected crops</i> . 20. International Plant Genetic Resources Institute, Rome, Italy	[Unpalatable to grazing animals? No] "In addition, the extensive conversion of forest to pasture has eliminated many populations, because peach palm does not tolerate fire or cattle, which eat the offshoots and compact the soil."
404	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Unpalatable to grazing animals? No] "Pejibaye leaves can be used for fodder." [Although spines may deter browsing]
405	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Toxic to animals? No evidence] "Pejibaye leaves can be used for fodder." [Although spines may deter browsing]
406	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Host for recognized pests and pathogens? Potentially] "Pests recorded Insects: <i>Calytocephala marginipennis</i> <i>Metamasius hemipterus</i> (West Indian cane weevil) Nematodes: <i>Aphelenchoides</i> <i>Helicotylenchus</i> <i>Pratylenchus</i> (root lesion nematode) Fungus diseases: <i>Ceratocystis paradoxa</i> (black rot of pineapple) [1] <i>Colletotrichum</i> <i>Fusarium</i> <i>Phytophthora palmivora</i> (coconut budrot) <i>Thielaviopsis</i> Bacterial diseases: <i>Erwinia chrysanthemi</i> ----- Footnotes: 1. Important disease of fruit"
406	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit &amp; Nuts</i> . Cabi Publishing, Wallingford, UK	[Host for recognized pests and pathogens?] "Erwinia bacteria can be a problem where drainage is poor or shade intense in heart-of-palm stands. Anthracnose ( <i>Colletotrichum</i> ) fungal attack indicates inadequate phosphorus fertilization. Poor nursery management allows damping-off ( <i>Fusarium</i> ) and other fungal diseases to become important. Poor plant nutrition leads to increasing fungal attacks on fruit during the season, but these tend not to reach critical levels. Hence, as in other minor crops, most peach palm diseases can be managed with appropriate fertilization and field practices, and no pesticides are normally used. Beetles (Coleoptera) may be locally important fruit or seed pests, but only in the Colombian Pacific have they seriously affected fruit yields. A seed-boring beetle has occasionally been reported in the south-west Amazon. Foliage mites ( <i>Retracus</i> spp.) are indicative of poor plant nutrition and occasionally require chemical control on fruiting plants, but not in heart-of-palm orchards, where rapid growth and harvest keep their populations under control."
407	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Causes allergies or is otherwise toxic to humans? No evidence] "Pejibaye fruit is a good subsistence source of starch, oil and other nutrients, but must be cooked thoroughly before being eaten. The fruit is commercially produced in Costa Rica, and is planted on a smaller scale in Brazil, Colombia, Ecuador and Peru, and elsewhere in Central America and northern South America. "

407	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Causes allergies or is otherwise toxic to humans? No evidence] "Use: The fruit are used cooked or in preserves. The fruit is also dried and ground into flour. The flesh of the fruit is eaten raw. The fruit is boiled in salt water for 3 hours, the seeds removed then eaten. The kernel of the seeds is also edible. The palm cabbage is edible."
408	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Creates a fire hazard in natural ecosystems? No evidence] "Wild peach palm (var. chichagui) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps, while cultivated peach palm (var. gasipaes) only occurs in ecosystems created by humans."
409	2001. Ellison, D./Ellison, A.. Cultivated Palms of the World. UNSW Press, Sydney.	[Is a shade tolerant plant at some stage of its life cycle?] "The palm grows in open, sunny aspects in tropical to warm-temperate regions."
409	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Is a shade tolerant plant at some stage of its life cycle?] "It grows fastest in full sun and cannot withstand any but the lightest frost, making it adaptable only to zones 10 and 11..."
409	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Is a shade tolerant plant at some stage of its life cycle? No] "In the initial stages of this sequence, peach palm does well, but is eventually shaded out by taller fallow trees. This sequence of events apparently supports the contention that peach palm is both rustic and well adapted to low nutrient soils, but in fact it is well adapted to compete for nutrients and light when these are available in traditional systems, and dies out as these become less available."
410	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Tolerates a wide range of soil conditions?] "B. gasipaes tolerates low fertility soils providing they are not waterlogged and can withstand a short dry season if soils are not too sandy (Mora-Urpi et al., 1997)." ... "Soil descriptors - Soil texture: medium; heavy - Soil drainage: free - Soil reaction: acid"
410	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Tolerates a wide range of soil conditions?] "It is most productive on relatively deep, fertile, well drained soils at low to middle altitudes (< 1000 m above sea level), with abundant and well-distributed rainfall (2000–5000 mm/year) and average temperatures above 24°C. It produces relatively well on low-fertility soils, including highly eroded laterites with 50% aluminium-saturated acid soils,"
410	2013. World Agroforestry Centre. Agroforestry tree database - Bactris gasipaes. PROSEA, <a href="http://www.worldagroforestrycentre.org/sea/Producanand soil conditions but does not tolerate waterlogging.">http://www.worldagroforestrycentre.org/sea/Producanand soil conditions but does not tolerate waterlogging.</a> [Accessed 23 Sep 2013]	[Tolerates a wide range of soil conditions?] "B. gasipaes is found in tropical regions with heavy rainfall and poor soils. It is well adapted to a variety of climatic
411	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Climbing or smothering growth habit? No] "This species is found as clustering and solitary-trunked specimens."
412	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Forms dense thickets? No evidence] "Wild peach palm (var. chichagui) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps, while cultivated peach palm (var. gasipaes) only occurs in ecosystems created by humans. Extensive natural stands of wild peach palm have not been reported (see population structure above), nor are wild palms harvested today."
501	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Aquatic? No] "Wild peach palm (var. chichagui) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps, while cultivated peach palm (var. gasipaes) only occurs in ecosystems created by humans. Extensive natural stands of wild peach palm have not been reported (see population structure above), nor are wild palms harvested today."
502	2000. Henderson, A.. Bactris (Palmae). Flora Neotropica. 79: 1-181.	[Grass? No] Palmae [Arecaceae]
503	2000. Henderson, A.. Bactris (Palmae). Flora Neotropica. 79: 1-181.	[Nitrogen fixing woody plant? No] Palmae [Arecaceae]
504	1987. Hamilton, R.A.. Ten Tropical Fruits of Potential Value for Crop Diversification in Hawaii. Fruits and Nuts. RES-085. College of Tropical Agriculture and Human Resources (CTAHR), Honolulu, HI	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Peach palm is a tall, elegant, usually spiny but occasionally spineless, palm bearing large clusters of nutritious, palatable fruit."

601	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Evidence of substantial reproductive failure in native habitat? No] "Wild peach palm (var. chichagui) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps, while cultivated peach palm (var. gasipaes) only occurs in ecosystems created by humans. Extensive natural stands of wild peach palm have not been reported (see population structure above), nor are wild palms harvested today."
602	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces viable seed? Yes] "- Stand establishment using natural regeneration; direct sowing; planting stock"
602	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Produces viable seed? Yes] "Plants can be grown from seeds or suckers. Normally only 4 suckers per plant are kept and others removed."
603	2000. Henderson, A.. Bactris (Palmae). Flora Neotropica. 79: 1-181.	[Hybridizes naturally? Possibly] "Bactris barronis is diagnosed by its tall stems, conspicuously cross-veined pinnae, filamentous rachillae, regularly arranged triads tending to be absent from adaxial side of rachillae, calyx of the pistillate flowers to 1 mm long and corolla to 3.5 mm long, and spinulose fruits. Specimens from Colombia have larger fruits than those from Panama. Hybrids are suspected between this species and B. gasipaes"
604	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, Bactris Gasipaes Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Self-compatible or apomictic? Yes] "Peach palm is predominantly allogamous, having separate pistillate and staminate flower and protogynous development. Self-fertilization may occur, however and allow some isolated plants in the wild the opportunity to produce some progeny."
604	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Self-compatible or apomictic? Yes] "Peach palm is predominantly allogamous, having separate pistillate and staminate flowers, and protogynous development (i.e. the female flowers are receptive before the male flowers shed pollen). Self-pollination is thought to be regulated by a genetic incompatibility mechanism, but there is considerable variation in self-fertility. Self-pollination may occur: (i) within the same inflorescence; (ii) between inflorescences of the same stem; or (iii) between inflorescences on different stems of the same plant. The latter event is probably much more common than the other two events, although the first event may be common at the beginning and end of the season when sufficient cross-pollen is not available."
605	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, Bactris Gasipaes Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Requires specialist pollinators? Not in cultivation] "Wind pollination may play an important role in managed peach palm plantations, but it may not be very efficient in the wild. Most wind-dispersed pollen falls near the source tree -50% within 12 m (Solis-Fallas 1979)."
605	2000. Henderson, A.. Bactris (Palmae). Flora Neotropica. 79: 1-181.	[Requires specialist pollinators? Yes] "Large numbers of beetles, particularly small weevils (Curculionidae; Derelomini) and nitidulids (Nitidulidae), are attracted to the inflorescences. These insects remain on the inflorescence during the following 24 hours. They feed, copulate, and oviposit in the staminate flowers. Staminate anthesis takes place the following evening. This is a short-lived event, and immediately after anthesis the staminate flowers begin to fall from the inflorescence and the beetles, covered in pollen, depart. Larvae of the beetles develop in old, fallen staminate flowers. It is also clear that the life cycle of the pollinators, small nitidulid and curculionid beetles, is closely linked with that of the palm. Listabarth emphasized the reproduction of the beetles in staminate flowers. Rickson et al. (1990) noted that moniliform trichomes on the rachillae consisted of thick walled cells, and suggested that these functioned as gastroliths in the digestive tracts of pollen-consuming and, ostensibly, pollinating beetles." ... "Inflorescences at first interfoliar; peduncle 15-32 cm long, recurved, spinulose or not spiny; prophyll 12-25 cm long; peduncular bract 47- 70 cm long, moderately to densely covered with blackish or brownish spines to 1 cm long; rachis 15 30 cm long; rachillae 40-77, 17-32 cm long, at anthesis densely covered with moniliform trichomes; triads irregularly arranged among paired or solitary staminate flowers; staminate flowers 4-6 mm long, deciduous; sepal lobes 1.2-2 mm long; petals 3.5-6 mm long; stamens 6; pistillode absent; pistillate flowers 3.5-8 mm long; calyx annular, 1-3 mm long; corolla tubular, 3-8 mm long; staminodes minute;"
605	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Requires specialist pollinators?] "Plants are pollinated by insects but can be pollinated by wind. Small beetles are attracted to the flower and pollinate the plant in Central America."
605	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Requires specialist pollinators? Yes] "The reproductive biology of peach palm suggests a tight coevolutionary history with very small curculionid beetles, thousands of which are attracted by the musk to a single inflorescence. Where peach palm has been introduced recently, the lack of these curculionid beetles may severely limit fruit set."

606	1988. Morton, J.F.. Fruits of warm climates - Pejibaye ( <i>Bactris gasipaes</i> ). J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton/pejibaye.html">http://www.hort.purdue.edu/newcrop/morton/pejibaye.html</a> [Accessed 23 Sep 2013]	[Reproduction by vegetative fragmentation? Yes] "The pejibave is grown from seed or from suckers."
606	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Reproduction by vegetative fragmentation? Yes] "- Ability to sucker; fix nitrogen; regenerate rapidly"
607	1988. Morton, J.F.. Fruits of warm climates - Pejibaye ( <i>Bactris gasipaes</i> ). J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton/pejibaye.html">http://www.hort.purdue.edu/newcrop/morton/pejibaye.html</a> [Accessed 23 Sep 2013]	[Minimum generative time (years)? 6+] "The palm grows rapidly and reaches 43 ft (13 m) in 10 to 15 years. At low altitudes, seedlings begin to bear in 6 to 8 years. In cool regions, bearing may not begin until the plant is 10 to 12 years old. Productive life is said to be 50 to 75 years. "
607	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, <i>Bactris Gasipaes</i> Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Minimum generative time (years)? 3+] "Peach palm generally begins flowering after 3-5 years, and may produce annual fruit crops for 50-75 years (Overbeck 1990)."
607	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Minimum generative time (years)? 5+] "Seeds normally germinate in 30-90 days under normal conditions. Palms grow rapidly under the best conditions. Palms commence bearing after 5-8 years and may produce for 70-80 years."
701	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "fruits 1.2-6.5 x 1.1-4.5(6) cm" [Unlikely, as fruits are relatively large and lack means of external attachment]
702	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] "B. gasipaes is an excellent agroforestry species as well as a handsome ornamental palm." ... "Descriptors: oils; medicinal products; food; fodder; dyestuffs; honey"
702	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit &amp; Nuts</i> . Cabi Publishing, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] "In these agroecosystems, human selection pressure tends to reinforce self-pollination, as fewer more closely related plants are used to create each new subpopulation, resulting in a further reduction of genetic diversity, as observed by Rodrigues et al. (2004). This reduction is typical of domesticated species, but a human behavioural characteristic – seed exchange – acts to enhance genetic diversity and maintain genetic viability. Neighbours exchange seed quite frequently within villages, and seeds are often taken as gifts when visiting other villages or are requested as gifts when a special tree is observed (Adin et al., 2004). Seed exchange and buying seed in the market are important mechanisms for maintaining genetic diversity in any crop, but are especially important in under utilized crops that are more likely to be threatened by or suffering genetic erosion."
703	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Propagules likely to disperse as a produce contaminant? No] "fruits 1.2-6.5 x 1.1-4.5(-6) cm" [Unlikely, as fruits are relatively large and lack means of external attachment]
704	2000. Henderson, A.. <i>Bactris</i> (Palmae). <i>Flora Neotropica</i> . 79: 1-181.	[Propagules adapted to wind dispersal? No] "Fruits 1.2-6.5 x 1.1-4.5(-6) cm, subglobose, obovoid, or broadly ovoid, yellow, orange or red; mesocarp oily; endocarp globose to ellipsoid, the sterile pores displaced longitudinally, the fertile pore displaced latitudinally; endocarp fibers stout, flattened, adherent to the endocarp, anastomosing; fruiting perianth with small calyx with undulate margins and much longer, scarcely lobed or smooth-margined corolla, without staminodial ring."
705	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, <i>Bactris Gasipaes</i> Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Propagules water dispersed? Yes] "Fruits and seeds are naturally dispersed within short distances , principally by birds and rodents and occasionally by water."
705	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit &amp; Nuts</i> . Cabi Publishing, Wallingford, UK	[Propagules water dispersed? Yes. Along riverbeds] "Wild peach palm (var. chichagui) occurs in transitional natural ecosystems and where natural disturbances are frequent, principally along riverbeds and in primary forest gaps..."
706	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, <i>Bactris Gasipaes</i> Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Propagules bird dispersed? Yes] "Fruits and seeds are naturally dispersed within short distances , principally by birds and rodents and occasionally by water."
707	1994. Hernando Bermejo, J.E./Leon, J. (eds.). <i>Neglected Crops: 1492 from a Different Perspective</i> . FAO, Rome, Italy	[Propagules dispersed by other animals (externally)? Possibly] "Spontaneous dispersion occurs through the seeds being carried over short distances by birds, rodents and other mammals, and over greater distances possibly by water." [Seeds might be carried externally by rodents that consume the fruit pulp & possibly the seeds]

708	1997. Urpí, J.M./Weber, J.C./Clement, C.R.. Peach Palm, <i>Bactris Gasipaes</i> Kunth. Promoting the conservation and use of underutilized and neglected crops. 20. International Plant Genetic Resources Institute, Rome, Italy	[Propagules survive passage through the gut? Presumably Yes] "Fruits and seeds are naturally dispersed within short distances , principally by birds and rodents and occasionally by water."
708	2011. Shanley, P./Cymerys, M./Serra, M./Medina, G.. Fruit Trees and Useful Plants in Amazonian Life. FAO, Rome, Italy	[Propagules survive passage through the gut? Presumably Yes] "Many wild animals enjoy pupunha fruit. Deer, agoutis and large birds, such as guans, eat the fruit when it falls from the palm. By attracting game, the pupunha tree helps to sustain the people who live nearby. Because various parrot species love to feast on the fruit, the trees also help to maintain these often endangered birds."
801	2006. French, B.R. Food plants of Papua New Guinea. Privately published, Tasmania, Australia	[Prolific seed production (>1000/m2)? No] "Fruit are orange when ripe. and about 5-8 cm across." ... "Fruit without seeds often occur." ... "Fruit is produced in large clusters of 50-100 fruit. Four or five clusters are produced per year." [Produces approximately 200-500 seeds per year]
802	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Evidence that a persistent propagule bank is formed (>1 yr)? Probably No] "- Seed storage recalcitrant"
802	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "The seed is considered to be recalcitrant (i.e. it can not be dried or frozen for storage). Seeds obtained from healthy productive trees at the beginning of the harvest season have greatest germination success, better than 80% with standard practices."
803	2013. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species.
804	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "The palm resprouts from the roots in central Florida if frozen to the ground and grows quickly thereafter (David Witt, pers. Comm.). It can be propagated carefully by removing the suckers."
805	2013. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

## **Summary of Risk Traits**

### **High Risk / Undesirable Traits**

- Thrives in tropical climates
- Naturalized (area of origin uncertain)
- Spiny (although spineless forms exist)
- Self-compatible
- Can spread by seeds and vegetatively by suckering
- Seeds dispersed by people, water, birds and other animals
- Able to resprout

### **Low Risk Traits**

- Domesticated tree with spineless, larger-fruited, and few-seeded forms in cultivation
- Despite naturalization, no reports of negative impacts to agriculture or the environment
- Edible fruit
- Requires full sun
- Seeds are recalcitrant, and will not form a persistent seed bank