UF IFAS UNIVERSITY of FLORIDA

Assessment of Non-native Plants in Florida's Natural Areas

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Assessment date 31 March 2016

	Colubrina asiatica **ALL ZONES**	**Answer**	**Score**
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	unk	
3.04	Environmental weed	unk	
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	unk	-1
4.05	Toxic to animals	unk	0
4.06	Host for recognised pests and pathogens	?	
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	unk	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	unk	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	unk	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	1	1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	unk	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	unk	-1
8.01	Prolific seed production	unk	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	y	1
8.03	Well controlled by herbicides	n	1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
	Total Score	**10**	
	Implemented Pacific Second Screening	**no**	
	Risk Assessment Results	**High**	

section	# questions answered	satisfy minimum?
A	9	yes
B	6	yes
C	15	yes
total	30	yes

	Reference	Source data
1.01		Cultivated but no evidence of selection for reduced weediness
1.02		Skip to question 2.01
1.03		Skip to question 2.01
2.01	1. PERAL NAPPFAST Global Plant Hardiness. http://www.nappfast.org/Plant_hardiness/2012/PHZ%20update201230%20yr%20%20300dpi.tif (Accessed: 30 October 2015) 2. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 3. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 4. US National Plant Germplasm System. https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?11183 (Accessed: 8 March 2016)	No computer analysis was performed. 1. Florida North Zone: Hardiness zones 8 and 9. Central Zone: Hardiness zones 9 and 10. South Zone: Hardiness zone 10. 2. "Native Range: Eastern Africa to India, Southeast Asia, tropical Australia, and the Pacific Islands" 3. "This species has a very widespread range from east Africa, Indian Ocean islands, southeast Asia to Malaysia and Australia and throughout the Pacific islands" 4. Native to Kenya, Mozambique, Madagascar, Seychelles, China, Taiwan, India, Sri Lanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Philippines, Australia, Hawaii, Fiji, New Caledonia, Solomon Islands, and Vanuatu
2.02		Native range well known
2.03	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 3. US National Plant Germplasm System. https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?11183 (Accessed: 8 March 2016) 4. The University of Melbourne. Köppen-Geiger Climate Map of the Wolrd. http://people.eng.unimelb.edu.au/mpeel/koppen.html (Accessed: 8 March 2016)	1. Native from eastern Africa to India, southeast Asia, tropical Australia, and the Pacific Islands. 2. "This species has a very widespread range from east Africa, Indian Ocean islands, southeast Asia to Malaysia and Australia and throughout the Pacific islands" 3. Native to Kenya, Mozambique, Madagascar, Seychelles, China, Taiwan, India, Sri Lanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Philippines, Australia, Hawaii, Fiji, New Caledonia, Solomon Islands, and Vanuatu 4. Present in the following Köppen-Geiger Climate Zones: Af, Am, Aw, BWh, BSh, Cwa, Cwb, Cfa, Cfb
2.04	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 3. US National Plant Germplasm System. https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?11183 (Accessed: 8 March 2016) 4. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (Accessed: 8 March 2016)	1. Native from eastern Africa to India, southeast Asia, tropical Australia, and the Pacific Islands. 2. "This species has a very widespread range from east Africa, Indian Ocean islands, southeast Asia to Malaysia and Australia and throughout the Pacific islands" 3. Native to Kenya, Mozambique, Madagascar, Seychelles, China, Taiwan, India, Sri Lanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Philippines, Australia, Hawaii, Fiji, New Caledonia, Solomon Islands, and Vanuatu 4. Native to areas with rainfall in these ranges
2.05	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 3. Parsons and Cuthbertson (2001) Noxious Weeds of Australia. CSIRO Publishing. 4. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016)	1. Introduced into Jamaica in the mid-19th century, from where it spread to other Caribbean islands and Mexico. 2, 3. Also used as an ornamental. 4. "It has invaded the eastern and western coastlines of central and southern Florida (more or less frost-free), including the Florida Keys. As it is widespread throughout the Caribbean Basin, it is also likely to occur in the U.S. possessions of Puerto Rico, the U.S. Virgin Islands, and on Mexico's Yucatan Peninsula. Sensitivity to cold temperatures may limit the northern expansion of this pest species (Schultz, 1992)."

3.01	1. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu. 2. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. 3. Cayman Islands Seashore Vegetation: A Study in Comparative Biogeography. University of California. https://books.google.com/books?id=EimtEIqbuGYC&pg=PA27&lpg=PA27&dq=%22colubrina+asiatica%22+naturalized&source=bl&ots=GVDhS7KS8C&sig=NZphjhUzoAMnixrRyXTKQXvJ3Lc&hl=en&sa=X&ved=0ahUKEwjhrcaxhpnLAhUJ7yYKHTZ2AvcQ6AEIOTAF#v=onepage&q=%22colubrina%20asiatica%22%20naturalized&f=false (Accessed: 27 February 2016)	1. Naturalized in the West Indies. 2. Naturalized in the Bahamas. 3. "Two other Indo-Pacific natives have recently become naturalized in Cayman coastal vegetation: Morinda citrifolia and Colubrina asiatica"
3.02	1. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. 2. UF/IFAS Center for Aquatic and Invasive Plants. https://plants.ifas.ufl.edu/plant-directory/colubrina-asiatica/ (Accessed: 13 February 2016)	Specific evidence of invasiveness in Florida, but evidence that it is invasive in the Bahamas, although no specific evidence. Therefore we score a "Yes" for 3.02 and did not answer 3.03 or 3.04 1. Considered naturalized and invasive in the Bahamas. 2. "Forms a thick mat, growing over and shading out native vegetation. Invades marly coastal ridges, tropical hammocks, buttonwood and mangrove forests, tidal marshes and disturbed coastal roadsides. Threatens a number of rare, listed native plant species. FLEPPC Category I"
3.03	1. Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	1. Present as an agricultural weed in western Polynesia. However, no supporting evidence could be found when updating this assessment in 2016.
3.04	1. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. 2. UF/IFAS Center for Aquatic and Invasive Plants. https://plants.ifas.ufl.edu/plant-directory/colubrina-asiatica/ (Accessed: 13 February 2016) 3. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 4. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 23 February 2016) 5. Florida Exotic Pest Plant Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1. Considered naturalized and invasive in the Bahamas. 2. "Forms a thick mat, growing over and shading out native vegetation. Invades marly coastal ridges, tropical hammocks, buttonwood and mangrove forests, tidal marshes and disturbed coastal roadsides. Threatens a number of rare, listed native plant species. FLEPPC Category I" 3. "Asiatic colubrina produces a thick mat of tangled stems that can be several feet thick, impacting the underlying vegetation by growing on it or shading it out." 4. "Forms a thick mat of entangled stems up to several feet deep, growing over and shading out native vegetation, including trees" 5. "may be capable of significantly altering ecosystem structure and function in a relatively short period of time"
3.05	1. Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons. 2. Global Compendium of Weeds. http://www.hear.org/gcw/species/colubrina_texensis/ (Accessed: 29 February 2016)	1. C. texensis present as a weed of agriculture in the U.S. 2. Colubrina texensis is classified as a weed.
4.01	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 13 February 2016) 3. Florida Exotic Pest Plants Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1. no description of these traits 2&3. These features not listed in the description of the plant
4.02		no evidence

4.03	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 13 February 2016) 3. Florida Exotic Pest Plants Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1. no description of this 2&3. These features not listed in the description of the plant
4.04	1. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016)	1. "ʻĀnapanapa has been mistakenly considered to be poisonous."; unlikely, but insufficient evidence
4.05	1. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016)	1. "ʻĀnapanapa has been mistakenly considered to be poisonous."; unlikely, but insufficient evidence
4.06	1. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 13 February 2016) 2. Florida Exotic Pest Plants Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1. "prone to ants, scale, mealy bugs and aphids" 2. "has no generalist predators or pathogens"; no evidence that the species is a significant primary or alternate host
4.07	1. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 2. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 27 February 2016)	1. "ʻĀnapanapa has been mistakenly considered to be poisonous." 2. "In Hawaiʻi and elsewhere, the plant is used medicinally"
4.08		no evidence
4.09	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Schultz (1992) Element Stewardship Abstract for Colubrina asiatica. The Nature Conservancy, Arlington, VA. 3. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 4. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 25 February 2016)	1. "Plants require considerable light" 2. "Plants grow rapidly in full sun" 3. "Full sun, partial shade" 4. "Requires considerable light"
4.10	Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 3. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 25 February 2016)	1. "Natural habitats of this fast growing plant include coastal sand dunes and littoral scrub." 2. "Little is known about seed germination except that it requires loose soil and does not normally occur on exposed rock." 3. "For germination, loose soil usually required"; insufficient evidence
4.11	1. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016)	1. growth habit: tree/shrub/vine 2. "A climbing or sprawling shrub or small tree"; climbs over shrubs and small trees, smothering them and impeding their growth. 3. "It is a low shrub with long, climbing, or drooping branches"
4.12	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Schultz (1992) Element Stewardship Abstract for Colubrina asiatica. The Nature Conservancy, Arlington, VA. 3. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 23 February 2016) 4. Florida Exotic Pest Plants Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 25 February 2016)	1. "Asiatic colubrina produces a thick mat of tangled stems that can be several feet thick" 2. "dense walls of C. asiatica stems can be virtually impenetrable" 3. "Forms a thick mat of entangled stems up to several feet deep, growing over and shading out native vegetation, including trees" 4. See photo, "Thickets (darker green) in coastal ridge, Everglades National Park"
5.01	1. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 8 March 2016)	1. "Habitat: terrestrial"

5.02	1. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016) 3. USDA Plants Database. http://plants.usda.gov/core/profile?symbol=COAS3 (Accessed: 27 February 2016)	1. Rhamnaceae 2. "Organism type: shrub" 3. "Growth habit: shrub, tree, vine"
5.03	1. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 8 March 2016)	1. Rhamnaceae 2. "Partially Woody / Shrub-like"; no evidence of nitrogen fixation
5.04	1. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 13 February 2016) 3. Florida Exotic Pest Plants Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1,2,&3. No evidence of these specialized structures
6.01		No evidence
6.02	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. UF/IFAS Center for Aquatic and Invasive Plants. https://plants.ifas.ufl.edu/plant-directory/colubrina-asiatica/ (Accessed: 13 February 2016) 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 8 March 2016)	1. "Asiatic colubrina reproduces sexually and vegetatively." 2. "A globose capsule, green and fleshy at first and turning brown upon drying, about 8 mm (0.33 in) wide, with 3 grayish seeds." 3. "Its seeds are constantly dispersed at a rapid rate"
6.03		No evidence
6.04		No evidence
6.05	1. Royal Society Publishing. https://www.jstor.org/stable/pdf/2418089.pdf?acceptTC=true (Accessed: 8 March 2016)	1. "Some hunting wasps were seen, especially on Colubrina asiatica", visited by Mausoleopsis aldabrensis; insufficient evidence
6.06	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016)	1. "Asiatic colubrina reproduces sexually and vegetatively." Produces adventitious roots where branches come into contact with the soil. 2. "Asiatic colubrina exhibits tremendous vegetative regeneration, including adventitious rooting from branches coming in contact with the soil and vigorous resprouting from cut or injured stems" 3. "C. asiatica exhibits tremendous vegetative regeneration, including adventitious rooting from branches coming in contact with the soil and vigorous resprouting from cut or injured stems."
6.07	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 25 February 2016) 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 27 February 2016)	1. "It has been reported that plants can flower and fruit within the first year of growth." 2. "May reach seed-producing maturity within a year" 3. "It has been reported that plants can flower and fruit within the first year of growth. Seedlings reach sexual maturity in about one year"
7.01		No evidence
7.02	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 3. Parsons and Cuthbertson (2001) Noxious Weeds of Australia. CSIRO Publishing. 4. Useful Tropical Plants. http://tropical.theferns.info/viewtropical.php?id=Colubrina+asiatica (Accessed: 8 March 2016)	1. Introduced intentionally into Jamaica in the mid-19th century. 2, 3. Used as an ornamental. 4. Ornamental
7.03		no evidence

7.04	1. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016)	1. "The fruit is a globose, reddish- brown and dehiscent capsule of c. 10 mm diameter, breaking into three parts." [no evidence of adaptations for wind dispersal] 2. "Seedlings normally occur near larger, reproductively mature plants, suggesting that long-distance dispersal is uncommon."
7.05	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu. 3. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 4. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/colubrina%20asiatica.pdf (Accessed: 25 February 2016)	1. "Asiatic colubrina's buoyant and salt-tolerant seeds and fruits are dispersed by ocean currents." 2. "...the seeds of this species are highly dispersable via flotation. The seeds remain viable for many months floating in saltwater." 3. " Asiatic colubrina's buoyant and salt-tolerant seeds and fruits are dispersed by ocean currents." 3. "attributed to the floating seeds that can remain viable for many months in salt water" 4. "Long-distance dispersal aided primarily by storms and extreme tides, which allow ocean currents to carry away the buoyant, salt- tolerant fruits and seeds"
7.06	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf). 2. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016) 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016)	1. "it has been suggested that [the seeds] may be used as crop stones by seed-eating birds, which may disperse them long distances" [speculative] 2. "Seedlings normally occur near larger, reproductively mature plants, suggesting that long-distance dispersal is uncommon." 3. "seed-eating birds may also ingest them as crop stones"
7.07	1. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2016) 2. USDA Plants Database. http://plants.usda.gov/core/profile?symbol=COAS3 (Accessed: 8 March 2016)	1. "The fruit is a globose, reddish- brown and dehiscent capsule of c. 10 mm diameter, breaking into three parts." [no evidence of any means of attachment] 2. See photo
7.08	1. Plant Conservation Alliance's Alien Plant Working Group. http://www.nps.gov/plants/alien/fact/coas1.htm (Accessed: 18 February 2016)	1. "Seedlings normally occur near larger, reproductively mature plants, suggesting that long-distance dispersal is uncommon."; insufficient evidence
8.01	1. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 8 March 2016) 2. Forestventure. http://www.forestventure.com/speciesdetail.cshtml?id=124746 (Accessed: 8 March 2016)	No quantitative evidence of prolific seed production 1. "Each fruit contains three, tiny, grayish seeds" 2. See photos. Prolific seed production is unlikely.
8.02	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Native Plants Hawaii. http://nativeplants.hawaii.edu/plant/view/Colubrina_asiatica (Accessed: 23 February 2016) 3. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 27 February 2016)	1. "Seeds are believed to retain their viability in the soil for at least several (3-5) years." 2. "attributed to the floating seeds that can remain viable for many months in salt water" 3. "Seeds are believed to retain their viability in the soil for at least several (3-5) years."
8.03	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Florida Exotic Pest Plant Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 8 March 2016)	1. "The application of a 10% solution of triclopyr (e.g., Garlon 4) in a band around the base of the trunk (basal bark method) or application of a 50% solution of the same (e.g., Garlon 3A) on a freshly cut trunk (cut stump method) are the most effective ways to kill adult plants." 2. "The use of herbicide to control Colubrina is confounded by its dense, low, thicket- like growth habit and extreme difficulty in identifying the primary truck of any given plant (Langeland, 1990). Cut-stump application of herbicide reportedly does not result in complete mortality; rather, the plant is damaged only to the point where it is re-rooted by ground layering (Schultz 1992)."
8.04	1. Jones (2005) Asiatic colubrina. PCA Alien Plant Working Group (http://www.nps.gov/plants/alien/fact/pdf/coas1.pdf) 2. Global Invasive Species Database. http://www.issg.org/database/species/ecology.asp?si=371 (Accessed: 25 February 2016)	1. vigorously resprouts from cut or injured stems 2. "Asiatic colubrina exhibits tremendous vegetative regeneration, including adventitious rooting from branches coming in contact with the soil and vigorous resprouting from cut or injured stems" 3. "C. asiatica exhibits tremendous vegetative regeneration, including adventitious rooting from branches coming in contact with the soil and vigorous resprouting from cut or injured stems."
8.05	1. Florida Exotic Pest Plant Council. http://www.fleppc.org/manage_plans/ca%20mngt%20plan.pdf (Accessed: 25 February 2016)	1. "has no generalist predators or pathogens"