Keywords: Evaluate, Tropical Tree, Toxic, Animal and Bird Dispersed, Pollards, Medicinal

Family: ***Apocynaceae***

Taxon: ***Acokanthera schimperi (A. DC.) Benth. & Hook. f. ex Schweinf.***

Synonym: *Acokanthera ouabaio Cathel. ex L. Lewin*
Carissa schimperi A. DC. (basionym)

Common Name: arrow-poison-tree
common-poisonbush

Questionaire : current 20090513 **Assessor:** Patti Clifford **Designation:** EVALUATE
Status: Assessor Approved **Data Entry Person:** Patti Clifford **WRA Score** 6

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**	**n**
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**	**y**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
407	**Causes allergies or is otherwise toxic to humans**	**y=1, n=0**	**y**
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**	**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**	
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**	**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**	
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**	
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**	**y**
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: EVALUATE **WRA Score** **6**

Supporting Data:

101	2012. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence of domestication that reduces invasive traits.
102	2012. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown? NA]
103	2012. WRA Specialist. Personal Communication.	[Does the species have weedy races? NA]
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"? 2 - high] Native range: Djibouti; Eritrea; Ethiopia; Somalia; Kenya; Tanzania; Uganda; Rwanda; Zaire; Yemen
202	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data? 2 - high] Native range: Djibouti; Eritrea; Ethiopia; Somalia; Kenya; Tanzania; Uganda; Rwanda; Zaire; Yemen
203	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Broad climate suitability (environmental versatility)? Yes] Acokanthera schimperi occurs at the margins of dry forest, in relict forest, thickets, grasslands and bushland, at 1100–2400 m altitude and with 600–1000 mm annual rainfall.
204	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Native or naturalized in regions with tropical or subtropical climates? Yes] Native range: Djibouti; Eritrea; Ethiopia; Somalia; Kenya; Tanzania; Uganda; Rwanda; Zaire; Yemen
205	2012. WRA Specialist. Personal Communication.	[Does the species have a history of repeated introductions outside its natural range? No] No evidence.
301	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Naturalized beyond native range? No] No evidence.
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] The Global Compendium of Weeds lists Acokanthera oblongifolia as an agricultural weed. However, there is no available information on its impacts to agriculture.
401	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Produces spines, thorns or burrs? No] Much-branched, evergreen tree, sometimes a shrub, up to 9(–10) m tall, with short trunk; bark brown, soft; crown dense, rounded; young branches glabrous or hairy, conspicuously angled and ribbed. Leaves decussately opposite, simple and entire; stipules absent; petiole 1–6(–9) mm long; blade elliptical to ovate or broadly ovate, 2–10 cm × 1.5–6.5 cm, base cuneate or rounded, apex acute, obtuse or rounded, with hard mucro, leathery, glossy, glabrous or shortly hairy, pinnately veined, lateral veins obscure, with looping connections.
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2012. WRA Specialist. Personal Communication.	[Parasitic? No] Apocynaceae.
404	2012. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Toxic to animals? Yes] Acokanthera species are among the most commonly used plant species for the preparation of poison in East Africa. It is either used on its own or mixed with other plant or animal parts. The bark, wood and roots are the usual ingredients for arrow poison, and they are also used for suicide and homicide. The only treatment against the poison is immediate excision of the flesh around the wound, or sucking the blood from the wound. The poison is also used in killing wild animals and stray dogs from fields and homes.

406	2012. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]
407	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Causes allergies or is otherwise toxic to humans? Yes] "Acokanthera species are among the most commonly used plant species for the preparation of poison in East Africa. It is either used on its own or mixed with other plant or animal parts. The bark, wood and roots are the usual ingredients for arrow poison, and they are also used for suicide and homicide. The only treatment against the poison is immediate excision of the flesh around the wound, or sucking the blood from the wound. The poison is also used in killing wild animals and stray dogs from fields and homes. In Ethiopia the leaves and bark are applied to the skin to treat skin disorders, and an infusion of the leaves is gargled to treat tonsillitis. Dried pulverized leaves with honey are taken as an antifertility medicine. In Kenya Samburu women drink a bark decoction when their menstruation does not stop. In Kenya and Tanzania a hot infusion of the pounded root is drunk in small quantities to treat sexually transmitted diseases, and also as an aphrodisiac. In Uganda a leaf decoction is given to cattle that have a cold. A mixture made from the leaves, bark and butter is used for gall-bladder problems. The smoke of dried roots and twigs is insect repellent; too much smoke is harmful for humans as well. The fruits are edible and an important famine food. They are sweet and slightly bitter when fully ripe. They are also used to make jams. The unripe fruits and seeds are highly poisonous, and several cases of accidental poisoning of children have been recorded. The latex in the fruits is used as chewing gum by children. The wood is very hard and compact and branches are used in making spear shafts. In Uganda, it is used as firewood and to make charcoal. Acokanthera schimperi serves as an ornamental, shade or live fence tree in parks or around houses."
407	2008. Schmelzer, G.H./Gurib-Fakim, A. (Eds.). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	[Causes allergies or is otherwise toxic to humans? Yes] The unripe fruit and seeds are highly poisonous, and several cases of accidental poisoning of children have been recorded.
408	2012. WRA Specialist. Personal Communication.	[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	1992. Abulfatih, H.A.. Vegetation zonation along an altitudinal gradient between sea level and 3000 meters in Southwestern Saudi Arabia. Science. 4: 57-97.	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Yes] Acokanthera schimperi is a component of the hillside plant community in southwestern Saudi Arabia. These slopes consist of granite boulders, sandstone and limestone rocks. The soil is commonly sandy stony.
410	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Yes] Acokanthera schimperi prefers well-drained, red or black rocky soils, but also grows on black cotton soil and poor soil of dry sites.
411	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Climbing or smothering growth habit? No] Tree or shrub.
412	2012. WRA Specialist. Personal Communication.	[Forms dense thickets? Unknown]
501	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Aquatic? No] Terrestrial; tree.
502	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Grass? No] Tree or shrub.

503	2010. www.nationmaster.com. Encyclopedia Nitrogen fixation. Nationmaster.com, http://www.nationmaster.com/encyclopedia/Nitrogen-fixation	[Nitrogen fixing woody plant? No] Apocynaceae.
504	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] Tree or shrub.
601	2008. Schmelzer, G.H./Gurib-Fakim, A. (Eds.). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	[Evidence of substantial reproductive failure in native habitat? No] Acokanthera schimperi is not at risk, but considered rare in southern Ethiopia.
601	2012. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence.
602	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Produces viable seed? Yes] Acokanthera schimperi regenerates naturally by seed.
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2012. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]
605	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Requires specialist pollinators? No] The flowers are pollinated chiefly by bees and seeds dispersed by animals.
606	2012. WRA Specialist. Personal Communication.	[Reproduction by vegetative fragmentation? Unknown]
607	2008. Schmelzer, G.H./Gurib-Fakim, A. (Eds.). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	[Minimum generative time (years)?] Moderate growth rate.
607	2012. WRA Specialist. Personal Communication.	[Minimum generative time (years)? Unknown]
701	2012. WRA Specialist. Personal Communication.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Unknown]
702	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules dispersed intentionally by people? Yes] The stem bark and roots of Acokanthera schimperi are locally traded for poison production. The ready-made poison is also sold in East Africa. There are no data on traded volumes and value.
703	2012. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence.
704	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules adapted to wind dispersal? No] Animal dispersed. Fruit an ellipsoid berry 1–2.5 cm long, purple when ripe, pulp green to deep red, 1–2-seeded. Seeds ellipsoid, plano-convex, 6–13 mm long, smooth, glabrous.
705	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules water dispersed? Unknown] Fruit an ellipsoid berry 1–2.5 cm long, purple when ripe, pulp green to deep red, 1–2-seeded. Seeds ellipsoid, plano-convex, 6–13 mm long, smooth, glabrous.

706	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules bird dispersed? Yes] Fruit an ellipsoid berry 1–2.5 cm long, purple when ripe, pulp green to deep red, 1–2-seeded. Seeds ellipsoid, plano-convex, 6–13 mm long, smooth, glabrous.
707	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules dispersed by other animals (externally)? No] Fruit an ellipsoid berry 1–2.5 cm long, purple when ripe, pulp green to deep red, 1–2-seeded. Seeds ellipsoid, plano-convex, 6–13 mm long, smooth, glabrous. [no means of external attachment]
708	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Propagules survive passage through the gut? Yes] Seeds are dispersed by animals.
801	2012. WRA Specialist. Personal Communication.	[Prolific seed production (>1000/m2)? Unknown]
802	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Evidence that a persistent propagule bank is formed (>1 yr)? No] The seeds have high moisture content and lose viability easily under ambient conditions and on storage.
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown]
804	2007. Bethwell, O.O.. Acokanthera schimperi (A. DC.) Schweinf. [Internet] (Accessed Ocotber 5 2012). PROTA (Plant Resources of Tropical Africa/ Ressources vegetales de l'Afrique tropicale), Wageningen, Netherlands http://www.prota4u.org/protav8.asp?g=pe&p	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] Acokanthera schimperi can be pruned and pollarded in intercropping systems.
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

Summary of Risk Traits

High Risk

- Native to tropical regions
- Can adapt to broad environmental conditions
- Toxic to animals (used as a poison in native region)
- Toxic to humans (seeds and fruit when unripe)
- Tolerates a wide range of soils (facilitates germination and establishment)
- Reproduces by seed
- Non-specific pollinators (not pollinator limited)
- Dispersed locally by humans
- Animal and bird dispersed (seed can travel long-distances from parent plant)
- Tolerates pruning – coppices

Low Risk

- Not naturalized
- Not known as a weed elsewhere (not widely cultivated though)
- No spines, thorns, burrs (easier to control/remove)
- Parts are medicinal (not unripe fruit or seeds)
- Doesn't have a persistent seed bank