



## Lineage – Scientific methodology

### Annual distribution of O’Shea’s vent barnacle *Vulcanolepas osheai* lineage

*Vulcanolepas osheai* (Buckeridge, 2000) is the first hydrothermal-vent barnacle known from the New Zealand region. The species was originally described as *Neolepas osheai*, one of four species then attributed to a genus which is regarded as having a record extending back to the Jurassic. The first specimens of *V. osheai* were collected from c. 1290–1645 metres depth in the volcanically active Brothers Caldera within the Havre Trough northeast of the Bay of Plenty. The species is endemic. Its preferred habitat is areas of active venting. Alvinocaridid, lithodid, and galatheid decapod crustaceans, zoarcid fish, scale worms, and small gastropods including limpets have been encountered in association with *V. osheai*. Southward & Jones (2003) erected a new genus, *Vulcanolepas*, for *N. osheai* (the type species) and an undescribed species from the Pacific-Antarctic Ridge. These species possess delicate elongated cirri, adapted to feed on fine particles including bacteria.

#### 1. Literature

All relevant information pertaining to the species is given in the paper by Buckeridge (2000) formally describing it and by Southward & Jones (2003). Searches were therefore not initiated on any reference database.

#### 2. Museum holdings

The holotype specimen is held at NIWA, Wellington in the NIWA Invertebrate Collection. Paratypes are held by NIWA, Auckland University of Technology, Auckland University, and two repositories overseas (Perth, La Jolla), all from a single NIWA Station (W683). Additional material obtained in 2005 from the Brothers Caldera is held at NIWA.

#### 3. Summary

*Vulcanolepas osheai* is an endemic habitat-restricted species in a genus of barnacle (Eolepadidae) that is typically found in hydrothermal-vent habitats. It is known only from the Brothers Caldera at depths of 1290–1645 m. All information pertaining to the species is referenced below.

The above information on the distribution of this barnacle was written by Dennis P. Gordon, NIWA, Wellington, and reviewed by Professor John S. Buckeridge (EOS, Royal Melbourne Institute of Technology University). Too little is known of the distribution of this species to allow hotspots or the 90% distribution to be shown, but because of the biotope on which this species is found is well circumscribed, the categories Unknown and Known not to exist can be distinguished with some confidence. The 100%, Known not to exist, and Unknown distributions were integrated by hand onto a large-scale map of New Zealand. The rounded lines were digitised and imported into a GIS software package as layers. The area of each distribution class was calculated and the layers linked to attribute and metadata files.

No additional records of the species outside of the known range were identified in reviews carried out in November 2007 and May 2009.

#### 4. References

- Buckeridge, J.S. (2000). *Neolepas osheai* sp. nov., a new deep-sea vent barnacle (Cirripedia: Pedunculata) from the Brothers Caldera, south-west Pacific Ocean. *New Zealand Journal of Marine and Freshwater Research* 34: 409–418.
- Southward, A.J.; Jones, D.S. (2003). A revision of stalked barnacles (Cirripedia: Thoracica: Scalpellomorpha: Eolepadidae: Neolepadinae) associated with hydrothermalism, including a description of a new genus and species from a volcanic seamount off Papua New Guinea. *Senckenbergiana Maritima* 32: 77–93.