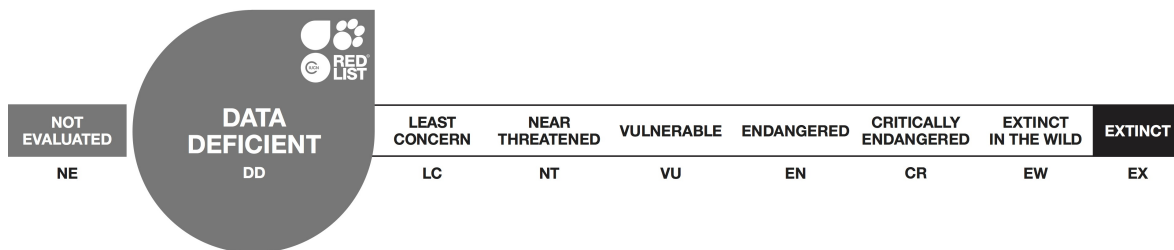


## *Heterostoma duplex*

Assessment by: Seddon, M.B.



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Mollusca	Gastropoda	Stylommatophora	Hygromiidae

**Taxon Name:** *Heterostoma duplex* (Mandahl-Barth, 1950)

### Taxonomic Notes:

Bank *et al.* (2002) retain three taxa, *Steenbergia pauperculum*, *S. desertae*, and *S. duplex* following the belief that the conchological forms identified are distinct species. In contrast, Cook and Lace (1993) suggest that the variability in conchological forms relates to incomplete speciation. There have been further investigations into the anatomical and genetic variability of these taxa on Porto Santo. Lace (1992) showed that there are euphallic (fully hermaphrodite) populations and hemiphallic (lacking male distal genitalia) populations. Neither Cook nor Lace followed Mandahl-Barth (1950) in considering *Steenbergia duplex* and *Steenbergia desertae* as distinct species, instead placing the shell forms as a single species (Cameron *et al.* 1999). Further research by Craze and Lace (2000) show that there are distinct associations with habitats, they suggest that the toothed and untoothed populations represent sandy and rocky populations as opposed to those from more vegetated sites. There are other conchological differences in the taxa, notably the granular surface sculpture, but it is possible that further work may resolve this taxonomic issue.

## Assessment Information

**Red List Category & Criteria:** Data Deficient [ver 3.1](#)

**Year Published:** 2013

**Date Assessed:** September 30, 2010

### Justification:

Bank *et al.* (2002) list the species as endemic to Porto Santo. However the taxonomic issues discussed in taxonomic notes, led Cameron and Cook (1999) and subsequent unpublished surveys (Cameron, pers. comm., 2010) and Seddon (2008) to conclude that only one species *Heterostoma paupercula* was present on Porto Santo. No conservation action in place, but requires further research to determine the status as a valid species. It is listed as Data Deficient (DD), but if considered a valid species then it is abundant in the grasslands and open sandy areas with no specific threats, so would become Least Concern.

## Geographic Range

### Range Description:

Bank *et al.* (2002) list the species as endemic to Porto Santo only. However the taxonomic issues discussed in taxonomic notes, led Cameron *et al.* (1996, 2006) and subsequent unpublished surveys (Cameron, pers. comm., 2010) and Seddon (2008) to conclude that only one species *Heterostoma paupercula* was present on Porto Santo.

**Country Occurrence:**

**Native:** Portugal (Madeira)

## Population

If considered a valid species, then it is abundant in the grasslands and open sandy areas.

**Current Population Trend:** Stable

## Habitat and Ecology (see Appendix for additional information)

If considered a valid species, then it is abundant in the grasslands and open sandy areas.

**Systems:** Terrestrial

## Use and Trade

This species is not used.

## Threats

If considered a valid species, then it is abundant in the grasslands and open sandy areas with no specific threats.

## Conservation Actions

There are no conservation action in place, but it requires further research to determine the status as a valid species, then it is abundant in the grasslands and open sandy areas with no specific threats.

## Credits

**Assessor(s):** Seddon, M.B.

**Reviewer(s):** Cameron, R., Groh, K., Cuttelod, A. & Neubert, E.

## Bibliography

Bank, R.A., Groh, K. and Ripken, T.E. 2002. Catalogue and Bibliography of the non-marine Mollusca of Macronesia. In: M. Falkner, K. Grah and M.C.D. Speight (eds), *Collectanea Malacologica*, pp. 89-235.

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## Citation

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## External Resources

For [Images and External Links to Additional Information](#), please see the Red List website.

# Appendix

## Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
4. Grassland -> 4.4. Grassland - Temperate	-	Suitable	Yes

## Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.1. Taxonomy

## Additional Data Fields

Population
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: No

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