

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>Kirkia acuminata</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	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	n	-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	n	0
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	n	0
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	?	
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators		
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	y	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		
7.07	Propagules dispersed by other animals (externally)	n	-1
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	Accept
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section	# questions answered	satisfy minimum?
A	10	Yes
B	7	Yes
C	9	Yes
total	26	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%20Igcd.tif). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?21165). 3. Bremekamp, CEB (1933) New or otherwise noteworthy plants from the northern Transvaal. <i>Annals of the Transvaal Museum</i> 16(2): 233-264. 4. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., <i>Plantzafrica.com</i> (http://www.plantzafrica.com/plantklm/kirkacum.htm). 5. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). <i>Kew Bulletin</i> 35(4): 829-840. 6. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf). 7. Hyde, M.A. & Wursten, B. (2008). <i>Flora of Zimbabwe: Species information: Kirkia acuminata</i>. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250, retrieved 28 May 2008. 8. Department of Water Affairs and Forestry, Republic of South Africa (http://www.dwaf.gov.za/Events/Arborweek/2004/documents/leaflet.pdf).</p>	<p>1. Global hardiness zones (8?-)9-11. 2. West-Central Tropical Africa: Zaire [s.e.]; South Tropical Africa: Angola; Malawi; Mozambique; Zambia; Zimbabwe; Southern Africa: Botswana; Namibia; South Africa - Transvaal. 3. Transvaal. 4. "Extends from Gauteng, Botswana, Namibia, and to the north in Tanzania". 5. "Congo: Katanga Province; Mozambique: Inhambane District, Tete District; Malawi: Northern Province, Central Province; Zambia: Eastern Province, Southern Province; Zimbabwe: Buhara District, Chipinga District, Enterprise District, Matobo District, Mtoko District, Ndanga District, Sebakwe District, Umtali District, Umzingwana District; Botswana: SE Division, Mahalapye District; Angola: Huila District, Moçâmedes; South Africa: Transvaal; South West Africa: Grootfontein District, Kaokoveld District, Otavi District, Outjo District". 6. "Common and widespread in the Karstveld and in the north-west, east of the escarpment. Uncommon in East Caprivi." [Namibia]. 7. "Worldwide distribution: Angola, Botswana, DRC, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe, Limpopo and Mpumalanga, S. Africa." 8. "Distribution: Occur in all the Regions in South Africa but mainly in Mpumalanga, also in Tanzania and Zimbabwe."</p>
2.02		
2.03	<p>1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. USDA, ARS, National Genetic Resources Program. Germplasm</p>	<p>1. Distribution range is broad and somewhat uncertain -- possibly three climatic regions. 2. West-Central Tropical Africa: Zaire [s.e.]; South Tropical Africa: Angola; Malawi; Mozambique; Zambia; Zimbabwe; Southern</p>

	<p>Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?21165). 3. Bremekamp, CEB (1933) New or otherwise noteworthy plants from the northern Transvaal. <i>Annals of the Transvaal Museum</i> 16(2): 233-264. 4. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., <i>Plantzafrica.com</i> (http://www.plantzafrica.com/plantklm/kirkacum.htm). 5. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). <i>Kew Bulletin</i> 35(4): 829-840. 6. Namibian Biodiversity Database (http://www.biodiversity.org.na/treeatlas/SpPDFs/Sp350.pdf). 7. Hyde, M.A. & Wursten, B. (2008). <i>Flora of Zimbabwe: Species information: Kirkia acuminata</i>. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250, retrieved 28 May 2008. 8. Department of Water Affairs and Forestry, Republic of South Africa (http://www.dwaf.gov.za/Events/Arborweek/2004/documents/leaflet.pdf).</p>	<p>Africa: Botswana; Namibia; South Africa - Transvaal. 3. Transvaal. 4. "Extends from Gauteng, Botswana, Namibia, and to the north in Tanzania". 5. "Congo: Katanga Province; Mozambique: Inhambane District, Tete District; Malawi: Northern Province, Central Province; Zambia: Eastern Province, Southern Province; Zimbabwe: Buhera District, Chipinga District, Enterprise District, Matobo District, Mtoko District, Ndanga District, Sebakwe District, Umtali District, Umzingwana District; Botswana: SE Division, Mahalapye District; Angola: Huila District, Moçâmedes; South Africa: Transvaal; South West Africa: Grootfontein District, Kaokoveld District, Otavi District, Outjo District". 6. "Common and widespread in the Karstveld and in the north-west, east of the escarpment. Uncommon in East Caprivi." [Namibia]. 7. "Worldwide distribution: Angola, Botswana, DRC, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe, Limpopo and Mpumalanga, S. Africa." 8. "Distribution: Occur in all the Regions in South Africa but mainly in Mpumalanga, also in Tanzania and Zimbabwe."</p>
2.04	<p>1. <i>Atlapedia Online</i> (http://www.atlapedia.com/online/countries/DemRepCongo.htm). 2. Food and Agriculture Organization of the United Nations, <i>Aquastat Global Information System on Water and Agriculture</i> (http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_ago.pdf). 3. <i>Atlapedia Online</i> (http://www.atlapedia.com/online/countries/malawi.htm). 4. <i>Atlapedia Online</i> (http://www.atlapedia.com/online/countries/mozambiq.htm). 5. <i>Atlapedia Online</i> (http://www.atlapedia.com/online/countries/zambia.htm). 6. Botswana: Microsoft Encarta <i>World Precipitation and Average Rainfall</i> (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 7. Namibia: Microsoft Encarta <i>World Precipitation and Average Rainfall</i></p>	<p>1. For Zaire (Democratic Republic of Congo): Democratic Republic of the Congo (Zaire) is crossed by the Equator and the seasons are reversed in the north and south. Both regions have two short wet seasons and two short dry seasons while the central area has an equatorial climate with an average annual precipitation of 1,700 mm (67 inches). 2. For Angola: Long-term average annual precipitation is 1010 mm/year (39.8 in./year). 3. For Malawi: "Average annual precipitation is 740 mm (29 inches)." 4. For Mozambique: "Annual precipitation varies from 500 to 900 mm (20 to 35 inches) depending on the region with an average of 590 mm (23 inches)." 5. For Zambia: "Average annual precipitation varies between 1,000 mm and 1,400 mm (40 and 50 inches) in the north decreasing to 510 mm (21 inches) in the south." 6. For Botswana: average annual precipitation ranges from under 10</p>

	(http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1).	inches/year to 40 inches/year. 7. For Namibia: average annual precipitation ranges from under 10 inches/year to 20 inches/year.
2.05	1. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Kirkia%20acuminata&sref=22313). 2. Seeds-by-size (http://seeds-by-size.co.uk/southafricantree&shrubseeds.html). 3. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 4. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 5. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 6. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf).	1. Seeds sold internationally. 2. Seeds sold in the UK. 3. "They would make fine subjects for warmer gardens". 4. "The tree...can be used for live fences as well as for ornamental purposes". 5. "It is a good choice for those gardeners who prefer something different"; "If given a well-drained soil in a warm, sheltered position, it will do well in cultivation". 6. "Does well as a garden tree".
3.01		no evidence
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.	Listed as being present as a weed in Zimbabwe [not enough evidence to be considered a weed of agriculture].
3.04		no evidence
3.05		no evidence
4.01		no description of these traits
4.02		
4.03		no description of parasitism
4.04	1. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 2. Aganga, AA and Mosase, KW (2001) Tannin content, nutritive value and dry matter digestibility of <i>Lonchocarpus capassa</i> , <i>Zizyphus mucronata</i> , <i>Sclerocarya birrea</i> , <i>Kirkia acuminata</i> and <i>Rhus lancea</i>	1. "Game is [sic] said to eat the dry leaves". 2. "The tree is used for medicine and at times utilised by game and other domesticated animals." 3. "Browsed by giraffe".

	seeds. Animal Feed Science and Technology 91: 107-113. 3. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf).	
4.05	1. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 2. Aganga, AA and Mosase, KW (2001) Tannin content, nutritive value and dry matter digestibility of <i>Lonchocarpus capassa</i> , <i>Zizyphus mucronata</i> , <i>Sclerocarya birrea</i> , <i>Kirkia acuminata</i> and <i>Rhus lancea</i> seeds. Animal Feed Science and Technology 91: 107-113. 3. Symes, CT and Perrin, MR (2003) Feeding biology of the Greyheaded Parrot, <i>Poicephalus fuscicollis suahelicus</i> (Reichenow), in Northern Province, South Africa. Emu 103: 49-58. 3. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf).	1. "Game is [sic] said to eat the dry leaves". 2. "The tree is used for medicine and at times utilised by game and other domesticated animals." 3. Greyheaded Parrot feed on the unripe and ripe kernels. 3. "Browsed by giraffe; monkeys eat the fruit." [no evidence of toxicity]
4.06		
4.07	1. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 2. Aganga, AA and Mosase, KW (2001) Tannin content, nutritive value and dry matter digestibility of <i>Lonchocarpus capassa</i> , <i>Zizyphus mucronata</i> , <i>Sclerocarya birrea</i> , <i>Kirkia acuminata</i> and <i>Rhus lancea</i> seeds. Animal Feed Science and Technology 91: 107-113. 3. Department of Water Affairs and Forestry, Republic of South Africa (http://www.dwaf.gov.za/Events/Arborweek/2004/documents/leaflet.pdf).	1. In Zimbabwe, the pulverized roots are used as a remedy for toothache and the swollen roots are used by the people to quench thirst. 2. "The tree is used for medicine and at times utilised by game and other domesticated animals." 3. "The roots can be easily tapped for water and the powdered root is used as a remedy for toothache." [no evidence of toxicity]
4.08		
4.09	Gardening Eden - <i>Kirkia acuminata</i> (http://www.gardeningedden.co.za/plants-kirkia-acuminata.html).	"Full sun."
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. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers,	1. Zaire (Democratic Republic of Congo): almost entirely oxisols and ultisols, with some entisols and inceptisols; Angola: primarily entisols with some alfisols, inceptisols, and ultisols and a small amount of aridisols (also with some oxisols); Malawi:

	<p>Cape Town. 3. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 4. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 5. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 6. Aganga, AA and Mosase, KW (2001) Tannin content, nutritive value and dry matter digestibility of <i>Lonchocarpus capassa</i>, <i>Zizyphus mucronata</i>, <i>Sclerocarya birrea</i>, <i>Kirkia acuminata</i> and <i>Rhus lancea</i> seeds. Animal Feed Science and Technology 91: 107-113. 7. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf). 8. Hyde, M.A. & Wursten, B. (2008). Flora of Zimbabwe: Species information: <i>Kirkia acuminata</i>. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250, retrieved 28 May 2008. 9. Department of Water Affairs and Forestry, Republic of South Africa (http://www.dwaf.gov.za/Events/Arborweek/2004/documents/leaflet.pdf).</p>	<p>mostly oxisols and alfisols with a small amount of inceptisols and ultisols; Mozambique: mostly alfisols with some entisols and oxisols, a small amount of inceptisols and aridisols, and a very small amount of ultisols (also a small amount of the "shifting sands" soil order type); Zambia: mostly oxisols with some alfisols, entisols, inceptisols, and ultisols (also a small amount of the shifting sands soil order type); Zimbabwe: almost entirely alfisols with some aridisols, entisols, and inceptisols, and a very small amount of ultisols (also with a very small amount of oxisols); Botswana: mostly "shifting sands" with some entisols, a small amount of alfisols, and a very small amount of inceptisols; Namibia: mostly aridisols and entisols with some alfisols, inceptisols, and ultisols (also with some of the shifting sands soil order type); South Africa: Transvaal: Mostly alfisols with some aridisols, entisols, and ultisols and a small amount of inceptisols (also with a very small amount of oxisols). 2. "Often on rocky ridges and outcrops". 3. "It occurs both on stony kopjes and areas having a deep soil." 4. "Deep, sandy soil or on rocky hills". 5. "The soils on which it occurs range from alluvial flats and sandy or loamy ground near rivers to sandy and dry soils or rocky slopes of limestone, granite or basalt." 6. "Found in warm bushveld, sandy and in loamy soils and often in rocky hills". 7. "Found on hill slopes and rocky outcrops, predominantly on dolomite." 8. "Often on rocky ridges". 9. "Always on sandy or alluvial soils".</p>
4.11	<p>1. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 2. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 3. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 4. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 5. Namibian Biodiversity Database</p>	<p>1. "A medium sized deciduous tree 6 to 15 m in height". 2. "This is an attractive and usually straight tree which grows to a height of about 50 feet with diameters up to about two feet although usually it is smaller than this." 3. "This is a straight-stemmed tree with a fine, round, leafy crown. It grows from 6 to 18 m high with a trunk diameter of 0.8 m." 4. "Deciduous trees reaching 15-20 m with large spreading crown". 5. "Deciduous tree with spreading crown"; "a tree up to 8 m high and over". 6. "Medium-sized deciduous</p>

	(http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf). 6. Hyde, M.A. & Wursten, B. (2008). Flora of Zimbabwe: Species information: <i>Kirkia acuminata</i> . http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250 , retrieved 28 May 2008.	tree."
4.12		
5.01		terrestrial
5.02	Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town.	Simaroubaceae
5.03	Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town.	Simaroubaceae
5.04	1. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 2. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 3. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 4. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 5. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf). 6. Hyde, M.A. & Wursten, B. (2008). Flora of Zimbabwe: Species information: <i>Kirkia acuminata</i> . http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250 , retrieved 28 May 2008.	1. "A medium sized deciduous tree 6 to 15 m in height". 2. "This is an attractive and usually straight tree which grows to a height of about 50 feet with diameters up to about two feet although usually it is smaller than this." 3. "This is a straight-stemmed tree with a fine, round, leafy crown. It grows from 6 to 18 m high with a trunk diameter of 0.8 m." 4. "Deciduous trees reaching 15-20 m with large spreading crown". 5. "Deciduous tree with spreading crown"; "a tree up to 8 m high and over". 6. "Medium-sized deciduous tree."
6.01		no evidence
6.02	1. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 2. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 3. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm).	1. "The trees can be propagated easily either from seed or truncheons". 2. "The tree can be readily raised from seed or struck from truncheons". 3. "This tree is easily propagated from seed and from truncheons."
6.03		

6.04		
6.05		
6.06		
6.07		
7.01		
7.02	<p>1. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Kirkia%20acuminata&sref=22313). 2. Seeds-by-size (http://seeds-by-size.co.uk/southafricantree&shrubseeds.html). 3. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 4. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 5. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 6. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf).</p>	<p>1. Seeds sold internationally. 2. Seeds sold in the UK. 3. "They would make fine subjects for warmer gardens". 4. "The tree...can be used for live fences as well as for ornamental purposes". 5. "It is a good choice for those gardeners who prefer something different"; "If given a well-drained soil in a warm, sheltered position, it will do well in cultivation". 6. "Does well as a garden tree".</p>
7.03		no evidence
7.04	<p>1. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 2. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 3. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 4. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 5. Namibian Biodiversity Database (http://www.biodiversity.org.na/treetlas/SpPDFs/Sp350.pdf). 6. Hyde, M.A. & Wursten, B. (2008). Flora of Zimbabwe: Species information: <i>Kirkia acuminata</i>. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250, retrieved 28 May 2008.</p>	<p>1. "Fruit: a thinly woody capsule, about 1.5 x 0.5 cm, splitting into 4 valves (January onwards, the old fruits sometimes overlapping the following flowering season)". 2. "The fruits are small brown capsules in four parts which separate into four one-seeded fruits". 3. "The fruits are thinly woody capsules of about 10-20 x 6-10 mm that are 4-angled, and split into four seed pods when mature. Each seed pod contains a seed." 4. "Fruits 10-25 x 5-11 mm, oblong, quadrangular composed of 4 usually unilocular (occasionally bilocular) mericarps, pubescent to glabrous; seed slightly smaller than mericarp, filling loculus". 5. "Fruit a somewhat four-sided, woody capsule, with sharp ridges in the corners, splitting into four valves when ripe; c. 15 x 8 mm." 6. "Fruit a thinly woody capsule, splitting into 4 valves." [no evidence of adaptations to wind dispersal]</p>
7.05		

7.06		
7.07	<p>1. Palgrave, KC (1977) Trees of Southern Africa. Struik Publishers, Cape Town. 2. Pardy, AA (1952) Notes on indigenous trees and shrubs of Southern Rhodesia. The Rhodesia Agricultural Journal 49(3): 170-175. 3. Mbambezeli, G (2004) <i>Kirkia acuminata</i> Oliv., Plantzafrica.com (http://www.plantzafrica.com/plantklm/kirkacum.htm). 4. Stannard, B (1981) A revision of <i>Kirkia</i> (Simaroubaceae). Kew Bulletin 35(4): 829-840. 5. Namibian Biodiversity Database (http://www.biodiversity.org.na/treeatlas/SpPDFs/Sp350.pdf). 6. Hyde, M.A. & Wursten, B. (2008). Flora of Zimbabwe: Species information: <i>Kirkia acuminata</i>. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=133250, retrieved 28 May 2008.</p>	<p>1. "Fruit: a thinly woody capsule, about 1.5 x 0.5 cm, splitting into 4 valves (January onwards, the old fruits sometimes overlapping the following flowering season)". 2. "The fruits are small brown capsules in four parts which separate into four one-seeded fruits". 3. "The fruits are thinly woody capsules of about 10-20 x 6-10 mm that are 4-angled, and split into four seed pods when mature. Each seed pod contains a seed." 4. "Fruits 10-25 x 5-11 mm, oblong, quadrangular composed of 4 usually unilocular (occasionally bilocular) mericarps, pubescent to glabrous; seed slightly smaller than mericarp, filling loculus". 5. "Fruit a somewhat four-sided, woody capsule, with sharp ridges in the corners, splitting into four valves when ripe; c. 15 x 8 mm." 6. "Fruit a thinly woody capsule, splitting into 4 valves." [no evidence of adaptations to external dispersal]</p>
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		