

**Family:** *Fabaceae*

**Taxon:** *Brownea coccinea*

**Synonym:** *Brownea capitella*  
*Brownea latifolia*

**Common Name:** Mountain Rose  
Scarlet Flame Bean

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Chuck Chimera	<b>Designation:</b> L(Hawai'i)
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Chuck Chimera	<b>WRA Score</b> -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	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	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	n
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	
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	n
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	n
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	y
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	y
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	
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	
708	Propagules survive passage through the gut	y=1, n=-1	
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: L(Hawai'i)

WRA Score -5

## Supporting Data:

101	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	No evidence that this species is highly domesticated.
201	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Continuously distributed along the western cordilleras and coastal lowlands of Ecuador, Colombia, Venezuela, and in the interior of Venezuela
202	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Continuously distributed along the western cordilleras and coastal lowlands of Ecuador, Colombia, Venezuela, and in the interior of Venezuela
203	2003. Llamas, K. A.. Tropical Flowering Plants. Timber Press, Portland, OR	Zones 10-11
204	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Continuously distributed along the western cordilleras and coastal lowlands of Ecuador, Colombia, Venezuela, and in the interior of Venezuela
205	2004. Dominica Botanic Gardens. Brownea coccinea. Dominica Academy of Arts and Sciences, <a href="http://www.dacademy.org/dagardens_brownea1.html">http://www.dacademy.org/dagardens_brownea1.html</a>	Origin and Distribution: Native to tropical America, and now distributed variously in tropics and sub-tropics
205	2010. Flowers of India. Scarlet Flame Bean. Flowers of India, <a href="http://www.flowersofindia.net/catalog/slides/Scarlet%20Flame%20Bean.html">http://www.flowersofindia.net/catalog/slides/Scarlet%20Flame%20Bean.html</a>	Scarlet Flame Bean is native to tropical America, and now cultivated in India, among many tropical countries.
301	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a weed on a list of Cultivated and/or Exotic Plants in Central Africa [but no other references to indicate tree has become naturalized or invasive anywhere]
302	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a weed on a list of Cultivated and/or Exotic Plants in Central Africa [but no other references to indicate tree has become naturalized or invasive anywhere]
303	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a weed on a list of Cultivated and/or Exotic Plants in Central Africa [but no other references to indicate tree has become naturalized or invasive anywhere]
304	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a weed on a list of Cultivated and/or Exotic Plants in Central Africa [but no other references to indicate tree has become naturalized or invasive anywhere]
305	2007. Randall, R.. Global Compendium of Weeds. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Listed as a weed on a list of Cultivated and/or Exotic Plants in Central Africa [but no other Brownea species listed as naturalized or invasive]
401	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Tree or slender shrub, height 5-11(-30) m. Cortex with or without marked by scars from old inflorescences. Leaves with rachis compressed, with several longitudinal furrows or with 4 longitudinal furrows, with sparse corky lenticels, glabrous or +/- tomentose; petiole glabrous or tomentose; rachis + petiole (5-)10-35(-45) cm long. [no spines, thorns or burrs]
402	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	No evidence of allelopathy from native range
402	1998. Riffle, R. L.. The Tropical Look. An Encyclopedia of Dramatic Landscape Plants.. Timber Press, Portland, OR	Ornamental with no indication of allelopathy in landscape
403	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Tree or slender shrub, height 5-11(-30) m. [not a parasite]
404	2010. WRA Specialist. Personal Communication.	Palatability to grazing animals unknown [although probably palatable based on information from other species]
405	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	No evidence of toxicity in genus
406	2010. WRA Specialist. Personal Communication.	Pathogens of Brownea coccinea unknown

407	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	No evidence of toxicity or allergenic properties towards humans
407	1998. Riffle, R. L.. The Tropical Look. An Encyclopedia of Dramatic Landscape Plants.. Timber Press, Portland, OR	No evidence of toxicity or allergenic properties towards humans
408	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	In Ecuador, Colombia, and the humid parts of Venezuela <i>B. coccinea</i> grows in understorey rain forest (terra firme, igapo, and varzea forests), often along rivers. In the drier parts of Venezuela it grows in riverine forests. It often forms stands. [rainforest habitat suggests tree will not carry fire or increase fire hazard]
409	1999. Stebbins, M.. Flowering Trees of Florida. Pineapple Press Inc., Sarasota, FL.	Brownea grows in semi-shaded or shaded areas
409	2003. Llamas, K. A.. Tropical Flowering Plants. Timber Press, Portland, OR	Part sun, bright filtered light.
409	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	They require shade, protection from drying winds, and fertile, moist soil in order to thrive.
409	2006. Kenny, J.. Flowers of Trinidad and Tobago. Prospect Press, Port of Spain	a small tree that is common in moist forests growing in dense shade in both the Northern and Central Ranges.
410	1999. Stebbins, M.. Flowering Trees of Florida. Pineapple Press Inc., Sarasota, FL.	prefers enriched soil with plenty of heat and moisture
410	2003. Llamas, K. A.. Tropical Flowering Plants. Timber Press, Portland, OR	Fertile, well-drained soil; acid pH.
411	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Tree or slender shrub, height 5-11(-30) m. [does not have limbing or smothering growth habit]
412	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	It often forms stands [but unknown whether stands inhibit other vegetation]
501	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Terrestrial tree
502	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Fabaceae
503	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Fabaceae
504	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Tree or slender shrub, height 5-11(-30) m. [not a geophyte]
601	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	No evidence of substantial reproductive failure in native habitat [although seed production outside native range may be limited]
602	1999. Stebbins, M.. Flowering Trees of Florida. Pineapple Press Inc., Sarasota, FL.	Brownea is propagated from seed or cuttings. The seed is as rare as the trees themselves.
602	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	The pods, rarely formed in Hawaii, are flat, woody, and dehiscent at maturity.
603	2010. WRA Specialist. Personal Communication.	Ability to hybridize unknown
604	2010. WRA Specialist. Personal Communication.	Self-compatibility unknown

605	1895. von Marilaun, A. K.. The natural history of plants: their forms, growth, reproduction, and distribution, Volume 2. Blackie and Son, London, UK.	Brownea...whose flowers are so constructed that their honey can hardly be obtained except by the hovering hummingbird...
605	1997. Warren, J. W., D. Z. Emamdie, and K. S. Shanmugam. Reproductive Allocation and Pollinator Distributions in Cauliflorus Trees in Trinidad. Journal of Tropical Ecology. 13: 337-345.	mountain rose was observed to be visited by long-tongued Euglossine bees and hummingbirds.
605	2005. Staples, G. W. and D. R. Herbst. A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Mountain rose flowers attract hummingbirds, as well as many insects
606	1999. Stebbins, M.. Flowering Trees of Florida. Pineapple Press Inc., Sarasota, FL.	Brownea is propagated from seed or cuttings. [no evidence of reproduction by vegetative fragmentation]
607	2004. Dominica Botanic Gardens. Brownea coccinea. Dominica Academy of Arts and Sciences, <a href="http://www.dacademy.org/dagardens_brownea1.html">http://www.dacademy.org/dagardens_brownea1.html</a>	A hardy, slow-growing, specimen ornamental
607	2010. Flowers of India. Scarlet Flame Bean. Flowers of India, <a href="http://www.flowersofindia.net/catalog/slides/Scarlet%20Flame%20Bean.html">http://www.flowersofindia.net/catalog/slides/Scarlet%20Flame%20Bean.html</a>	Scarlet Flame Bean is a slow-growing, small tree from tropical America with large heads of orange-red flowers [probably flowers after 3+ years]
701	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [large weeds, with no means of external attachment, unlikely to be dispersed unintentionally]
702	2003. Llamas, K. A.. Tropical Flowering Plants. Timber Press, Portland, OR	Planted as an ornamental
703	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [no evidence of produce contamination, and large weeds unlikely to contaminate produce]
704	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [large pods & seeds with no adaptations for wind dispersal]
705	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	In Ecuador, Colombia, and the humid parts of Venezuela B. coccinea grows in understorey rain forest (terra firme, igapo, and varzea forests), often along rivers. In the drier parts of Venezuela it grows in riverine forests. [distribution along rivers suggests seeds or pods may be water dispersed]
706	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [no evidence of bird dispersal, & not fleshy-fruited]
707	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [possibly dispersed by rodents. See Lopez & Terborgh (2007)]
707	2007. Lopez,, L. and J. Terborgh. Seed predation and seedling herbivory as factors in tree recruitment failure on predator-free forested islands. Journal of Tropical Ecology. 23: 129–137.	Preferences of the five rodent species were quite variable, although most species preferred seeds of Brownea, Gustavia and Duguetia (Table 5). [rodents primarily act as predators, rather than dispersers, but seed caching and dispersal is possible. Table 1 of Lopez & Terborgh (2007) lists "Arboreal Mammal" as Dispersal Mode for this species]]
708	1991. Klitgaard, B. B.. Ecuadorian Brownea and Browneopsis (Leguminosae- Caesalpinioideae) : Taxonomy, palynology , and morphology. Nordic Journal Of Botany. 11: .	Mature pods 10-20 X 4-5 cm; seeds 25-30 X 20-30 X 5-6 mm. [unknown if they survive passage through the gut]
708	1998. Norconk, M. A., B. W. Grafton and N. L. Conklin-Brittain. Seed Dispersal by Neotropical Seed Predators. American Journal of Primatology. 45: 103–126.	Variation in nutrient value (water-soluble carbohydrates, crude protein, lipids) of seeds ingested by bearded sakis (Chirotopes satanas) and white faced sakis (Pithecia pithecia) in Venezuela. [list of seeds ingested includes Brownea coccinea, unlikely seeds survive since they are being consumed for food]
801	1999. Stebbins, M.. Flowering Trees of Florida. Pineapple Press Inc., Sarasota, FL.	Brownea is propagated from seed or cuttings. The seed is as rare as the trees themselves.

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802	2010. WRA Specialist. Personal Communication.	Longevity of soil seed bank unknown
803	2010. WRA Specialist. Personal Communication.	Herbicide control methods unknown [no information for control of this species found]
804	2010. WRA Specialist. Personal Communication.	Ability to tolerate, or benefit from, mutilation, cultivation, or fire unknown
805	2010. WRA Specialist. Personal Communication.	Unknown whether effective natural enemies are present locally

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