Family: ***Onagraceae***

Taxon: ***Ludwigia sedoides***

Synonym: *Ludwigia sedioides (Humb. & Bonpl.) H.Harc*
Jussiaea sedoides Humb. & Bonpl.

Common Name: mosaic flower
false loosestrife

Questionaire : current 20090513 **Assessor:** Assessor **Designation:** H(HPWRA)
Status: Assessor Approved **Data Entry Person:** Data **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)**	**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)**	**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)**	
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**y**
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**	**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**	
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**	

412	**Forms dense thickets**	**y=1, n=0**	
501	**Aquatic**	**y=5, n=0**	**y**
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**	
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**	
702	**Propagules dispersed intentionally by people**	**y=1, n=-1**	**y**
703	**Propagules likely to disperse as a produce contaminant**	**y=1, n=-1**	
704	**Propagules adapted to wind dispersal**	**y=1, n=-1**	**n**
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**	
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: H(HPWRA) **WRA Score** **13**

Supporting Data:

101	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Is the species highly domesticated? No] No evidence
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Species suited to tropical or subtropical climate(s) 2-High] "In quiet water. Cuba and Jamaica, Guatemala, Honduras and El Salvador, Panama, Colombia to Guiana, Brazil and Bolivia."
202	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Quality of climate match data 2-High]
203	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Broad climate suitability (environmental versatility)? No] "In quiet water. Cuba and Jamaica, Guatemala, Honduras and El Salvador, Panama, Colombia to Guiana, Brazil and Bolivia." [Restricted to aquatic tropical conditions]
204	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "In quiet water. Cuba and Jamaica, Guatemala, Honduras and El Salvador, Panama, Colombia to Guiana, Brazil and Bolivia."
205	2007. Wagner, W.L./Hoch, P.C./Raven, P.H.. Revised Classification of the Onagraceae. Systematic Botany Monographs. 83: 1-240.	[Does the species have a history of repeated introductions outside its natural range? Yes] "Ludwigia sedoides is widely cultivated for its attractive leaves and aquatic habit,"
205	2011. Azan, S.S.E.. Invasive aquatic plants and the aquarium and ornamental pond industries. MSc Thesis. Ryerson University, Toronto, Canada	[Does the species have a history of repeated introductions outside its natural range? Yes] "Appendix 9: Biological information for aquatic plants sold by aquarium and ornamental pond industries"
301	2007. Veldkamp, J.F.. Ludwigia sedoides (Onagraceae) in Malesia. Flora Malesiana Bulletin. 14(1/2): 27-29.	[Naturalized beyond native range? Yes] "This paper describes the results of a nomenclature survey and diagnosis of the morphology, anatomy, distribution and habit of L. sedoides collected from a number of places in Malaysia during 2005. An extract from a 1987 survey and diagnosis is provided to describe the species."
301	2009. Chong, K.Y./Tan, H.T.W./Corlett, R.T.. A Checklist of the Total Vascular Plant Flora of Singapore: Native, Naturalized and Cultivated Species. Raffles Museum of Biodiversity Research, National University of Singapore, Singapore	[Naturalized beyond native range? No evidence from Singapore] "Ludwigia sedioides (Humb. & Bonpl.) H. Hara; Onagraceae; cultivated only"
301	2009. Wijesundera, S.. Major invasive plant species in different climatic zones of Sri Lanka. Pp 15-21 in Proceedings of National Symposium on Invasive Alien Species. Sri Lanka Association for the Advancement of Science, Colombo, Sri Lanka	[Naturalized beyond native range? Yes] "Myriophyllum aquaticum which is native to South America and Ludwigia sedoides which has a native distribution in Brazil and Venezuela also show predominant distribution in aquatic ecosystems replacing other submerged plants."
301	2012. Yakandawala, D.. Present Status of Fresh Water Aquatic Flora in Sri Lanka. In Weerakoon, D.K. & S. Wijesundara (eds). The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka	[Naturalized beyond native range? Yes] "Apart from these invasives, several other plants could be identified as naturalized aquatics in local water bodies, notably Vallisnaria spirallis L., Egeria densa Planch. And Cabomba caroliniana A.Gray. Yakandawala and Yakandawala (2007) reported three other additions Ludwigia sedioides (Humb. & Bonpl.) H.Hara, Mayaca fluviatilis Aubl. And Echinodorus spp., found in the local water bodies in the Western Province of Sri Lanka. All three plants are popular aquatics in aquariums and landscaping." … "Further three plant species, Ludwigia sedioides, Mayaca fluviatilis, and Echinodorus spp., are identified as potential invasive plants in the country (Yakandawala and Yakandawala, 2007)."
301	2013. Missouri Botanical Gardens. Ludwigia sedoides. http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a627/ludwigia-sedoides.aspx [Accessed 02 May 2013]	[Naturalized beyond native range?] "Uses: Rain Garden, Suitable as Annual, Water Plant, Will Naturalize"
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	2011. Karunaratne, W.A.I.P.. Researches - Investigation of Ludwigia sedioides as a potential invasive aquatic plant in the wet zone. Ministry of Environment and Renewable Energy, Battaramulla.Sri Lanka http://www.environmentmin.gov.lk	[Environmental weed? No, but there is concern this plant may become invasive in the future] "Ludwigia sedioides L. commonly known as Mosaic flower, is an herbaceous perennial plant native to South America. According to NAQDA it is listed under ornamental aquatics, which are being propagated and exported. A recent study conducted revealed the Ludwigia sedioides L. has spread rapidly and invaded several water bodies in Gampaha District . Therefore this research conducts an extensive survey in the western province and document the occurrence of Ludwigia sedioides and the extent of spread, and also to study the mode of spread and potential allelopathic effect in order to provide information to prevent the spread and also to implement management programmes if in case, this plant become invasive plant in the aquatic ecosystems in future."
305	2009. Okada, M./Grewell, B.J./Jasieniuk, M.. Clonal spread of invasive Ludwigia hexapetala and L. grandiflora in freshwater wetlands of California. Aquatic botany. 91(3): 123-129.	[Congeneric weed? Yes] "Ludwigia hexapetala and L. grandiflora are recent, aggressive invaders of freshwater wetlands in California (Cal-IPC, 2006; Wagner et al., 2007; B. Grewell, D. Canington, and J. Futrell, unpublished data). The emergent aquatic perennial plants are found in slow-flowing rivers, at lake and reservoir margins, and in the shallow waters of canals and floodplains. Dense stands have degraded natural communities, reduced water quality and floodwater retention, and prevented effective mosquito control. L. hexapetala is currently expanding its range in both northern and southern California whereas, to date, L. grandiflora has only been found in the San Diego River and associated wetlands"
401	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Produces spines, thorns or burrs? No] "Floating herb; stems slender, green, quite glabrous, rooting freely at nodes, with long quite naked branches and leaves crowded in terminal rosettes; petioles somewhat flattened, often reddish, glabrous or somewhat strigose beneath, 1-9 cm. long; leaf blades rhombic-ovate, rather thick, acute at base, more obtuse at apex, crenate-serrate in upper half, minutely glandular-punctate, glabrous and shining above, finely strigose beneath, 5-20 mm. long and wide, with ca. 6 inconspicuous veins on each side of midrib and no submarginal vein"
402	2011. Karunaratne, W.A.I.P.. Researches - Investigation of Ludwigia sedioides as a potential invasive aquatic plant in the wet zone. Ministry of Environment and Renewable Energy, Battaramulla.Sri Lanka http://www.environmentmin.gov.lk	[Allelopathic? Unknown] "Therefore this research conducts an extensive survey in the western province and document the occurrence of Ludwigia sedioides and the extent of spread, and also to study the mode of spread and potential allelopathic effect in order to provide information to prevent the spread and also to implement management programmes if in case, this plant become invasive plant in the aquatic ecosystems in future."
403	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Parasitic? No] No evidence
404	2013. Dave's Garden. PlantFiles: False Loosestrife, Mosaic Plant - Ludwigia sedoides. http://davesgarden.com/guides/pf/go/56895/ [Accessed 02 May 2013]	[Unpalatable to grazing animals? Unknown] "The stems are very brittle, a koi will eat anything in the water, and you end up with little pieces of mosaic plant everywhere except in the pot." [Palatable to fish]
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No] No evidence
405	2013. Dave's Garden. PlantFiles: False Loosestrife, Mosaic Plant - Ludwigia sedoides. http://davesgarden.com/guides/pf/go/56895/ [Accessed 02 May 2013]	[Toxic to animals? No] "...if you have koi or goldfish in your pond, they can tear it up. The stems are very brittle, a koi will eat anything in the water, and you end up with little pieces of mosaic plant everywhere except in the pot. If you have no fish, it is a nice addition." [No evidence]
406	2013. Missouri Botanical Gardens. Ludwigia sedoides. http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a627/ludwigia-sedoides.aspx [Accessed 02 May 2013]	[Host for recognized pests and pathogens? No] "Problems - No serious insect or disease problems. Susceptible to leaf spot and rust."
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] No evidence
408	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Creates a fire hazard in natural ecosystems? No] "Floating herb"

409	2013. Horticopia Inc.. Ludwigia sedioides - False Loosestrife, Mosiac Plant. http://www.horticopia.com/hortpix/html/ludsed000.htm [Accessed 02 May 2013]	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Partial shade or partial sun to full sun"
409	2013. NParks Flora&FaunaWeb. Ludwigia sedioides. National Parks Board, Singapore https://florafaunaweb.nparks.gov.sg/special-pages/plant-detail.aspx?id=2203 [Accessed 01 May 2013]	[Is a shade tolerant plant at some stage of its life cycle?] "Light Preference: Full Sun, Semi-Shade"
410	2013. NParks Flora&FaunaWeb. Ludwigia sedioides. National Parks Board, Singapore https://florafaunaweb.nparks.gov.sg/special-pages/plant-detail.aspx?id=2203 [Accessed 01 May 2013]	[Tolerates a wide range of soil conditions? No] "Aquatic herbaceous shrub. Found in standing pools of water with leaves floating on surface, or growing in very swampy wet soils."
411	1998. Heckman, C.W.. The Pantanal of Poconé: Biota and Ecology in the Northern Section of the World's Largest Pristine Wetland. Kluwer Academic Publishers, Dordrecht, The Netherlands	[Climbing or smothering growth habit? Unknown] "Ludwigia sedoides is a typical species of the floodplain aggregation during the period of flooding, which sometimes becomes dominant in small areas."
412	1998. Heckman, C.W.. The Pantanal of Poconé: Biota and Ecology in the Northern Section of the World's Largest Pristine Wetland. Kluwer Academic Publishers, Dordrecht, The Netherlands	[Forms dense thickets? Unknown] "During the subsequent rainy season, the formerly dominant plant species do not rapidly return, and other aquatic plants, such as Pontederia lanceolata or Ludwigia sedoides, come to dominate the habitats. After a number of relatively wet years, the Eichornia azurea and Salvinia auriculata may regenerate and become dominant again, but if several relatively dry years occur in sequence, still other species may infiltrate the aquatic community."
501	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Aquatic? Yes] "Floating herb"
501	2004. Leady, B.S./Rentch, J.. Aquatic plant community composition and distribution along an inundation gradient at two ecologically-distinct sites in the Pantanal region of Brazil. Wetlands Ecology and Management. 12(6): 575-585..	[Aquatic? Yes] "Rooted emergents tended to occur in the more shallow zones nearest the shoreline. For example, the rooted species, e.g., Ludwigia sedoides and Cabomba piauhyensis, were restricted to the most shallow end of the depth gradient."
502	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Grass? No] Onagraceae
504	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Floating herb"
601	2013. Dave's Garden. PlantFiles: False Loosestrife, Mosaic Plant - Ludwigia sedoides. http://davesgarden.com/guides/pf/go/56895/ [Accessed 02 May 2013]	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Produces viable seed? Yes] "capsule narrowly obconic, 4-angled, glabrous, 10-13 mm. long, 3 mm. wide at summit, sometimes without median nerve on each face; seeds brown, shining, narrowly obovoid, curved at apex, ca. 0.6 mm. long, with inconspicuous raphe."
602	2013. NParks Flora&FaunaWeb. Ludwigia sedioides. National Parks Board, Singapore https://florafaunaweb.nparks.gov.sg/special-pages/plant-detail.aspx?id=2203 [Accessed 01 May 2013]	[Produces viable seed? Yes] "Propagation Method : Seed, Stem Cutting, Division"
603	2007. Wagner, W.L./Hoch, P.C./Raven, P.H.. Revised Classification of the Onagraceae. Systematic Botany Monographs. 83: 1-240.	[Hybridizes naturally? Unknown] "Despite the different ploidy levels, all of the species, except for the tetraploid L. spathulata, form natural hybrids in most combinations. Most hybrids are quite sterile, but may persist vegetatively." [No direct evidence of L. sedioides hybridization provided]
604	1979. Ramamoorthy, T.P.. A Sectional Revision of Ludwigia Sect. Myrtocarpus S. Lat. (Onagraceae). Annals of the Missouri Botanical Garden. 66(4): 893-896.	[Self-compatible or apomictic? Possibly] "It is probably mainly self-pollinating, since the anthers surround the stigma, but I have no direct information on this point."
605	1979. Ramamoorthy, T.P.. A Sectional Revision of Ludwigia Sect. Myrtocarpus S. Lat. (Onagraceae). Annals of the Missouri Botanical Garden. 66(4): 893-896.	[Requires specialist pollinators? Probably No] "It is probably mainly self-pollinating, since the anthers surround the stigma, but I have no direct information on this point."

606	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Reproduction by vegetative fragmentation? Yes] "Floating herb; stems slender, green, quite glabrous, rooting freely at nodes"
607	2011. Azan, S.S.E.. Invasive aquatic plants and the aquarium and ornamental pond industries. MSc Thesis. Ryerson University, Toronto, Canada	[Minimum generative time (years)? Unknown] "Growth rate - Moderate"
701	2012. Yakandawala, D.. Present Status of Fresh Water Aquatic Flora in Sri Lanka. In Weerakoon, D.K. & S. Wijesundara (eds). The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka	[Propagules likely to be dispersed unintentionally ? Possibly] "Apart from these invasives, several other plants could be identified as naturalized aquatics in local water bodies, notably Vallisnaria spirallis L., Egeria densa Planch. And Cabomba caroliniana A.Gray. Yakandawala and Yakandawala (2007) reported three other additions Ludwigia sedioides (Humb. & Bonpl.) H.Hara, Mayaca fluviatilis Aubl. and Echinodorus spp., found in the local water bodies in the Western Province of Sri Lanka. All three plants are popular aquatics in aquariums and landscaping." [May have been inadvertently spread into aquatic environments through dumping of aquarium plants]
702	2007. Wagner, W.L./Hoch, P.C./Raven, P.H.. Revised Classification of the Onagraceae. Systematic Botany Monographs. 83: 1-240.	[Propagules dispersed intentionally by people? Yes] "Ludwigia sedoides is widely cultivated for its attractive leaves and aquatic habit,"
702	2011. Azan, S.S.E.. Invasive aquatic plants and the aquarium and ornamental pond industries. MSc Thesis. Ryerson University, Toronto, Canada	[Propagules dispersed intentionally by people? Yes] "Appendix 9: Biological information for aquatic plants sold by aquarium and ornamental pond industries" [Sold as a water garden plant]
703	2013. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? Unknown]
704	2013. NParks Flora&FaunaWeb. Ludwigia sedioides. National Parks Board, Singapore https://florafaunaweb.nparks.gov.sg/special-pages/plant-detail.aspx?id=2203 [Accessed 01 May 2013]	[Propagules adapted to wind dispersal? No] "Seed / Spore Dispersal : Abiotic (Water; Explosive Dehiscence)"
705	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Propagules water dispersed? Yes] "Floating herb; stems slender, green, quite glabrous, rooting freely at nodes" … "In quiet water"
706	1959. Munz, P.A.. Flora of Panama. Part VII. Fascicle IV. Annals of the Missouri Botanical Garden. 46,(3): 195-256.	[Propagules bird dispersed? Unknown] "capsule narrowly obconic, 4-angled, glabrous, 10-13 mm. long, 3 mm. wide at summit, sometimes without median nerve on each face; seeds brown, shining, narrowly obovoid, curved at apex, ca. 0.6 mm. long, with inconspicuous raphe." [Not fleshy fruited, although it may be possible that seeds or stem fragments could adhere to legs or feathers of aquatic birds. Birds may also consume and pass viable seeds]
706	2002. Green, A. J./Figuerola, J./Sánchez, M.I.. Implications of waterbird ecology for the dispersal of aquatic organisms. Acta oecologica. 23(3): 177-189..	[Propagules bird dispersed? Unknown. Related species consumed and dispersed by ducks] "Blue-winged teal (Anas discors) on spring migration through Missouri consumed seeds from 28 genera, totalling 35% of aggregate gullet mass and with 55–100% of gullets containing spike rush (Eleocharis) seeds and 55–70% containing floating primrose willow (Ludwigia repens), rice-cut grass (Leersia oryzoides) or Panicum grass seeds (Taylor, 1978). "
707	1978. Eyde, R.H.. Reproductive Structures and Evolution in Ludwigia (Onagraceae). II. Fruit and Seed. Annals of the Missouri Botanical Garden. 65(2): 656-675.	[Propagules dispersed by other animals (externally)? Unknown] "Salisbury (1972) observed, for instance, that L. palustris fruits can float for months, presumably because of intercellular spaces in septal radii. Seeds of this species can germinate in groups within the floating fruit or individually after the fruit has ruptured, suggesting to Salisbury the possibility of secondary dispersal in mud sticking to birds' feet." [Seeds of related aquatic species may adhere to mud on birds' feet]
708	1968. DeVlaming, V./Proctor, V.W.. Dispersal of Aquatic Organisms: Viability of Seeds Recovered from the Droppings of Captive Killdeer and Mallard Ducks. American Journal of Botany. 55(1): 20-26.	[Propagules survive passage through the gut? Unknown] "TABLE 2. Maximum retention time for viable seed" [Viable seeds of a related species Ludwigia alternifolia passed through aquatic waterbirds. Unknown for L. sedioides]
708	1994. Conceicao de Souza-Stevaux, M./Negrelle, R.R.B./Citadini-Zanette, V.. Seed Dispersal by the Fish Pterodoras granulosus in the Parana River Basin, Brazil. Journal of Tropical Ecology. 10(4): 621-626.	[Propagules survive passage through the gut? Unknown] "Table 2. Number of analysed stomachs in which plant families (Ff) and species (F,p) were represented by seeds." [Seeds of unspecified Ludqigia species found in stomachs of fish. Viability not reported]
801	2011. Azan, S.S.E.. Invasive aquatic plants and the aquarium and ornamental pond industries. MSc Thesis. Ryerson University, Toronto, Canada	[Prolific seed production (>1000/m2)? Unknown] "Appendix 9: Biological information for aquatic plants sold by aquarium and ornamental pond industries" [Ludwigia sedioides - No. of seeds produced = many]

802	1998. Heckman, C.W.. The Pantanal of Poconé: Biota and Ecology in the Northern Section of the World's Largest Pristine Wetland. Kluwer Academic Publishers, Dordrecht, The Netherlands	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "The plants are able to survive in nearly dry soil after the flood waters have receded, and the vegetative plants can persist into the following year if the rains come soon enough to prevent their complete desiccation. Otherwise, new plants growing from seed replace the old ones." [Seed longevity unknown, but adult plants may persist for a while]
803	2002. Chandrasena, N./Pinto, L./Sim, R.. Reclaiming Botany Wetlands, Sydney through integrated management of Ludwigia peruviana and other weeds. Pp 8-13 in Thirteenth Australian Weeds Conference. Plant Protection Society of WA, Victoria Park, WA	[Well controlled by herbicides? Unknown. Related species effectively controlled with herbicides] "Although both herbicides were effective against L. peruviana, repeat applications were required to control infestations in all ponds. The success of herbicide treatments enabled a progressive vegetation change, in favour of native macrophytes. Some transient herbicide damage to macrophytes was inevitable during treatments, but their recovery was spectacular in most areas."
804	2013. NParks Flora&FaunaWeb. Ludwigia sedioides. National Parks Board, Singapore https://florafaunaweb.nparks.gov.sg/special-pages/plant-detail.aspx?id=2203 [Accessed 01 May 2013]	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown] "Do not grow in water bodies with fishes in it. Brittle stems easily broken up by fishes."
805	2013. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents) Unknown]

Summary of Risk Traits

High Risk / Undesirable Traits

- Naturalized in Sri Lanka and Malaysia
- Thrives in tropical climates
- Related species have become invasive
- May be spread by seeds and vegetative fragments
- Dispersed by water, people, and possibly birds
- Limited ecological information may limit accuracy of risk assessment

Low Risk / Desirable Traits

- Non-toxic
- Landscaping and ornamental value