

**Family:** *Asteraceae*

**Taxon:** *Bellis perennis*

**Synonym:** *Aster bellis* E.H.L.Krause  
*Bellis alpina* Hegetschw.

**Common Name:** common daisy  
daisy  
English daisy  
perennial daisy

**Questionnaire :** current 20090513      **Assessor:** Assessor      **Designation:** H(HPWRA)  
**Status:** Assessor Approved      **Data Entry Person:** Assessor      **WRA Score** 13

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)	Low
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	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)	
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	n
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	
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	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	y
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	2
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	y
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
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	y
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	n
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 13

## Supporting Data:

101	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Is the species highly domesticated? No. Assessment of wild type] "By the Elizabethan period, several double flowering varieties of the English daisy had been introduced into English gardens (Le Strange 1977). Today, the cultivated varieties of <i>B. perennis</i> , treasured as ornamentals, are those that have been bred for size and in colors that range from white to purple to red. They come in both single- and double-flowered forms (Hatfield 1969; Hyam and Pankhurst 1995) and often are treated as an annual for winter-spring bloom in hot-summer areas. It is considered an edging or low bedding plant, being especially captivating with spring bulbs (Sunset Books 1979)."
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
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.	[Species suited to tropical or subtropical climate(s) 0-Low] "Native to Europe" [temperate]
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.	[Quality of climate match data? 2-High]
203	2013. Backyard Gardener. <i>Bellis perennis</i> . <a href="http://www.backyardgardener.com/plantname/pda_8c17.html">http://www.backyardgardener.com/plantname/pda_8c17.html</a> [Accessed 14 Dec 2013]	[Broad climate suitability (environmental versatility)? Yes. 5 hardiness zones] "USDA Hardiness Zone: 4 to 8"
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.	[Native or naturalized in regions with tropical or subtropical climates? Yes. High elevation subtropical climate] "in Hawaii sparingly naturalized in high elevation, mesic areas on Kauai and perhaps Hawaii. Cultivated on Kauai as early as 1933..."
205	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Does the species have a history of repeated introductions outside its natural range? Yes] "While English daisy is native to Europe and western Asia (Hatfield 1969), it is now distributed in England, Germany, Iraq, Spain, Yugoslavia, Chile, New Zealand, and the U.S. (Holm et al. 1979). It was introduced to the U.S. as an ornamental and also with grass seed"
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 beyond native range? Yes] "in Hawaii sparingly naturalized in high elevation, mesic areas on Kauai and perhaps Hawaii. Cultivated on Kauai as early as 1933..."
301	2013. Queensland Government. Weeds of Australia - Common daisy - <i>Bellis perennis</i> . <a href="http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm">http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm</a> [Accessed 14 Dec 2013]	[Naturalized beyond native range? Yes] "Naturalised Distribution - Naturalised is south-eastern Australia (i.e. mainly in southern Victoria and Tasmania). Possibly also naturalised in south-western Western Australia, south-eastern South Australia and in southern New South Wales. Naturalised overseas in New Zealand, northern USA (including Alaska) and Hawaii."
302	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. <i>Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons</i> . Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Garden/amenity/disturbance weed? Yes] "B. <i>perennis</i> is an extremely common lawn weed and its stoloniferous habit allows it to form dense patches."
302	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Garden/amenity/disturbance weed? Yes] "The English daisy, <i>Bellis perennis</i> L., is a widespread lawn weed and a bane to those who favor daisy-free lawns and golf courses" ... "A perennial, it infests lawns, pastures, and waste places. Although confined chiefly in the Pacific Northwest, it also occurs locally in the northeastern states and southward (Muenscher 1948). In its range, it is one of the most common plants of short turf and lawns and meadows, and similar grassy places (Clapham et al. 1962; Le Strange 1977)." ... "Heavy infestations frequently occur in lime-deficient lawns. The plant has the ability to manufacture lime, thus making it a troublesome weed. In the past, a lawn control recommendation was to dig out all the plants with a plantain lifter, filling the small holes with a mixture of soil and grass seed (De Bray 1978)."
303	2007. DiTomaso, J.. <i>Weeds of California and Other Western States, Volume 1</i> . UCANR Publications, Oakland, CA	[Agricultural/forestry/horticultural weed? No] "It is often a weed of turf and grassy areas."

304	2006. Cal-IPC. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council, Berkeley, CA <a href="http://www.cal-ipc.org">www.cal-ipc.org</a>	[Environmental weed? No evidence] "Present along trails, not known to spread into undisturbed areas"
304	2013. Queensland Government. Weeds of Australia - Common daisy - <i>Bellis perennis</i> . <a href="http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm">http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm</a> [Accessed 14 Dec 2013]	[Environmental weed? Minor weed] "This species is regarded as a minor environmental weed in Victoria and Tasmania. It is mostly a weed of lawns, footpaths, roadsides, waste areas and pastures but also spreads into natural areas (e.g. stream banks, seepages, sand dunes and grasslands). It has been found growing in conservation areas in Victoria (e.g. Yarra Bend Park and Morwell National Park) and Tasmania (i.e. Tasman National Park and Sarah Island Reserve), and has also recently spread to alpine areas in Victoria."
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No evidence]
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.	[Produces spines, thorns or burrs? No] "Fibrous-rooted perennial herbs, &#177; pubescent with spreading hairs. Leaves elliptic to obovate, 3-8 cm long, 0.5-2 cm wide, margins entire, denticulate, or serrulate, petioles 1-4 cm long."
402	2012. Scognamiglio, M./Esposito, A./D'Abrosca, B. et al.. Isolation, distribution and allelopathic effect of caffeic acid derivatives from <i>Bellis perennis</i> L.. <i>Biochemical Systematics and Ecology</i> . 43: 108-113.	[Allelopathic? Possibly Yes] "Our study evidenced a potential allelopathic role of caffeic acid derivatives from <i>B. perennis</i> based on inhibitory (e.g. <i>D. hispanica</i> ) or stimulatory (e.g. <i>A. geniculata</i> ) effects on wild coexisting species growth. The detection of most of the metabolites in the soil supports the hypothesis of their contribution in modulating plant community composition. A possible interference of these compounds against other coexisting organisms, such as insects, herbivores, fungi, bacteria, etc., is also supposable. In fact, many secondary metabolites are utilized by plants to face different enemies and to make sure their survival."
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.	[Parasitic? No] "Fibrous-rooted perennial herbs..." [Asteraceae]
404	1993. Wink, M./Hofer, A./Bilfinger, M./Englert, E./Martin, M./Schneider, D.. Geese and dietary allelochemicals—food palatability and geophagy. <i>Chemoecology</i> . 4(2): 93-107.	[Unpalatable to grazing animals? Palatable to geese at certain stages] "The palatability of plants was studied in young, immature and adult geese of three species, <i>Anser anser</i> , <i>Anser indicus</i> and <i>Branta canadensis</i> , with respect to secondary plant metabolites."
404	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Unpalatable to grazing animals?] "The English daisy has an acrid secretion in its foliage that makes it unpalatable to insects (Hatfield 1969)."
404	2000. Diaz, A.. Can plant palatability trials be used to predict the effect of rabbit grazing on the flora of ex-arable land?. <i>Agriculture, Ecosystems &amp; Environment</i> . 78(3): 249-259.	[Unpalatable to grazing animals? Palatable to rabbits] "Table 3 The total number of plants of each species that were nibbled by rabbits (maxD20 per plot)" [ <i>Bellis perennis</i> - Mean = 2.6 ±1.26 plants nibbled per plot]
404	2010. Kuiters, A.T./Huiskes, H.P.J.. Potential of endozoochorous seed dispersal by sheep in calcareous grasslands: correlations with seed traits. <i>Applied Vegetation Science</i> . 13: 163–172.	[Unpalatable to grazing animals? Presumably palatable to sheep] "Table 2. List of species that germinated from the sheep dung samples (n524) collected at five calcareous grassland sites in the Netherlands between Sep 2005 and Nov 2007." ... "Species encountered with ≤ 5 seedlings in the samples: <i>Bellis perennis</i> , ..."
405	2001. Knight, A.P./Walter, R.G.. A guide to plant poisoning of animals in North America. Teton NewMedia, Jackson, WY	[Toxic to animals? No evidence]
405	2013. Cornell University. Plants Poisonous to Livestock and other Animals. Department of Animal Science, <a href="http://www.ansci.cornell.edu/plants/index.html">http://www.ansci.cornell.edu/plants/index.html</a>	[Toxic to animals? No evidence] "...research indicates that sarsaponins might actually be beneficial to rumen digestion. Other plants containing saponins include Christmas Rose ( <i>Helleborus niger</i> ), Horse Chestnut trees ( <i>Aesculus hippocastanum</i> ), Asparagus fern ( <i>Asparagus officinalis</i> ), and Daisies ( <i>Bellis perennis</i> )"
405	2013. WRA Specialist. Personal Communication.	[Toxic to animals? No evidence] Palatability of plants to a variety of animals gives no evidence of acute toxicity
406	1978. Pirone, P.P.. Diseases and Pests of Ornamental Plants. John Wiley & Sons, New York	[Host for recognized pests and pathogens? No] " <i>Bellis perennis</i> (English Daisy). This host is subject to few diseases and to no insects of importance. A blight caused by the fungus <i>Botrytis cinerea</i> has been reported from Alaska. Leaf spots caused by <i>Septoria bellidis</i> and a species of <i>Cercospora</i> , and root rots caused by <i>Pythium mastophorum</i> and <i>Phymatotrichum omnivorum</i> , are other fungus diseases of English daisy. Aster yellows, caused by a mycoplasma-like organism, also infects this host occasionally."
406	2011. The Royal Horticultural Society. <i>Bellis perennis</i> . <a href="http://apps.rhs.org.uk/plantselector/plant?plantid=231">http://apps.rhs.org.uk/plantselector/plant?plantid=231</a> [Accessed 14 Dec 2013]	[Host for recognized pests and pathogens?] "Pests - Generally pest free" ... "Diseases - May be infected by a rust"

407	2013. Plants for a Future Database. <i>Bellis perennis</i> . <a href="http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis">http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis</a> [Accessed 14 Dec 2013]	[Causes allergies or is otherwise toxic to humans? No evidence] "Known Hazards - None known"
407	2013. University of California. Safe and Poisonous Garden Plants - Toxic Plants (by common name). <a href="http://ucanr.edu/sites/poisonous_safe_plants/Toxicof_skin_with_soap_and_water_as_soon_as_possible_after_contact._Plants_by_common_Name_659/">http://ucanr.edu/sites/poisonous_safe_plants/Toxicof_skin_with_soap_and_water_as_soon_as_possible_after_contact._Plants_by_common_Name_659/</a> [Accessed 16 Dec 2013]	[Causes allergies or is otherwise toxic to humans? Possibly to susceptible individuals] "Bellis perennis - Toxicity class = 4 Dermatitis: The juice, sap, or thorns of these plants may cause a skin rash or irritation. Wash the affected area of skin with soap and water as soon as possible after contact. The rashes may be very serious and painful. Call the Poison Control Center or your doctor if symptoms appear following contact with the plants."
408	2012. Zimmer, H./Cheal, D./Cross, E.. Post-fire Weeds Triage Manual: Black Saturday Victoria 2009 – Natural values fire recovery program. Department of Sustainability and Environment, Heidelberg, Victoria	[Creates a fire hazard in natural ecosystems? No evidence. A post-fire invader] "Weed group name and example" ... "Post fire response: Commonly increase in the post-fire environment, by seed or vegetative means. Likely to successfully compete with indigenous species, and be persistent in the recovering bush (resprout and seed)."
409	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "In bright sunlight, the leaves press down on the surrounding soil or vegetation, but in shady and moist situations, the internodes tend to lengthen and the leaves bend upwards"
410	2011. The Royal Horticultural Society. <i>Bellis perennis</i> . <a href="http://apps.rhs.org.uk/plantselector/plant?plantid=231">http://apps.rhs.org.uk/plantselector/plant?plantid=231</a> [Accessed 14 Dec 2013]	[Tolerates a wide range of soil conditions ? Yes] "Soil Well-drained or Moist but well-drained Acid, Alkaline or Neutral Chalk, Clay, Sand or Loam"
410	2011. Weed Man. Weeds – knowing the Enemy. <a href="http://www.weed-man-lawn-services.co.uk/lawn/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/">http://www.weed-man-lawn-services.co.uk/lawn/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/</a> [Accessed 16 Dec 2013]	[Tolerates a wide range of soil conditions ? Yes] " The Daisy will grow in any soil conditions and especially in closely mown turf."
411	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. <i>Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons</i> . Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Climbing or smothering growth habit? No] "Stoloniferous rosette perennial."
412	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. <i>Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons</i> . Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Forms dense thickets? Possibly] "B. perennis is an extremely common lawn weed and its stoloniferous habit allows it to form dense patches. The sp. is also cultivated and selected forms with coloured ligules and semi-double heads are occasionally found wild. "
501	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. <i>Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons</i> . Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Aquatic? No] "Mostly in lawns and pastures especially in wetter areas, also waste places, forest margins and clearings, stream banks, seepages, cultivated land, dunes and tussock grassland. "
502	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.	[Grass? No] Asteraceae
503	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.	[Nitrogen fixing woody plant? No] Asteraceae
504	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.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Fibrous-rooted perennial herbs, ± pubescent with spreading hairs. Leaves elliptic to obovate, 3-8 cm long, 0.5-2 cm wide, margins entire, denticulate, or serrulate, petioles 1-4 cm long. Heads solitary on scapes 5-15 (-20) cm long; involucre bracts usually ca. 13, 4-6 mm long; ray florets numerous, rays white, ca. 1 cm long; disk corollas yellow"
601	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Evidence of substantial reproductive failure in native habitat? No evidence]
602	2007. DiTomaso, J.. <i>Weeds of California and Other Western States, Volume 1</i> . UCANR Publications, Oakland, CA	[Produces viable seed? Yes] "Reproduces vegetatively from rhizomes and by seed."

603	2013. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown. No evidence of hybridization found]
604	1957. Fryxell, P.A.. Mode of Reproduction of Higher Plants. Botanical Review. 23(3): 135-233.	[Self-compatible or apomictic? Yes] "VI. Tabulation of Modes of Reproduction" ... "Bellis perennis - Mode of reproduction = C" ... " C denotes principally self-fertilized (autogamous) species"
604	2013. Plants for a Future Database. Bellis perennis. <a href="http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis">http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis</a> [Accessed 14 Dec 2013]	[Self-compatible or apomictic? Yes] "The plant is self-fertile."
605	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Requires specialist pollinators? No evidence] "Capitula 15-25 mm diam. At anthesis; receptacle conic. Involucral bracts ovate- to elliptic-oblong, usually obtuse, rarely subacute, sparsely to moderately hairy. Ray florets in 1-(5) rows; ligules linear, white, often tinged pink to reddish purple on lower surface or at apex, rarely wholly pink to reddish purple, 5-8-(11) mm long. Disc florets yellow."
605	2013. Plants for a Future Database. Bellis perennis. <a href="http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis">http://www.pfaf.org/user/Plant.aspx?LatinName=Bellis+perennis</a> [Accessed 14 Dec 2013]	[Requires specialist pollinators? No] "The flowers are hermaphrodite (have both male and female organs) and are pollinated by Bees, flies, beetles,"
605	2013. Shoot Gardening. Bellis perennis (Daisy). <a href="http://www.shootgardening.co.uk/plant/bellis-perennis">http://www.shootgardening.co.uk/plant/bellis-perennis</a> [Accessed 14 Dec 2013]	[Requires specialist pollinators? No] "They are a useful nectar source for many solitary bees and flies."
606	1997. Mitich, L.W.. English Daisy (Bellis perennis L.). Weed Technology. 11(3): 626-628.	[Reproduction by vegetative fragmentation? Yes] "While pretty, the English daisy is a persistent weed that spreads by short stolons (Tutin et al. 1976)."
606	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. UCANR Publications, Oakland, CA	[Reproduction by vegetative fragmentation? Yes] "Under certain conditions, plants form clonal mats from short rhizomes." ... "Under favorable conditions, rhizome fragments can generate new plants."
607	2013. Shoot Gardening. Bellis perennis (Daisy). <a href="http://www.shootgardening.co.uk/plant/bellis-perennis">http://www.shootgardening.co.uk/plant/bellis-perennis</a> [Accessed 14 Dec 2013]	[Minimum generative time (years)? 2+] "2-5 years To maturity"
701	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. UCANR Publications, Oakland, CA	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "Achenes fall near the parent plant and disperse to greater distances with soil movement, mud, landscape maintenance, animal and human foot traffic, and possibly as a grass seed contaminant."
702	1997. Mitich, L.W.. English Daisy (Bellis perennis L.). Weed Technology. 11(3): 626-628.	[Propagules dispersed intentionally by people? Yes] "It was introduced to the U.S. as an ornamental and also with grass seed."
703	1997. Mitich, L.W.. English Daisy (Bellis perennis L.). Weed Technology. 11(3): 626-628.	[Propagules likely to disperse as a produce contaminant? Yes] "It was introduced to the U.S. as an ornamental and also with grass seed."
703	2013. Cumo, C.M.. Encyclopedia of Cultivated Plants: From Acacia to Zinnia. ABC-CLIO, LLC, Santa Barbara, CA	[Propagules likely to disperse as a produce contaminant? Yes] "The seed, which is only around one-twentieth of an inch long, can also be included, accidentally, as part of a grass seed mixture and thus distributed along with grass seed."
704	1997. Mitich, L.W.. English Daisy (Bellis perennis L.). Weed Technology. 11(3): 626-628.	[Propagules adapted to wind dispersal? Yes] "The achenes are linear, about 2 mm long, finely striate, and yellow brown in color; the pappus is bristly. Seeds are dispersed by wind, normally just around the parent plant"
705	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand <a href="http://FloraSeries.LandcareResearch.co.nz">http://FloraSeries.LandcareResearch.co.nz</a>	[Propagules water dispersed? Probably moved by water. Found along stream banks] "Mostly in lawns and pastures especially in wetter areas, also waste places, forest margins and clearings, stream banks, seepages, cultivated land, dunes and tussock grassland. "
705	2010. Wingecarribee Shire Council. Weeds Fact Sheet: English or Lawn Daisy - Bellis perennis. <a href="http://www.wsc.nsw.gov.au/uploads/786/noxiousweedsfactsheet.pdf">http://www.wsc.nsw.gov.au/uploads/786/noxiousweedsfactsheet.pdf</a>	[Propagules water dispersed? Yes] "The plant will disperse a large number of highly fertile seed that are then inadvertently spread by animals, wind, water and humans." ... "Lawn Daisy escapees invading drainage gutter. Means of spread are typically from storm water runoff and lawn mowers."
705	2013. Queensland Government. Weeds of Australia - Common daisy - Bellis perennis. <a href="http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm">http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Bellis_perennis.htm</a> [Accessed 14 Dec 2013]	[Propagules water dispersed? Yes] "...also spreads into natural areas (e.g. stream banks, seepages, sand dunes and grasslands)."
706	1997. Mitich, L.W.. English Daisy (Bellis perennis L.). Weed Technology. 11(3): 626-628.	[Propagules bird dispersed? Yes, but probably externally] "...the fruits are often distributed to a distance in mud, by birds, and also by ants (Hatfield 1969; Le Strange 1977; Muenscher 1948; Salisbury 1961)."

707	1997. Mitich, L.W.. English Daisy ( <i>Bellis perennis</i> L.). <i>Weed Technology</i> . 11(3): 626-628.	[Propagules dispersed by other animals (externally)? Yes] "...the fruits are often distributed to a distance in mud, by birds, and also by ants (Hatfield 1969; Le Strange 1977; Muenscher 1948; Salisbury 1961)."
708	2010. Kuiters, A.T./Huiskes, H.P.J.. Potential of endozoochorous seed dispersal by sheep in calcareous grasslands: correlations with seed traits. <i>Applied Vegetation Science</i> . 13: 163–172.	[Propagules survive passage through the gut? Yes] "Table 2. List of species that germinated from the sheep dung samples (n524) collected at five calcareous grassland sites in the Netherlands between Sep 2005 and Nov 2007." ... "Species encountered with ≤ 5 seedlings in the samples: <i>Bellis perennis</i> , ..."
801	2007. DiTomaso, J.. <i>Weeds of California and Other Western States</i> , Volume 1. UCANR Publications, Oakland, CA	[Prolific seed production (>1000/m <sup>2</sup> )? Possibly. Small-seeded] "Achenes lanceolate, 1-1.5 mm long, flattened..."
801	2008. Mahady, M.. Successful Control of English Lawn Daisy ( <i>Bellis perennis</i> ). Pp 41-43 in <i>Proceedings of the 60th Conference of the California Weed Science Society</i> . <a href="http://www.cwss.org/proceedings2008.html">http://www.cwss.org/proceedings2008.html</a>	[Prolific seed production (>1000/m <sup>2</sup> )? Possibly Yes. Numbers unknown] "English daisy also appears to be a prolific seed producer."
802	1986. Roberts, H.A.. Seed Persistence in Soil and Seasonal Emergence in Plant Species from Different Habitats. <i>Journal of Applied Ecology</i> . 23(2): 639-656.	"TABLE 1. Seedling emergence up to 31 December of the year of sowing (initial) and in subsequent calendar years" [ <i>Bellis perennis</i> emerged for 4 years]
802	2007. DiTomaso, J.. <i>Weeds of California and Other Western States</i> , Volume 1. UCANR Publications, Oakland, CA	[Evidence that a persistent propagule bank is formed (>1 yr)? Possibly] "Seeds generally appear to be short-lived under field conditions, but have been reported to be long-lived in at least one pasture situation."
803	2008. Mahady, M.. Successful Control of English Lawn Daisy ( <i>Bellis perennis</i> ). Pp 41-43 in <i>Proceedings of the 60th Conference of the California Weed Science Society</i> . <a href="http://www.cwss.org/proceedings2008.html">http://www.cwss.org/proceedings2008.html</a>	[Well controlled by herbicides? Yes] "Penoxsulam is an exceptional new tool for English daisy control in cool season turfgrasses. California registration is expected during the summer of 2008."
803	2011. Weed Man. Weeds – knowing the Enemy. <a href="http://www.weed-man-lawn-services.co.uk/lawn-care/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/">http://www.weed-man-lawn-services.co.uk/lawn-care/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/</a> [Accessed 16 Dec 2013]	[Well controlled by herbicides? Yes] "It is relatively easy to remove the plant by hand weeding, but the most effective control will be gained by application of herbicides if the weed infests large portions of the lawn. The active ingredients: 2,4-D, MCPA with dicamba or Mecoprop-P will control this weed, although repeated application may be required for total eradication."
804	2011. Weed Man. Weeds – knowing the Enemy. <a href="http://www.weed-man-lawn-services.co.uk/lawn-care/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/">http://www.weed-man-lawn-services.co.uk/lawn-care/lawn-facts/problems-and-solutions/weeds-knowing-the-enemy/</a> [Accessed 16 Dec 2013]	[Tolerates, or benefits from, mutilation, cultivation, or fire? No. Mechanical control is effective] "The Control of daisy is easy and need no allow for this weed to spread and become a nuisance. It is relatively easy to remove the plant by hand weeding, but the most effective control will be gained by application of herbicides if the weed infests large portions of the lawn."
805	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.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] "in Hawaii sparingly naturalized in high elevation, mesic areas on Kauai and perhaps Hawaii. Cultivated on Kauai as early as 1933..."

## **Summary of Risk Traits**

### **High Risk / Undesirable Traits**

- Broad climate suitability (5 hardiness zones)
- Widely naturalized
- An common lawn weed
- Possibly allelopathic
- Sap can cause dermatitis
- Tolerates many soil types
- Shade tolerant
- Self-compatible
- Spreads vegetatively
- Starts to spread vegetatively after 2 years
- Seeds easily dispersed by wind, water, sticking to animals, vehicles & people and as a seed contaminant
- Forms a persistent seed bank

### **Low Risk Traits**

- Grows in temperate climates & may be restricted to higher elevations in tropical island ecosystems
- Palatable to grazing animals
- Non-toxic
- Ornamental bedding plant
- Can be controlled mechanically & with herbicides