Taxon: Mimosa caesalpiniifolia Benth. **Family:** Fabaceae

Common Name(s): sabiá **Synonym(s):** Mimosa caesalpiniaefolia Benth.

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 28 Nov 2017

WRA Score: 7.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Spiny Tree, Naturalized, Fodder, N-Fixing, Coppices

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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	?
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		
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)	y
401	Produces spines, thorns or burrs	y=1, n=0	y
402	Allelopathic		
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		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	y
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		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
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	2
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	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
803	Well controlled by herbicides		
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)		

Supporting Data:

Qsn #	Question	Answer
101	**Is the species highly domesticated?**	**n**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	[Not domesticated] "Although this species is not intensively cultivated, existing experiments show its potential for afforestation for the production of wood for stakes, fuelwood and charcoal."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2017. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2017. Personal Communication	NA

201	**Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"**	**High**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	"Native: Southern America Brazil: Brazil - Ceara, - Maranhao, - Paraiba, - Pernambuco"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**n**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The dry climate of Northeastern Brazil is the most appropriate for the "sabia". Climate varies however from dry subhurnid tropical or subtropitcal to semiarid tropical or subtropical, with average temperatures between 20 and 28°C, yearly average precipitation between 500 to 1 300 mm, with a dry period of 6 to 1 2 months, and water deficit varying between 200 and 1000 mm."
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Variação altitudinal: de 20 m a 400 m de altitude. Contudo, o sabiá tem sido plantado até 1.200 m de altitude, no Distrito Federal." [Altitudinal variation: from 20 m to 400 m of altitude. However, the sage has been planted up to 1,200 m altitude, in the Federal District.]

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	"Native: Southern America Brazil: Brazil - Ceara, - Maranhao, - Paraiba, - Pernambuco Naturalized: Africa : Africa Southern America Brazil: Brazil"

205	**Does the species have a history of repeated introductions outside its natural range?**	**?**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 27 Nov 2017]	"Naturalized: Africa : Africa Southern America Brazil: Brazil Cultivated: Africa : Africa Southern America Brazil: Brazil"

Qsn #	Question	Answer
301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	Naturalized: Africa : Africa Southern America Brazil: Brazil"

302	**Garden/amenity/disturbance weed**	
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[Cited as a weed. Impacts unspecified] "References: Global-N-85, Brazil-I-984, Global-W-1376, Global-I-1404."
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	[Potential impacts understory vegetation] "Exotic species are used to trigger facilitation in restoration plantings, but this positive effect may not be permanent and these species may have negative effects later on. Since such species can provide a marketable product (firewood), their harvest may represent an advantageous strategy to achieve both ecological and economic benefits. In this study, we looked at the effect of removal of a non-native tree species (Mimosa caesalpiniifolia) on the understory of a semideciduous forest undergoing restoration. We assessed two 14-year-old plantation systems (modified ‘‘taungya’’ agroforestry system; and mixed plantation using commercial timber and firewood tree species) established at two sites with contrasting soil properties in Sa˜o Paulo state, Brazil. The experimental design included randomized blocks with split plots. The natural regeneration of woody species (height C0.2 m) was compared between managed (all M. caesalpiniifolia trees removed) and unmanaged plots during the first year after the intervention. The removal of M. caesalpiniifolia increased species diversity but decreased stand basal area. Nevertheless, the basal area loss was recovered after 1 year. The management treatment affected tree species regeneration differently between species groups. The results of this study suggest that removal of M. caesalpiniifolia benefited the understory and possibly accelerated the succession process. Further monitoring studies are needed to evaluate the longer term effects on stand structure and composition. The lack of negative effects of tree removal on the natural regeneration indicates that such interventions can be recommended, especially considering the expectations of economic revenues from tree harvesting in restoration plantings."

303	**Agricultural/forestry/horticultural weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	**Environmental weed**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	y
	Source(s)	**Notes**
	CABI, 2017. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	[Mimosa pigra, Mimosa casta & Mimosa ceratonia are invasive] "M. pigra is a small prickly shrub that infests wetlands and is also an agricultural weed in rice fields in many parts of the old world tropics. In natural wetlands the shrub alters open grasslands into dense thorny thickets and negatively impacts on native biodiversity. It is regarded as one of the worst alien invasive weeds of wetlands of tropical Africa, Asia and Australia, and the cost of control is often high." ... "M. casta is a fast-growing perennial vine that is included in the Global Compendium of Weeds (Randall, 2012). The ability of this species to tolerate a wide range of habitats including disturbed areas, roadsides, pastures, semi waterlogged areas, as well as natural forests means that it has the potential to spread much further than it has to date. Additionally, the species is able to climb over other species and supports itself on other plants by means of spines which are borne along the length of its stems and petioles, forming a dense cover and presumably competing for resources (i.e., sunlight) with native species. In Puerto Rico, this species is classified as a "noxious weed" (USDA-ARS, 2012)." ... "M. ceratonia is a fastgrowing perennial multi-stemmed vine that is considered a weed in Puerto Rico (Vélez and Overbeek, 1950). The species is able to grow in a great range of habitats including fencelines, roadsides, pastures, brushy pastures, wooded drains, forest edges and openings in secondary forests. Consequently, it has the potential to spread much further than it has to date, both inside and outside its native range. Seeds are easily dispersed by the pods clinging to clothing or to the fur of animals, and they can remain viable for several years (Francis, 2000)."

401	Produces spines, thorns or burrs	y
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Mimosa caesalpiniifolia is a spiny, deciduous shrub or tree with a wide, dense crown; it can grow 5 - 8 metres tall. The short bole is 20 - 30cm in diameter"
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Por sua vez, quando a finalidade de plantio for a formação de cercas-vivas, a presença de espinhos nas plantas torna-se uma característica desejável (RIBASKI et al., 2003)." [On the other hand, when the purpose of planting is the formation of hedgerows, the presence of thorns in the plants becomes a desirable characteristic]
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"Sabia multiplies from both seed and cuttings. It is very difficult to herd livestock in an area of young sabia because of the thorns."

Qsn #	Question	Answer
402	**Allelopathic**	
	Source(s)	**Notes**
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"Although the litter produced by this species has a high nutrient content and high decomposition rate (Campoe and Engel 2004; Fernandes et al. 2006), the potential allelopathic effect of its litter on native seed germination should be considered (Pin˜a-Rodrigues and Lopes 2001)."
	Ferreira, E. G. B. D. S., Matos, V. P., Sena, L. H. D. M., & Sales, A. G. D. F. A. (2010). Allelopathic effect of aqueous extract of Mimosa caesalpiniaefolia Benth. in seed germination of Phaseolus lunatus. Revista Ciência Agronômica, 41(3), 463-467	[No evidence in this study] "The Mimosa caesalpiniaefolia Benth. is a medicinal plant that can be used in agroforestry systems, is also employed in the composition of pasture trees in strips between fields, to enrich brush fields and as a hedge. The Phaseolus lunatus L. is one of four species of the genus Phaseolus exploited commercially; its use is preferably in the form of green beans cooked or in canned form. The aim of the present research was to evaluate aqueous extracts of Mimosa caesalpiniaefolia on the germination of seeds and initial growth of broad beans seedlings. The seeds of bean were sowed into vermiculite in boxes and placed in a germinador at 25 ºC under continuous light. The substrate was moistened with the aqueous extract of young leaves of Mimosa caesalpiniaefolia in concentrations of 25%; 50%; 75%, 100%, and a control treatament whose substrate was moistened only with distilled water. The parameters evaluated were: percentage, first count, the index of germination speed and length of the primary root. The experimental design was completely randomized design with four replications of 25 seeds each. The data were subjected to analysis of variance and regression polynomial. In the study of polynomial regression ($p < 0,05$) equation was used to best fit the data. The values in percentage were transformed in arc sen (n/100)0,5. It was concluded that different concentrations of extract of leaves of young Mimosa caesalpiniaefolia did not prevent germination of Phaseolus lunatus."

403	Parasitic	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 27 Nov 2017]	[No evidence] Family: Fabaceae (alt.Leguminosae) Subfamily: Caesalpinioideae Tribe: Mimoseae

404	Unpalatable to grazing animals	n
	Source(s)	**Notes**
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"It is a prolific seed producer, and if protected from grazing animals, it may be a significant component of initial seral stages of secondary succession following clearing and burning. Its high palatability appears to be a key factor in controlling its distribution."
	Pfister, J., & Malechek, J. (1986). Dietary Selection by Goats and Sheep in a Deciduous Woodland of Northeastern Brazil. Journal of Range Management, 39(1), 24-28	"Table 1. Mean botanical composition (% and standard deviation) of goats' and sheep diets during 10 sample periods, 1981 and 1982 in northeastern Brazil." [Mimosa caesalpiniaefolia consumed by goats and sheep throughout the year]

Qsn #	Question	Answer
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The leaves have a high forage value, containing approximately 17% protein."

405	Toxic to animals	n
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Known Hazards: None known"
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The leaves have a high forage value, containing approximately 17% protein." [No evidence]
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	**Notes**
	Guimarães de Menezes C. W. G., Soares, M. A., Assis Jr, S. L., Fonseca, A. J., & Zanuncio, J. C. (2012) First Record of Poekilloptera Phalaenoides (Hemiptera: Flatidae) Hosting Mimosa Caesalpiniaefolia (Mimosaceae) in Diamantina, Minas Gerais State, Brazil. Forest Research 1: 102	"Poekilloptera phalaenoides (Linnaeus 1758) (Auchenorrhyncha: Flatidae) has been reported in several Brazilian States such as Bahia, Goiás, Mato Grosso, Minas Gerais, Pará, Paraíba, Rio de Janeiro, Rio Grande do Sul, Roraima, São Paulo and Sergipe [3-5]. It is pale yellow in color with black spots and marks on the wings (Figure 1). This insect also feeds on sap and excretes a substance rich in sugars that can favor fungi growth, known as sooty mold, which affects respiration, transpiration and photosynthesis of host plants [3,5,6]. Several plants, such as those of the genera Acacia and Albizia (A. mangium and A. podalyriaefolia) (Mimosaceae), Annona (Annonaceae), Cajanus and Dipteryx (Fabaceae), Cassia and Delonix (Caesalpiniaceae), Citrus (Rutaceae), Coffea (Rubiaceae), Enterolobium (Mimosaceae), Eucalyptus and Psidium (Myrtaceae), Inga (Mimosaceae), Mangifera (Anacardiaceae), Pithecelobium (Mimosaceae), Rosa and Prunus (Rosaceae) and Theobroma (Sterculiaceae) are hosts of P. phalaenoides [3,5,6]."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Known Hazards: None known"
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

Qsn #	Question	Answer
408	**Creates a fire hazard in natural ecosystems**	
	Source(s)	**Notes**
	Matos, D. S., Santos, C. J. F., & Chevalier, D. D. R. (2002). Fire and restoration of the largest urban forest of the world in Rio de Janeiro City, Brazil. Urban Ecosystems, 6 (3), 151-161	[Potentially yes] "Mimosa caesalpiniaefolia" ... "This species grew approximately 2m during 1 year, shading the grasses and creating a green fence, which prevented entrance into the forest. It can also be flammable."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Requires a sunny position[419]. Established plants are drought tolerant[419]."
	Pinto, J. R. D. S., Dombroski, J. L. D., Santos Junior, J. H. D., Souza, G. O. D., & Freitas, R. (2016). Growth of Mimosa caesalpiniifolia Benth., under shade in the Northeast semi-arid region of Brazil. Revista Caatinga, 29(2), 384-392	[Seedlings tolerate shade. Could establish in shaded understories] "Seedling production for reforestation aims to achieve the best plant growth in a minimal amount of time, to provide good survival and growth levels after transplantation. During cultivation, it is necessary to know the shading levels that lead to the best growth. The objective of this study was to assess the growth of young Mimosa caesalpiniifolia Benth. plants provided with various amounts of shade in the northeast semi-arid region of Brazil. Four types of shade cloth were tested (0, 30, 50 and 70%). Shoot length, stem diameter, stem dry matter, leaf dry matter, total dry matter and leaf area were assessed. Leaf area ratio, specific leaf area, absolute growth rate, relative growth rate and net assimilation rate were also calculated. The different shading levels affected M. caesalpinifolia growth, with the best growth indicators observed in plants grown under 50% shade, with increases in plant height, leaf area and total dry matter observed compared to the full sun condition." ... "M. caesalpiniifolia shows higher leaf area, height and dry matter values in a shaded environment compared to full sun. The higher height and leaf area values from the shaded environment are not signs of shade avoidance, suggesting that M. caesalpiniifolia shows better growth when grown in a shaded environment."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	World Conservation Monitoring Centre. 1998. Mimosa caesalpiniaefolia. The IUCN Red List of Threatened Species 1998: e.T33968A9825294. http://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T33968A9825294.en. [Accessed 27 Nov 2017]	"A xerophytic species found growing mainly in deep alluvial soils."
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Dry forest areas of northeast Brazil, found mainly in deep soils, growing in both primary and secondary formations"

Qsn #	Question	Answer
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"Grows preferably in deep soils, principally in the alluvials, and in the deep sandy alluvials. Good performance in shallow soils is observed, in accordance with the low nutrient requirements of the species."
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"It is adaptable to a wide spectrum of conditions, however, it competes best on shallow soils. On infertile shallow soils it tends to become hollow. On fertile soils a resprouting sabia yields fence post-sized material within six years."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Mimosa caesalpiniifolia is a spiny, deciduous shrub or tree with a wide, dense crown; it can grow 5 - 8 metres tall. The short bole is 20 - 30cm in diameter[419]."

412	Forms dense thickets	
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"Sabia develops naturally in association with other xerophytic species such as Anadenanthera sp., Tabebuia sp., Astronium sp., and Torresea sp." [Unknown. No evidence of dense stand formation in native range]

501	Aquatic	n
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	[Terrestrial] "Sabia developes naturally in association with other xerophytic species such as Anadenanthera sp., Tabebuia sp., Astronium sp., and Torresea sp."

502	Grass	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	Family: Fabaceae (alt.Leguminosae) Subfamily: Caesalpinioideae Tribe: Mimoseae

Qsn #	Question	Answer
503	**Nitrogen fixing woody plant**	**y**
	Source(s)	**Notes**
	Chen, W. M. et al. (2008). Burkholderia sabiae sp. nov., isolated from root nodules of Mimosa caesalpiniifolia. International Journal of Systematic and Evolutionary Microbiology, 58(9), 2174-2179	
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 21 Nov 2017]	Family: Fabaceae (alt.Leguminosae) Subfamily: Caesalpinioideae Tribe: Mimoseae

504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**n**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"Tree which reaches up to 8 m in height, with branching from soil level, and a crooked trunk; the trunk when young, has few thorns that disappear when the tree reaches adult age. The rootsystem has nodules with nitrogen fixation capacity."

601	**Evidence of substantial reproductive failure in native habitat**	**n**
	Source(s)	**Notes**
	World Conservation Monitoring Centre. 1998. Mimosa caesalpiniaefolia. The IUCN Red List of Threatened Species 1998: e.T33968A9825294. http://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T33968A9825294.en. [Accessed 27 Nov 2017]	"It is suffering a slow decline through its use as a timber, fuelwood and charcoal and through habitat loss and degradation." [Declining, but no evidence of substantial reproductive failure]

602	**Produces viable seed**	**y**
	Source(s)	**Notes**
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Para a produção de mudas por sementes, são recomendados os tratamentos pré-germinativos: escarificação em água fervente por 1 minuto, e imersão em ácido sulfúrico (até 95 %) por 5, 7, 10 e 13 minutos." [Translation from Portuguese: For the production of seedlings by seed, pre germination treatments are recommended: scarification in boiling water for 1 minute, and immersion in sulfuric acid (up to 95%) by 5, 7, 10 and 13 minutes.]

Qsn #	Question	Answer
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"Propagation. Seed - it has a hard seedcoat and, unless sown as soon as it is ripe and still moist, may benefit from scarification before sowing to speed up germination. This can usually be done by pouring a small amount of nearly boiling water on the seeds (being careful not to cook them!) and then soaking them for 12 - 24 hours in warm water. By this time they should have imbibed moisture and swollen - if they have not, then carefully make a nick in the seedcoat (being careful not to damage the embryo) and soak for a further 12 hours before sowing. Sow the seed in a partially shaded position in individual containers or in a nursery seedbed. A germination rate of more than 50% can be expected, with the seed sprouting within 5 - 20 days[419]. When the nursery bed sown seedlings are 3 - 5cm tall, pot them up into individual containers. Seedlings grow very quickly and should be ready to plant out 3 - 4 months later[419]."
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"Sabia multiplies from both seed and cuttings. It is very difficult to herd livestock in an area of young sabia because of the thorns."

603	Hybridizes naturally	
	Source(s)	**Notes**
	WRA Specialist. 2017. Personal Communication	Unknown. No evidence found

604	Self-compatible or apomictic	
	Source(s)	**Notes**
	East, E. M. 1940. The distribution of self-sterility in the flowering plants. Proceedings of the American Philosophical Society 82: 449-518	[Mimosa genus has self-fertile species. Unknown if Mimosa caesalpiniifolia is self-fertile] "The record of genera in which self-fertile species were found is as follows. The order corresponds with Engler and Prantl, the numbers being those of the species investigated when more than one. Mimosoideae. Inga, Enterolobiumn, Pithecellolobium, Albizzia- 2, Acacia-6, Mimosa-2, Desmanthus, Adenanthera."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"A cylindrical spike of 5 to 10 cm in length, consisting of axillary and terminal panicules. Flowers are white, small, and in a capitulum, and are rich in nectar production."
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Vetor de polinização: essencialmente a abelha africanizada Apis mellifera (NORONHA, 1997) e diversos insetos pequenos." [Pollination vector: essentially the Africanized bee Apis mellifera (NORONHA, 1997) and several small insects.]

Qsn #	Question	Answer
606	**Reproduction by vegetative fragmentation**	**y**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	[Can spread from root sprouts] "In a coppice regeneration system, it is possible to carry out four cuttings (rotations). Natural regeneration after cutting from the stumps, as well as through root sprouting and seed germination is reported."

607	Minimum generative time (years)	2
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"A fast-growing species, easily reaching a height of 4 metres within 2 years from seed"
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"This species begins to flower and produce fruit at an early age, usually at around two years."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Dispersão de frutos e sementes: autocórica, do tipo barocórica (por gravidade)." [Gravity dispersed]
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The fruit length by is an articulated legume (pod), 7 to 10 cm in 10 to 13 rom in width, with a stipe of approximately 10 mm, segmented and held together by fibrous filaments that bears the petiole at the end of the legume; one seed in each segment." [No means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2017. Mimosa caesalpiniifolia. http://tropical.theferns.info/viewtropical.php?id=Mimosa+caesalpiniifolia. [Accessed 27 Nov 2017]	"A valuable timber species within its native range, where it is widely cultivated as a source of wood. It is also often grown as an ornamental"

Qsn #	Question	Answer
703	**Propagules likely to disperse as a produce contaminant**	**n**
	Source(s)	**Notes**
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"This species begins to flower and produce fruit at an early age, usually at around two years. The seeds are dispersed by gravity (barochory)" [Unlikely. A tree that is generally not cultivated with other produce]
	WRA Specialist. 2017. Personal Communication	No evidence found

704	**Propagules adapted to wind dispersal**	**n**
	Source(s)	**Notes**
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Dispersão de frutos e sementes: autocórica, do tipo barocórica (por gravidade)." [Gravity dispersed]
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The fruit length by is an articulated legume (pod), 7 to 10 cm in 10 to 13 rom in width, with a stipe of approximately 10 mm, segmented and held together by fibrous filaments that bears the petiole at the end of the legume; one seed in each segment."

705	**Propagules water dispersed**	**n**
	Source(s)	**Notes**
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"This species begins to flower and produce fruit at an early age, usually at around two years. The seeds are dispersed by gravity (barochory)" [No evidence, although some secondary dispersal by water may occur]

706	**Propagules bird dispersed**	**n**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"The fruit length by is an articulated legume (pod), 7 to 10 cm in 10 to 13 rom in width, with a stipe of approximately 10 mm, segmented and held together by fibrous filaments that bears the petiole at the end of the legume; one seed in each segment." [No adaptations for bird dispersal]
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"The seeds are dispersed by gravity (barochory)"

707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"FRUIT: A pod, short, with soft and small seeds." [No means of external attachment]
	Podadera, D. S., Engel, V. L., Parrotta, J. A., Machado, D. L., Sato, L. M., & Durigan, G. (2015). Influence of removal of a non native tree species Mimosa caesalpiniifolia Benth. on the regenerating plant communities in a tropical semideciduous forest under restoration in Brazil. Environmental Management, 56(5), 1148-1158	"The seeds are dispersed by gravity (barochory)"

708	Propagules survive passage through the gut	
	Source(s)	**Notes**
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"The seed pods are also consumed by livestock." [Unknown if viable seeds survive passage through the guts of livestock]

801	Prolific seed production (>1000/m2)	
	Source(s)	**Notes**
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	[Seed densities unknown] "It is a prolific seed producer, and if protected from grazing animals, it may be a significant component of initial seral stages of secondary succession following clearing and burning."

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"In nature the seeds maintains viability till the first winter after the seed fall. Germination takes places 5 to 10 days after the first rains. Although the coat dormancy of the "sabia" seeds is not a problem, it is recommended that they be treated in boiling water for 1 to 2 minutes to obtain the most uniform germination."
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Longevidade e armazenamento: as sementes dessa espécie são de comportamento ortodoxo com relação ao armazenamento. Sementes de sabiá armazenadas a seco mantêm o poder germinativo por até 300 dias (CARVALHO, 1976) ou por período superior a 1 ano (DURIGAN et al., 1997). Seu poder germinativo na natureza dura até o primeiro inverno." [Portuguese translation: Longevity and storage: the seeds of this species are orthodox in relation to storage. Seeds of dry-stored sabiá maintain germination for up to 300 days (CARVALHO, 1976) or for a period longer than 1 year]

Qsn #	Question	Answer
803	**Well controlled by herbicides**	
	Source(s)	**Notes**
	WRA Specialist. 2017. Personal Communication	Unknown. No evidence on herbicide efficacy or chemical control of this species, although other Mimosa species are effectively controlled.

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y**
	Source(s)	**Notes**
	FAO. 1986. Databook On Endangered Tree And Shrub Species And Provenances. Fao Forestry Paper 77. Forest Resources Division, FAO Forestry Department, Rome. Italy	"In a coppice regeneration system, it is possible to carry out four cuttings (rotations). Natural regeneration after cutting from the stumps, as well as through root sprouting and seed germination is reported."
	Carvalho, P.E.R. (2007). Sabiá– Mimosa caesalpiniaefolia. Circular Técnica 135: 1-10	"Propagação vegetativa: renova-se por brotação de tocos e mesmo raízes (AGUIAR SOBRINHO, 1995). Contudo, o enraizamento de suas estacas apresentou baixa percentagem de enraizamento." [Vegetative propagation: it is renewed by sprouting of stumps and even roots (AGUIAR SOBRINHO, 1995). However, the rooting of their cuttings showed a low percentage of rooting.]
	Kirmse, R. D., Pfister, J. A., Vale, L. V., & de Queiroz, J. S. (1983). Woody plants of the Northern Ceara caatinga. Technical Report Series Number 14. EMBRAPA, Brasília	"The species resprouts readily from the stump when cut and provides a more accessible form of green forage."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits
• Thrives in tropical climates
• Naturalized in Africa and Brazil (outside natural range)
• Possibly having detrimental environmental impacts in Brazil where naturalized outside native range
• Other Mimosa species are invasive weeds
• Spiny
• Seedlings are shade tolerant
• Tolerates many soil types
• N-fixing woody plant
• Reproduces by seeds and vegetatively by root suckering
• Reaches maturity in 2 years (rapid growth rate)
• Seeds dispersed by gravity & intentionally by people
• Seeds may persist for more than one year
• Able to coppice & resprout after cutting

Low Risk Traits
• Provides fodder for livestock
• Useful as a timber plant