

Key Words: Evaluate, Tropical Shrub/Tree, Sparingly Naturalized, Thicket-forming, Bird-dispersed

Family: *Malvaceae*

Taxon: *Grewia micrantha*

Synonym: *Grewia aurantiaca* Weim.
Grewia gonioclinia K.Schum.
Grewia hypoglauca K. Schum.

Common Name: golden fruit raisin

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	EVALUATE
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score	5
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		n
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)		y
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		n
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		
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0		

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	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	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	
702	Propagules dispersed intentionally by people	y=1, n=-1	
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	
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	
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: EVALUATE

WRA Score **5**

Supporting Data:

101	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Is the species highly domesticated? NA]
101	2012. Hyde, M.A./Wursten, B.T./Ballings, P.. Flora of Zimbabwe: Species information: <i>Grewia micrantha</i> [retrieved 15 Oct 2012]. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=138520	[Is the species highly domesticated?? No evidence] "A small, shrubby tree with drooping branches. Branches often with pale lenticels. Leaves ovate-oblong or elliptic, 3-9 cm long, 3 veined from the base, hairless or sparsely hairy above, with dense white hairs below and tufts of brown hairs on the veins; base asymmetric; margin toothed. Flowers yellow, c. 2 cm in diameter, in few-flowered, axillary heads, petals shorter and deeper colour than sepals. Fruit spherical, deeply 2-lobed, or 1 lobed by abortion, each lobe c. 7 mm in diameter, pubescent, yellowish"
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Species suited to tropical or subtropical climate(s) 2- High] Distribution - Tanzania, Mozambique, ?Madagascar
202	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Quality of climate match data 2-High]
203	2012. Conservatoire et Jardin botaniques & South African National Biodiversity Institute. African Plant Database - <i>Grewia micrantha</i> Bojer [Accessed 15 Oct 2012]. http://www.ville-ge.ch/musinfo/bd/cjb/africa/details.php?langue=an&id=121738	[Broad climate suitability (environmental versatility)? Yes. Elevation range exceeds 1000 m] "Wooded grassland (coastal); <i>Brachystegia</i> woodland or mixed bushland with <i>Azelia</i> , <i>Sclerocarya</i> , <i>Strychnos</i> , etc.; riverine thicket (inland); occasionally on termite-mounds; 50 2100 m alt."
204	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Native or naturalized in regions with tropical or subtropical climates? Yes] Distribution - Tanzania, Mozambique, ?Madagascar
204	2012. Hyde, M.A./Wursten, B.T./Ballings, P.. Flora of Zimbabwe: Species information: <i>Grewia micrantha</i> [retrieved 15 Oct 2012]. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=138520	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Kenya, Tanzania, Malawi, Mozambique and Zimbabwe. Also possibly in Madagascar"
205	2012. WRA Specialist. Personal Communication.	[Does the species have a history of repeated introductions outside its natural range? No evidence] Apparently not widely cultivated outside native range
301	2012. Lau, A./Frohlich, D.. New plant records from O'ahu for 2009. Bishop Museum Occasional Papers. 113: 7-26.	[Naturalized beyond native range? Yes. Sparingly] "No prior collections of this species have been made in the state. it is possible this species was intentionally introduced near the collection site as an ornamental. it was seen here scattered in a dry lowland area dominated by <i>Prosopis pallida</i> and nonnative grasses, scattered locally with an abundance of approximately 10 or 12 plants of multiple size classes. Material examined. O'AHU: Along road to Koko Crater trail (UTM 635687, 2353745). Dry lowland area dominated by <i>Prosopis</i> . Tree about 2.5 m tall. No flowers. Fruits small, fuzzy, green, drying to brown, 9 Apr 2009, OED 2009040903; Along road to Koko Crater trail (UTM 635687, 2353745) dry lowland area, near baseball diamond. Sprawling shrub about 5 m dia, 3 m tall. Flowers bright yellow with lobed stigmas. New growth reddish. Several individuals of various sizes in area, 30 Jun 2009, OED 2009063001."
301	2012. Lau, A./Frohlich, D.. Oahu Early Detection - Early Detection finds in Koko Crater Botanical Garden – March 2012. Unpublished report.	[Naturalized beyond native range? Yes] " <i>Grewia micrantha</i> was first spotted by OED on a road survey in 2009, on the road leading up to the Koko Crater funicular trail. This was the first time this species was collected in the state (naturalized or otherwise) and because of its relative obscurity, the numerous individuals of varying size found near the trail were assumed at the time to have spread from Koko Crater Botanical Garden. This suspicion was confirmed during our surveys of the garden, when we found this species distributed liberally throughout the crater. "
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? 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 evidence]
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No evidence]
305	1992. Fourie, M.P.. Chemical bush control with ethidimuron. Proceedings of the 1st International Weed Control Congress. 2: 166-168.	[Congeneric weed? Potentially Yes] "During trials in 1984 at Northern Cape, application from the air of 0-70 kg/ha ethidimuron controlled many bush and tree species including <i>Grewia flava</i> , <i>Rhigozum trichotomum</i> , <i>Boscia albitrunca</i> and, in particular, <i>Acacia mellifera</i> and <i>A. erioloba</i> ." [this is a native woody plant that encroaches on pastures]
305	2011. Queensland Government. Weeds of Australia - <i>Grewia</i> , <i>Grewia asiatica</i> [Accessed 15 Oct 2012]. http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Grewia_asiatica.htm	[Congeneric weed? Yes] " <i>Grewia</i> (<i>Grewia asiatica</i>) is regarded as an environmental weed in the Northern Territory and Queensland. It is listed as a priority environmental weed in two Natural Resource Management regions. This species invades natural woodland communities, changing the structure and processes of the systems. It is thought to pose a significant threat to the biodiversity of the tropical savannas and rangelands of northern Australia. <i>Grewia</i> (<i>Grewia asiatica</i>) is believed to be reasonably widespread in northern Queensland, with specimens being collected from the Collinsville, Townsville, Mackay, Ayr, Laura and Cooktown districts. It has invaded woodlands in the drier parts of the Cape York Peninsula, particularly in the Laura Lakefield area. In the Townsville region it grows in disturbed areas in eucalypt woodlands which are subject to frequent fires. At Laura, it grows in eucalypt and melaleuca woodlands or open forest and is particularly vigorous in riparian areas near the Laura River. <i>Grewia</i> (<i>Grewia asiatica</i>) is listed as a high priority weed species in the Cook Shire and as a medium priority pest species in the Townsville City Council local authority area. In the Northern Territory, <i>Grewia</i> (<i>Grewia asiatica</i>) is a significant weed in the Daly Basin region and is also present in the Finnis and Adelaide River catchments. It has also invaded conservation areas in northern Queensland and the Northern Territory (e.g. Casuarina Coastal Reserve)."
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? Yes] Several <i>Grewia</i> are listed as naturalized and/or weeds
401	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Produces spines, thorns or burrs? No] "Shrub or small tree to 7 m tall; young branches coarsely ferruginous-pubescent. Leaves elliptic to ovate-elliptic, 2.3-8.6 cm long, 1.3-3.8 cm wide, acute at the apex, rounded and very asymmetric at the base, margin clearly sharply serrate, ± glabrous to scattered minutely pubescent above especially when young, densely whitish pubescent with brownish veins beneath; petiole 2-8 mm long, densely pubescent, sometimes coarsely ferruginously so; stipules subulate to ovate, up to 7 mm long."
402	2008. Batish, D.R./Singh, H.P./Kohli, R.K.. Allelopathic Tree–Crop Interactions under Agroforestry Systems. Pp 37-50 in D.R. Batish et al. (eds.) Ecological basis of agroforestry. CRC Press, Boca Raton, FL	[Allelopathic? Unknown. Other <i>Grewia</i> species may have allelopathic properties] "A number of studies have shown that mulches and prunings of trees may release allelochemicals and thus suppress crop growth. Kamara et al. (1999) studied the effect of leaf extracts and mulch from 5 year old multipurpose trees (MPTs)" [Includes <i>Grewia pubescens</i>]
403	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Parasitic? No evidence] "Shrub or small tree to 7 m tall..." [Malvaceae subfamily: Grewioideae. Also placed in: Tiliaceae]
404	2004. Tews, J./Schurr, F./Jeltsch, F.. Seed dispersal by cattle may cause shrub encroachment of <i>Grewia flava</i> on southern Kalahari rangelands. Applied Vegetation Science. 7: 89-102.	[Unpalatable to grazing animals? Probably No based on palatability of related species] "Cattle negate this dispersal limitation by browsing on the foliage of <i>Grewia</i> and dispersing seeds into the grassland matrix." ... "The palatable shoots and foliage of <i>Grewia</i> are important fodder for domestic livestock (Watt & Breyer-Brandwijk 1962)."
405	2004. Tews, J./Schurr, F./Jeltsch, F.. Seed dispersal by cattle may cause shrub encroachment of <i>Grewia flava</i> on southern Kalahari rangelands. Applied Vegetation Science. 7: 89-102.	[Toxic to animals? No evidence in related species] "Cattle negate this dispersal limitation by browsing on the foliage of <i>Grewia</i> and dispersing seeds into the grassland matrix."
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	2012. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]

407	1996. Morris, B.. Chewa Medical Botany: A Study of Herbalism in Southern Malawi. LIT Verlag Münster, Hamburg, Germany	[Causes allergies or is otherwise toxic to humans? No evidence] "The fruits are edible. A root decoction is used as a remedy for venereal disease (chtayo) and heart complaints."
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]
408	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Creates a fire hazard in natural ecosystems? Unknown]
409	2012. WRA Specialist. Personal Communication.	[Is a shade tolerant plant at some stage of its life cycle? Unknown]
410	2007. Palgrave, M.C./Van Wyk, A.E./Jordaan, M./White, J.A./Sweet, P.. A reconnaissance survey of the woody flora and vegetation of the Catapú logging concession, Cheringoma District, Mozambique. Bothalia. 37(1): 57-73.	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Unknown] "Soils are sand with outbreaks of sandstone and calcareous conglomerates and black cotton or turf soils around the vleis and in the river floodplains." [Grewia micrantha occurs in this habitat type]
411	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Climbing or smothering growth habit? No] Shrub or small tree to 7 m tall..."
412	1996. Morris, B.. Chewa Medical Botany: A Study of Herbalism in Southern Malawi. LIT Verlag Münster, Hamburg, Germany	[Forms dense thickets? Yes] "It is widespread in Brachystegia woodland, often forming thickets near streams. Widespread in Central and East Africa."
412	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Forms dense thickets? Possibly] "Open forest, thicket and Acacia or Commiphora bushland; 50-750 m" [Component of thicket vegetation]
412	2012. Hyde, M.A./Wursten, B.T./Ballings, P.. Flora of Zimbabwe: Species information: Grewia micrantha [retrieved 15 Oct 2012]. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=138520	[Forms dense thickets?] "In open deciduous woodland."
501	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Aquatic? No] "Open forest, thicket and Acacia or Commiphora bushland; 50-750 m"
502	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Grass? No] "Malvaceae subfamily: Grewioideae. Also placed in: Tiliaceae "
503	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] "Malvaceae subfamily: Grewioideae. Also placed in: Tiliaceae "
504	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] ""Shrub or small tree to 7 m tall..."
601	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Evidence of substantial reproductive failure in native habitat? No evidence]
602	2012. Lau, A./Frohlich, D.. New plant records from O'ahu for 2009. Bishop Museum Occasional Papers. 113: 7-26.	[Produces viable seed? Presumably Yes] "it was seen here scattered in a dry lowland area dominated by Prosopis pallida and nonnative grasses, scattered locally with an abundance of approximately 10 or 12 plants of multiple size classes."
603	2008. Louppe, D./Oteng-Amoako, A.A./Brink, M.. Timbers 1: volume 7 of Plant Resources of Tropical Africa. PROTA, Wageningen, Netherlands	[Hybridizes naturally? Unknown, but interspecific hybridization documented in genus] "Grewia bicolor is extremely variable, and it hybridizes freely with Grewia monticola Sond."
604	1940. East, E.M.. The distribution of self-sterility in the flowering plants. Proceedings of the American Philosophical Society. 82: 449-518.	[Self-compatible or apomictic? Unknown for G. micrantha] "Genera where one or more species are known to be self-fertile are Elaeocarpus, Slonea, Muntingia, Aristotelia, Apeiba, Grewia, Luehea, Tilia, and Triumphetta"

605	2002. Kubitzki, K./Bayer, C. (eds.). The Families and genera of vascular plants. Volume V. Flowering Plants. Dicotyledons: Capparales, Malvales and Non-betain Caryophyllales. Springer-Verlag, Berlin, Heidelberg, New York	[Requires specialist pollinators? No evidence] "In Grewioideae the relatively small-flowered genera, which have nectaries at the adaxial petal bases, point to bee pollination. The only pertinent report is from Zietsman (1991), who found the South African <i>Grewia occidentalis</i> pollinated mainly by <i>Apis mellifera</i> and two <i>Xylocopa</i> ." [No evidence based on generic characteristics]
606	2004. Tews, J./Moloney, K./Jeltsch, F.. Modeling seed dispersal in a variable environment: a case study of the fleshy-fruited savanna shrub <i>Grewia flava</i> . <i>Ecological Modelling</i> . 175: 65-76.	[Reproduction by vegetative fragmentation? Unknown. Related species can spread clonally] "Grewia plants are noted for clonal, multi-stemmed growth forms (Schurr, 2001)."
607	2012. Shoot Gardening. <i>Grewia occidentalis</i> (African starbush) [Accessed 15 Oct 2012]. http://www.shootgardening.co.uk/plant/grewia-occidentalis	[Minimum generative time (years)? Unknown for <i>G. micrantha</i>] " <i>Grewia occidentalis</i> " ... "2-5 years to maturity" [Probably similar rate of growth and time to maturity]
701	2012. Lau, A./Frohlich, D.. New plant records from O'ahu for 2009. Bishop Museum Occasional Papers. 113: 7-26.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Possibly, as suggested by roadside distribution] "Along road to Koko Crater trail (UTM 635687, 2353745). Dry lowland area dominated by <i>Prosopis</i> . Tree about 2.5 m tall. No flowers. Fruits small, fuzzy, green, drying to brown, 9 Apr 2009, OED 2009040903; Along road to Koko Crater trail (UTM 635687, 2353745) dry lowland area, near baseball diamond."
702	2012. Lau, A./Frohlich, D.. New plant records from O'ahu for 2009. Bishop Museum Occasional Papers. 113: 7-26.	[Propagules dispersed intentionally by people? Unknown] "it is possible this species was intentionally introduced near the collection site as an ornamental." [Possibly cultivated as an ornamental, but appears to be uncommon or rare in cultivation]
703	2012. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No evidence that seeds of <i>Grewia</i> species become contaminated in produce]
704	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Propagules adapted to wind dispersal? No] "Fruit 2-lobed, or less often unlobed to abortion, the lobes 5-7 mm long, 4-6 mm in diameter, shortly stellate-hairy."
705	1996. Morris, B.. Chewa Medical Botany: A Study of Herbalism in Southern Malawi. LIT Verlag Münster, Hamburg, Germany	[Propagules water dispersed? Possibly if distributed along streams] "It is widespread in <i>Brachystegia</i> woodland, often forming thickets near streams. Widespread in Central and East Africa."
706	1996. Morris, B.. Chewa Medical Botany: A Study of Herbalism in Southern Malawi. LIT Verlag Münster, Hamburg, Germany	[Propagules bird dispersed? Presumably Yes] "Fruit a 2-lobed berry."
706	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Propagules bird dispersed?] "Fruit 2-lobed, or less often unlobed to abortion, the lobes 5-7 mm long, 4-6 mm in diameter, shortly stellate-hairy."
706	2004. Tews, J./Moloney, K./Jeltsch, F.. Modeling seed dispersal in a variable environment: a case study of the fleshy-fruited savanna shrub <i>Grewia flava</i> . <i>Ecological Modelling</i> . 175: 65-76.	[Propagules bird dispersed? Yes based on dispersal of related species] "The main dispersal vectors for <i>Grewia</i> seeds to Acacia cells are small birds (e.g. Acacia Pied Barbet <i>Tricholaema leucomelas</i> , Wattled and Glossy Starling <i>Creatophora cinerea</i> and Lamprotornis <i>niteus</i> , occasionally White-Browed Scrub-Robin <i>Cercotrichas leucophrys</i> , Milton and Dean, 1995)."
706	2010. Teegalapalli, K./Hiremath, A.J./Jathanna, D.. Patterns of seed rain and seedling regeneration in abandoned agricultural clearings in a seasonally dry tropical forest in India. <i>Journal of Tropical Ecology</i> . 26: 25-33.	[Propagules bird dispersed? Presumably Yes based on dispersal of related species] "Appendix 1. List of native tree species, seeds of which were collected from seeds traps in this study in Bhadra. Also given are the locations where seeds of each species were encountered (C=in clearings; F=in the adjoining forests), and the species dispersal mode (B/M=bird/mammal dispersed, W/G=wind/gravity dispersed)." [Grewia <i>tiliifolia</i> = B/M]
707	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Propagules dispersed by other animals (externally)? Probably No] "Fruit 2-lobed, or less often unlobed to abortion, the lobes 5-7 mm long, 4-6 mm in diameter, shortly stellate-hairy." [Fruits lack means of external attachment, and species in genus are largely adapted for internal dispersal by birds and mammals]
708	2000. Spehn, S.E./Ganzhorn, J.U.. Influence of seed dispersal by brown lemurs on removal rates of three <i>Grewia</i> species (Tiliaceae) in the dry deciduous forest of Madagascar. <i>Ecotropica</i> . 6(1): 13-21.	[Propagules survive passage through the gut? Presumably yes based on morphology and dispersal of related species] "Tree species. Three tree species of the genus <i>Grewia</i> (Tiliaceae) were selected for the experiments: <i>G. cyclea</i> , <i>G. lovanalensis</i> , and <i>G. glandulosa</i> (Table 1). Fruits of all three species are consumed whole by <i>Eulemur fulvus rufus</i> and are then dispersed from the parent tree. Seeds of all three tree species pass through the digestive tract of <i>E. f rufus</i> physically undamaged."
801	2001. Whitehouse, C./Cheek, M./Andrews, S./Verdcourt, B.. Flora of Tropical East Africa - Tiliaceae & Muntingiaceae. A.A. Balkema, Rotterdam, Netherlands	[Prolific seed production (>1000/m2)? Probably No] ""Shrub or small tree to 7 m tall" ... "Fruit 2-lobed, or less often unlobed to abortion, the lobes 5-7 mm long, 4-6 mm in diameter, shortly stellate-hairy."

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] Several <i>Grewia</i> species possess orthodox seed storage
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2004. Tews, J./Schurr, F./Jeltsch, F.. Seed dispersal by cattle may cause shrub encroachment of <i>Grewia flava</i> on southern Kalahari rangelands. <i>Applied Vegetation Science</i> . 7: 89-102.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Possibly Yes based on response to fire of related species] "In the wet season following a fire, shrub cover of matrix individuals is reduced by 50% (with no fruit production) and reaches the pre fire value in the year after. This describes the quick resprouting of <i>Grewia</i> from basal parts (Skarpe 1980; Gandar 1982)."
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

Summary of Risk Traits

High Risk / Undesirable Traits

- Sparingly Naturalized in Koko Crater, Oahu, Hawaiian Islands
- Thrives in tropical climates
- Related species can become weedy
- Often forming thickets near streams in native range of Africa
- Seeds dispersed internally by birds and other mammals
- Biology and ecology poorly understood. Assessment could change as more information becomes available

Low Risk / Desirable Traits

- No reports of negative impacts or invasiveness elsewhere
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Landscaping and ornamental value