GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Tradescantia fluminensis***

Tradescantia fluminensis 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Commelinales	Commelinaceae

Common name wandering creeper (English, USA), nohakata karakusa (Japanese, Japan), Vandrande Jude (German, Germany), white flowered wandering Jew (English, USA), small-leaf spiderwort (English, USA), wandering Jew (English, International), wandering Willie (English, New Zealand), spiderwort (English, Russia)

Synonym *Tradescantia albiflora* , (Kunth)

Similar species *Dichorisandra spp., Tradescantia zebrina, Tradescantia crassula, , Callisia spp.*

Summary Tradescantia fluminensis is endemic to the tropical rainforests of south east Brazil and has naturalised in New Zealand, south-eastern Australia, Portugal, Italy, Russia, Japan and the south-eastern USA. T. fluminensis is a persistent invasive weed of natural areas where it carpets the ground and prevents native regeneration. It alters litter decomposition, nutrient cycling and the successional trajectory of New Zealand lowland podocarp-broadleaf forests and probably native vegetation elsewhere. T. fluminensis propagates and spreads easily from fragments.

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Species Description
Tradescantia fluminensis has broadly ovate to oblong-lanceolate leaves arranged alternately on thin (2–3mm diameter) weakly ascending (or pendant) leafy shoots up to 60cm tall that grade into leafless stems with roots at the nodes. Glabrous leaves are 1.5–12 x 1–3.5cm, variable, with acute to acuminate tips, dark green or flushed purple beneath and/ or variegated off-white or cream. High biomass mats comprise interlaced vertical leafy shoots on horizontal leafless stems held to the substrate by abundant fine roots that also form at aerial nodes within the mat.

Lifecycle Stages
High biomass swards can persist indefinately. Can resprout from fragments 1cm in length (Kelly & Skipworth, 1984).

Uses
Tradescantia fluminensis is widely grown and valued as an easy-care houseplant. It was first introduced to New Zealand by a farmer to stabilise a steep bank (Kelly & Skipworth, 1984).

Habitat Description
In its native range, *Tradescantia fluminensis* occurs in rainforest and other damp, humid and shaded places including roadsides and gardens (Barreto, 1997). Outside its native range, it also occurs in damp, humid and shaded places such as gardens, parks, banks, stream-sides and forest remnants (but not large tracts of forest). *T. fluminensis* is shade tolerant but frost intolerant (Bannister, 1986).

Reproduction
Vegetatively from fragments. Can produce seed from bisexual flowers (Faden and Hunt, 1991; Langeland and Burks, 2003). Reproduction in Australia and New Zealand, and probably other areas of naturalisation, is wholly vegetative; vectors that facilitate spread, in approximate order of importance are humans, streams, cattle and road machinery.

Nutrition
Tradescantia fluminensis requires at least 15 mg/ L of sulphur for maximum growth (Handreck, 1986). The physiology of *T. fluminensis* enables rapid response to the availability of two key resources — light and nitrogen (Maule *et al*., 1995). It can persist in the deep shade (down to 1.4 % of full light; Adamson *et al.* 1991). Damp fertile soils support dense swards of *T. fluminensis* (Ogle and Lovelock, 1989; Standish *et al.* 2001) whereas growth is sparse on rocky substrates (Barreto, 1997; Smale and Gardner, 1999).

General Impacts
Tradescantia fluminensis does not appear to be a significant weed of crops (CABI, 2004). It is considered a significant environmental weed for its impacts to native biodiversity. *T. fluminensis* is a 'symptomatic invader' in the sense that it requires disturbance (i.e., increased light, increased soil nitrogen) for establishment.

Management Info
Preventative measures: Plant cuttings should not be dumped anywhere as this is a frequent source of new weed infestations. The origin of new top soil or fill should be checked as physical transportation of plant segments in soil is a major method of spread. One approach is tree planting to enhance canopy cover and so reduce light availability to *T. fluminensis* (Standish *et al*., 2001; Standish, 2002a). There is experimental evidence to show that shading (artificial) causes a reduction in *T. fluminensis* biomass (Standish, 2002a). In addition, ‘armouring’ the edge of forest remnants has been mooted as a potential means to reduce disturbance and improve canopy cover (P. Williams, pers. comm., 2001). Such an approach might involve planting a buffer zone around the forest remnant, or at least about the edges exposed to prevailing winds (to reduce tree-fall).
\r\nPhysical: Hand weeding and rolling the weed up like a carpet are considered suitable for removal of small infestations (Porteous, 1993; C. Buddenhagen, pers. comm., 2001), if care is taken to remove every last piece. In heavily infested forest remnants, gaps left by removal of *T. fluminensis* are likely to be filled by other invasive species (Standish, 2002a).
\r\nChemical: Chemical control by herbicides is considered a practical means of controlling large infestations of *T. fluminensis* (McCluggage, 1998). However, re-spraying is often necessary (Standish, 2002a). Furthermore, one of the most widely used herbicides (active ingredient triclopyr) could have detrimental effects on wildlife (Standish *et al.* 2002b).
\r\nBiological: Cattle and chickens eat *T. fluminensis* (Timmins & Mackenzie 1995; pers. obs.) but damage other forest plants and the soil in the process. *T. fluminensis* has been identified as a good candidate for biological control in New Zealand because it is widespread, and the risk of non-target effects are minimal to non-existent (Standish, 2001) and a research programme is underway (S. Fowler, pers. comm., 2003). Reducing both the weed’s biomass and re-invasion of other weeds are the biggest challenges for a biocontrol programme to overcome (Standish, 2001). The gradual reduction of *T. fluminensis* that is likely to occur with biological control may reduce the chance of invasion by other weeds.
Integrated management: A combination of chemical and manual removal methods has been used with success in New Zealand, but has required repeated efforts to ensure continued control (Anon, 1995). The key to successful control of *T. fluminensis* is to reduce light availability by improving canopy cover that also reduces invasion by other weeds (Standish *et al.* 2001; Standish, 2002a). This might be achieved by integrating biological control and tree planting to improve canopy cover.

Pathway
Commonest of all houseplants (Mabberley, 1997).

Principal source:

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ALIEN RANGE

[1] ARGENTINA
[1] BERMUDA
[1] JAPAN
[4] NEW ZEALAND
[1] PUERTO RICO
[1] SAINT LUCIA
[1] SWAZILAND
[2] AUSTRALIA
[1] ITALY
[1] KENYA
[1] PORTUGAL
[1] RUSSIAN FEDERATION
[1] SOUTH AFRICA
[9] UNITED STATES

BIBLIOGRAPHY

46 references found for **Tradescantia fluminensis**

Managment information
Anon, 1995. The battle for Kitchener Park. New Zealand Geographic, 26: 9-12.
Bannister P, 1986. Winter frost resistance of leaves of some plants growing in Dunedin, New Zealand, in winter 1985. New Zealand Journal of Botany, 24: 505–507.
CABI Crop Protection Compendium - Invasive Plants
Summary: Database under construction
Hurrell G.A., T. K. James, C. S. Lusk amd M. Trolove, 2008. Herbicide selection for wandering jew (*Tradescantia fluminensis*) control. New Zealand Plant Protection 61: 368-373 (2008)
Summary: Available from: http://www.nzpps.org/journal/61/nzpp_613680.pdf [Accessed 1 August 2011]
IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.
Summary: The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on taxa that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e. are Data Deficient); and on taxa that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e. are Near Threatened).
Available from: http://www.iucnredlist.org/ [Accessed 25 May 2011]
Kelly, D.; Skipworth, J.P. 1984. *Tradescantia fluminensis* in a Manawatu (New Zealand) forest: growth and effects on regeneration. New Zealand Journal of Botany 22: 393–397.
Maule H.G, Andrews M, Morton J.D, Jones A.V, Daly G.T, 1995. Sun/shade acclimation and nitrogen nutrition of *Tradescantia fluminensis*, a problem weed in New Zealand native forest remnants. New Zealand Journal of Ecology, 19: 35–46.
McCluggage T, 1998. Herbicide trials on *Tradescantia fluminensis*. Conservation Advisory Science Notes No. 180. Wellington, NZ: Department of Conservation.
National Pest Plant Accord, 2001. Biosecurity New Zealand.
Summary: The National Pest Plant Accord is a cooperative agreement between regional councils and government departments with biosecurity responsibilities. Under the accord, regional councils will undertake surveillance to prevent the commercial sale and/or distribution of an agreed list of pest plants.
Available from: http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm [Accessed 11 August 2005]
New Zealand Plant Conservation Network, 2005. Unwanted Organisms. Factsheet *Tradescantia fluminensis*
Ogle C, Lovelock B, 1989. Methods for the control of wandering Jew (*Tradescantia fluminensis*) at Rangitawa, Rangitikei District, and notes on other aspects of conserving this forest remnant. Science and Research Internal Report 56. Wellington, NZ: Department of Conservation.
Pallin, N. 2000. Ku-ring-gai Flying-fox Reserve, Habitat restoration project, 15 years on. Ecological Management and Restoration 1(1):10 April 2000.
Summary: Discusses impacts species has had on a Reserve in Australia. Examines chemical and physical control methods and how control has been reached.
Porteous T, 1993. Native forest restoration: a practical guide for landowners. Wellington, NZ: Queen Elizabeth the Second National Trust.
Royal New Zealand Institute of Horticulture (RNZIH), 2005. Wandering jew *Tradescantia fluminensis*
Summary: Available from: http://www.rnzih.org.nz/pages/nppa_087.pdf [Accessed 1 October 2005]

Smale MC, Gardner ro, 1999. Survival of a Mount Eden Bush, an urban forest remnant in Auckland, New Zealand. Pacific Conservation Biology, 5: 83–93.
Standish, R.J. 2001. Prospects for biological control of *Tradescantia fluminensis* Vell. (Commelinaceae). DOC Science Internal Series #9. Wellington, NZ: Department of Conservation.
Summary: Management of *T. flumenensis* which is similar to *T.spathacea* in that it also likes shade and will invade forest understorey, though *T. flumenensis* is not drought tolerant. They don t look similar.
Standish RJ, 2002a. Experimenting with methods to control *Tradescantia fluminensis*. New Zealand Journal of Ecology, 26: 161–170.
Standish RJ, 2002b. The ecological impact and control of an invasive weed *Tradescantia fluminensis* in lowland forest remnants. PhD Thesis, Massey University, Palmerston North, NZ.
Standish, R.J., Bennett, S.J., Stringer, I.A.N., 2002a. Habitat use of *Tradescantia fluminensis* by *Powelliphanta traversi*. Science for Conservation, 195: 1–26.
Standish RJ, Robertson AW, Williams PA 2001 The impact of an invasive weed *Tradescantia fluminensis* on native forest regeneration. Journal of Applied Ecology 38: 1253–1263.
Swaziland s Alien Plants Database., Undated. *Tradescantia fluminensis*
Summary: A database of Swaziland s alien plant species.
Tasman District Council (TDC) 2001. Tasman-Nelson Regional Pest Management Strategy
Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.
Summary: This database compiles information on alien species from British Overseas Territories.
Available from: http://www.jncc.gov.uk/page-3660 [Accessed 10 November 2009]

General information

Adamson HY, Chow WS, Anderson JM, Vesk M and Sutherland MW, 1991. Photosynthetic acclimation of *Tradescantia albiflora* to growth irradiance: morphological, ultrastructural and growth responses. Physiologia Plantarum, 82: 353-359.
Aguiar FC, Ferreira MT, Moreira I, 2001. Exotic and native vegetation establishment following channelization of a Western Iberian river. Regulated Rivers: Research and Management, 17: 509-526.
Allan Herbarium 2000. New Zealand Plant Names Database. Landcare Research, New Zealand.
Summary: The New Zealand Plant Names Database provides access to information on plant taxa that occur in New Zealand. It currently includes the names for seed plants, mosses, liverworts, lichens and freshwater algae.
Available http://nzflora.landcareresearch.co.nz/ (Accessed 21 January 2002).
Barreto RC, 1997. Levantamento das esp–cies de Commelinaceae R.Br. nativas do Brasil. V2. Tese de Doutorado. S–o Paulo, Brasil: Universidade de S–o Paulo.
Summary: Taxonomy of Commelinaceae native to Brazil
del Pero Mart–nez MA, Mart–nez AJ, 1993. Flavonoid distribution in Tradescantia. Biochemical Systematics and Ecology, 21: 255–265.
Summary: Taxononmy, biochemistry
Dunphy M. 1991. Rainforest weeds of the big scrub. In: Phillips S, ed. Rainforest remnants: proceedings of a workshop on rainforest rehabilitation, Sydney, Australia: NSW National Parks and Wildlife Service, 85–93.
Enomoto T, 2000. Laboratory of Wild Plant Science, The Research Institute for Bioresources, Okayama University. Weeds of Japan.
Faden RB, Hunt DR, 1991. The classification of the Commelinaceae. Taxon, 40: 19–31.
Farr D.F, Bills GF, Chamuris GP, Rossman AY, 1989. Fungi on plants and plant products in the United States. St. Paul, Minnesota, USA: APS Press.
Summary: Species lists, distribution records.
Handreck KA, 1986. Critical concentrations of sulfur in liquid feeds for plants in containers. Scientia Horticulturae, 30: 1–17 (abstract only).
ITIS (Integrated Taxonomic Information System), 2005. Online Database *Tradescantia fluminensis*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from:
http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Tradescantia+fluminensis&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]
Langeland, K.A. and Burks, K. C (Eds) 1998. Identification and Biology of Non-Native Plants in Florida s Natural Areas, University of Florida. *Tradescantia fluminensis*
Summary: Information on plants that pose threats to natural resource areas in Florida.
Available from: http://www.fleppc.org/ID_book/Tradescantia%20fluminensis.pdf [Accessed 30 December 2004]
Masato N, 2003. *Tradescantia fluminensis* Vell.
Orlando A, Grisafi F, 1977. New for the exotic flora of Italy. Inf Bot Ital, 9: 113–114 (from Biological Abstracts, 1978. 66: 50186)
Standish RJ, 2004. Impact of an invasive clonal herb on epigaeic invertebrates in forest remnants in New Zealand. Biological Conservation 116: 49–58.
Standish RJ, Williams PA, Robertson AW, Scott NA, Hedderley DI, in press. Invasion by a perennial herb increases decomposition rate and alters nutrient availability in warm temperate lowland forest remnants. Biological Invasions 6: 71–81.
Timmins SM, MacKenzie IW, 1995. Weeds in New Zealand Protected Natural Areas Database. Department of Conservation Technical Series No. 8. Wellington, NZ: Department of Conservation.
Toft R. J, Harris R. J, Williams P. A, 2001. Impacts of the weed *Tradescantia fluminensis* on insect communities in fragmented forests in New Zealand. Biological Conservation, 102: 31–46.
Tolkach VF, Chuyan Akh, Krylov AV, 1990. Characterisation of a Potyvirus isolated from *Tradescantia albiflora* in a southern locality of the Soviet Far East. Byulleten Glavnogo Botanicheskogo Sada, 157: 76–80 (abstract only).
Summary: Distribution record.
USDA-NRCS, 2002. The PLANTS Databse, Version 3.5. Baton Rouge, Los Angeles, USA: National Plant Data Centre.

Wunderlin RP, 1998. Guide to the vascular plants of Florida. Gainesville, Florida, USA: University of Florida Press.
Wunderlin RP, Hansen BF, 2003. Atlas of Florida Vascular Plants. Tampa, Florida, USA: Institute for Systematic Botany, University of Southern Florida.
Yeates, G.W., Williams, P.A., 2001. Influence of three invasive weeds and site factors on soil microfauna in New Zealand. Pedobiologia 45, 367–383.
Summary: Includes *Tradescantia fluminensis*.