

Family: *Fabaceae*

Taxon: *Saraca asoca*

Synonym: *Jonesia asoca* Roxb.

Common Name: asok
Asoka tree

Questionnaire : current 20090513
Status: Assessor Approved

Assessor: Chuck Chimera
Data Entry Person: Chuck Chimera

Designation: L

WRA Score 0

101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?	y=1, n=-1	
103	Does the species have weedy races?	y=1, n=-1	
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	y
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	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
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	n
402	Allelopathic	y=1, n=0	
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	
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	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n
411	Climbing or smothering growth habit	y=1, n=0	n

412	Forms dense thickets	y=1, n=0	y
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	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
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	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
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 0

Supporting Data:

101	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is the species highly domesticated?No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Species suited to tropical or subtropical climate(s) 2-high] "It is very frequently found in riverine forests, in Bangladesh, Bhutan, India, Peninsular Malaysia, Sri Lanka and Nepal."
202	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Quality of climate match data? 2-high] "It is very frequently found in riverine forests, in Bangladesh, Bhutan, India, Peninsular Malaysia, Sri Lanka and Nepal."
203	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Broad climate suitability (environmental versatility)? Yes. Elevation range >1000 m] "Climatic amplitude (estimates) - Altitude range: 150 - 1400 m - Mean annual rainfall: 1250 - 1900 mm - Rainfall regime: bimodal; uniform - Dry season duration: 4 - 6 months - Mean annual temperature: 15 - 25°C - Mean maximum temperature of hottest month: 25 - 30°C - Mean minimum temperature of coldest month: 18 - 22°C - Absolute minimum temperature: > 15°C"
204	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Native or naturalized in regions with tropical or subtropical climates? Yes] "It is very frequently found in riverine forests, in Bangladesh, Bhutan, India, Peninsular Malaysia, Sri Lanka and Nepal."
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? Yes] "The tree is sacred to both Hindus and Buddhists and is frequently grown as an ornamental, often near to Hindu temples." [Widely planted within its natural range]
205	2007. Peter, K.V.. Underutilized and underexploited horticultural crops, Volume 1. New India Publishing, New Delhi, India	[Does the species have a history of repeated introductions outside its natural range? Yes] "One of the trees held most sacred by Hindus and Buddhists, it is propagated through seeds and is frequently cultivated as an ornamental throughout the tropics."
301	2005. Wagner, W.L./Herbst, D.R./Lorence, D.H.. Flora of the Hawaiian Islands website. Smithsonian Institution, Washington, D.C. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/index.htm	[Naturalized beyond native range? No] No evidence
301	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Naturalized beyond native range? No] No evidence
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No] No evidence
303	2005. Wagner, W.L./Herbst, D.R./Lorence, D.H.. Flora of the Hawaiian Islands website. Smithsonian Institution, Washington, D.C. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/index.htm	[Agricultural/forestry/horticultural weed? No] No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Environmental weed? No] No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] No evidence
401	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces spines, thorns or burrs? No] "S. asoca is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches."
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Parasitic? No] "S. asoca is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches." [Fabaceae]

404	2011. Kumar, A.. True Ashok tree is Saraca asoca (Roxb.) De Wilde syn. S. indica auct. non Linn. with medicinal value. Science 2.0, http://www.science20.com/humboldt_fellow_and_science/blog/true_ashok_tree_saraca_asoca_rox_b_de_wilde_syn_s_indica_auct_non	[Unpalatable to grazing animals? Unknown] "In Assam, fruits are chewed as a substitute for area-nuts. Pods are reported to make a very good forage for cattle." [No information on palatability of foliage]
405	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Toxic to animals? No] No evidence
405	2007. Peter, K.V.. Underutilized and underexploited horticultural crops, Volume 1. New India Publishing, New Delhi, India	[Toxic to animals? No] No evidence
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]
407	2009. Pradhan, P./Joseph, L./Gupta, V./Chulet, R./Arya, H./Verma, R./Bajpai, A.. Saraca asoca (Ashoka): A Review. Journal of Chemical and Pharmaceutical Research. 1 (1): 62-71.	[Causes allergies or is otherwise toxic to humans? No] "Saraca asoca is highly regarded as an universal panacea in the ayurvedic medicine .it is one of the universal plant having medicinal activities .This versatile plant is the source of various types of compounds. In the present scenario many plant are used to treat many diseases. But Ashoka is ancient and reliable source of medicine so Ashoka is used in many pharmacological activities like anti cancer , anti menorrhagic , anti oxytoxic , anti –microbial activity and have extend uses in ayurveda , unani and homeopathy. It have many uses like to treat skin infections, CNS function, genitor-urinary functions .as the global scenario is now changing towards the use of nontoxic plant product having traditional medicine use, development of modern drug from Saraca asoca should be emphasized for the control of various diseases." [No evidence of inadvertent toxicity or poisoning of humans]
408	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Creates a fire hazard in natural ecosystems? No] No evidence
408	2007. Punde, S.. Rare trees in forest fragments–will they survive?. Applied Environmental Research Foundation (AERF), Maharashtra, India	[Creates a fire hazard in natural ecosystems? No] No evidence from native ecosystems in India
409	1998. Sahni, K.C.. The Book of Indian Trees. Bombay Natural History Society & Oxford University Press, Oxford, UK	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Usually in deep shade of rain forests and along streams."
409	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is a shade tolerant plant at some stage of its life cycle? Yes] "It is shade tolerant and coppices well."
410	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Tolerates a wide range of soil conditions? No] "Soil descriptors - Soil texture: medium - Soil drainage: free; seasonally waterlogged - Special soil tolerances: shallow"
410	2009. Pradhan, P./Joseph, L./Gupta, V./Chulet, R./Arya, H./Verma, R./Bajpai, A.. Saraca asoca (Ashoka): A Review. Journal of Chemical and Pharmaceutical Research. 1 (1): 62-71.	[Tolerates a wide range of soil conditions? No] "Soil and climate: The plant requires slightly acidic to neutral soils for good growth with medium to deep well drained fertile soils. It grows well in tropical to sub-tropical situations under irrigation."
411	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Climbing or smothering growth habit? No] "S. asoca is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches."
412	2007. Punde, S.. Rare trees in forest fragments–will they survive?. Applied Environmental Research Foundation (AERF), Maharashtra, India	[Forms dense thickets? Yes] "Wild populations of the species have been observed to be clumped. Dense stands of the species on the banks of mountain streams have been seen in the Konkan region however locations of such stands are few and sparse."
501	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Aquatic? No] "S. asoca is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches."
502	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Grass? No] Fabaceae
503	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Nitrogen fixing woody plant? Yes] Fabaceae
504	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "S. asoca is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches."

601	2007. Punde, S.. Rare trees in forest fragments– will they survive?. Applied Environmental Research Foundation (AERF), Maharashtra, India	[Evidence of substantial reproductive failure in native habitat? No] "In one such case, <i>Saraca asoca</i> populations were found along the borders of farmlands in the Alibaug block of the Raigad district and in Chiplun block of Ratnagiri district. Here, the absence of any local knowledge regarding the medicinal value or religious importance of the species has led many landowners to indiscriminately lop or even clear fell entire populations of the species to make way for plantations of commercial tree crops." [Threatened due to habitat loss, & removal by humans]
602	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Produces viable seed? Yes] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8. Propagation: Easily propagated from seed."
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	1996. Kalkman, C. et al. (eds.). Flora Malesiana. Series I, Spermatophyta: Flowering plants. Volume 12, part 2. Caesalpiniaceae, Geitonoplesiaceae, Hernandiaceae, Lowiaceae. Rijksherbarium / Hortus Botanicus, Leiden, The Netherlands	[Self-compatible or apomictic? Unknown] "Most species have maintained self incompatibility but observations are scarce." [description for Caesalpiniaceae; but Unknown for <i>Saraca thaipingensis</i>]
605	1998. Sahni, K.C.. The Book of Indian Trees. Bombay Natural History Society & Oxford University Press, Oxford, UK	[Requires specialist pollinators? No] "The fragrant flowers appear in clusters 7.5-10 cm wide. The Ashoka also produces flowers on the old wood. Individual flowers are 2.5 cm long on 1.2 cm long stalks, calyx tube cylindrical, orange yellow, petals absent, stamens 6-8, projecting out, anthers purple, style curved into a ring." [
606	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Reproduction by vegetative fragmentation? No] - Stand establishment using stump plants; natural regeneration; planting stock
607	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Minimum generative time (years)? 4+] "Tree comes to flower when 4-6 years old."
701	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules likely to be dispersed unintentionally? No] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [Seeds & pods relatively large, with no means of external attachment]
702	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] "The tree is sacred to both Hindus and Buddhists and is frequently grown as an ornamental, often near to Hindu temples."
703	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules likely to disperse as a produce contaminant? No] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [No evidence, and pods & seeds relatively large. Unlikely to become a contaminant of produce]
704	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules adapted to wind dispersal? No] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [No obvious adaptations for wind dispersal]
705	1998. Sahni, K.C.. The Book of Indian Trees. Bombay Natural History Society & Oxford University Press, Oxford, UK	[Propagules water dispersed? Probably yes] "Usually in deep shade of rain forests and along streams." [Riparian distribution suggests pods may be water dispersed]
705	2007. Punde, S.. Rare trees in forest fragments– will they survive?. Applied Environmental Research Foundation (AERF), Maharashtra, India	[Propagules water dispersed? Probably yes] "As a result of the studies undertaken here, it was found that the <i>Saraca asoca</i> is also primarily a riparian species found in low elevation ranges." [Riparian distribution suggests pods may be water dispersed]
706	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules bird dispersed? No] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [Not fleshy-fruited. No obvious adaptations for bird dispersal]
707	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules dispersed by other animals (externally)? No] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [Seeds & pods relatively large, with no means of external attachment]
708	2008. Valsalakumari, P.K.. Flowering trees: Volume 12 of Horticulture science series. New India Publishing, New India, India	[Propagules survive passage through the gut? Unknown] "Fruit: Pod dehiscent, 10-20 cm long, 5-7 cm wide; Seeds 4-8." [Not fleshy-fruited, & unlikely to be consumed by vertebrate dispersers]
801	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Prolific seed production (>1000/m ²)? Unknown] " <i>S. asoca</i> is a low-branched, evergreen tree to height 6-9 m, occasionally to 20 m, with a dense crown of horizontally spreading branches."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Storage Behaviour: Recalcitrant Storage Conditions: (Khare et al.,1989) Viability is lost within 30 days in hermetic storage at room temperature with 13±2% mc (Kaul, 1979) [description is for related <i>S. indica</i> , unknown for <i>S. asoca</i>]

803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on chemical control or herbicide efficacy for this species
804	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "It is shade tolerant and coppices well...- Stand establishment using stump plants; natural regeneration; planting stock"
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]
