Family: ***Rutaceae***

Taxon: ***Severinia buxifolia***

Synonym: *Atalantia bilocularis (Roxb.) Wall. ex Skeels*
Atalantia buxifolia (Poir.) Oliv.
Citrus buxifolia Poir. (basionym)
Limonia bilocularis Roxb.
Sclerostylis buxifolia (Poir.) Benth.

Common Name: Chinese box orange

Questionaire : current 20090513 **Assessor:** Assessor **Designation:** L
Status: Assessor Approved **Data Entry Person:** Assessor **WRA Score** 2

101	**Is the species highly domesticated?**	**y=-3, n=0**	**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**	**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**	**y**
301	**Naturalized beyond native range**	**y = 1*multiplier (see Appendix 2), n= question 205**	**y**
302	**Garden/amenity/disturbance weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
303	**Agricultural/forestry/horticultural weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
304	**Environmental weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**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**	**y**
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**	
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**
411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**
412	**Forms dense thickets**	**y=1, n=0**	
501	**Aquatic**	**y=5, n=0**	**n**
502	**Grass**	**y=1, n=0**	**n**
503	**Nitrogen fixing woody plant**	**y=1, n=0**	**n**
504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**y=1, n=0**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	**n**
602	**Produces viable seed**	**y=1, n=-1**	**y**
603	**Hybridizes naturally**	**y=1, n=-1**	
604	**Self-compatible or apomictic**	**y=1, n=-1**	**y**
605	**Requires specialist pollinators**	**y=-1, n=0**	**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**	**n**
706	**Propagules bird dispersed**	**y=1, n=-1**	**y**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	**n**
708	**Propagules survive passage through the gut**	**y=1, n=-1**	**y**
801	**Prolific seed production (>1000/m2)**	**y=1, n=-1**	**n**
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	**n**
803	**Well controlled by herbicides**	**y=-1, n=1**	
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y=1, n=-1**	
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: L **WRA Score** 2

Supporting Data:

101	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Is the species highly domesticated? No]
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Species suited to tropical or subtropical climate(s) 2-High] "Forests or thickets near ocean; below 300 m. S Fujian, S Guangdong, S Guangxi, Hainan, S Taiwan, Yunnan [Malaysia, Philippines, Vietnam]." [Treated as Atalantia buxifolia]
202	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Quality of climate match data 2-High]
203	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Broad climate suitability (environmental versatility)? Yes] "USDA hardiness zones: 8B through 10"
204	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Forests or thickets near ocean; below 300 m. S Fujian, S Guangdong, S Guangxi, Hainan, S Taiwan, Yunnan [Malaysia, Philippines, Vietnam]." [Treated as Atalantia buxifolia]
205	1946. Howes, F.N.. Fence and barrier plants in warm climates. Kew Bulletin. 1: 51-87.	[Does the species have a history of repeated introductions outside its natural range? Southern US] "...of somewhat straggling growth but of pleasing appearance and suited for a low informal type of hedge; grown in southern United States
205	2005. Imada, C.T./Staples, G.W./Herbst, D.R.. Annotated Checklist of Cultivated Plants of Hawai'i. The Bishop Museum, http://www2.bishopmuseum.org/HBS/botany/cultivatedplants/	Does the species have a history of repeated introductions outside its natural range? Hawaii] "Locations: Harold L. Lyon Arboretum Pacific Tropical Botanical Garden (now National Tropical Botanical Garden) Wahiawa Botanical Garden "
205	2010. Nelson, G.. The Trees of Florida. A Reference and Field Guide. 2nd Edition. Pineapple Press Inc, Sarasota, FL	[Does the species have a history of repeated introductions outside its natural range? Florida] "Distribution: Disturbed sites, maritime hammocks; sporadically naturalized from about Alachua to Lee counties."
205	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Does the species have a history of repeated introductions outside its natural range?] "also cultivated "
301	2007. Newman, M./Ketphanh, S./Svengsuksa, B./Thomas, P./Sengdala, K./Lamxay, V./Armstrong, K.. A Checklist of the Vascular Plants of Lao PDR. Royal Botanic Garden Edinburgh, Edinburgh, UK	[Naturalized beyond native range? Present in Lao]
301	2010. Nelson, G.. The Trees of Florida. A Reference and Field Guide. 2nd Edition. Pineapple Press Inc, Sarasota, FL	[Naturalized beyond native range? Yes] "Distribution: Disturbed sites, maritime hammocks; sporadically naturalized from about Alachua to Lee counties."
301	2012. Imada, C.. Hawaiian Native and Naturalized Vascular Plants Checklist (December 2012 update). Bishop Musem Technical Report 60. Bishop Musem, Honolulu, HI	[Naturalized beyond native range? No evidence in Hawaii]
301	2012. Wagner, W.L./Herbst, D.R./Khan, N./Flynn, T.. Hawaiian Vascular Plant Updates: A Supplement to the Manual of the Flowering Plants of Hawai`i & Hawai`i's Ferns & Fern Allies. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/supplement.htm	[Naturalized beyond native range? No evidence in Hawaii]
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No] No evidence

303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No] No evidence
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No] No evidence
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No] No evidence
401	1946. Howes, F.N.. Fence and barrier plants in warm climates. Kew Bulletin. 1: 51-87.	[Produces spines, thorns or burrs? Yes] "A. buxifolia Oliv. (Severinia buxifolia Teu.). S. China. A shrub or small tree with dark green leaves and a sharp spine at the base of each"
401	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Produces spines, thorns or burrs? Yes] "Shrubs ca. 2.5 m tall. Branches grayish brown; branchlets green, with spines or rarely unarmed; spines ca. 4 cm, apex red. Leaves simple; petiole 1–7 mm; leaf blade ovate, obovate, elliptic, or suborbicular, 2–6(–10) × 1–5 cm, leathery, with oil glands and an orange smell, midvein slightly ridged, secondary veins joined in an arched marginal vein, apex rounded to obtuse and retuse to emarginate at tip. Inflorescences axillary, fasciculate, (1- or) several flowered." [Treated as Atalantia buxifolia]
402	2013. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Parasitic? No] "Shrubs ca. 2.5 m tall." [Rutaceae]
404	1946. Howes, F.N.. Fence and barrier plants in warm climates. Kew Bulletin. 1: 51-87.	[Unpalatable to grazing animals? Unknown, but spines could deter browsing] "A. buxifolia Oliv. (Severinia buxifolia Teu.). S. China. A shrub or small tree with dark green leaves and a sharp spine at the base of each"
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Host for recognized pests and pathogens?] "Pest resistance: long-term health usually not affected by pests" … "Pest problems include scales, white-flies, sooty-mold, thrips, mites, and soil nematodes. Pests and Diseases No diseases are of major concern."
406	2001. Hung, T.H./Wu, M.L./Su, H.J.. Identification of the Chinese box orange (Severinia buxifolia) as an alternative host of the bacterium causing citrus Huanglongbing. European Journal of Plant Pathology. 107(2): 183-189.	[Host for recognized pests and pathogens? Yes] "The Chinese box orange (Severinia buxifolia) was shown by graft-inoculation and psyllid transmission tests to be an alternative host of the bacterium causing citrus Huanglongbing (HLB)." … "A field survey verified the presence of HLBB infected CBO plants in the vicinity of citrus orchards. In this paper, CBO is shown to be a susceptible host plant in which HLBB can exist and replicate. It is also a donor plant from which HLBB can be transmitted to citrus hosts by grafting or by psyllid vectors." … "Citrus Huanglongbing (HLB), also commonly called ‘citrus greening’, is a severe disease in Asia. It is caused by a phloem-limited bacterium that inhabits the sieve tubes of host plants (Garnier et al., 1984). This pathogen causes a blotchy mottle symptom on citrus leaves and retards the growth of its host plant (da Graca, 1991)."
407	2001. Hanelt, P. (ed.). Mansfeld's Encyclopedia of Agricultural and Horticultural Crops (except Ornamentals), Volume 1. Springer-Verlag, Berlin, Heidelberg, New York	[Causes allergies or is otherwise toxic to humans? No evidence] "The leaves of the shrub are used in China for preparing yeast cakes."
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No evidence]
407	2013. Dave's Garden. PlantFiles: Boxthorn - Severinia buxifolia. http://davesgarden.com/guides/pf/go/130381/ [Accessed 01 Nov 2013]	[Causes allergies or is otherwise toxic to humans? No evidence of toxicity] "Danger: Plant has spines or sharp edges; use extreme caution when handling"
408	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Creates a fire hazard in natural ecosystems Unknown. No information on fire regime of thickets] "Forests or thickets near ocean; below 300 m. S Fujian, S Guangdong, S Guangxi, Hainan, S Taiwan, Yunnan [Malaysia, Philippines, Vietnam]."
409	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Although Boxthorn will grow in shade, it has more compact, dense growth in full sun."

409	2013. Dave's Garden. PlantFiles: Boxthorn - Severinia buxifolia. http://davesgarden.com/guides/pf/go/130381/ [Accessed 01 Nov 2013]	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Sun Exposure: Full Sun Sun to Partial Shade Light Shade"
410	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Tolerates a wide range of soil conditions ? Yes] "Soil tolerances: slightly alkaline; clay; sand; acidic; loam" … "Tolerant of most welldrained soils,"
411	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Climbing or smothering growth habit? No] "Shrubs ca. 2.5 m tall." [Rutaceae]
412	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Forms dense thickets? Unknown] "Forests or thickets near ocean; below 300 m." [A component of thicket vegetation]
501	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Aquatic? No] "Forests or thickets near ocean; below 300 m." [Terrestrial]
502	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Grass? No] "Shrubs ca. 2.5 m tall." [Rutaceae]
503	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Nitrogen fixing woody plant? No] "Shrubs ca. 2.5 m tall." [Rutaceae]
504	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Shrubs ca. 2.5 m tall." [Rutaceae]
601	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Produces viable seed? Yes] "Propagation is by seeds or cuttings."
602	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Produces viable seed? Yes] "It is best grown in full sun and is propagated by seed or cuttings."
603	1992. Grosser, J.W./Gmitter, F.G./Sesto, F./Deng, X.X./Chandler, J.L.. Six new somatic citrus hybrids and their potential for cultivar improvement. Journal of the American Society for Horticultural Science. 117(1): 169-173.	[Hybridizes naturally? Unknown if natural hybridization is possible] "Protoplasm culture following polyethylene glycol (PEG) -induced fusion resulted in the regeneration of somatic hybrid plants from the following six parental combinations: Citrus sinermis (L.) Osbeck CV. Hamlin + Severinia buxifolia (Poir.)…"
604	1991. Lim, A.L./Tinggie, D.A.. The Reproductive Biology f Severinia Buxifolia (Poir.) Tenore. Malaysian Journal of Science. 13: 1-12.	[Self-compatible or apomictic? Yes] "Preliminary flower, bagging experiment show that fruit formation is independent of cross pollination."
605	1991. Lim, A.L./Tinggie, D.A.. The Reproductive Biology f Severinia Buxifolia (Poir.) Tenore. Malaysian Journal of Science. 13: 1-12.	[Requires specialist pollinators? No] "Flower anthesis occurs from 0900-1400 hours and pollination is entomophilous, mainly by bees and butterflies."
605	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Requires specialist pollinators?] "Inflorescences axillary, fasciculate, (1- or) several flowered. Flowers 5 merous, subsessile. Calyx persistent. Petals white, 3–4 mm, with oil glands. Stamens 10; filaments white, distinct or sometimes a few basally connate. Style green, ± as long as ovary."
606	2013. Dave's Garden. PlantFiles: Boxthorn - Severinia buxifolia. http://davesgarden.com/guides/pf/go/130381/ [Accessed 01 Nov 2013]	[Reproduction by vegetative fragmentation? No evidence] "Propagation Methods: From woody stem cuttings From semi-hardwood cuttings From seed; direct sow outdoors in fall By air layering"
607	1999. Gilman, E.F.. Severinia buxifolia. Fact Sheet FPS-550. University of Florida IFAS Extension, Gainesville, FL http://edis.ifas.ufl.edu	[Minimum generative time (years)? Probably >3] "Growth rate is very slow." … "The plant is not widely available, perhaps due to its slow growth rate."

701	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No. Unlikely, as fruits and seeds lack means of external attachment] "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
702	1946. Howes, F.N.. Fence and barrier plants in warm climates. Kew Bulletin. 1: 51-87.	[Propagules dispersed intentionally by people? Yes] "...of somewhat straggling growth but of pleasing appearance and suited for a low informal type of hedge; grown in southern United States (Mowry)."
702	2008. Kobayashi, K./Criley, R./Kaufman, A./Tsugawa, S./Ricordi, A./Clifford, P.. Barrier Plants. L-20. College of Tropical Agriculture and Human Resources (CTAHR, Honolulu, HI http://www.ctahr.hawaii.edu/freepubs	[Propagules dispersed intentionally by people? Yes] "Boxthorn, Chinese box orange - Severinia buxifolia, Rutaceae. This dense, low-branching, compact shrub has small, oval, glossy, dark green leaves closely spaced on slender, thorny branches. It has small, white, fragrant, orange-like blossoms. Growth rate is very slow. It can be used as a hedge or mass planting."
703	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to disperse as a produce contaminant? No. Unlikely. Few-seeded, slow-growing plant] "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
704	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules adapted to wind dispersal? No] "Fruit a berry, usually with pulp vesicles and with or without mucilaginous pulp." … "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
705	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules water dispersed? No. No evidence, and presumably adapted for zoochory with fleshy-fruits] "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
706	1998. Ko, I.W.P./Corlett, R.T./Xu, R.-J.. Sugar composition of wild fruits in Hong Kong, China. Journal of Tropical Ecology. 14: 381–387.	[Propagules bird dispersed? Yes. Inferred] "Table 1. Carbohydrate content of fruit pulp, measured by HPLC and expressed as percentage of dry pulp weight, for 58 Hong Kong plant species." [Atalantia buxifolia - Dispersal agent - b = bird]
706	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules bird dispersed? Presumably Yes] "Fruit a berry, usually with pulp vesicles and with or without mucilaginous pulp." … "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
707	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules dispersed by other animals (externally)? No. Unlikely, as fruits and seeds lack means of external attachment] "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
708	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules survive passage through the gut? Presumably Yes] "Fruit a berry, usually with pulp vesicles and with or without mucilaginous pulp." … "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded. Seeds with 1(or 2) embryos; cotyledons green, with many oil glands."
801	2008. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 11 (Oxalidaceae through Aceraceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Prolific seed production (>1000/m2)? No. Unlikely. Short-statured plant with few seeds] "Shrubs ca. 2.5 m tall." … "Fruit bluish black when ripe, globose, slightly oblate, or subellipsoid, 0.8–1.2 cm in diam., smooth, 1- or 2-seeded."
802	2013. Dave's Garden. PlantFiles: Boxthorn - Severinia buxifolia. http://davesgarden.com/guides/pf/go/130381/ [Accessed 01 Nov 2013]	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Seed does not store well; sow as soon as possible"
803	2013. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2013. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2013. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

Summary of Risk Traits

High Risk / Undesirable Traits

- Found in temperate and tropical climates
- Sparingly naturalized in Florida
- Spiny
- Alternate host of citrus pathogens
- Tolerates shade (but prefers sun)
- Tolerates many soil types
- Self-compatible
- Fleshy-fruited and presumably adapted for bird dispersal

Low Risk Traits

- No reports of invasiveness or detrimental impacts to date
- Non-toxic
- Barrier plant
- Slow growing
- Few-seeded fruit
- Seeds do not store well (no seed bank)