



Lineage – Scientific methodology

Annual distribution of polychaete *Hartmanonuphis pectinata* lineage

The beachworm onuphid *Hartmanonuphis pectinata* (Knox & Hicks, 1973) has rarely been found. It is known only from the original four specimens collected at two east coast South Island localities, one additional South Island record, and one additional northern North Island west coast record. It is a very large intertidal worm that can be over 500 mm length and to 8 mm width.

Hartmanonuphis pectinata is known only from New Zealand. It was collected at Caroline Bay, Timaru at an unknown date, and at Menzies Bay, Banks Peninsula in 1945, then subsequently described as *Onuphis pectinata* by Knox & Hicks in 1973. Caroline Bay is the type locality (Paxton 1986 and Paxton pers. comm.) although this is unstated in the original description. A further two specimens from Banks Peninsula have been collected in 2008 and are still under evaluation. It also has been collected at an unspecified location on southern Ninety Mile Beach (Paxton pers. comm.) which was published as "Kaitaia", an inland location, in Paxton (1986), and possibly also has been collected at Kawhia Harbour entrance (Auckland Museum record, 1995). As a second similar species may exist on New Zealand beaches (Paxton pers. comm.) caution is necessary in considering reports of new records not yet verified by an expert.

1. Literature sources

Literature databases and Google were searched for any information on *H. pectinata*.

Using the keyword combinations **Onuphis** and **pectinata**, **Hartmanonuphis** and **pectinata** searches were carried out (7 September 2005) in Aquatic Sciences and Fisheries Abstracts, ISI Web of Science, Google, and the catalogues of the University of Auckland, Victoria University of Wellington, Canterbury University, and Otago University. No hits were discovered additional to long-known references. Subsequently (November 2007) no new information or literature records were discovered on *H. pectinata* in Google, Google Scholar, ASFA, and ISI web of knowledge.

2. Museum holdings

Reports were sought on holdings of *H. pectinata* from curators at Auckland Museum, Te Papa Tongarewa Museum of New Zealand, Canterbury Museum, Otago Museum, and the NIWA Invertebrate Collection. Two previously unknown samples and locations were reported, although both still await verification. The world-wide holdings are as follows.

- a. Canterbury Museum, Christchurch, AQ 3443 Caroline Bay holotype (1) and Menzies Bay paratypes (2).
- b. Natural History Museum, London, BMNH ZB 1964.5.1 (1) donated by Knox in 1964 under a different MS name, and not mentioned in Knox & Hicks, but is a further *H. pectinata* collected with the two Menzies Bay paratypes (Paxton pers. comm.).
- c. Australian Museum, AM W.198977 (2), and Smithsonian Institution USNM 98883 (1), "Kaitaia" (actually Ninety Mile Beach), ca 1975, det. H. Paxton.
- d. Auckland Museum, AK 138211, station L15501, Opapaka Point, Kawhia Harbour mouth, 24 Oct 1995 (1) (determiner unknown, identification unverified).
- e. NIWA Invertebrate Collection, as yet uncatalogued and identification unverified, 2 worms collected intertidally at Decanter Bay, Banks Peninsula, 20 February 2008.

Hartmanonuphis pectinata is a surf zone onuphid of exposed sandy beaches. It has distinctively enlarged anteriormost parapodia and curved nuchal grooves and is most closely related to species in the Australian genus *Hirsutonuphis*. In Australia these deep-burrowing carnivorous beachworms are captured to use as fishing bait by using pieces of meat to lure them to the surface. The Ninety Mile Beach record was the result of a visiting Australian applying the same technique at low tide (Paxton, pers. comm.). This record raises the possibility that populations may be much more widespread than are known at present. No local density estimate is available for the sites where *H. pectinata* has been found, but it is likely to be uncommon or rare everywhere. No further records have been reported as at June 2009.

The information on the past distribution of *H. pectinata*, derived from the literature, with additional information from Australian onuphid expert Hannelore Paxton, was written by Dr Geoffrey Read (NIWA Wellington). The above information was reviewed by Dr Keith Probert, Department of Marine Science, University of Otago, in 2005. Too little is known of the distribution of this species to allow hotspots and the 90% distribution to be shown. The 100% and unknown distributions were integrated by hand onto a large-scale map of New Zealand. The rounded lines were then digitised and imported into a GIS software package as layers. The areas of each distribution class were calculated and the layers were linked to attribute and metadata files.

3. References.

The following publications were the only information sources on the onuphid *Hartmanonuphis pectinata* (excluding mentions of the name only). There is no information on the recent/current annual distribution.

Fauchald, K. (1982). Revision of *Onuphis*, *Nothria*, and *Paradiopatra* (Polychaeta: Onuphidae) based on type material. *Smithsonian Contributions to Zoology* 356: 1–109. [p.99 states *O. pectinata* distinct but genus uncertain]

Knox, G.A.; Hicks, K. (1973). The polychaetes of New Zealand Part 5. Onuphidae. *Journal of the Royal Society of New Zealand* 3(2): 281–294.

Orensanz, J.M. (1990). The eunicemorph polychaete annelids from Antarctic and Subantarctic Seas with Addenda to the Eunicemorpha of Argentina, Chile, New Zealand, Australia, and the Southern Indian Ocean. *Antarctic Research Series* 52: 1–183. [p.18 suggests *Hartmanonuphis* and *Hirsutonuphis* are synonymous]

Paxton, H. (1986). Generic revision and relationships of the family Onuphidae (Annelida: Polychaeta). *Records of the Australian Museum* 38(1/2): 1–74. [p. 49 *O. pectinata* transferred to the monotypic new genus *Hartmanonuphis* (The suggested distribution down to 85 m is an acknowledged error.)]