

Family: *Papaveraceae*

Taxon: *Hunnemannia fumariifolia*

Synonym: *Common Name* goldencup
Mexican tulip poppy
tulip-poppy

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: L
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 3
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	y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	y
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	
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	n
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	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	n
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	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
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 3

Supporting Data:

101	2009. Sosa, V./Ruiz-Sanchez, E./Rodriguez-Gomez, F.C.. Hidden phylogeographic complexity in the Sierra Madre Oriental: the case of the Mexican tulip poppy <i>Hunnemannia fumariifolia</i> (Papaveraceae). <i>Journal of Biogeography</i> . 36: 18–27.	<i>Hunnemannia fumariifolia</i> has a variable morphology, varying mainly in the size of the plants and the depth of the indentation of leaves. Small plants with deeply incised leaves have been considered a different species (<i>H. hintoniorum</i> , Nesom, 1992); however, these traits are variable at the population level and are not limited to a geographic area. [no evidence that this species is highly domesticated]
201	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	A monotypic genus of Mexico
202	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Highly suited to subtropical climates [a monotypic genus of Mexico]
203	2010. Dave's Garden. PlantFiles: Goldencup, Mexican Tulip Poppy. Dave's Garden, http://davesgarden.com/guides/pf/go/1302/	Hardiness: USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)
204	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Naturalized and relatively common along Pi'ilani Highway in remnant dry woodland, 550-575 m, Maui."
204	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	"native to the highlands of Mexico, where it inhabits rocky and stony habitats and roadsides, mainly at altitudes of 1500-2000 m (4900-6600 ft)."
205	1995. Spencer, R.. <i>Horticultural Flora of South Eastern Australia Volume 2: Flowering Plants</i> . UNSW Press, Sydney, Australia	Introduced and cultivated in Australia
205	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Introduced and cultivated in Hawaii
205	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	Introduced and cultivated in California
205	2003. Pienaar, K.. <i>South African 'What Flower Is That?'</i> . Struik, Cape Town, South Africa	Introduced and cultivated in South Africa
301	1999. Wagner, W. L./Herbst, D. R./Sohmer, S. H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Naturalized and relatively common along Pi'ilani Highway in remnant dry woodland, 550-575 m, Maui."
301	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	"In California, where <i>H. fumariifolia</i> is commonly cultivated, the species has become locally naturalized."
302	1995. Spencer, R.. <i>Horticultural Flora of South Eastern Australia Volume 2: Flowering Plants</i> . UNSW Press, Sydney, Australia	"This plant has some weed potential."
302	2008. Benitez, D.M./Belfield, T./Loh, R./Pratt, L./Christie, A.D.. <i>Inventory of Vascular Plants of the Kahuku Addition, Hawaii Volcanoes National Park</i> . Technical Report 157. Pacific Cooperative Studies Unit, Honolulu, HI	Appendix C. Invasive Alien Plants Encroaching on Kahuku [Hawaii Volcanoes National Park, includes <i>H. fumariifolia</i> , but with description of impacts]
303	2007. Randall, R.P.. <i>Global Compendium of Weeds - <i>Hunnemannia fumariifolia</i></i> . Hawaii Ecosystems at Risk Project (HEAR), http://www.hear.org/gcw/species/hunnemannia_fumariifolia/	No evidence that <i>H. fumariifolia</i> is a weed of agriculture, forestry, or horticulture.
304	2007. Randall, R.P.. <i>Global Compendium of Weeds - <i>Hunnemannia fumariifolia</i></i> . Hawaii Ecosystems at Risk Project (HEAR), http://www.hear.org/gcw/species/hunnemannia_fumariifolia/	Naturalized in Hawaii and California, but no evidence for or description of adverse environmental impacts

305	1992. Nesom, G.L.. A second species of <i>Hunnemannia</i> (Papaveraceae) and synopsis of the genus. <i>Phytologia</i> . 73 (4): 330-337.	Abstract: A second species of the previously monotypic genus <i>Hunnemannia</i> is described: <i>H. hintoniolum</i> . The new species apparently is a rare gypsophile restricted to a small area of Nuevo Leon, Mexico. <i>Hunnemannia fumariifolia</i> is much more common and ranges from Nuevo Leon and Coahuila south to Oaxaca. A synopsis of the genus is presented, including a species key and distribution map. <i>Hunnemannia</i> apparently is the sister taxon of <i>Eschscholzia</i> , which has its native range primarily restricted to California and areas immediately adjacent to it. [new species of <i>Hunnemannia</i> with restricted range and no evidence of invasiveness]
305	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.	A monotypic genus of Mexico [no congeneric weeds]
401	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.	"Erect perennial herbs 5-6 dm tall, becoming somewhat woody at base. Leaves glaucous, ca. 6-17 cm long, the lobes 2-5 mm wide." [no spines, thorns or burrs]
402	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.	No evidence of allelopathic effects
403	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.	"Erect perennial herbs 5-6 dm tall, becoming somewhat woody at base." [not parasitic]
404	2004. Atascadero Mutual Water Company. Water-Conserving Plants for North County Landscapes. http://www.slobg.org/WaterConservingPlants/AMWCPlantListWeb.pdf	Listed as having Deer Resistance [but unknown if plant is unpalatable to other animals]
405	1986. Brossi, A./Helmuth, R./Manske, F.. The Alkaloids: Chemistry and pharmacology. Academic Press, Orlando, FL	Unknown [<i>H. fumariifolia</i> contains a number of alkaloids but no documentation of toxicity to animals reported]
406	2003. Tenenbaum, F.. Taylor's encyclopedia of garden plants. Houghton Mifflin Harcourt, New York, NY	No evidence that <i>H. fumariifolia</i> is an important host of pests or pathogens
407	2000. Grey-Wilson, C.. Poppies: a guide to the poppy family in the wild and in cultivation. Timber Press, Portland, OR	No evidence of toxicity [although a poppy with alkaloids, so effects of accidental or intentional ingestion are unknown]
407	2003. Tenenbaum, F.. Taylor's encyclopedia of garden plants. Houghton Mifflin Harcourt, New York, NY	Popular ornamental with no evidence of allergenic properties or accidental poisonings
408	2000. Grey-Wilson, C.. Poppies: a guide to the poppy family in the wild and in cultivation. Timber Press, Portland, OR	No evidence that this plant increase fire hazards
409	2000. Grey-Wilson, C.. Poppies: a guide to the poppy family in the wild and in cultivation. Timber Press, Portland, OR	"Plants thrive best in a well-drained, rather light, soil in a sunny position"
409	2003. Pienaar, K.. South African 'What Flower Is That?'. Struik, Cape Town, South Africa	"These plant require a warm position in full sun."
410	2010. Dave's Garden. PlantFiles: Goldencup, Mexican Tulip Poppy. Dave's Garden, http://davesgarden.com/guides/pf/go/1302/	Soil pH requirements: 6.6 to 7.5 (neutral)
411	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.	"Erect perennial herbs 5-6 dm tall, becoming somewhat woody at base." [No climbing or smothering growth habit]
412	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.	No evidence that <i>H. fumariifolia</i> forms dense thickets that impede movement or exclude other vegetation [an erect perennial herb]

501	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.	Terrestrial poppy
502	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.	Papaveraceae [not a grass]
503	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.	Papaveraceae [not a nitrogen fixing woody plant]
504	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.	Not a geophyte
601	2009. Sosa, V./Ruiz-Sanchez, E./Rodriguez-Gomez, F.C.. Hidden phylogeographic complexity in the Sierra Madre Oriental: the case of the Mexican tulip poppy <i>Hunnemannia fumariifolia</i> (Papaveraceae). <i>Journal of Biogeography</i> . 36: 18–27.	No evidence of substantial reproductive failure in native habitat
602	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	"plants are so readily raised from seed"
603	1992. Nesom, G.L.. A second species of <i>Hunnemannia</i> (Papaveraceae) and synopsis of the genus. <i>Phytologia</i> . 73 (4): 330-337.	Abstract: A second species of the previously monotypic genus <i>Hunnemannia</i> is described: <i>H. hintoniiorum</i> . The new species apparently is a rare gypsophile restricted to a small area of Nuevo Leon, Mexico. <i>Hunnemannia fumariifolia</i> is much more common and ranges from Nuevo Leon and Coahuila south to Oaxaca. A synopsis of the genus is presented, including a species key and distribution map. <i>Hunnemannia</i> apparently is the sister taxon of <i>Eschscholzia</i> , which has its native range primarily restricted to California and areas immediately adjacent to it. [no evidence of hybridization between species]
603	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.	Monospecific genus
603	2010. WRA Specialist. Personal Communication.	No evidence of intergeneric hybridization documented in literature
604	2010. WRA Specialist. Personal Communication.	Unknown if plants are self-compatible or apomictic
605	1979. Clark, C.. Ultraviolet absorption by flowers of the <i>Eschscholziaceae</i> (Papaveraceae). <i>Madrono</i> . 26 (1): 22-25.	"all the species studied seem to be generalists, being pollinated by a variety of insects, including bees, beetles, and flies." [list of species studied includes <i>H. fumariifolia</i>]
606	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	"plants are so readily raised from seed" [no evidence of reproduction by vegetative fragmentation]
607	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	"The Tulip poppy is a choice perennial commonly grown in gardens as a half-hardy annual. Plants flower readily from seed in their first year."
701	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.	"relatively common along Piilani Highway in remnant dry woodland...seed of this species was sown on a grave near the end of Ulupalakua Road in 1920 and by 1922 the plant had begun to spread" [suggests seeds are being moved in soil along roadway]
702	2000. Grey-Wilson, C.. <i>Poppies: a guide to the poppy family in the wild and in cultivation</i> . Timber Press, Portland, OR	Grown ornamentally
703	2010. WRA Specialist. Personal Communication.	No evidence that this species has become a produce contaminant
704	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.	No mechanisms for wind-dispersal [probably gravity dispersed, or dispersed short distances in strong winds]

705	1978. Clark, C./Jernstedt, J.A.. Systematic Studies of Eschscholzia (Papaveraceae). II. Seed Coat Microsculpturing. Systematic Botany. 3 (4): 386-402.	seed morphology provides "evidence of seed flotation as an adaptation to runoff dispersal in some species" [description of Eschscholzia species, but same publication states that Hunnemannia "seeds are substantially larger than those of any of the Eschscholzia species"; possibly water dispersed, but no direct evidence found]
706	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.	"Fruit a capsule, dehiscent by 2 valves from base upward. Seeds numerous, subglobose, rugose." [not fleshy-fruited, no adaptation for bird dispersal]
707	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.	Seeds with no adaptations or means of external attachment [no evidence of external dispersal by animals]
708	2010. WRA Specialist. Personal Communication.	Unknown if seeds survive passage through gut [although unlikely to be consumed by animals]
801	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.	"Erect perennial herbs 5-6 dm tall" [seed production unknown]
802	2008. Liu, K./Eastwood, R. J./Flynn, S./Turner, R. M./Stuppy, W. H.. Seed Information Database (release 7.1, May 2008). http://www.kew.org/data/sid	Storage Behaviour: Orthodox Storage Conditions: Seeds maintained for 2 years in commercial storage conditions (Priestley, 1986); long-term storage under IPGRI preferred conditions at RBG Kew, WP. Oldest collection 15 years; germination change 97 to 100%, 15 years, 1 collection [suggests persistent seed bank will form, but no evidence from field conditions]
803	2010. WRA Specialist. Personal Communication.	Unknown [No information found on control of this species with herbicides]
804	2010. WRA Specialist. Personal Communication.	Unknown [no information found on ability to tolerate or benefit from mutilation, cultivation, or fire]