

Australia/New Zealand Weed Risk Assessment adapted for United States.

Data used for analysis published in: Gordon, D.R. and C.A. Gantz. 2008. Potential impacts on the horticultural industry of screening new plants for invasiveness. Conservation Letters 1: 227-235. Available at: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121448369/PDFSTART>

<i>Sonneratia caseolaris</i>			
Question number	Question	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 U.S. climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	?	
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	n	0
2.05	Does the species have a history of repeated introductions outside its natural range?	?	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed		
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic		
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
4.05	Toxic to animals	n	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		
4.09	Is a shade tolerant plant at some stage of its life cycle	?	
4.1	Grows on one or more of the following soil types: alfisols, entisols, or mollisols	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	?	
5.01	Aquatic	n	0

5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	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	?	
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative fragmentation	?	
6.07	Minimum generative time (years)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	n	-1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	?	
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
Total Score			2

Outcome	Evaluate
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section	# questions answered	satisfy minimum?
A	8	Yes
B	6	Yes
C	11	Yes
total	25	yes

Question number	Reference	Source data
1.01		used horticulturally, but no evidence of significant modification
1.02		
1.03		
2.01	<p>1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20gnd.tif). 2. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2): 277-302. 3. Wyatt-Smith, J (1953) The Malayan Species of <i>Sonneratia</i>. <i>The Malayan Forester</i> 16(4): 213-216. 4. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i>. Quyển 2, Tập 1. Từ Eleagnaceae đến Apiaceae. South Vietnamese Ministry of Education, Montréal. 5. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) <i>Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor</i>. Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 6. George, AS and Robertson, R (1981) <i>Flora of Australia</i>. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 7. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands. 8. Pandit, S and Choudhury, BC (2001) Factors affecting pollinator visitation and reproductive success in <i>Sonneratia caseolaris</i> and <i>Aegiceras corniculatum</i> in a mangrove forest in India. <i>Journal of Tropical Ecology</i> 17: 431-447.</p>	<p>1. Global hardiness zones (9?-)10-13. 2. "The species is found from the west coast of India to southern China and through the western islands of the Pacific Ocean. Distribution in Australia is limited, occurring only on the northeast coast where it is associated with areas of higher rainfall and large river estuaries from the Murray River (18°05'S, 146°01'E) in the south to the Olive River (12°10'S, 143°05'E) in the north. In New Guinea, the taxon is only found on the north coast and on larger islands." 3. "Fairly common on the west coast from Langkawi to Singapore...Uncommon on the east coast but occurs near Kuantan and Jemaluang". 4. Vietnam. 5. "Tropical SE. Asia to N. Australia, Solomons, Vanuatu." 6. "Occurs in N.T. and in northern Qld as far S as Tully; also in Sri Lanka, SE Asia, Solomon Islands and New Hebrides." 7. "Distr. Tropical SE Asia & Ceylon to N. Australia, Solomon Islands, and New Hebrides, in Malaysia: Malay Peninsula, Sumatra (also Simalur & Banka), Java (also Madura), Borneo, Celebes, Philippines, Moluccas (Ambon, Buru), Timor, New Guinea." 8. "Occurs from Sri Lanka throughout Southeast Asia, Malaysia and the Philippines, and into tropical Australia."</p>
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-	1. Distribution range is uncertain --

	<p>earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2): 277-302. 3. Wyatt-Smith, J (1953) The Malayan Species of <i>Sonneratia</i>. <i>The Malayan Forester</i> 16(4): 213-216. 4. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i>. Quyển 2, Tập 1. Từ Eleagnaceae đến Apiaceae. South Vietnamese Ministry of Education, Montréal. 5. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) <i>Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor</i>. Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 6. George, AS and Robertson, R (1981) <i>Flora of Australia</i>. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 7. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands. 8. Pandit, S and Choudhury, BC (2001) Factors affecting pollinator visitation and reproductive success in <i>Sonneratia caseolaris</i> and <i>Aegiceras corniculatum</i> in a mangrove forest in India. <i>Journal of Tropical Ecology</i> 17: 431-447.</p>	<p>possibly three climatic regions. 2. "The species is found from the west coast of India to southern China and through the western islands of the Pacific Ocean. Distribution in Australia is limited, occurring only on the northeast coast where it is associated with areas of higher rainfall and large river estuaries from the Murray River (18°05'S, 146°01'E) in the south to the Olive River (12°10'S, 143°05'E) in the north. In New Guinea, the taxon is only found on the north coast and on larger islands." 3. "Fairly common on the west coast from Langkawi to Singapore...Uncommon on the east coast but occurs near Kuantan and Jemaluang". 4. Vietnam. 5. "Tropical SE. Asia to N. Australia, Solomons, Vanuatu." 6. "Occurs in N.T. and in northern Qld as far S as Tully; also in Sri Lanka, SE Asia, Solomon Islands and New Hebrides." 7. "Distr. Tropical SE Asia & Ceylon to N. Australia, Solomon Islands, and New Hebrides, in Malaysia: Malay Peninsula, Sumatra (also Simalur & Banka), Java (also Madura), Borneo, Celebes, Philippines, Moluccas (Ambon, Buru), Timor, New Guinea." 8. "Occurs from Sri Lanka throughout Southeast Asia, Malaysia and the Philippines, and into tropical Australia."</p>
2.04	<p>1. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 2. Atlapedia Online (http://www.atlapedia.com/online/countries/).</p>	<p>1. For Queensland, the average annual precipitation is over 80 inches/year. 2. For peninsular Malaysia: "Average annual precipitation for West Malaysia is 2,540 mm (100 inches)."</p>
2.05		no evidence
3.01	<p>Holm, L, JV Pancho, JP Herberger, and DL Plucknett (1979) <i>A Geographical Atlas of World Weeds</i>. John Wiley and Sons, New York.</p>	<p>Species is present as a weed in the Soviet Union.</p>

3.02		no evidence
3.03	Holm, L, JV Pancho, JP Herberger, and DL Plucknett (1979) A Geographical Atlas of World Weeds. John Wiley and Sons, New York.	Species is present as a weed in the Soviet Union.
3.04		no evidence
3.05		
4.01	Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302.	no evidence
4.02		
4.03	Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302.	no evidence
4.04		
4.05	Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302.	no evidence
4.06		
4.07	van Steenis, CGGJ (1948) Flora Malesiana. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.	"The young berries, which have a sour taste, are eaten by the people". [and no other evidence of toxicity]
4.08		
4.09	Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302.	"The seeds are intolerant of shade" [genus description].
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). 2. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor. Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 3. George, AS and Robertson, R (1981) Flora of Australia. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra,	1. India (West Coast and Western Ghats): in the West Coast/Western Ghats regions of India, the main soil order types are alfisols and ultisols. There are very small regions of inceptisols and mollisols and potentially a very small region of aridisols in the range; Australia, Queensland (NE): the region of origin contains aridisols, entisols, and ultisols (and also oxisols); New Guinea (north coast): composed of entisols and ultisols (and also histisols

	Australia.	and oxisols), with small amounts of alfisols and mollisols (and a small amount of shifting sands); Sri Lanka: mostly alfisols with some ultisols and small amounts of inceptisols and entisols (and also a small amount of oxisols); Malaysia: almost entirely ultisols, with very small amounts of alfisols, entisols and inceptisols (and also very small amounts of histisols and oxisols); Indonesia: primarily ultisols, with small amounts of alfisols, entisols, inceptisols, and mollisols (also with small amounts of andisols, histisols, oxisols, and spodosols); Philippines: almost entirely ultisols, with small amounts of alfisols, entisols, and inceptisols (and also a small amount of andisols). 2. "Mangrove forests on a deeply muddy soil." 3. "Grows in less salty parts of mangrove communities in deep muddy soil."
4.11	1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of <i>Sonneratia</i> . <i>The Malayan Forester</i> 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i> . Quyển 2, Tập 1. Từ Eleagnaceae đến Apiaceae. South Vietnamese Ministry of Education, Montréal. 4. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) <i>Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor</i> . Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 5. George, AS and Robertson, R (1981) <i>Flora of Australia</i> . Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 6. van Steenis, CGGJ (1948) <i>Flora Malesiana</i> . Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.	1. "Columnar tree c. 20 m high, canopy generally sparse." 2. "Generally about 40-50 ft. tall; and about 3 ft. in girth. Watson states a height of up to 70 ft. and a girth of 5 ft., but usually smaller."; "Stem frequently leaning and crooked; not buttressed". 3. "Tree 20 m high". 4. "Tree to 20 m." 5. "Tree, 5-20 m tall." 6. "Tree, 5-15 m, rarely up to 20 m, with many often very strong breathing-roots and a rather lax crown."
4.12	1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2):	1. "Columnar tree c. 20 m high, canopy generally sparse." 2. "Generally about 40-50 ft. tall; and

	<p>277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of Sonneratia. The Malayan Forester 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) Cây cỏ Việt Nam = An Illustrated Flora of Vietnam. Quyển 2, Tập 1. Từ Eleagnaceae đến Apiaceae. South Vietnamese Ministry of Education, Montréal. 4. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor. Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 5. George, AS and Robertson, R (1981) Flora of Australia. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 6. van Steenis, CGGJ (1948) Flora Malesiana. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>about 3 ft. in girth. Watson states a height of up to 70 ft. and a girth of 5 ft., but usually smaller."; "Stem frequently leaning and crooked; not buttressed". 3. "Tree 20 m high". 4. "Tree to 20 m." 5. "Tree, 5-20 m tall." 6. "Tree, 5-15 m, rarely up to 20 m, with many often very strong breathing-roots and a rather lax crown."</p>
5.01	<p>Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of Sonneratia. The Malayan Forester 16(4): 213-216. 3. Backer, CA and Bakhuizen van den Brink, RC (1963) Flora of Java (Spermatophytes Only). Volume I. N.V. P. Noordhoff, Groningen, The Netherlands. 4. van Steenis, CGGJ (1948) Flora Malesiana. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>1. "The species occurs in frontal stands often in upstream estuarine positions of rivers subjected to high levels of freshwater runoff." [species description]; "In mangrove swamps, on the banks of tidal rivers and creeks, and within sheltered bays of offshore islands and reef cays along the Great Barrier Reef" [genus description]. 2. "It is reported to grow on banks of the rivers for as far as they are brackish." 3. "Mangroves, especially along tidal creeks and in less salt parts of mangrove-forests". 4. "Ecol. Less salt parts of mangrove-forests on a deeply muddy soil, never on coral-banks, often along tidal creeks with slow-moving water and ascending these as far as the flood mounts."</p>
5.02	<p>Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302.</p>	<p>Sonneratiaceae</p>
5.03	<p>Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2):</p>	<p>Sonneratiaceae</p>

	277-302.	
5.04	<p>1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of <i>Sonneratia</i>. <i>The Malayan Forester</i> 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i>. Quyển 2, Tập 1. Từ <i>Eleagnaceae</i> đến <i>Apiaceae</i>. South Vietnamese Ministry of Education, Montréal. 4. Whitmore, TC, Tantra, IGM, and Sutisna, U (1989) <i>Tree Flora of Indonesia Checklist for Bali, Nusa Tenggara and Timor</i>. Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor, Indonesia. 5. George, AS and Robertson, R (1981) <i>Flora of Australia</i>. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 6. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>1. "Columnar tree c. 20 m high, canopy generally sparse." 2. "Generally about 40-50 ft. tall; and about 3 ft. in girth. Watson states a height of up to 70 ft. and a girth of 5 ft., but usually smaller."; "Stem frequently leaning and crooked; not buttressed". 3. "Tree 20 m high". 4. "Tree to 20 m." 5. "Tree, 5-20 m tall." 6. "Tree, 5-15 m, rarely up to 20 m, with many often very strong breathing-roots and a rather lax crown."</p>
6.01		no evidence
6.02	Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (Sonneratiaceae) in Australasia. <i>Blumea</i> 32(2): 277-302.	"[Seeds] germinating on bare or near bare mud banks" [genus description].
6.03	George, AS and Robertson, R (1981) <i>Flora of Australia</i> . Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra,	"The hybrid between <i>S. caseolaris</i> and <i>S. alba</i> has been described as <i>S. x gulngai</i> ."
6.04		
6.05	<p>1. Pandit, S and Choudhury, BC (2001) Factors affecting pollinator visitation and reproductive success in <i>Sonneratia caseolaris</i> and <i>Aegiceras corniculatum</i> in a mangrove forest in India. <i>Journal of Tropical Ecology</i> 17: 431-447. 2. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>1. "We recorded visits to the flowers by 17 species of Lepidoptera, seven species of Hymenoptera, three species of Diptera, five species of birds and three species of mammals...Of the visitor categories, Lepidoptera, Hymenoptera and birds were pollinators, Diptera were thieves and mammals were predators (robbers)." 2. Various individuals have observed the following animals visiting <i>S. caseolaris</i>: "honey-eating</p>

		birds"; "large night-moths"; bats; and fireflies.
6.06	van Steenis, CGGJ (1948) Flora Malesiana. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.	
6.07		
7.01		
7.02		no evidence
7.03		no evidence
7.04	<p>1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of Sonneratia. The Malayan Forester 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) Cây cỏ Việt Nam = An Illustrated Flora of Vietnam. Quyển 2, Tập 1. Từ Eleagnaceae đến Apiaceae. South Vietnamese Ministry of Education, Montréal. 4. George, AS and Robertson, R (1981) Flora of Australia. Volume 18, Podostemaceae to Combretaceae. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 5. Backer, CA and Bakhuizen van den Brink, RC (1963) Flora of Java (Spermatophytes Only). Volume I. N.V. P. Noordhoff, Groningen, The Netherlands. 6. van Steenis, CGGJ (1948) Flora Malesiana. Series I Spermatophyta. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>1. "Berry globose, 7-32(20) mm long, 17-54(41) mm wide; pericarp leathery, glossy with slight ribs"; "seeds numerous, irregularly angular, c. 7 mm long" [species description]; "Fruit, when mature, rests on the persistent calyx as an indehiscent, green, smooth, depressed-globose berry with leathery pericarp...Seeds c. 5 mm long, numerous, embedded in firm pulp, released after fruit has fallen from the tree" [genus description]. 2. "Fruit: 5-7.5 cm. across, 2.5-4 cm. high; dark green; hard; crowned with persistent style with conically thickened base; resting on flattened green calyx-tube with horizontally spreading lobes"; "Large, up to 5 cm. (2 in.) across, indehiscent berry-like fruit". 3. "Berries on stellate calyx". 4. "Fruit 2-4 cm diam...Seeds irregularly angular". 5. "Berry 5-7 1/2 cm diam., 3-4 cm long, acid" [species description]; "berry depressed-globose; seeds embedded in fetid pulp, not tailed at the ends" [genus description]. 6. "Ripe berry resting on the flattened calyx-tube, green, 3-4 cm high, 5-7 1/2 cm broad." [no evidence of adaptations to wind dispersal].</p>
7.05		
7.06	<p>1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus Sonneratia (Sonneratiaceae) in Australasia. Blumea 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan</p>	<p>1. "Berry globose, 7-32(20) mm long, 17-54(41) mm wide; pericarp leathery, glossy with slight ribs"; "seeds numerous, irregularly angular, c. 7</p>

	<p>Species of <i>Sonneratia</i>. The Malayan Forester 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i>. Quyển 2, Tập 1. Từ <i>Eleagnaceae</i> đến <i>Apiaceae</i>. South Vietnamese Ministry of Education, Montréal. 4. George, AS and Robertson, R (1981) <i>Flora of Australia</i>. Volume 18, <i>Podostemaceae</i> to <i>Combretaceae</i>. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 5. Backer, CA and Bakhuizen van den Brink, RC (1963) <i>Flora of Java (Spermatophytes Only)</i>. Volume I. N.V. P. Noordhoff, Groningen, The Netherlands. 6. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I <i>Spermatophyta</i>. Volume 4. P. Noordhoff Ltd., The Netherlands.</p>	<p>mm long" [species description]; "Fruit, when mature, rests on the persistent calyx as an indehiscent, green, smooth, depressed-globose berry with leathery pericarp...Seeds c. 5 mm long, numerous, embedded in firm pulp, released after fruit has fallen from the tree" [genus description]. 2. "Fruit: 5-7.5 cm. across, 2.5-4 cm. high; dark green; hard; crowned with persistent style with conically thickened base; resting on flattened green calyx-tube with horizontally spreading lobes"; "Large, up to 5 cm. (2 in.) across, indehiscent berry-like fruit". 3. "Berries on stellate calyx". 4. "Fruit 2-4 cm diam...Seeds irregularly angular". 5. "Berry 5-7 1/2 cm diam., 3-4 cm long, acid" [species description]; "berry depressed-globose; seeds embedded in fetid pulp, not tailed at the ends" [genus description]. 6. "Ripe berry resting on the flattened calyx-tube, green, 3-4 cm high, 5-7 1/2 cm broad."</p>
7.07	<p>1. Duke NC, Jackes BR (1987) A Systematic Revision of the Mangrove Genus <i>Sonneratia</i> (<i>Sonneratiaceae</i>) in Australasia. <i>Blumea</i> 32(2): 277-302. 2. Wyatt-Smith, J (1953) The Malayan Species of <i>Sonneratia</i>. The Malayan Forester 16(4): 213-216. 3. Phạm, Hoàng Hộ (1992) <i>Cây cỏ Việt Nam = An Illustrated Flora of Vietnam</i>. Quyển 2, Tập 1. Từ <i>Eleagnaceae</i> đến <i>Apiaceae</i>. South Vietnamese Ministry of Education, Montréal. 4. George, AS and Robertson, R (1981) <i>Flora of Australia</i>. Volume 18, <i>Podostemaceae</i> to <i>Combretaceae</i>. Australian Government Publication Service, Bureau of Flora and Fauna, Canberra, Australia. 5. Backer, CA and Bakhuizen van den Brink, RC (1963) <i>Flora of Java (Spermatophytes Only)</i>. Volume I. N.V. P. Noordhoff, Groningen, The Netherlands. 6. van Steenis, CGGJ (1948) <i>Flora Malesiana</i>. Series I <i>Spermatophyta</i>. Volume 4. P. Noordhoff Ltd., The Netherlands. 7. Pandit, S and Choudhury, BC (2001) Factors affecting pollinator visitation and reproductive success in <i>Sonneratia caseolaris</i> and <i>Aegiceras corniculatum</i> in a mangrove forest in India. <i>Journal of Tropical</i></p>	<p>1. "Berry globose, 7-32(20) mm long, 17-54(41) mm wide; pericarp leathery, glossy with slight ribs"; "seeds numerous, irregularly angular, c. 7 mm long" [species description]; "Fruit, when mature, rests on the persistent calyx as an indehiscent, green, smooth, depressed-globose berry with leathery pericarp...Seeds c. 5 mm long, numerous, embedded in firm pulp, released after fruit has fallen from the tree" [genus description]. 2. "Fruit: 5-7.5 cm. across, 2.5-4 cm. high; dark green; hard; crowned with persistent style with conically thickened base; resting on flattened green calyx-tube with horizontally spreading lobes"; "Large, up to 5 cm. (2 in.) across, indehiscent berry-like fruit". 3. "Berries on stellate calyx". 4. "Fruit 2-4 cm diam...Seeds irregularly angular". 5. "Berry 5-7 1/2 cm diam., 3-4 cm long, acid" [species</p>

	Ecology 17: 431-447.	description]; "berry depressed-globose; seeds embedded in fetid pulp, not tailed at the ends" [genus description]. 6. "Ripe berry resting on the flattened calyx-tube, green, 3-4 cm high, 5-7 1/2 cm broad." 7. "Overall fruit set in <i>S. caseolaris</i> was poor due to predation. The predators were both diurnal (rhesus macaques and palm squirrels) and nocturnal (rats). They greatly damaged the flowers and fruits, often breaking them from the stem." [no evidence of adaptations to external dispersal, however seeds may be moved or predated].
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		