

## Research Notes

### **Possible occurrence of the sea cucumber *Actinopyga spinea* (Cherbonnier 1980) in Arreceffi Island, Honda Bay, Puerto Princesa City, Palawan, Philippines**

**Jean Beth S. Jontila**

College of Fisheries and Aquatic Sciences  
Western Philippines University- Puerto Princesa Campus  
Sta. Monica, Puerto Princesa City, Philippines  
Corresponding author: jbjontila@gmail.com

Sea cucumbers under the genus *Actinopyga* are among the commonly exploited species in the Philippines. At present, there are five species belonging to this genus in the country namely, *A. echinites*, *A. lecanora*, *A. mauritiana*, *A. miliaris* and *A. obesa* (Schoppe 2000, Akamine 2005, Kerr et al. 2006, Olavides et al. 2010, Purcell et al. 2012, Jontila et al. 2014). Recent surveys in different sites in Palawan did not show the occurrence of other *Actinopyga* species (Dolorosa and Jontila 2012, Collantes 2013, Pitong 2013, Sabay 2013, Saclet 2013, Dolorosa 2015).

During the monthly monitoring of sea cucumbers in Arreceffi Island Resort and Spa on June 5, 2015, one individual of *Actinopyga*, suspected to be *A. spinea* was documented. The Island is located in Honda Bay (9°54'47.66"N, 118°52'35.64"E) about 16 km away from Sta. Lourdes Wharf, Puerto Princesa City (part of the mainland Palawan). It has approximately 20 ha land area, 30 ha mangrove forest and 170 ha intertidal and shallow subtidal areas, serving as safe habitats for diverse wildlife. Since its establishment in 1991, the island resort implemented no fishing or hunting activities that enabled the once overharvested species to recover.

The substrate where the specimen was collected is mainly composed of sand and rubble, but patches of seagrasses (*Cymodocea rotundata*, *Enhalus acoroides* and *Thalassia hemprechii*) and stands of *Rhizophora stylosa* were also present in the area. The site is around 80 m away from the drop off and is exposed to moderate to strong wave action during high tide. The specimen was encountered during low tide in waters between 0.1 to 0.2 m deep.



Figure 1. A Map of Arreceffi Island showing the location where the specimen was seen (Source: Google earth, accessed on June 28, 2016).

The specimen was first identified as *A. miliaris* due to its resemblance in external appearance and similarity in habitat with *A. spinea* (Figure 2). However, further examination of its external features based on the photos revealed that it is more likely to be *A. spinea*. Both species have brown to dark brown or blackish brown coloration, but *A. miliaris* has a lighter ventral part whereas *A. spinea* is entirely uniform in color. Similarly, the papillae of both species are long and slender but such are numerous on the dorsal of *A. miliaris* while it is only moderate in *A. spinea* (Figure 2) (Purcell et al. 2012). In addition, *A. miliaris*' anal teeth are generally simple and conical in shape. In contrast, the specimen's anal teeth are triangular with distinct nodules (Figure 3) that is a key feature of *A. spinea* (Conand 1998, Purcell et al. 2012).



Figure 2. *In situ* photo of the specimen in sand and rubble substrate.

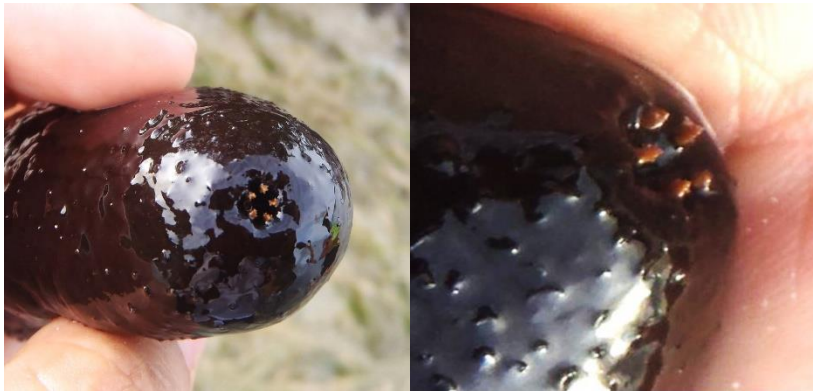


Figure 3. Close up photos of the specimen showing the triangular orange anal teeth with nodules.

*Actinopyga spinea* is also similar in color with *A. palauensis* but the latter has textured dorsal surface with bumpy appearance, and the mouth is often projected as trunk-like (Purcell et al. 2012). Also, the papillae of *A. palauensis* on the dorsal are small and conical while they are long and slender in *A. spinea*. Furthermore, the anus of *A. palauensis* is more terminal while that of *A. spinea* is sub terminal. However, this feature of *A. spinea* was not noted when the specimen was collected. Further visual examination of the mouth position was also done on the specimen, which was collected and frozen for future studies, but such was difficult to determine for the sample has already collapsed after ejecting its internal organs during transport in 2015. Further search was made then in the area to look for other individuals of *A. spinea* but none was encountered.

The specimen measured only 9 cm. This is far below the mean length of *A. spinea* that is 25 cm (Purcell et al. 2012). Thus, the individual could be in its juvenile or sub adult stage. However, this is difficult to

ascertain due to lack of information on its growth and maturity (Purcell et al. 2012). Information on its distribution and population trend is also limited (Conand 1998). In fact, *A. spinea* is classified as a least concern species (Conand et al. 2013, IUCN 2016).

Despite of the resemblance of *A. spinea* to *A. miliaris* and *A. palauensis*, the nodular anal teeth, the uniformly colored body, and the sparse conical papillae on the dorsal strongly suggest that the specimen is *A. spinea*. These characteristics were assumed to be sufficient for reasonable certitude but to complete the identification, ossicles examination is being undertaken for further examination of experts. If needed, DNA testing could also be done for the sample is kept viable for such procedure.

## ACKNOWLEDGMENTS

Dr. Steven W. Purcell of Southern Cross University, Lismore, Queensland, Australia is greatly acknowledged for sharing his opinion about the specimen, though he did not confirm its identification. The comments of the two anonymous reviewers are also greatly acknowledged. Special thanks also to Ms. Glesselle T. Batin of Arreceffi Island/Dos Palmas Island Resort and Spa for facilitating the conduct of this survey in Arreceffi Island. This is an off-shot of the author's dissertation funded by the Department of Science and Technology-Science Education Institute (DOST-SEI).

## REFERENCES

- Akamine J. 2005. Role of the trepang traders in the depleting resource management: a Philippine case. *Senri Ethnological Studies*, 67:259-278.
- Collantes SD. 2013. Species identification and spicules examination of sea cucumbers in selected barangays of Quezon, Palawan. Undergraduate Thesis, Western Philippines University – Puerto Princesa Campus, Puerto Princesa City. 25p
- Conand C. 1998. Holothurians (Sea cucumbers, Class Holothuroidea). P 1158-1190. In: Carpenter KE and Niem VH (eds). *FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 2. Cephalopods, crustaceans, holothurians and sharks.* Rome, FAO, p. 687-1396.
- Conand C, Purcell S and Gamboa R. 2013. *Actinopyga spinea*. The IUCN Red List of Threatened Species 2013. <http://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180265A1607822.en>. Downloaded on 30 June 2016.
- Dolorosa RG. 2015. The Sea cucumbers (Echinodermata: Holothuroidea) of

- Tubbataha Reefs Natural Park, Philippines. SPC Beche-de-mer Information Bulletin, 35:10-18.
- Dolorosa RG and Jontila JB. 2012. Notes on common macrobenthic reef invertebrates of Tubbataha Reefs Natural Park, Philippines. *Science Diliman*, 24:1-11.
- IUCN. 2016. The IUCN Red List of Threatened Species. Version 2016. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 01 July 2016.
- Jontila JBS, Balisco RAT and Matillano JA. 2014. The Sea cucumbers (Holothuroidea) of Palawan, Philippines. *AACL Bioflux*, 7 (3):194-206.
- Kerr AM, Netchy K, Gawel AM. 2006. Survey of the shallow-waters sea cucumbers of the Central Philippines. University of Guam Laboratory, Technical Report No. 119. 51p.
- Olavides RDD, Edullantes CMA, Junio-Menez MA. 2010. Assessment of the sea cucumber resource and fishery in Bolinao-Anda reef system. *Science Diliman*, 22(2):1-12.
- Pitong A. 2013. Species composition, density, size structure and distribution of sea cucumbers (Holothuroidea) in Brooke's Pt., Palawan. Undergraduate Thesis, Western Philippines University – Puerto Princesa Campus, Puerto Princesa City. 34p.
- Purcell SW, Samyn Y and Conand C. 2012. Commercially important sea cucumbers of the world. FAO Species catalogue for fishery purposes No. 6. Rome, FAO. 223p.
- Sabay D. 2013. Species composition, density and distribution of sea cucumbers (Holothuroidea) in three barangays of Puerto Princesa City, Palawan. Undergraduate Thesis, Western Philippines University – Puerto Princesa Campus, Puerto Princesa City. 43p.
- Saclet J. 2013. Exploitation and trade of sea cucumbers (Holothuroidea) in selected sites of Roxas, Palawan. Undergraduate Thesis, Western Philippines University – Puerto Princesa Campus, Puerto Princesa City. 32p.
- Schoppe S. 2000. Sea cucumber fishery in the Philippines. SPC Beche-de-mer Information Bulletin, 13:10-12.

#### **ARTICLE INFO**

*Received: 22 June 2016*

*Revised: 14 February 2017*

*Accepted: 30 May 2017*