Alitta succinea **System:** Marine

Kingdom	Phylum	Class	Order	Family
Animalia	Annelida	Polychaeta	Aciculata	Nereididae

Common name ragworm (English), nereidid worm (English), pile worm (English)

Synonym
Nereis (Neanthes) succinea , Hartman 1945
Nereis alatopalpis , Wesenberg-Lund, 1949
Nectoneanthes oxypoda , Imajima 1972
Nectoneanthes alatopalpis , Wu *et al*. 1985
Neanthes succinea , Imajima 1972
Nereis succinea , Leuckart 1847.

Similar species

Summary The infaunal polychaete Allita succinea, also known as the pileworm, is native to the Atlantic coast and now occurs along the coasts off North, Central and South America, Europe, Africa and the Black Sea. A. succinea can alter nutrients available in sediments, which affect other sediment dwellers.

view this species on IUCN Red List

Species Description
Alitta succinea is a sedentary worm, growing up to 190mm in length and having up to 160 segments. It has a darkly pigmented head area, with a greenish-yellow or pale red posterior region, and white or dark dots over the entire body, the ventral surface is pale. There are four pairs of tentacles, one pair of palps and one of antennae. The parapodia (feet) differ in form from the head end to the rear of the organism. This worm resides in U-shaped burrows in the sediment (NIMPIS 2006).
At sexual maturity, benthic adults metamorphose into nektonic heteronereids (Detwiler *et al*. 2002). The most obvious difference between the heteronereids and the non-reproductive forms is that the parapodia are enlarged and more lobate in the former (Chris Glasby., pers.comm., 2007).
Please see PaDIL (Pests and Diseases Image Library) Species Content Page Nereidid worm: *Alitta succinea* (Leuckart, 1847) for a detailed description and high quality diagnostic and overview images of the pileworm.

Notes
Alitta succinea was previously known as *Neanthes succinea* (Hayes *et al*. 2005).
The infaunal polychaete *A. succinea* is the key benthic link between detritus accumulation on the sediments and higher trophic level organisms, including predaceous birds and fish (Detwiler *et al*. 2002).

Lifecycle Stages
Alitta succinea spend most of their life in burrows in the mud and among the masses of barnacles. Mature polychaetes leave their protective burrows at night and swim to the surface to spawn. The swimming, or epitokol, stage lasts only a few days and then the worm dies after releasing its gametes into the surface water layers (Carpelan and Linsley 1961).

Uses
Polychaetes are one of the most useful marine organisms to detect pollution because they live at the water-sediment interface. This layer is biologically reactive and chemically active (Rhoads and Boyer 1982, in Elías *et al*. 2003). Polychaetes have been used in bioassays, to monitor toxic compounds, and as pollution indicators, from community or populational levels to species level (Pocklington and Wells 1992, Reish and Gerlinger 1997, in Elías *et al*. 2003).

Reproduction
Although *A. succinea* live burrowed in sediment, they migrate to the water column to reproduce. Adult worms transform into the reproductive form called the heteronereid, which swim to the water surface and swarm in massive numbers. The swarming increases the chance of fertilisation which is triggered by light levels. Individuals die, after spawning (Detwiler *et al.* 2002). Eggs turn into small, setigerous two segmented larvae within approximately 36 hours (Carpelan 1961c, in Tiffany *et al.* 2002). Larvae are planktonic until they reach the 9 to 12 segment stage, when they begin to settle in sediments to start a benthic existence (Tiffany *et al.* 2002).

Nutrition
Alitta succinea is a deposit feeder, consuming mainly sediment, but has been recorded with small amphipods and polychaetes in its gut contents (NIMPIS 2006).

General Impacts
Alitta succinea can alter available nutrients in the sediment due to its burrowing activity (NIMPIS 2006). Nutrient changes may affect many species living in the sediments, and may also promote bacterial activity (NIMPIS 2006).
A. succinea is able to transfer contaminants from sediment to biota. *A.succinea* is a deposit-feeding invertebrate, which can uptake and accumulate persistent trace elements and organic contaminants (through sediment ingestion). In particular, it assimilates methylmercury two to 10 times more efficiently than mercury. Furthermore, assimilation of methylmercury increases when *A. succinea* is exposed to organic-rich sediment (Leatherbarrow *et al*. 2005).

Management Info
A two year study was undertaken for the Department of Environment and Heritage (Australia) by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to identify and rank introduced marine species found within Australian waters and those not found within Australian waters. *Alitta succinea* was one of two (the other being *Monocorophium insidiosum*) potential domestic target species whose impact potential could not be ranked, as no questionnaires were returned. The authors, however, note that it is possible that these two species have a greater impact than the listed top ten.
The rankings determined in Hayes *et al.* 2005 will be used by the National Introduced Marine Pest Coordinating Group in Australia to assist in the development of national control plans which could include options for control, eradication and/or long term management.
For more details, please see Hayes *et al.* 2005.

Pathway

Principal source:

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG) with support from La Fondation d'entreprise Total

Review: Dr. Chris Glasby Curator of Annelids (segmented worms) Museums and Art Galleries of the Northern Territory Australia

Pubblication date: 2007-05-14

ALIEN RANGE

[3] ARGENTINA
[1] BRAZIL
[1] COLOMBIA
[1] GERMANY
[1] IRAN, ISLAMIC REPUBLIC OF
[1] JAPAN
[2] SWEDEN
[4] UNITED KINGDOM
[1] URUGUAY
[2] AUSTRALIA
[1] CANADA
[1] DENMARK
[1] GREECE
[5] ITALY
[1] PACIFIC - EASTERN CENTRAL
[2] UKRAINE
[20] UNITED STATES

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Managment information

Detwiler, P.M., Coe, M.F. and Dexter, D.M. 2002. The benthic invertebrates of the Salton Sea: distribution and seasonal dybamics, *Hydrobiologia 473*: 139-160.
Summary: This study documents the composition, abundance, and seasonality of macroinvertebrates associated with specific benthic habitats in the Salton Sea.

Hayes, K., Sliwa, C., Migus, S., McEnnulty, F., Dunstan, P. 2005. National priority pests: Part II Ranking of Australian marine pests. An independent report undertaken for the Department of Environment and Heritage by CSIRO Marine Research.
Summary: This report is the final report of a two year study designed to identify and rank introduced marine species found within Australian waters (potential domestic target species) and those that are not found within Australian waters (potential international target species).
Available from: http://www.marine.csiro.au/crimp/reports/PriorityPestsFinalreport.pdf [Accessed 25 May 2005]

National Introduced Marine Pest Information System (NIMPIS). 2006. *Alitta succina*.
Summary: This is an online database that provides information about taxonomy, description, distribution, habitat, reproduction and growth, feeding preference, control methods and similar species.
Available from: http://www.marine.csiro.au/crimp/nimpis/Default.htm [Accessed 12 December 2006].

Wilson, R. 2006. Nereidid worm (*Alitta succinea*) Pest and Diseases Image Library. Updated on 18/07/2006 2:34:51 PM.
Summary: The Pests and Diseases Image Library was set up to provide high quality images showing primarily exotic targeted organisms of plant health concern to Australia, assist with plant health diagnostics in all areas, provide linkage developments between training and research organisations, create educational tools for training undergraduates/postgraduates and engender public awareness about plant health concerns in Australia.
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