

Short Report

Chitons (Mollusca: Polyplacophora) from the Venezuelan Coasts, Southern Caribbean: A Checklist and Brief Review in Advance of Their Knowledge

Ignacio Agudo-Padrón*

Geographer & Research Malacologist, CEO Project “Avulsos Malacológicos – AM, Brazil

*Corresponding author: Dr. Ignacio Agudo-Padrón, Geographer & Research Malacologist, CEO Project “Avulsos Malacológicos – AM”, Caixa Postal (P.O.Box) 010, 88010-970 Centro, Florianópolis, Santa Catarina/SC, Brazil; Email: ignacioagudo@gmail.com

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Introduction

Chitons or polyplacophores constitute a of the eight classes of the filum Mollusca. They are generally small, flattened and elongated animals, provided with eight (8) overlapping dorsal plates or valves, bordered by a belt of scales and/or calcareous spicules formed by the mantle, called perinotum. The cavity of the mantle encloses the foot, which is expands forming a large sole, which not only serves for the locomotion but also to maintain firm contact with the surface of the substrates where they live (Gracia C. *et al.* 2005: 117) (Figure 1).

In relation to the taxonomic Class Polyplacophora, some 850 recent species of Chitons are known, most of which live in the Western Pacific and the Western coast of Central America, while in the Caribbean and the European Mediterranean they are more poorly represented (Tejeda *et al.* 2015: 112), being that in the essential pioneering contribution of Kaas (1972) 34 species were already reported for the Caribbean and the Gulf of Mexico.

Background

A general synthesis about the current knowledge of the shallow water polyplacophoran molluscs (chitons) occurring in the Southern Caribbean of Venezuela is presented, involving bibliographical revision/database (summarized informations [1] from the “Northeast” region, coastal & insular, and [2] from “Los Roques Archipelago Marine National Park”), and historical rescue of informations (field notebooks) which includes inedit “personal report” of manual collection of specimens (total of 17 specific forms) in three (3) coastal areas (Northeast (CaA) – Sucre State (~ 10°38'44”N & 63°02' 20”W) in “Golfo de Cariaco” (Cariaco Gulf) region, with 12 species; Central (CaB) – Vargas (“Catia La Mar” sector ~ 10°36’N & 67°02’W) & Miranda (“Los Totumos/Higuerote” sector ~ 10°29’00N & 66°06’00”W) States, with 14 species; and Central Western (CaC) – Morrocoy National Park, Falcón State (~10°51’22”N & 68°18’22”W), with 9 species) (Figure 2 – Map & Table 1) of the country between the years 1976 and 1989, parallel to field studies of cnidarian fauna – sea anemones [3].

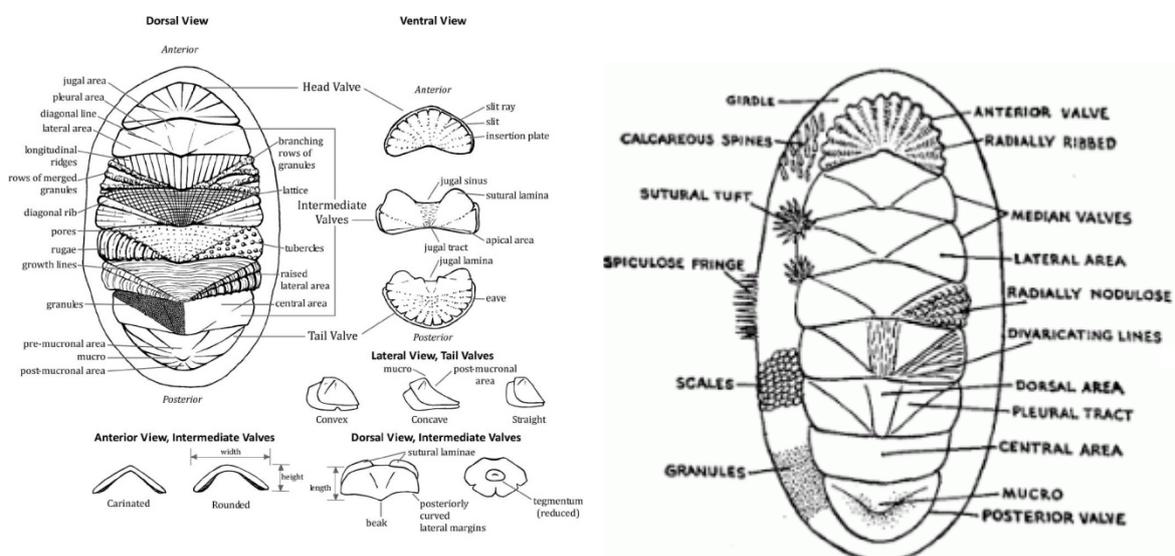


Figure 1: Structural morphology of Chitons. Source: GOOGLE, Creative Commons.



Figure 2: Venezuelan coastal areas (rectangles) where manual collections of polyplacophores (chitons) were carried out by us between the years 1976 and 1989: Northeast region – CaA (right angle), Central region – CaB (center angle), Central Western region – CaC (left angle). Credit Map: Original by A. Ignacio Agudo-Padrón, Project AM.

Unfortunately, the samples were “lost” in the course of a catastrophic event (flood), before it can be formally deposited in a scientific institution/museum (... this collection also included species obtained during the period in several coastal insular and mainland localities & representative marine environments of the country ... an unhappy, irreparable and heartbreaking loss !!).

Counting up still, recently (since the year 2014), with the invaluable participatory assistance and support of “Northeast” (Sucre State) local researcher ecologists, naturalists and collaborating informants (Bello-Pulido et al. 2016), with field collections carried out during the years 2015 and 2016, totalling 36 geographical sampling points, distributed in five (5) large predominantly rocky coastal bioregions, taxonomically involving five (5) families, eight (8) genera and eleven (11) certain species (Figure 3).

Results & Conclusions

A updated checklist/inventory including a confirmed general total of 25 species, taxonomically distributed in 12 genera and six (6) families, complements the present brief report (Table 1), which makes it possible to make important preliminary comparisons with the polyplacophore fauna of other important Caribbean regions, such as Colombia ([4], with 22 species), Puerto Rico ([5], with 29 recognized species ~ the place with the greatest diversity of polyplacophores in the region), the Hispaniola Island ([6], with 23 known species) and, most recently, Cuba ([7], with 27 species).

Particularly, the Caribbean/eastern surf chiton species CALLISTOPLACIDAE *Ceratozona squalida* (C. B. Adams, 1845) (Figure 3 and Table 1) was one of the first relevant species recorded in the field by us in Venezuela (June 18 1982), with several specimens found in the Northeast region - CaA (“Playa San Luis” <San Luis Beach> sector, Cumaná city ~ 10°27’00”N & 64°10’00”W, Sucre State) in the rubble of a ramp/dock of cement & stones half-buried on sands

Table 1: Checklist of the Chitons (Mollusca: Polyplacophora) known today for Venezuela (Southern Caribbean) and distribution on the coastal areas “previously verified in field” (Figure 2).

Detected Species	CaA	CaB	CaC
Class Polyplacophora Gray, 1821			
Subclass Neoloricata Berghenayn, 1955			
Order Chitonida Thiele, 1909			
Suborder Acanthochitonina Berghenayn, 1930			
Family Acanthochitonidae Pilsbry, 1893			
<i>Americhiton andersoni</i> (Watters, 1981)			
<i>Americhiton belesae</i> (Abbott, 1954)			
<i>Acanthochitona hemphilli</i> (Pilsbry, 1893)		X	
<i>Acanthochitona pygmaea</i> (Pilsbry, 1893)	X		
<i>Acanthochitona retrojecta</i> (Pilsbry, 1894)			
<i>Acanthochitona rhodea</i> (Pilsbry, 1893)			
<i>Acanthochitona venezuelana</i> Lyons, 1988			
Suborder Chitonina Thiele, 1909			
Family Chaetopleuridae Plate, 1899			
<i>Chaetopleura apiculata</i> (Say, 1834)	X		
Family Lepidochitonidae Iredale, 1914			
<i>Lepidochitona liozonis</i> (Dall & Simpson, 1901)		X	X
<i>Lepidochitona</i> sp 1			
<i>Lepidochitona</i> sp 2			
Family Chitonidae Rafinesque, 1815			
<i>Acanthopleura granulata</i> (Gmelin, 1791)	X	X	X
<i>Chiton marmoratus</i> Gmelin, 1791	X	X	X
<i>Chiton squamosus</i> Linnaeus, 1764	X	X	
<i>Chiton viridis</i> Spengler, 1797	X		
<i>Leptochiton cancellatus</i> (G. B. Sowerby II, 1840)	X	X	X
<i>Rhyssoplax janeirensis</i> (Gray, 1828)	X		
Family Callistoplacidae Pilsbry, 1893			
<i>Callistochiton portobelensis</i> Ferreira 1976		X	
<i>Ceratozona squalida</i> (Adams, 1845)	X	X	X
Family Ischnochitonidae Dall, 1899			
<i>Ischnochiton erythronotus</i> (C.B. Adams, 1845)	X	X	X
<i>Ischnochiton hartmeyeri</i> Thiele, 1916			
<i>Ischnochiton papillosus</i> (C.B. Adams, 1845)	X	X	X
<i>Ischnochiton striolatus</i> (Gray, 1829)	X	X	X
<i>Stenoplax boogii</i> (Haddon, 1886)		X	
<i>Stenoplax purpurascens</i> (Haddon, 1886)	X	X	X

Abbreviations: CaA: Northeast Area; CaB: Central Area; CaC: Central Western Area. Source informations: Archive/DataBase of the “Project AM”.

of the coastal urban area - tides zone, encrusted with algae, together with a beautiful specimen of caribbean branching anemone *Lebrunia neglecta* (- *danae*) Duchassaing & Michelotti, 1860 (see González-Muñoz et al. 2016: 29 – Appendix 2, Table 3, “record no. 25”) [8].

At least a one very little/diminute chiton species with tufts of glass-hair-like bristles – ACANTHOCHITONIDAE cf. *Acanthochitona andersoni* Watters, 1981, *Acanthochitona venezuelana* Lyons, 1988 or *Acanthochitona pygmaea* (Pilsbry, 1893) – exist in the environment



Figure 3: Shallow water polyplacophoran (chitons) biodiversity in Northeast coastal region of Venezuela: CHITONIDAE *Leptochiton cancellatus* (G. B. Sowerby II, 1840), CALLISTOPLACIDAE *Ceratozona squalida* (Adams, 1845), LEPIDOCHITONIDAE *Lepidochitona liozonis* (Dall & Simpson, 1901), ISCHNOCHITONIDAE *Stenoplax purpurascens* (Haddon, 1886), CHITONIDAE *Acanthopleura granulata* (Gmelin, 1791). (Photos: *Jesús Antonio Bello-Pulido*, collaborator of the “Project AM”).

(reef substrate, loose dead coral) of the restrict “Refugio de Fauna Silvestre Isla de Aves” (Bird Island Wildlife Refuge ~ 15°41’00”N & 63°37’00”W), Northern sector of the Venezuelan Caribbean Sea, occurrence that still needs to be properly investigated.

Among other potential forms still pending confirmation in the country, highlights the iconic species CHITONIDAE *Tonicia schrammi* (Shuttleworth, 1856), the “gold-flecked chiton”, typical representative of the Caribbean Polyplacophoran fauna < <http://www.marinespecies.org/photogallery.php?album=704&pic=103379> ; <https://www.conchology.be/?t=68&u=1096898&g=97858aa8e0d2e81d7c41f5884d1fc0c4&q=0a23a7694181e63fa3a9c05450ac6178> >.

Finally, all the species listed in the present contribution (Table 1) were previously revised through the global platform “WoRMS – World Register of Marine Species” < <http://www.marinespecies.org/> >, checking your current taxonomic status/situation.

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