

Family: *Urticaceae*

Taxon: *Pellionia repens*

Synonym: *Polychroa repens* Lour. (basionym)
Elatostema repens (Lour.) Hallier f.

Common Name: trailing watermelon begonia
tu yan hua

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: L
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	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	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	n	
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		
411	Climbing or smothering growth habit	y=1, n=0	n	

412	Forms dense thickets	y=1, n=0	n
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	y
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	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	n
708	Propagules survive passage through the gut	y=1, n=-1	
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	
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	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	[Is the species highly domesticated? No] "Native to a wide area in southern China, Southeast Asia, and the Malay Peninsula, <i>E. repens</i> is a variable species that has been scientifically described more than once in different parts of its range." [No evidence]
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Species suited to tropical or subtropical climate(s) 2-high] "[Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam]."
201	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	[Species suited to tropical or subtropical climate(s) 2-high] "Native to a wide area in southern China, Southeast Asia, and the Malay Peninsula, <i>E. repens</i> is a variable species that has been scientifically described more than once in different parts of its range."
202	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Quality of climate match data 2-high] "[Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam]."
203	2011. Missouri Botanical Garden. Kemper Center for Home Gardening PlantFinder - <i>Pellionia repens</i> . http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=B593	[Broad climate suitability (environmental versatility)? No] "Zone: 10 to 12"
204	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Native or naturalized in regions with tropical or subtropical climates? Yes] "[Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam]."
205	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	[Does the species have a history of repeated introductions outside its natural range? Yes] "Three varieties are recognized, based on leaf shape and coloration, and all appear to be present in Hawaii."
205	2007. Randall, R.P.. The introduced flora of Australia & its weed status. CRC for Australian Weed Management, Glen Osmond, Australia	[Does the species have a history of repeated introductions outside its natural range? Yes]
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Naturalized beyond native range? No] No evidence
301	2005. Wagner, W.L./Herbst, D.R./Lorence, D.H.. Flora of the Hawaiian Islands website. Smithsonian Institution, Washington, D.C. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/index.htm	[Naturalized beyond native range? No evidence in Hawaiian islands]
301	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Naturalized beyond native range? No] No evidence in <i>Pellionia</i> or <i>Elatostema</i>
301	2007. Randall, R.P.. The introduced flora of Australia & its weed status. CRC for Australian Weed Management, Glen Osmond, Australia	[Naturalized beyond native range? No] No evidence in Australia
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No] No evidence
303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Agricultural/forestry/horticultural weed? No] No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Environmental weed? No] No evidence

305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] <i>Elatostema flumineo-rupestre</i> listed as naturalized. No species listed under <i>Pellionia</i>
401	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Produces spines, thorns or burrs? No] "Herbs or subshrubs, without stinging hairs." [Genus description]
402	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	[Allelopathic? No] No evidence [Popular cultivated plant with no indication that it might be allelopathic]
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? Probably No] No indication that this plant possesses allelopathic properties
403	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Parasitic? No] "Herbs perennial, monoecious or dioecious. Stems prostrate, usually branched, terete, pubescent or glabrescent." [Urticaceae]
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2011. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Toxic to animals? No] No evidence
406	2011. Missouri Botanical Garden. Kemper Center for Home Gardening PlantFinder - <i>Pellionia repens</i> . http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=B593	[Host for recognized pests and pathogens? No] "No serious insect or disease problems."
407	2011. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Causes allergies or is otherwise toxic to humans? No] No evidence
408	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Creates a fire hazard in natural ecosystems? No] "Valley forests, dark damp places on rocks; 800-1100 m." [No evidence, and unlikely]
408	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	[Creates a fire hazard in natural ecosystems? No] "...stems succulent, slightly corky with age." [No evidence]
409	1990. Le Gouallec, J.L./Cornic, G./Blanc, P.. Relations Between Sunfleck Sequences and Photoinhibition of Photosynthesis in a Tropical Rain Forest Understory Herb. American Journal of Botany. 77(8): 999-1006.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "We report the photosynthetic characteristics of a C3 shade plant native to the tropical rain forest understory. It was shown that <i>Elatostema repens</i> Lour. (Hall) f. (Urticaceae) presents a large light adjustment capacity"
409	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Valley forests, dark damp places on rocks; 800-1100 m."
409	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	[Is a shade tolerant plant at some stage of its life cycle? Yes] " <i>Pellionia</i> is used as a ground cover under trees or shrubs or grown in shade house floors under the benches."
410	2000. Rauch, F.D./Weissich, P.R.. Plants for tropical landscapes: a gardener's guide. University of Hawaii Press, Honolulu, HI	[Tolerates a wide range of soil conditions? Unknown] "It is best in a well-drained, moist soil in partial shade."
410	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	[Tolerates a wide range of soil conditions? Unknown] "It requires shade or filtered sun and a loamy potting soil or organically enriched, porous soil."
410	2011. WRA Specialist. Personal Communication.	[Tolerates a wide range of soil conditions? Unknown] Most references discuss soils used for cultivation as house plants, and do not refer to field conditions

411	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	[Climbing or smothering growth habit? No] "Creeping herb to 2' long; stems succulent, slightly corky with age."
412	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Forms dense thickets? No] No evidence
412	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	[Forms dense thickets? No] No evidence
501	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Aquatic? No] "Valley forests, dark damp places on rocks; 800-1100 m." [Terrestrial]
502	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Grass? No] "Herbs perennial, monoecious or dioecious. Stems prostrate, usually branched, terete, pubescent or glabrescent. Leaves alternate; stipules triangular, 4-10 × 2-5 mm; petiole 1.5-5 mm; leaf blade papery, obliquely elliptic or obovate, 1.8-11 × 1.2-4.0 cm, major lateral veins asymmetric, one basal, the other arising above base, broader outer half auriculate, margin undulate, undulate-crenate or nearly entire, apex obtuse, rounded or hebetate; cystoliths conspicuous, dense; nanophylls ovate or nearly linear, ca. 1 mm. Staminate inflorescences 0.6-3 cm in diam., peduncle 2-14 cm; staminate flowers: tepals 5, broadly elliptic or elliptic; stamens 5; rudimentary pistil subulate. Pistillate inflorescences ca. 3 mm in diam., sessile; pistillate flowers: tepals 5. Achenes ovoid or ellipsoidal..." [Urticaceae]
503	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Nitrogen fixing woody plant? No] Urticaceae
504	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Geophyte? No]
601	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Produces viable seed? Yes] "Achenes ovoid or ellipsoidal, tuberculate."
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Self-compatible or apomictic? Unknown] "Herbs perennial, monoecious or dioecious."
605	1994. Zomlefer, W.B.. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	[Requires specialist pollinators? No] "The minute, reduced flowers of the family often are well adapted to anemophily."
605	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Requires specialist pollinators? No] "Staminate inflorescences 0.6-3 cm in diam., peduncle 2-14 cm; staminate flowers: tepals 5, broadly elliptic or elliptic; stamens 5; rudimentary pistil subulate. Pistillate inflorescences ca. 3 mm in diam., sessile; pistillate flowers: tepals 5." [Floral morphology does not suggest need for specialized pollinators]
606	2002. Brickell, C./Cole, T.J.. The American Horticultural Society Encyclopedia of plants & flowers. DK Publishing, New York, NY	[Reproduction by vegetative fragmentation? Probably yes] "Evergreen, creeping perennial with rooting stems."
606	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	[Reproduction by vegetative fragmentation? Probably yes] "Propagation is easiest from stem cuttings, which root readily."

607	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Minimum generative time (years)? Unknown] "Herbs perennial, monoecious or dioecious. Stems prostrate, usually branched, terete, pubescent or glabrescent." [No information on time to reproductive maturity. As a herb, P. repens probably reaches maturity in <4 years]
701	2011. WRA Specialist. Personal Communication.	[Propagules likely to be dispersed unintentionally? Probably No] "Achenes ovoid or ellipsoidal, tuberculate." [Seeds with no means of external attachment, and not likely to be
702	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	[Propagules dispersed intentionally by people? Yes] "Pellionia is uses as a ground cover under trees or shrubs or grown in shade house floors under the benches."
703	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to disperse as a produce contaminant? No] No evidence
703	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	[Propagules likely to disperse as a produce contaminant? No] No evidence
704	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules adapted to wind dispersal? No] "Achenes ovoid or ellipsoidal, tuberculate." [No evidence of adaptations for wind dispersal]
705	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules water dispersed? Possibly] "Valley forests, dark damp places on rocks" [Seeds may potentially be moved by water]
706	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules bird dispersed? No] "Achenes ovoid or ellipsoidal, tuberculate." [Not fleshy-fruited, and with no apparent adaptations for bird dispersal]
707	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules dispersed by other animals (externally)?] "Achenes ovoid or ellipsoidal, tuberculate." [No evidence, and no means of external attachment]
708	2011. WRA Specialist. Personal Communication.	[Propagules survive passage through the gut? Unknown] Seeds unlikely to be consumed
801	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Prolific seed production (>1000/m ²)? Unknown] "Herbs perennial, monoecious or dioecious. Stems prostrate, usually branched, terete, pubescent or glabrescent. Leaves alternate; stipules triangular, 4-10 × 2-5 mm; petiole 1.5-5 mm; leaf blade papery, obliquely elliptic or obovate, 1.8-11 × 1.2-4.0 cm, major lateral veins asymmetric, one basal, the other arising above base, broader outer half auriculate, margin undulate, undulate-crenate or nearly entire, apex obtuse, rounded or hebetate; cystoliths conspicuous, dense; nanophylls ovate or nearly linear, ca. 1 mm. Staminate inflorescences 0.6-3 cm in diam., peduncle 2-14 cm; staminate flowers: tepals 5, broadly elliptic or elliptic; stamens 5; rudimentary pistil subulate. Pistillate inflorescences ca. 3 mm in diam., sessile; pistillate flowers: tepals 5. Achenes ovoid or ellipsoidal, tuberculate." [Probably not, given size of plants]
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species.
804	2011. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]