FishTaxa (2021) 21: 28-59
Journal homepage: www.fishtaxa.com

Western Atlantic spotted groupers (Teleostei: Serranidae: Epinephelinae): stabilisation of currently used scientific names by neotype designations

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Abstract

Three species of spotted groupers in the subfamily Epinephelinae are known from the western Atlantic, *Cephalopholis cruentata* (Lacepède 1802), *Epinephelus adscensionis* (Osbeck 1765), and *E. guttatus* (Linnaeus 1758). Our research into the historical sources of the names revealed a confused history and the unclear identities of the taxa, with both *C. cruentata* and *E. guttatus* being based on material of *E. adscensionis* from Brazil. Type specimens of the three taxa are unknown. Following the ICZN rules the resulting species identities would be highly disruptive to the stability of nomenclature, as all three species would be recognised as *E. guttatus* (the oldest available name, but with an identity as the *E. adscensionis* according to current usage); thus the three species would have to change their names. In order to stabilise these names, neotypes are selected for the three grouper species, so they can retain their currently used names.

Keywords: Groupers, Serranidae, Western Atlantic, Neotypes, Identification key.
Zoobank: urn:lsid:zoobank.org:pub:7738AABE-6575-426F-B427-50C91799B4EE

Citation: Fricke, R., Randall, Z.S., Maclaine, J.S. 2021. Western Atlantic spotted groupers (Teleostei: Serranidae: Epinephelinae): stabilisation of currently used scientific names by neotype designations. FishTaxa 21: 28-59.

Introduction

The sea basses or groupers of the family Serranidae are small to large sized fishes, which are usually found on coral or rocky reefs, mostly in the upper 200 meters of the ocean (Heemstra and Randall 1999). The family includes three valid subfamilies, the Serraninae Swainson 1839, Epinephelinae Bleeker 1874, and Anthiadinae Poey 1861 (Laan et al. 2014, 2021; Nelson et al. 2016). The groupers of the subfamily Epinephelinae are characterised by larvae that share the elongation of one or two anterior dorsal spines, and larvae and adults that share predorsal bone and pterygiophore arrangements which presumably function to support the larval dorsal spines (Kendall Jr. 1984); the Indo-Pacific species of the subfamily were revised by Randall and Heemstra (1991), the worldwide species by Heemstra and Randall (1993), who distinguished 159 valid species in 15 genera. Currently, 189 valid species in 17 genera are recognised (Fricke et al. 2021).

In the western Atlantic, three species of spotted epinephelines were distinguished by Heemstra and Randall (1993), viz. *Cephalopholis cruentata* (Lacepède 1802), *Epinephelus adscensionis* (Osbeck 1765), and *E. guttatus* (Linnaeus 1758). When the senior author worked on the sources of the species names to update Eschmeyer's Catalog of Fishes, he found that both *C. cruentata* and *E. guttatus* were based on pre-Linnean sources from Brazil, both based on *E. adscensionis*. In order to stabilise the current usage of the names of western Atlantic spotted groupers, they are revised in the present paper, and neotypes are proposed.

Material and Methods

The neotypes are deposited in the fish collections of The Natural History Museum, London (BMNH), and Florida Museum of Natural History (UF). Abbreviations of repositories follow Fricke and Eschmeyer (2021); they also include SMNS (Staatliches Museum für Naturkunde Stuttgart). Biometrical counts and measurements follow Hubbs and Lagler (1947), descriptive methods follow Heemstra and Randall (1993); the genus and species classification follows Fricke et al. (2021); the references follow Fricke (2021). North American

Accepted: 23 October 2021; Published: 17 December 2021

Figure 1. *Cephalopholis cruentata* (Lacepède 1802), neotype, UF 222059, 224 mm SL, Caribbean Sea, Venezuela, Los Roques Islands. Lateral view of left side. Photograph by Z. Randall (UF).

vernacular names follow Page et al. (2013). Complete synonymies are provided for each taxon, including all references available to us. We also identified the identities of pre-Linnean names as far as possible. The standard length is abbreviated SL and the head length is abbreviated HL.

Results

Systematic ichthyology: The present paper follows the classifications provided by Nelson et al. (2016) and Laan et al. (2014):

Superclass Gnathostomata
Class Actinopterygii
Subclass Neopterygii
Division Teleostei
Order Perciformes
Family Serranidae Swainson 1839
Subfamily Epinephelinae Bleeker 1874
Genus *Cephalopholis* Bloch & Schneider 1801

Cephalopholis cruentata (Lacepède 1802)

(Figs. 1-4, Table 1)

Common names: Graysby (English); Coné essaim (French); Cherna enjambre (Spanish)

Sparus cruentatus Lacepède 1802: 51, 156, pl. 4 (fig. 1) [Brazil; Martinique; unneeded replacement name for *Perca guttata* Linnaeus 1758; based on *Perca guttata* of Gmelin (1789: 1315), which was based on *Perca guttata* Linnaeus 1758, the 'Gvarvgvarv' (= Guaruguaru) of Markgraf von Liebstad (1648: 169, fig.), the 'Cugupuguacu cogener, corpore rotundiore' of Sloane (1725: 280, pl. 247, fig. 2), the 'Cugupu-guacu brasiliensibus' of Willughby (1686: 303), the 'Cugupu guacu' of Ray (1713: 127), the 'Perche sanguinolente' of Daubenton (1787: 346), the *Perca guttata* of Bonnaterre (1788: 130), the 'Cugupuguacu' of Catesby (1771: 14, pl. 14), and the *Perca guttata* of Bloch (1792: pl. 312); and also on a manuscript drawing by Plumier from Martinique].

Serranus coronatus Valenciennes in Cuvier & Valenciennes 1828: 371 [Martinique Island, West Indies; syntypes: MNHN 0000-0890 (1), A-7713 (1, dry); unneeded replacement name for *Perca guttata* of Bloch (1792: pl. 312), which was based on *Perca guttata* Linnaeus 1758]. Storer (1846: 280). Müller and Troschel (1849: 665) (Barbados). Günther 1859: 124 (Venezuela; Cuba; Trinidad). Müller 1865: 623. Cope 1871: 446 (St. Croix). Günther (1880: 8) (Bermuda). Cockerell (1892: 8) (Jamaica). Bauchot et al. (1984: 26, 59).

Serranus apiarius Poey 1860: 143 [La Habana/Havana, Cuba; syntypes: MCZ 9998 (1), 10068 (1, missing), 10158 (1)]. Howell y Rivero (1938: 189).

Figure 2. *Cephalopholis cruentata* (Lacepède 1802), neotype, UF 222059, 224 mm SL, Caribbean Sea, Venezuela, Los Roques Islands. Lateral view of head. Photograph by Z. Randall (UF).

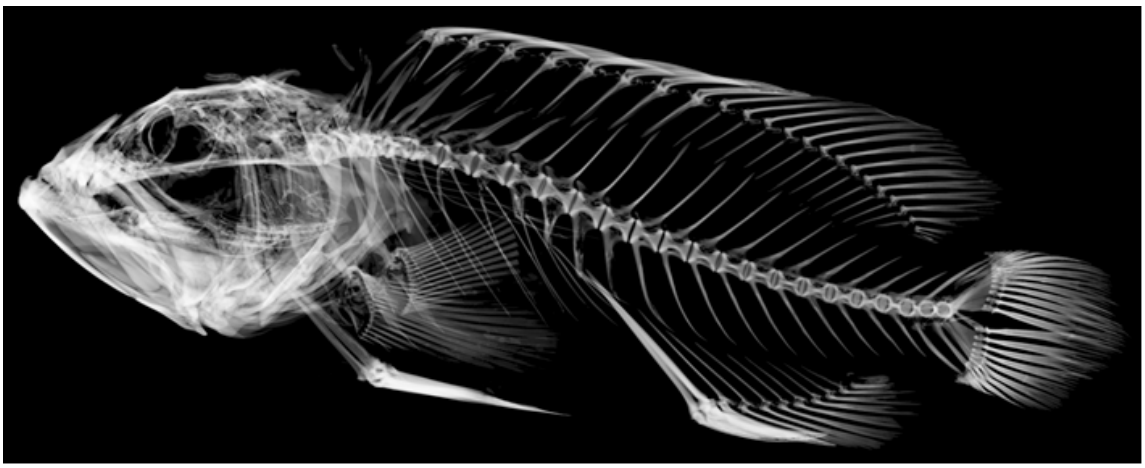

Figure 3. *Cephalopholis cruentata* (Lacepède 1802), neotype, UF 222059, 224 mm SL, Caribbean Sea, Venezuela, Los Roques Islands. X-ray. Photograph by Z. Randall (UF).

Figure 4. *Cephalopholis cruentata* (Lacepède 1802), Puerto Rico. Photograph by the late J. E. Randall (BPBM).

Petrometopon coronatus: Poey 1865: 198 (Cuba). Fowler (1929: 158) (Port-au-Prince, Haiti).
Petrometopon apiarius: Poey 1868: 288 (Cuba). Poey (1875: 94 [20]).
Enneacentrus guttatus var. *coronatus*: Jordan & Swain 1884: 399.
Enneacentrus guttatus coronatus: Jordan 1885a: 85; 1886a: 41; 1886b: 581.

Table 1. Morphometric data and proportions of the neotype of *Cephalopholis cruentata* (Lacepède 1802), UF 222059 (224 mm SL).

Measurements	mm	% of SL
Standard length	224	
Greatest body depth	79.38	35.44
Body width	42.46	18.96
Head length	89.51	39.96
Snout length	25.57	11.42
Orbit diameter	14.07	6.28
Interorbital width	14.52	6.48
Caudal-peduncle depth	28.06	15.53
Caudal-peduncle length	34.37	15.34
Predorsal length	91.79	40.98
Preanal length	152.88	68.25
Prepelvic length	88.54	39.53
Upper-jaw length	47.08	21.02
First dorsal spine length	14.03	6.26
Longest dorsal spine length	31.40	14.02
Longest dorsal soft ray length	32.00	14.28
First anal spine length	16.34	7.29
Second anal spine length	27.38	12.22
Third anal spine length	22.57	10.08
Longest anal soft-ray length	33.57	14.99
Caudal-fin length	49.08	21.91
Pectoral-fin length	52.75	23.55
Pelvic-spine length	23.92	10.68
Pelvic-fin length	42.95	19.17

Bodianus cruentatus: Jordan 1890: 648 (St. Lucia). Henshall 1895: 216 (Florida, USA).

Petrometopon cruentatus: Jordan & Evermann 1896: 371 (on Lacepède). Jordan and Rutter (1897: 104) (Jamaica). Evermann and Kendall (1900: 73) (Florida Keys, U.S.A.). Evermann and Marsh (1900: 149) (Puerto Rico). Evermann and Goldsborough (1902: 153) (Quintana Roo, Mexico). Bean (1906: 54) (Bermuda). Rosén (1911: 5) (Bahamas). Nichols (1912: 187) (Havana, Cuba). Fowler (1915: 543) (Grenada). Fowler (1919: 144) (Saint Croix). Jordan and Evermann (1920: 380). Nichols (1921: 22) (Turks Islands). Meek and Hildebrand (1925: 441) (Panama). Breder (1927: 39) (Grand Cayman Island). Fowler (1930: 272) (Grenada). Jordan et al. (1930: 308). Parr (1930: 49) (Turks Islands). Beebe and Tee-Van (1933: 119) (Bermuda). Borodin (1934: 112) (Bermuda; Key West, Florida, U.S.A.). Howell y Rivero (1938: 189). Fowler (1939: 12) (Jamaica). Butsch (1939: 23) (Barbados). Fowler (1942: 68) (Cuba). Springer and Bullis (1956: 78). Smith (1958: 21, pl. 2) (Bermuda). Smith (1959: 114). Kimmel (1985: 89) (Puerto Rico).

Petrometropon cruentatus coronatus: Jordan & Evermann 1896: 371 (on Cuvier). Evermann and Kendall (1900: 73) (Florida, U.S.A.). Fowler (1915: 533) (Port-of-Spain), Fowler (1919: 150) (Bahamas). (Beebe Fowler Tee-Van (1928: 126) (Port-au-Prince). Nichols (1929: 248) (St. Croix). Jordan et al. (1930: 308). Fowler (1944: 444) (Bahamas), Fowler (1953: 5) (Venezuela). Briggs (1958: 273).

Cephalopholis cruentatus: Jordan & Thompson 1905: 239. Chiappone et al. (2000: 266). Craig et al. (2001: 124). Bouchon-Navaro et al. (2005: 42). McClellan and Miller (2005: 505) (Navassa Island). Mumby et al. (2012: 16).

Petrometopon cruentatum: Fowler 1907: 252 (Puerto Rico). Smith (1959: 111). Bailey et al. (1960: 25). Randall (1963: 34) (Virgin Islands). Briggs et al. (1964: 451) (southeast of Port Aransas, Texas, U.S.A.). Caldwell (1966:

63) (Jamaica). Cervigón (1966: 293) (Venezuela). Randall (1967: 705). Böhlke and Chaplin (1968: 265) (Bahamas). Randall (1968: 64). Thompson and Munro (1974: 66). Walls (1975: 181). Nagelkerken (1977: 311) (Curaçao). Thompson and Munro (1978: 117).

Bodianus stellatus Blosser 1909: 297, pl. 10 (St. Croix Island, Virgin Islands, West Indies; holotype: FMNH 53048). Jordan (1910: 184). Henn (1928: 91). Zaneveld (1962: 154) (Netherlands Antilles). Ibarra and Stewart (1987: 16).

Epinephelus (Petrometopon) stellatus: Metzelaar 1919: 46 (Curaçao).

Epinephelus (Bodianus) stellatus: Metzelaar 1919: 47 (Curaçao).

Petrometopon cruentatus cruentatus: Nichols 1929: 247 (Puerto Rico). Fowler (1944: 444) (Bahamas). Briggs 1958: 273.

Cephalopholis stellatus: Jordan et al. 1930: 309.

Epinephelus cruentatus: Smith 1971: 97. Collette and Talbot (1972: 107). Bright and Cashman (1974: 350). Smith et al. (1975: 6) (Florida Middle Ground, U.S.A.). Bright and Rezak (1976: 256). Kaufman (1976: 377). Smith (1976: 41). Sonnier et al. (1976: 108) (Louisiana, U.S.A.). Hoese and Moore (1977: 171). Smith (1978: 52). Nagelkerken (1979: 1; 1981: 27). Williams and Williams (1981: 1009). Robins and Ray (1986: 132). Bullock and Smith (1991: 84) (Bahamas; Florida, U.S.A.). Cervigón (1991: 323) (Venezuela). Boschung (1992: 105). Beets and Hixon (1994: 473) (Virgin Islands). Sluka et al. (1994: 871). Sullivan and Sluka in Arreguín-Sánchez et al. (1996: 83). Posada and Appeldoorn (2004: 130). Gobert et al. (2005: 3) (Honduras). Baremore and Bethea (2010: 73).

Epinephelus (Cephalopholis) cruentatus: Johnson & Keener 1984: 109.

Epinephelus cruentatum: Colin 1974: 31 (Jamaica; Belize).

Cephalopholis cruentata: Matsuura in Uyeno et al. 1983: 304. Cervigón (1992: 426). Heemstra and Randall (1993: 38). Grace et al. (1994: 12). Smith-Vaniz et al. (1999: 204) (Bermuda). Schmitter-Soto et al. (2000: 156) (Mexico). Collette et al. (2003: 105) (Navassa Island). Heemstra et al. (2003: 1335). Smith et al. (2003: 21) (Pelican Cays, Belize). Nelson et al. (2004: 127). Ferro et al. (2005: 58) (Broward County, Florida, U.S.A.). McEachran and Fechhelm (2005: 137). Craig et al. (2011: 20). González-Gándara et al. (2012: 680) (Veracruz, Mexico). Page et al. (2013: 130). Aguilar et al. (2014: 594) (Cuba). Smith-Vaniz and Jelks (2014: 38) (St. Croix, U.S. Virgin Islands). Robertson et al. (2016: 144) (Campeche Bank, Gulf of Mexico). Ma and Craig (2018: 454). Rocha (2018: 1). Seemann et al. (2018: 8) (Panama). Robertson et al. (2019: 81) (Campeche Bank, Gulf of Mexico). González-Gándara (2020: 39) (Veracruz, Mexico). Parenti and Randall (2020: 52). Robertson et al. (2020: 162) (Sint Eustatius).

Neotype: UF 222059, 224 mm SL, Caribbean Sea, Venezuela, Los Roques Islands, Dos Mosquises, southern tip of southern island, 11.80104°N 66.896255°W, 5-8 m depth, Donald P. DeSylva et al., 12 Aug. 1963.

Other material (all western Atlantic Ocean): NSMT-P 40986 (1), Suriname; UF 3541 (1), Bahamas, New Providence Island; UF 8939 (1), Bahamas, New Providence Island; UF 9186 (1), Bahamas, New Providence Island; UF 10824 (7), U.S.A., Florida Keys; UF 11544 (1), Leeward Islands, Antigua; UF 12113 (1 skeleton), Leeward Islands, Antigua; UF 12116 (1 skeleton), Leeward Islands, Antigua; UF 12117 (1 skeleton), Leeward Islands, Antigua; UF 12479 (3), Cayman Islands, Grand Cayman Island; UF 12733 (1), Leeward Islands, Antigua; UF 12815 (5), Cayman Islands, Grand Cayman Island; UF 13271 (2), Cayman Islands, Grand Cayman Island; UF 13416 (3), Bahamas, Eleuthera Island; UF 13437 (2), Bahamas, Eleuthera Island; UF 13471 (5), Bahamas, Eleuthera Island; UF 13544 (4), Bahamas, Long Island; UF 13585 (5), Bahamas, Plana Cays; UF 13739 (1), Bahamas, Crooked Island; UF 13774 (4), Bahamas, Andros Islands; UF 13835 (9), Bahamas, Long Island; UF 13913 (10), Bahamas, Eleuthera Island; UF 14025 (1), Bahamas, Exuma Cays; UF 14094 (1), Bahamas, Rum Cay; UF 14158 (1), Bahamas, Cat Island; UF 14272 (5), Bahamas, Eleuthera Island; UF 14320

(5), Bahamas, Andros Islands; UF 14459 (1), Cayman Islands, Grand Cayman Island; UF 14501 (1), Cayman Islands, Grand Cayman Island; UF 15989 (2), U.S.A., Florida, Palm Beach; UF 16129 (19), U.S.A., Florida Keys; UF 16628 (1), Jamaica; UF 16647 (6), Bahamas, Andros Islands; UF 16704 (4), Bahamas, Little San Salvador; UF 17065 (1), Bahamas, Andros Islands; UF 17117 (5), Bahamas, Little San Salvador; UF 17538 (1), Bahamas, Long Island; UF 17588 (1), Cayman Islands, Grand Cayman Island; UF 17756 (7), Cayman Islands, Grand Cayman Island; UF 17978 (3), Cayman Islands, Grand Cayman Island; UF 18307 (3), Bahamas, Long Island; UF 18866 (1), Colombia, Isla de Providencia; UF 19863 (1), Colombia, Isla de Providencia; UF 20154 (1 skeleton), Venezuela, Nueva Esparta; UF 20155 (1 skeleton), U.S.A., Florida Keys; UF 20156 (1 skeleton), U.S.A., Florida Keys; UF 23530 (2), Colombia, Isla de Providencia; UF 24494 (2), Cayman Islands, Grand Cayman Island; UF 24936 (2), Colombia, Isla de Providencia; UF 25092 (1), Colombia, Isla de Providencia; UF 25247 (1), Cayman Islands, Grand Cayman Island; UF 25248 (1), Cayman Islands, Grand Cayman Island; UF 25367 (3), Colombia, Isla de Providencia; UF 25599 (3), Colombia, Isla de Providencia; UF 25682 (1), Colombia, Isla de Providencia; UF 25732 (4), Colombia, Isla de Providencia; UF 25838 (1), Colombia, Isla de Providencia; UF 28724 (4), Cayman Islands, Grand Cayman Island; UF 31186 (1), U.S.A., Florida Keys; UF 32106 (1 skeleton), Leeward Islands, Saint Eustatius; UF 32571 (6), Cayman Islands, Grand Cayman Island; UF 36436 (2), U.S.A., Florida Keys; UF 38611 (3), Trinidad and Tobago, Trinidad Island; UF 41901 (1), U.S.A., North Carolina; UF 42607 (1), U.S.A., North Carolina; UF 44190 (1), U.S.A., North Carolina; UF 46872 (1), U.S.A., Florida Keys; UF 48186 (1 skeleton), Haiti; UF 48639 (1 skeleton), Haiti; UF 48640 (1 skeleton), Haiti; UF 48641 (1 skeleton), Haiti; UF 48642 (1 skeleton), Haiti; UF 48844 (1 skeleton), Puerto Rico; UF 65467 (1), U.S.A., Florida, Miami-Dade; UF 65468 (1), U.S.A., Florida, Miami-Dade; UF 66807 (1), Virgin Islands, Anegada; UF 70099 (1), U.S.A., Florida; UF 81821 (1), U.S.A., Florida Keys; UF 92999 (3), Haiti; UF 103562 (1), U.S.A., Florida Keys; UF 103584 (1), U.S.A., Florida Keys; UF 103586 (1), U.S.A., Florida Keys; UF 103670 (1), U.S.A., Florida Keys; UF 103687 (1), U.S.A., Florida Keys; UF 110010 (1), U.S.A., Florida Keys; UF 111496 (1), U.S.A., Florida Keys; UF 118304 (1), Bahamas, New Providence Island; UF 118305 (1), Honduras; UF 118306 (1), Honduras; UF 118307 (1), Honduras; UF 118308 (1), Honduras; UF 118309 (1), Honduras; UF 118310 (1), Colombia; UF 118980 (1), U.S.A., Florida Keys; UF 118991 (1), U.S.A., Florida Keys; UF 119188 (2), U.S.A., Florida Keys; UF 127278 (1), U.S.A., Florida; UF 127284 (1), Panama; UF 127285 (2), Netherlands Antilles, Curaçao; UF 139006 (1), Windward Islands, Grenadines; UF 139007 (1), Colombia; UF 139008 (9), Puerto Rico; UF 139012 (1), U.S.A., Florida, Miami-Dade; UF 139013 (1), U.S.A., Florida, Miami-Dade; UF 139014 (1), U.S.A., Florida; UF 139048 (1), U.S.A., Florida, Okaloosa; UF 143746 (1), U.S.A., Florida, Miami-Dade; UF 152003 (10), U.S.A., Florida Keys; UF 158256 (2), Virgin Islands, Saint Croix; UF 158257 (1), Virgin Islands, Saint Croix; UF 158258 (1), Virgin Islands, Saint Croix; UF 158259 (1), Virgin Islands, Saint Croix; UF 160167 (2), Virgin Islands, Saint Croix; UF 160279 (1), Virgin Islands, Saint Thomas; UF 160788 (4), Virgin Islands, Saint Croix; UF 160789 (3), Virgin Islands, Saint Croix; UF 160790 (2), Virgin Islands, Saint Croix; UF 160791 (1), Virgin Islands, Saint Croix; UF 160792 (1), Virgin Islands, Saint Croix; UF 160793 (1), Virgin Islands, Saint Croix; UF 160794 (1), Virgin Islands, Saint Croix; UF 160795 (1), Virgin Islands, Saint Croix; UF 160796 (1), Virgin Islands, Saint Croix; UF 160797 (2), Virgin Islands, Saint Croix; UF 160798 (8), Virgin Islands, Saint Croix; UF 160799 (2), Virgin Islands, Saint Croix; UF 160800 (2), Virgin Islands, Saint Croix; UF 161231 (1), Virgin Islands, Saint Croix; UF 164370 (1), Virgin Islands, Saint Croix; UF 164517 (2), Virgin Islands, Saint Croix; UF 164518 (1), Virgin Islands, Saint Croix; UF 164526 (4), Virgin Islands, Saint Croix; UF 164612 (3), Virgin Islands, Saint Croix; UF 164613 (1), Virgin Islands, Saint Croix; UF 164650 (5), Virgin Islands, Saint Croix; UF 164896 (3), Virgin Islands, Saint Croix; UF 165105 (5), Virgin Islands, Saint Croix; UF 165109 (5), Virgin Islands, Saint Croix; UF 165114 (1), Virgin Islands, Saint Croix; UF 165118 (7), Virgin Islands, Saint Croix; UF 171311 (2), U.S.A., Florida; UF 173792 (1), Virgin

Islands, Saint John; UF 173804 (1), Virgin Islands; UF 173808 (1), Virgin Islands, Saint John; UF 170071 (1), Bahamas, New Providence Island; UF 182992 (1), Virgin Islands, Saint Croix; UF 183086 (1), Virgin Islands, Saint Croix; UF 183304 (1), Virgin Islands, Saint Croix; UF 187311 (1), Colombia, Isla de Providencia; UF 200417 (3), U.S.A., Florida, Miami-Dade; UF 201923 (1), Puerto Rico; UF 203718 (1), U.S.A., Florida Keys; UF 203757 (3), Virgin Islands, Saint John; UF 204226 (2), U.S.A., Florida Keys; UF 204353 (1), Bahamas, Andros Islands; UF 204674 (2), U.S.A., Florida Keys; UF 204837 (1), Virgin Islands, Saint John; UF 204903 (6), Virgin Islands, Saint John; UF 204992 (1), Virgin Islands, Saint John; UF 205253 (1), U.S.A., Florida Keys; UF 205317 (8), U.S.A., Florida Keys; UF 205432 (1), U.S.A., Florida Keys; UF 205700 (6), U.S.A., Florida Keys; UF 205822 (6), U.S.A., Florida Keys; UF 205913 (1), U.S.A., Florida Keys; UF 206123 (1), Bahamas, Andros Islands; UF 206158 (9), Haiti; UF 206406 (1), U.S.A., Florida Keys; UF 206728 (10), Haiti; UF 207200 (1), Bahamas, Exuma Cays; UF 207478 (1), U.S.A., Florida Keys; UF 207545 (8), U.S.A., Florida Keys; UF 207833 (1), Bahamas, Elbow Bank; UF 207861 (1), Bahamas, Elbow Bank; UF 208865 (1), U.S.A., Florida Keys; UF 209279 (1), Belize; UF 209477 (2), Belize; UF 209531 (12), Belize; UF 209630 (1), Mexico, Quintana Roo; UF 210092 (4), Bahamas, Elbow Bank; UF 210755 (3), U.S.A., Florida Keys; UF 210862 (3), U.S.A., Florida Keys; UF 210940 (1), Virgin Islands, Saint John; UF 212572 (7), Bahamas, Exuma Cays; UF 212572 (7), Bahamas, Exuma Cays; UF 212645 (1), Bahamas, Exuma Cays; UF 212687 (2), Bahamas, Exuma Cays; UF 212800 (1), Bahamas, Exuma Cays; UF 212964 (1), Bahamas, Exuma Cays; UF 213076 (2), U.S.A., Florida Keys; UF 213529 (1), U.S.A., Florida Keys; UF 214125 (1), Venezuela, Los Roques Islands; UF 214991 (5), Virgin Islands, Saint John; UF 215348 (1), Venezuela, Los Roques Islands; UF 216088 (1), U.S.A., Florida Keys; UF 218181 (1), U.S.A., Florida Keys; UF 218214 (10), U.S.A., Florida Keys; UF 218283 (9), U.S.A., Florida Keys; UF 218818 (7), U.S.A., Florida Keys; UF 218878 (1), U.S.A., Florida Keys; UF 218912 (9), U.S.A., Florida Keys; UF 218980 (4), U.S.A., Florida Keys; UF 219101 (2), U.S.A., Florida Keys; UF 219133 (2), U.S.A., Florida Keys; UF 219207 (7), U.S.A., Florida Keys; UF 219243 (1), U.S.A., Florida Keys; UF 219359 (1), U.S.A., Florida Keys; UF 219402 (1), U.S.A., Florida Keys; UF 219473 (3), U.S.A., Florida Keys; UF 219545 (9), U.S.A., Florida Keys; UF 219572 (3), U.S.A., Florida Keys; UF 219691 (3), U.S.A., Florida Keys; UF 219743 (1), U.S.A., Florida Keys; UF 219764 (16), U.S.A., Florida Keys; UF 219875 (4), U.S.A., Florida Keys; UF 219922 (1), U.S.A., Florida Keys; UF 220077 (3), U.S.A., Florida Keys; UF 220128 (2), U.S.A., Florida Keys; UF 220226 (1), U.S.A., Florida Keys; UF 221931 (1), Bahamas, New Providence Island; UF 221994 (1), Bahamas, New Providence Island; UF 247400 (4), Venezuela, Los Roques Islands; UF 222063 (1), Bahamas, New Providence Island; UF 222111 (2), Bahamas, New Providence Island; UF 222301 (1), Bahamas, New Providence Island; UF 222553 (1), U.S.A., Florida, Broward County; UF 223358 (1), Colombia; UF 224054 (2), Colombia; UF 224404 (1), Panama; UF 228259 (1), Nicaragua; UF 228400 (3), Bahamas, Elbow Bank; UF 228954 (1), Jamaica; UF 229272 (2), Haiti; UF 229701 (1), Jamaica; UF 229712 (1), Colombia; UF 229915 (3), Colombia; UF 230043 (3), Colombia; UF 230235 (1), Dominican Republic, Bahia de Ocoa; UF 230360 (1), Jamaica; UF 232625 (2), Nicaragua; UF 232701 (1), Venezuela; UF 233687 (1), Bahamas, Elbow Bank; UF 240077 (1), Colombia; Isla de Providencia; UF 241810 (1), Colombia.

Diagnosis: (after Heemstra and Randall 1993: 39) Body depth distinctly less than head length, body depth contained 2.5 to 2.9 times in standard length (for fish 13 to 26 cm standard length). Head length contained 2.4 to 2.6 times in standard length; interorbital area flat to slight convex; preopercle rounded, finely serrate, with shallow notch above the angle; nostrils small, subequal; maxilla scaly, reaching past vertical at rear edge of eye. Gill rakers 18 to 25 (total). Dorsal fin with IX spines and 13 to 15 rays, the fourth or fifth spines longest and the membrane distinctly indented between all the spines; anal fin with III spines and 8 rays; pectoral-fin rays 16; caudal fin rounded. Lateral-body scales distinctly ctenoid; lateral-line scales 47 to 51; lateral-scale series 69 to 81.

Description of neotype: (Figs. 1, 2) Morphometric data and proportions are given in Table 1. Dorsal-fin rays IX,14; anal-fin rays III,8; all dorsal and anal soft rays branched, last to base; pectoral-fin rays 15, uppermost unbranched (lowermost ray also unbranched); pelvic-fin rays I,5; principal caudal-fin rays 17, upper and lower unbranched; upper procurrent caudal-fin rays 8, posterior two segmented; lower procurrent caudal-fin rays 7, posterior two segmented; lateral-line scales 49, plus 3-4 pored scales on caudal-fin base; longitudinal scale series 69; 16 scales above lateral line to origin of dorsal fin; 20 scales below lateral line to origin of anal fin; circumpeduncular scales about 50; gill rakers 8 + 15; pseudobranchial filaments 47; branchiostegal rays 7; vertebrae 10 + 14 (Fig. 3).

Body depth 2.8 in SL; body compressed, body width 1.87 in depth; head length 2.5 in SL; dorsal profile of head slightly convex, with a strong concave indentation above orbit; snout length 3.5 in head; orbit diameter 6.4 in head; interorbital width 6.2 in head; caudal-peduncle depth 3.2 in head; caudal-peduncle length 2.6 in head.

Mouth large, maxilla extending well posterior to a vertical at rear end of orbit; upper-jaw length 1.9 in head; mouth slightly oblique, forming an angle of about 25° to horizontal axis of head and body, lower jaw strongly projecting; depth of maxilla (including supramaxilla) about equal to three-fourths of orbit diameter; ascending process of premaxilla extending to above anterior edge of orbit; a pair of stout incurved canine teeth anteriorly in jaws, the lower pair medial to upper pair; upper canines about one-fifth orbit diameter; front of upper jaw with about six rows of slender inwardly depressible teeth, progressively longer posteriorly, longest about twice as long as anterior canines; side of upper jaw with about 28 fixed conical teeth that curve inwardly and posteriorly, and a continuation of band of slender depressible teeth from front of jaw, narrowing to a single row posteriorly; a V-shaped band of very small teeth on vomer in two or three irregular rows, and a narrow band of very small teeth on palatines in two or three irregular rows. Tongue slender with numerous small papillae on upper surface. Longest gill raker at angle longer than longest gill filament on first arch, 2.5 in orbit diameter.

Anterior nostril a flaring translucent membraneous tube, higher posteriorly, in front of centre of eye by a distance equal to 2.8 in orbit diameter; posterior nostril slightly larger, round with a slight rim, dorsoposterior to anterior nostril, the internarial distance slightly smaller than diameter of anterior nostril. Opercle with three prominent flat sharp spines, central spine slightly posterior and closer to lower than upper spine; posterior edge of preopercle weakly serrate, rounded corner and posterior margin fleshy; margin of subopercle and interopercle smooth; dorsal edge of opercular membrane broadly truncate.

Lateral line slightly arched over pectoral region, then straight leading obliquely downward towards level of end of dorsal-fin base, and then again straight and horizontal on caudal peduncle; scales on body ctenoid, becoming cycloid anterodorsally before sixth dorsal spine, and on thorax and prepectoral region; no auxiliary scales on body, but some present on cycloid scales of opercle; scales on cheek small, becoming embedded anteriorly; embedded scales on side of snout; embedded scales dorsally on snout extending forward nearly to edge of upper lip; no scales on maxilla; small scales on median fins, progressively smaller and more embedded distally, reaching nearly to fin margins; small scales on lateral surface of pectoral fins and basal medial surface of pelvic fins.

Origin of dorsal fin on level behind tip of middle opercular spine, at level of sixth lateral-line scale, the predorsal length 2.44 in SL; spines of dorsal fin relatively broad; first dorsal-fin spine 6.4 in head; longest dorsal-fin spine (ninth) 2.85 in head; longest dorsal-fin soft ray (ninth) 2.8 in head; posterior end of dorsal fin reaching posteriorly to base of caudal fin, posterior end of anal fin not reaching to caudal-fin base; origin of anal fin below of first dorsal-fin soft ray, preanal length 1.46 in SL; first anal-fin spine 5.5 in head; second anal-fin spine 3.3 in head; longest anal-fin soft ray (fourth) 2.7 in head; caudal fin rounded, caudal-fin length 1.82 in head; pectoral fins rounded, the middle rays longest, 1.7 in head; origin of pelvic fins below lower base of pectoral fins, prepelvic length 2.5 in SL; pelvic fins not reaching anus, second soft ray longest, 2.1 in head.

Colour in life: (Fig. 4) (after Heemstra and Randall 1993: 39) Head, body, and fins pale grey, brown, or olive

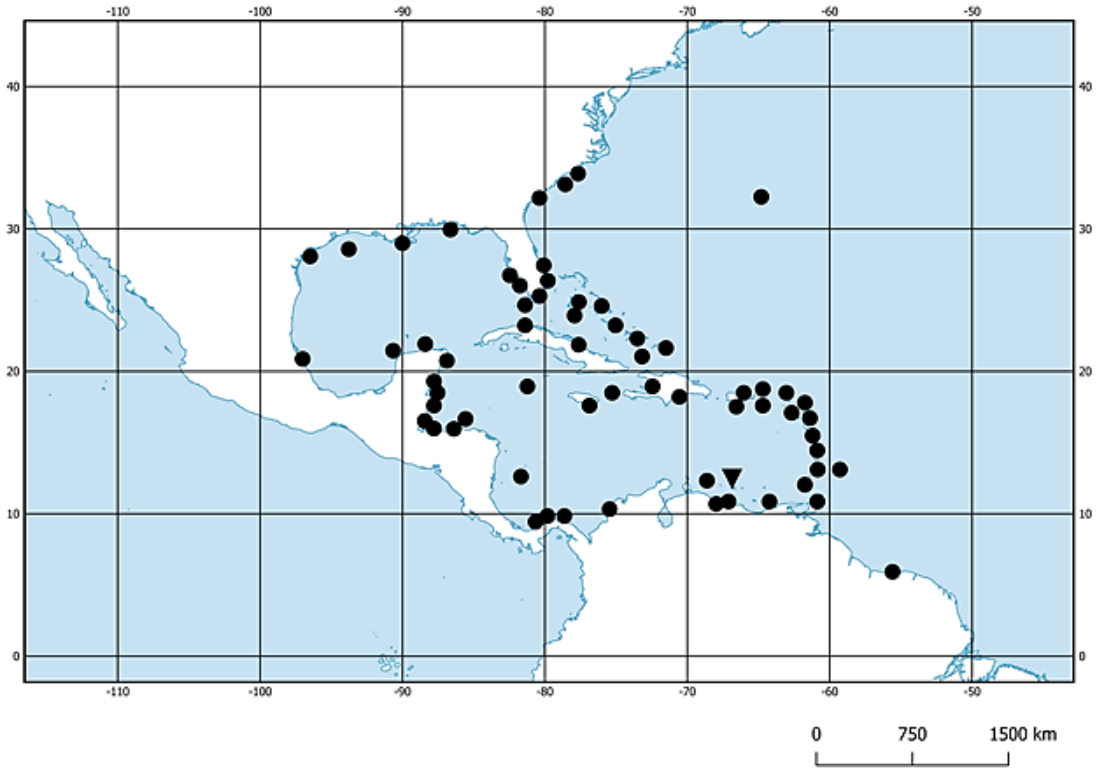

Figure 5. Geographical distribution of *Cephalopholis cruentata* (Lacepède 1802). Triangle: Neotype, UF 222059. **Closed circles:** Other records.

green, covered with orange-brown or reddish spots; 4 distinct spots, which can change rapidly from black to white or back again, at base of dorsal fin; a mid-dorsal white stripe sometimes present from tip of lower jaw to nape.

Distribution: (Fig. 5) Western Atlantic: Bermuda and North Carolina (U.S.A.) south to Trinidad and Tobago and Suriname, including eastern and southern Gulf of Mexico and Caribbean Sea.

Remarks: In our research on the sources of the name *Sparus cruentatus* Lacepède 1802, we found that it was an unneeded replacement name for *Perca guttata* Linnaeus 1758. *Sparus cruentatus* Lacepède 1802 was based on *Perca guttata* of Gmelin (1789: 1315), which was based on *Perca guttata* Linnaeus 1758, the 'Gvarvgvarv' of Markgraf von Liebstad (1648: 169, fig.), the 'Cugupuguacu cogener, corpore rotundiore' of Sloane (1725: 280, pl. 247, fig. 2), the 'Cugupu-guacu brasiliensibus' of Willughby (1686: 303), the 'Cugupu guacu' of Ray (1713: 127), the 'Perche sanguinolente' of Daubenton (1787: 346), the *Perca guttata* of Bonnaterre (1788: 130), the 'Cugupuguacu' of Catesby (1771: 14, pl. 14), and the *Perca guttata* of Bloch (1792: pl. 312), and thus a composite species; and finally on a manuscript drawing by Plumier from Martinique. Type localities would have been Brazil and Martinique. No type specimens of *S. cruentatus* Lacepède 1802 have been preserved (Fricke et al. 2021b).

As this was an unneeded replacement name for *Perca guttata* Linnaeus 1758, it would be a junior synonym of *Epinephelus guttatus* (Linnaeus 1758), which is in fact the same as the *E. adscensionis* (Osbeck 1765) of current usage. Searching for an available name for the *Cephalopholis cruentata* (Lacepède 1802) of current usage, the junior synonym next in line would be *Serranus coronatus* Valenciennes in Cuvier & Valenciennes 1828; however, this nominal species is again an unneeded replacement name for *Perca guttata* of Bloch (1792: pl. 312), based on *Perca guttata* Linnaeus 1758. Therefore, *Serranus coronatus* Valenciennes 1828 would again be the same as the *E. adscensionis* (Osbeck 1765) of current usage.

Only the rarely used names *Serranus apiarius* Poey 1860 and *Bodianus stellatus* Blosser 1909 would refer to the *Cephalopholis cruentata* (Lacepède 1802) of current usage. Strictly applying the ICZN rules, the oldest available

name for the taxon would therefore be *Serranus apiarius* Poey 1860. This would be highly disruptive for the stability of nomenclature.

For the *Cephalopholis cruentata* (Lacepède 1802) of current usage, we have detected at least 99 subsequent usages of the name *cruentatus/cruentata* as valid (see the synonymy above), while *coronatus* was only used 24 times, and not as valid after 1958; *stellatus* was used 7 times (not as valid after 1962), and *apiarius* was used 3 times (not as valid after 1938). In order to stabilise the current usage of the name in the sense of Heemstra & Randall (1993), we here consider *Sparus cruentatus* Lacepède 1802 as a species description independent of *Perca guttata* Linnaeus 1758. The specimen UF 222059 is hereby selected as the neotype of *Sparus cruentatus* Lacepède 1802 (see Figs. 1, 2). The locality of the neotype in the Caribbean Sea at Los Roques Islands (Venezuela) is as close as practical to the original type locality in Brazil, where the species of current usage does not occur. The southern range limit of *C. cruentata* (Lacepède 1802) is now restricted to Trinidad and Tobago and Suriname (see Fig. 5).

Genus *Epinephelus* Bloch 1793

***Epinephelus adscensionis* (Osbeck 1765)**

(Figs. 6-8, Table 2)

Common names: Rock hind (English); Mérou oualioua (French); Mero cabrilla (Spanish); Cabrilla payaso (Spanish, Mexico)

Gvarvgvarv [Guaruguaru]: Markgraf von Liebstad 1648: 169, fig. (Brazil)

Cugupuguacu cogener, corpore rotundiore: Sloane 1725: 280, pl. 247, fig. 2 (on Markgraf von Liebstad).

Cugupu-guacu brasiliensibus: Willughby 1686: 303 (on Markgraf von Liebstad).

Cugupu guacu: Ray 1713: 127 (on Markgraf von Liebstad).

Trachinus adscensionis Osbeck 1765: 388 (Ascension Island, southern-central Atlantic; no types preserved).

Cugupuguacu: Catesby 1771: 14, pl. 14 (on Markgraf von Liebstad).

Perche sanguinolente: Daubenton 1787: 346 (on Markgraf von Liebstad).

Trachinus ascensionis: Bonnaterre 1788: 45 (on Osbeck).

Perca guttata: Bonnaterre 1788: 130.

Holocentrus punctatus Bloch 1790: 88, pl. 241 [Brazil; no types known; based on the Pira pixanga of Markgraf von Liebstad (1648: 152, fig. on p. 153)]; 1797a: 69, pl. 241.

Perca maculata Bloch 1792: 92, pl. 313 (Martinique Island, West Indies; no types known; subjectively invalid; secondarily preoccupied in *Epinephelus* by *Holocentrus maculatus* Bloch 1790; replaced by *Sparus atlanticus* Lacepède 1802); 1797b: 81, pl. 313.

Trachinus osbeck Lacepède 1800: 353, 364 (Ascension Island; no types preserved; unnecessary replacement name for *Trachinus adscensionis* Osbeck 1765). Sonnini 1803: 247, 262.

Sparus atlanticus Lacepède 1802: 52, 156, pl. 5 (fig. 1) (Martinique Island, West Indies; no types known; replacement name for *Perca maculata* Bloch 1792, preoccupied in *Epinephelus* by *Holocentrus maculatus* Bloch 1790).

Holocentrus pirapixanga Lacepède 1802: 339, 380 [Brazil; appeared as *pira-pixangua* on p. 380; new name for *Holocentrus punctatus* Bloch 1790].

Serranus nigriceps Valenciennes in Cuvier & Valenciennes 1830: 517 (no locality; holotype: MNHN 0000-7393).

Serranus catus Valenciennes in Cuvier & Valenciennes 1828: 373 (part: unneeded replacement name for *Perca maculata* Bloch 1792].

Serranus nigriculus Valenciennes in Cuvier & Valenciennes 1828: 375 [West Indies; syntypes: MNHN

Figure 6. *Epinephelus adscensionis* (Osbeck 1765), neotype, BMNH 1979.1.5.20, 95.1 mm SL, Ascension Island, Pratt Point. Lateral view. Photograph: Lucie Goodayle.

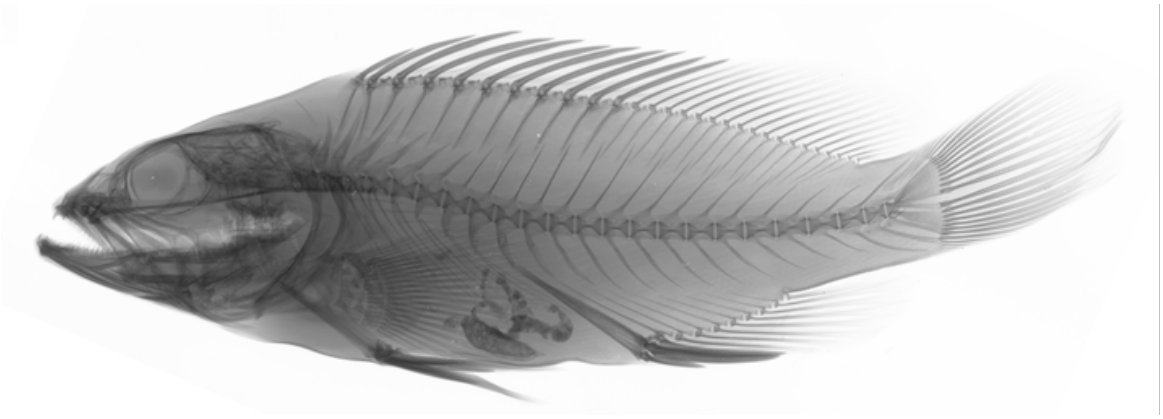

Figure 7. *Epinephelus adscensionis* (Osbeck 1765), neotype, BMNH 1979.1.5.20, 95.1 mm SL, Ascension Island, Pratt Point. X-ray photograph.

0000-7275 (1, Martinique), 0000-7276 (1, Santo Domingo/Dominican Republic); ZMB 241 (1, Santo Domingo/Dominican Republic)].

Serranus pixanga Valenciennes in Cuvier & Valenciennes 1828: 383 [Brazil; no types known; based on *Holocentrus punctatus* Bloch 1790, and on the Pira pixanga of Markgraf von Liebstad (1648: 152, fig. on p. 153)].

Serranus luridus Ranzani 1842: 356, pl. 36 (fig. 1) (Brazil; holotype: MZUB 977).

Serranus impetiginosus Müller & Troschel in Schomburgk 1848: 665 [13] (Barbados, West Indies; holotype: ZMB 237). Günther 1859: 142 (Trinidad); 1868: 225 (Saint Helena Island).

Serranus ura (non Valenciennes 1828: Günther 1859: 147 (Saint Helena Island).

Serranus capreolus Poey 1860:145 (Cuba; no types known).

Serranus varius Bocourt 1868: 222 [Gulf of Mexico; syntypes: MNHN 0000-5186 (1), 5190 (1), B-3115 (1)].

Epinephelus impetiginosus: Poey 1868: 286 (Cuba). Jordan and Gilbert 1883: 973.

Epinephelus punctatus: Poey 1875: 90 [16].

Epinephelus atlanticus: Goode & Bean 1882: 238 (Gulf of Mexico). Jordan & Gilbert 1883: 917.

Epinephelus capreolus: Jordan & Gilbert 1883: 539.

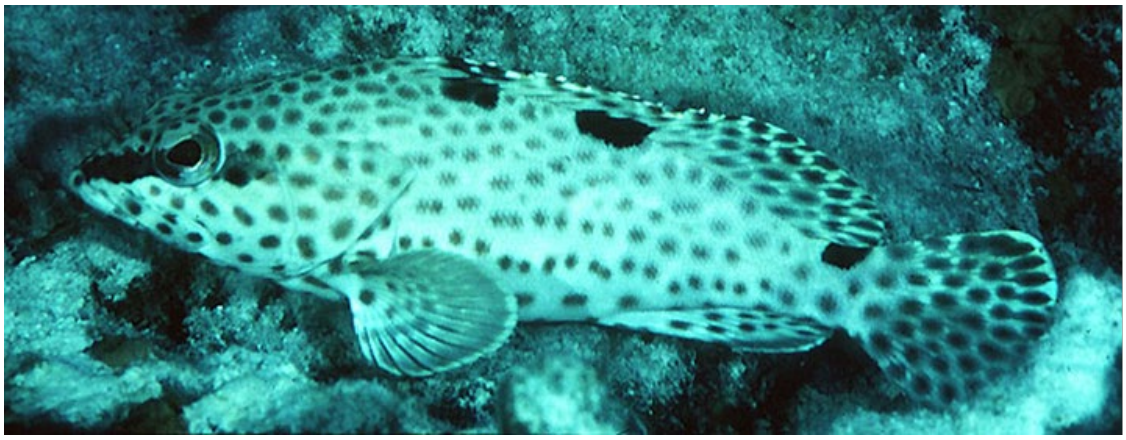

Figure 8. *Epinephelus adscensionis* (Osbeck 1765), Puerto Rico. Photograph by the late J. E. Randall (BPBM).

Epinephelus ascensionis: Jordan & Swain 1884: 391. Jordan 1885b: 78 (Florida Keys, U.S.A.). Henshall 1890: 387 (Key West, Florida, U.S.A.). Jordan and Eigenmann 1890: 354. Boulenger 1895: 228. Cunningham 1910: 97 (Saint Helena Island). Clark 1913: 52; 1915: 392.

Epinephelus adscensionis: Jordan 1886b: 581. Jordan & Eigenmann 1890: 354, pl. 60. Jordan & Rutter 1897: 104. Smith 1901: 390. Nichols and Murphy 1914: 263 (Trinidad). Meek and Hildebrand 1925: 456 (Panama). Beebe and Tee-Van 1933: 122 (Bermuda). Longley and Hildebrand 1941: 93 (Tortugas, Florida, U.S.A.). Manter 1947: 371. Randall 1962: 228 (Virgin Islands, U.S.A.). Zaneveld 1962: 154 (Netherlands Antilles). Caldwell 1966: 40 (Jamaica). Cervigón 1966: 312 (Venezuela). Randall 1967: 696. Böhlke and Chaplin 1968: 281 (Bahamas). Overstreet 1969: 144. Smith 1971: 145. Smith et al. 1975: 6 (Florida Middle Ground, U.S.A.). Walls 1975: 169. Robins and Ray 1986: 132. Edwards and Glass 1987: 635 (Saint Helena Island). Bright and Rezak 1976: 256 (Texas, U.S.A.). Hoese and Moore 1977: 172. Thompson and Munro 1978: 128. Nelson 1988: 180. Smith 1990: 696. Bullock and Smith 1991: 82. Cervigón 1991: 329. Heemstra 1991: 17. Boschung 1992: 105. Cervigón 1992: 427. Heemstra & Randall 1993: 103. Grace et al. 1994: 18. Evseenko 1996: 727 [689]. Aguilera 1998: 48. Castro-Aguirre et al. 1999: 265 (Mexico). Smith-Vaniz et al. 1999: 206 (Bermuda). Afonso et al. 1999: 72 (São Tomé Island). Chiappone et al. 2000: 266. Schmitter-Soto et al. 2000: 157 (Mexico). Craig et al. 2001: 124. Gasparini and Floeter 2001: 1644 (Trinidade Island, Brazil). Heemstra et al. 2003: 1339. Moura and Menezes in Menezes et al. 2003: 75 (Brazil). Smith et al. 2003: 22 (Pelican Cays, Belize). Nelson et al. 2004: 127. Bouchon-Navaro et al. 2005: 42. Ferro et al. 2005: 58 (Broward County, Florida, U.S.A.). Gobert et al. 2005: 3 (Honduras). McEachran and Fechhelm 2005: 142. Wirtz et al. 2007: 29. Craig et al. 2011: 71. Burton et al. 2012: 993. González-Gándara et al. 2012: 680 (Veracruz, Mexico). Page et al. 2013: 130. Aguilar et al. 2014: 594 (Cuba). Smith-Vaniz and Jelks 2014: 39 (Saint Croix, U.S. Virgin Islands). Wirtz et al. 2014: 5. Pinheiro et al. 2015: 13 (Vitoria-Trinidade Seamount Chain, off Brazil). Heemstra and Anderson in Carpenter and De Angelis 2016: 2387. Robertson et al. 2016: 144 (Campeche Bank, Gulf of Mexico). Ferreira et al. 2018: 1. Ma and Craig 2018: 455. Almeida and Alves 2019: 272. Brown et al. 2019: 176 (Saint Helena). Carneiro et al. 2019: 243 (Azores). Reiner 2019: 168 (São Tomé and Principe). Robertson et al. 2019: 81 (Campeche Bank, Gulf of Mexico). González-Gandara 2020: 39. Parenti and Randall 2020: 61. Robertson et al. 2020: 162 (Sint Eustatius). González-Lorenzo et al. 2021: 145 (Gran Canaria, Canary Islands).

Epinephelus aspersus (non Jenyns 1840): Jordan & Eigenmann 1890: 358.

Cerna adscensionis: Miranda Ribeiro 1915: Serranidae 15 (Bahia, Brazil); 1918: 85.

Bodianus cruentatus (non Lacepède 1802): Miranda Ribeiro 1915: 26 (Brazil); 1918: 92.

Serranus adscensionis: Fowler 1929: 128 (Florida, U.S.A.).

Table 2. Morphometric data and proportions of the neotype of *Epinephelus adscensionis* (Bloch & Schneider 1801), BMNH 1979.1.5.20 (95.1 mm SL).

Measurements	mm	% of SL
Standard length	95.1	
Greatest body depth	31.3	32.91
Body width	15.5	16.30
Head length	37.7	39.64
Snout length	11.2	11.77
Orbit diameter	8.6	9.04
Interorbital width	4.6	4.84
Caudal-peduncle depth	10.9	11.46
Caudal-peduncle length	21.1	22.19
Predorsal length	35.2	37.01
Preanal length	66.4	69.80
Prepelvic length	39.6	41.64
Upper-jaw length	15.7	16.50
First dorsal spine length	7.1	7.47
Longest dorsal spine length	15.4	16.20
Longest dorsal soft ray length	15.2	15.98
First anal spine length	6.7	7.04
Second anal spine length	11.3	11.88
Third anal spine length	10.2	10.73
Longest anal soft-ray length	16.7	17.56
Caudal-fin length	22.5	23.66
Pectoral-fin length	23.3	24.50
Pelvic-spine length	11.7	12.30
Pelvic-fin length	18.7	19.66

Epinephelus analogus (non Gill 1863): Borodin 1934: 112 (Key West, Florida).

Serranus punctatus: Fowler 1944: 444 (Bahamas); 1953: 56 (Colombia).

Epinephelus adcensions: Zaneveld 1962: 150 (Netherlands Antilles).

Neotype: BMNH 1979.1.5.20, 95.1 mm SL, Ascension Island, Pratt Point, Roger Lubbock, 29 Dec. 1977.

Other material: SMNS 288 (1), Antilles; SMNS 349 (1), Bahia, Brazil; SMNS 26038 (1), Bahia, Brazil; UF 9174 (1), Bahamas, New Providence Island; UF 10530 (1 skeleton), Bahamas, Inagua Island; UF 10542 (1 skeleton), Bahamas, Inagua Island; UF 10823 (1), U.S.A., Florida Keys; UF 10989 (1), U.S.A., Florida Keys; UF 11905 (1), Leeward Islands, Antigua; UF 12109 (1 skeleton), Leeward Islands, Antigua; UF 13328 (2), Puerto Rico; UF 16249 (1), Mexico, Veracruz; UF 19055 (1), Bahamas, Andros Islands; UF 19949 (4), Brazil, Alagoas; UF 20145 (1 skeleton), Bahamas, San Salvador; UF 20146 (1 skeleton), Bahamas, San Salvador; UF 26983 (1 skeleton), Mexico, Veracruz; UF 30001 (1), Puerto Rico; UF 38607 (1), Bahamas, Cay Sal Bank; UF 38608 (1), Windward Islands, Aves; UF 38609 (1), Dominican Republic; UF 38610 (1), Dominican Republic; UF 41376 (1), U.S.A., Florida, Martin County; UF 44608 (1), U.S.A., North Carolina; UF 45098 (1), Windward Islands, Aves; UF 57724 (1), Puerto Rico; UF 58097 (1), Puerto Rico; UF 58101 (1), Puerto Rico; UF 58621 (4), Puerto Rico; UF 58636 (1), Puerto Rico; UF 70098 (2), U.S.A., Florida; UF 99220 (1), Bahamas, San Salvador; UF 111623 (1), U.S.A., Florida Keys; UF 113883 (1), U.S.A., Florida Keys; UF 118978 (1), U.S.A., Florida Keys; UF 119183 (1), U.S.A., Florida Keys; UF 139068 (1), Bahamas, Cay Sal Bank; UF 139069 (1), Windward Islands, Grenadines, Canouan; UF 139073 (1), Puerto Rico; UF 139076 (1), Bahamas; UF 139660 (1), U.S.A., Florida Keys; UF 152768 (1), U.S.A., Florida; UF 160192 (1), Bahamas, Abaco Islands; UF 160219 (1), Virgin Islands, Saint John; UF 160500 (1), Virgin Islands, Saint Thomas; UF 166224 (1), Brazil; UF 166292

(25), Windward Islands, Martinique; UF 177233 (4), Bahamas, Cay Sal Bank; UF 177632 (1), U.S.A., Florida Keys; UF 201716 (2), Bahamas, Andros Islands; UF 203310 (1), U.S.A., Florida Keys; UF 203579 (1), U.S.A., Florida Keys; UF 203632 (1), U.S.A., Florida Keys; UF 204060 (1), U.S.A., Florida Keys; UF 205355 (1), Bahamas, Exuma Cays; UF 206254 (3), U.S.A., Virgin Islands, Saint John; UF 206344 (1), Bahamas, Ragged Islands; UF 206733 (1), U.S.A., Florida Keys; UF 207227 (1), Bahamas, Long Island; UF 207246 (1), U.S.A., Florida; UF 207881 (1), U.S.A., Florida Keys; UF 209953 (1), U.S.A., Florida Keys; UF 210069 (1), U.S.A., Florida Keys; UF 212740 (1), Bahamas, Exuma Cays; UF 213013 (1), Venezuela, Los Roques Islands; UF 218215 (1), U.S.A., Florida Keys; UF 228251 (1), U.S.A., Florida Keys; UF 232813 (1), Windward Islands, Martinique; UF 234621 (1), Equatorial Guinea, Annobon Island.

Diagnosis: (after Heemstra and Randall 1993: 103) Body depth less than head length, depth contained 2.6 to 3.2 times in standard length (for fish 13 to 27 cm standard length). Head length contained 2.1 to 2.5 times in standard length; interorbital area fiat or slightly concave; preopercle evenly serrate, without salient angle; subopercle and interopercle smooth; nostrils subequal. Gill rakers 7 to 9 on upper limb, 16 to 19 on lower limb, total 23 to 28. Dorsal fin with XI spines and 16 to 18 rays, fourth or fifth spine longest and interspinous membranes distinctly incised; anal fin with III spines and 8 rays; pectoral-fin rays 18 to 20; pectoral fins longer than pelvic fins, pectoral-fin length contained 1.5 to 2.1 times in head length: pelvic-fin lengtt contained 1.8 to 2.3 times in head length for fish 10 to 19 cm standard length, 2.2 to 2.7 times in head length for fish 20 to 38 cm standard length; rear margin of caudal fin convex. Lateral body scales distinctly ctenoid, with auxiliary scales; lateral-line scales 48 to 53; lateral-scale series 92 to 108.

Description of neotype: (Figs. 6, 7) Morphometric data and proportions are given in Table 2. Dorsal-fin rays XI,18, with interspinous membranes of spinous portion distinctly incised; anal-fin rays III,8; all dorsal and anal soft rays branched, last to base; pectoral-fin rays 18, the uppermost unbranched (lowermost ray also unbranched); pelvic-fin rays I,5; principal caudal-fin rays 17, the upper and lower unbranched; upper procurrent caudal-fin rays 8, the posterior two segmented; lower procurrent caudal-fin rays 8, the posterior two segmented; lateral-line scales 51, plus 3-4 pored scales on caudal-fin base; longitudinal scale series 96; 18 scales above lateral line to origin of dorsal fin; 30 scales below lateral line to origin of anal fin; circumpeduncular scales about 62; gill rakers 8+19; pseudobranchial filaments 42; branchiostegal rays 5; vertebrae 8+15 (Fig. 7).

Body depth 3.0 in SL; body compressed, body width 2.02 in depth; head length 2.5 in SL; dorsal profile of head straight, with a slightly concave indentation above orbit; snout length 3.4 in head; orbit diameter 4.4 in head; interorbital width 8.2 in head; caudal-peduncle depth 3.5 in head; caudal-peduncle length 1.8 in head.

Mouth large, the maxilla extending well posterior to a vertical at rear end of orbit; upper-jaw length 2.4 in head; mouth slightly oblique, forming an angle of about 25° to horizontal axis of head and body, lower jaw strongly projecting; depth of maxilla (including supramaxilla) about equal to two-thirds of orbit diameter; ascending process of premaxilla extending to above anterior edge of orbit; a pair of stout incurved canine teeth anteriorly in jaws, lower pair medial to upper pair; upper canines about one-hundredth orbit diameter; front of upper jaw with about six rows of slender inwardly depressible teeth, progressively longer posteriorly, longest about twice as long as anterior canines; side of upper jaw with about 28 fixed conical teeth that curve inwardly and posteriorly, and a continuation of band of slender depressible teeth from front of jaw, narrowing to a single row posteriorly; a V-shaped band of very small teeth on vomer in two or three irregular rows, and a narrow band of very small teeth on palatines in two or three irregular rows. Tongue slender with numerous small papillae on upper surface. Longest gill raker at angle as long as longest gill filament on first arch, 3.0 in orbit diameter.

Anterior nostril a flaring translucent membraneous tube, higher posteriorly, in front of centre of eye by a distance equal to 4.2 in orbit diameter; posterior nostril slightly larger, round with a slight rim, dorsoposterior to anterior nostril, the internarial distance slightly smaller than diameter of anterior nostril.

Opercle with three prominent slat sharp spines, central spine slightly posterior and closer to lower than upper spine; posterior edge of preopercle weakly serrate, rounded corner and posterior margin fleshy; margin of subopercle and interopercle smooth; dorsal edge of opercular membrane broadly truncate.

Lateral line slightly arched over pectoral region, then straight leading obliquely downward towards level of end of dorsal-fin base, and then again straight and horizontal on caudal peduncle; scales on body ctenoid, becoming cycloid anterodorsally before sixth dorsal spine, and on thorax and prepectoral region; no auxiliary scales on body, but some present on cycloid scales of opercle; scales on cheek small, becoming embedded anteriorly; embedded scales on side of snout; embedded scales dorsally on snout extending forward nearly to edge of upper lip; no scales on maxilla; small scales on median fins, progressively smaller and more embedded distally, reaching nearly to fin margins; small scales on lateral surface of pectoral fins and basal medial surface of pelvic fins.

Origin of dorsal fin on level behind base of middle opercular spine, at level of fifth lateral-line scale, the predorsal length 2.70 in SL; spines of dorsal fin relatively broad; first dorsal-fin spine 5.3 in head; longest dorsal-fin spine (fifth) 2.45 in head; longest dorsal-fin soft ray (ninth) 2.5 in head; posterior end of dorsal fin reaching posteriorly to base of caudal fin, posterior end of anal fin not reaching to caudal-fin base; origin of anal fin below of first dorsal-fin soft ray, the preanal length 1.43 in SL; first anal-fin spine 5.6 in head; second anal-fin spine 3.3 in head; longest anal-fin soft ray (fourth) 2.3 in head; caudal fin rounded, caudal-fin length 1.68 in head; pectoral fins rounded, middle rays longest, 1.6 in head; origin of pelvic fins slightly behind level of lower base of pectoral fins, the prepelvic length 2.4 in SL; pelvic fins not reaching anus, the second soft ray longest, 2.0 in head.

Colour in life: (Fig. 8) (after Heemstra & Randall 1993: 104) Head, body, and fins generally buff or pale greenish, covered with reddish brown spots and scattered pale blotches: usually 3 to 5 dark brown blotches (groups of dark spots) at base of dorsal fin and a blackish brown blotch on top of caudal peduncle (on some specimens, only the dark blotch at base of last dorsal-fin spines is apparent): rear edge of caudal fin with a row of dark brown spots forming a dark margin; small juveniles with fewer but larger dark spots on the head, body and fins.

Distribution: (Fig. 9) Western Atlantic: Massachusetts (U.S.A.) throughout the Gulf of Mexico and Caribbean and south to Rio de Janeiro (Brazil), including offshore islands; southern-central Atlantic: Saint Helena Island and Ascension Island; eastern Atlantic: Azores; Canary Islands; islands in Gulf of Guinea.

Remarks: *Trachinus adscensionis* Osbeck 1765 was originally described from Ascension Island in the southern-central Atlantic; no types have been preserved (Fricke et al. 2021b). As demonstrated in the present paper, the usage of the name is threatened by the name *Perca guttata* Linnaeus 1758. Although the *E. guttatus* (Linnaeus 1758) of current usage is treated as a different species, the original sources of *P. guttata* Linnaeus 1758 were based on *E. adscensionis* (Osbeck 1765).

The *Holocentrus punctatus* of Bloch 1790 is here treated as a new synonym of *Epinephelus adscensionis* (Osbeck 1765) of current usage, being distinct from the *Epinephelus guttatus* (Linnaeus 1758) of current usage. *Perca stellio* Walbaum 1792 is not a synonym of *E. adscensionis*, as considered by previous authors, but is here treated as a junior synonym of *E. merra* (Bloch 1790), and probably originated from Indonesia.

Strictly applying the ICZN rules, the oldest available name for the taxon would therefore be *Perca guttata* Linnaeus 1758, while both the Epinephelus guttatus (Linnaeus 1758) and the *Cephalopholis cruentata* (Lacepède 1802) of current usage would have to change their names as well. This would be highly disruptive for the stability of nomenclature. For the *Epinephelus adscensionis* (Osbeck 1765) of current usage, we have detected at least 84 subsequent usages of the name *adscensionis* as valid (see the synonymy above).

In order to stabilise the current usage of the name in the sense of Heemstra and Randall (1993), we here consider *Trachinus adscensionis* Osbeck 1765 as a species description independent of *Perca guttata* Linnaeus 1758. The specimen BMNH 1979.1.5.20 is hereby selected as the neotype of *Trachinus adscensionis* Osbeck

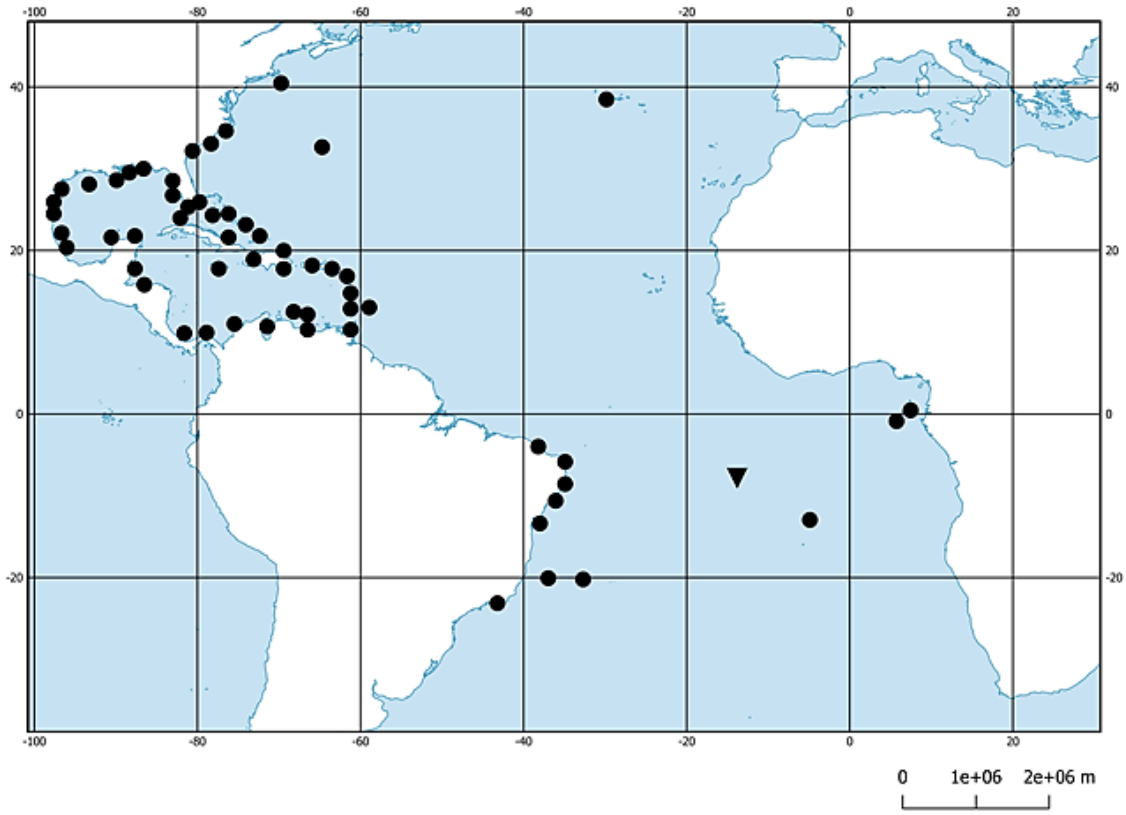

Figure 9. Geographical distribution of *Epinephelus adscensionis* (Osbeck 1765). Triangle: Neotype, BMNH 1979.1.5.20. *Closed circles:* Other records.

1765 (see Figs. 6 and 7). The locality of the neotype at Pratt Point (Ascension Island) is as close as practical to the original type locality at Ascension Island. *Epinephelus adscensionis* (Osbeck 1765) is widespread in the tropical and warm temperate Atlantic Ocean (see Fig. 9).

***Epinephelus guttatus* (Linnaeus 1758)**

(Figs. 10-12, Table 3)

Common names: Red hind (English); Mérou couronné (French); Mero colorado (Spanish); Cabrilla colorada (Spanish, Mexico)

Perca guttata Linnaeus 1758: 292 [America (Brazil); based on the 'Gvarvgvarv' of Markgraf von Liebstad (1648: 169, fig.), the 'Cugupuguacu cogener, corpore rotundiore' of Sloane (1725: 280, pl. 247, fig. 2), the Cugupu-guacu brasiliensibus' of Willughby (1686: 303), the 'Cugupu guacu' of Ray (1713: 127), and the Cugupuguacu' of Catesby (1771: 14, pl. 14)].

Bonaci arará: Parra 1787: 29, pl. 16, fig. 2 (La Habana, Cuba).

Cabrilla: Parra 1787: 93, pl. 36, fig. 1 (La Habana, Cuba).

Lutianus lunulatus Bloch & Schneider (ex Parra) 1801: 329 [locality not stated (Havana, Cuba); no types known; based on the 'Cabrilla' of Parra (1787: 93, pl. 36, fig. 1)].

Serranus maculosus Valenciennes in Cuvier & Valenciennes 1828: 332 [no locality (possibly Martinique Island); holotype: MNHN 0000-7360].

Serranus catus Valenciennes in Cuvier & Valenciennes 1828: 373 (part: Martinique Island, West Indies; holotype: MNHN 0000-7238; syntypes: ? ZMB 265].

Serranus arara Valenciennes in Cuvier & Valenciennes 1828: 377 [Havana, Cuba; based in part on the 'Bonaci

Figure 10. *Epinephelus guttatus* (Linnaeus 1758), neotype, UF 139198, 280 mm SL, Colombia. Lateral view. Photograph by Z. Randall (UF).

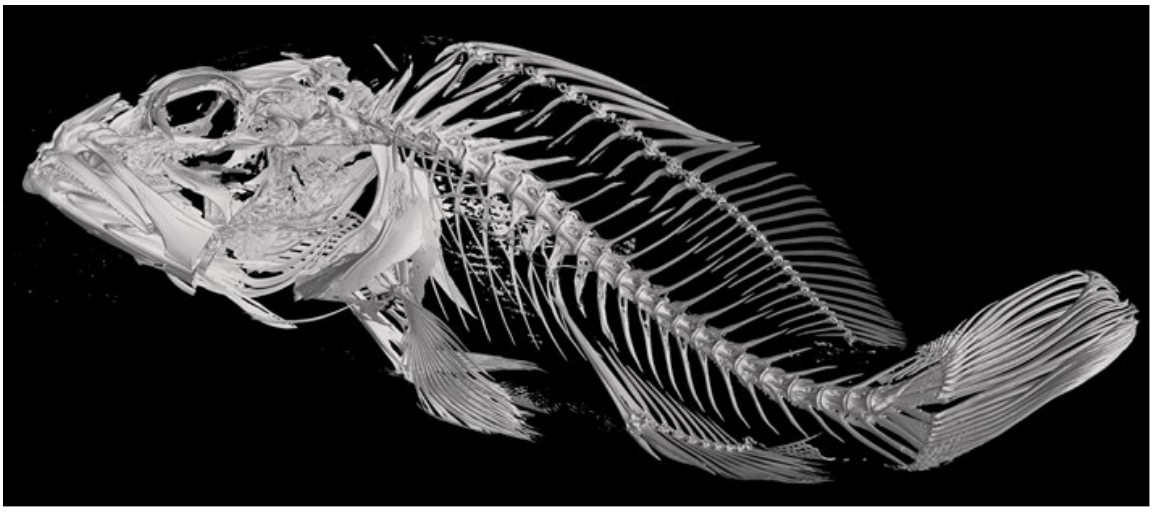

Figure 11. *Epinephelus guttatus* (Linnaeus 1758), neotype, UF 139198, 280 mm SL, Colombia. CT scan. Photograph by Z. Randall (UF).

arará' of Parra (1787: 29, pl. 16, fig. 2); syntypes: MNHN 0000-0885 (1)].

Epinephelus cubanus Poey 1865: 202 [Cuba; holotype (?): MCZ 10058; Poey specimens: ZMB 5222 (1)].

Epinephelus guttatus: Goode 1876: 58 (Bermuda). Lönnberg 1894: 127 (Key West, Florida, U.S.A.). Schroeder 1924: 14 (Florida Keys, U.S.A.). Bardach and Menzel 1957: 107 (Bermuda). Erdman 1957: 320 (Puerto Rico). Briggs 1958: 272. Smith 1959: 114 (Bermuda). Menzel 1960: 216. Springer and Woodburn 1960: 34. Smith 1961: 1.3. Nahhas and Cable 1964: 221 (Curaçao). Randall 1967: 697. Carpenter and Nelson 1971: 22. Smith 1971: 116.Hochberg and Ellis 1972: 84. Darcy et al. 1974: 376. Burnett-Herkes 1975: 1. Smith et al. 1975: 6 (eastern Gulf of Mexico). Walls 1975: 171 (northern Gulf of Mexico). Huntsman 1976: 17. Smith 1976: 21. Sonnier et al. 1976: 108. Thompson and Munro 1978: 117. Williams and Williams 1981: 1007. Colin 1982: 73 (Puerto Rico). Williams 1982: 324. Johnson and Keener 1984: 109. Kimmel 1985: 89. García-Moliner Basora 1986: 1. Robins and Ray 1986: 132. Colin et al. 1987: 220. Bullock and Smith 1991: 99. Cervigón 1991: 331 (Venezuela). Boschung 1992: 106. Cervigón 1992: 428. Heemstra and Randall 1993: 161. Beets and Hixon 1994: 473 (Virgin Islands). Grace et al. 1994: 21. Sluka et al. 1994: 871. Sullivan & Sluka in Arreguín-Sánchez et al. 1996: 83. Aguilera 1998: 48. Castro-Aguirre et al. 1999: 266 (Mexico). Smith-Vaniz et al. 1999: 207 (Bermuda). Chiappone et al. 2000: 266. Schmitter-Soto et al. 2000: 157 (Quintana Roo, Caribbean Sea coast of Mexico). Craig et al. 2001: 124. Collette et al. 2003: 107 (Navassa Island). Heemstra et al. 2003: 1342. Smith et al. 2003: 22

Figure 12. *Epinephelus guttatus* (Linnaeus 1758), Puerto Rico. Photograph by the late J. E. Randall (BPBM).

(Pelican Cays, Belize). Nelson et al. 2004: 127. Posada and Appeldoorn 2004: 130. Bouchon-Navaro et al. 2005: 42. Ferro et al. 2005: 58 (Broward County, Florida, U.S.A.). Gobert et al. 2005: 3 (Honduras). McClellan and Miller 2005: 505 (Navassa Island). McEachran and Fechhelm 2005: 145 (Gulf of Mexico). Johnston et al. 2006: 10. Baremore and Bethea 2010: 73. Mann et al. 2010: 149. Craig et al. 2011: 149. González-Gándara et al. 2012: 680 (Veracruz, Mexico). Mumby et al. 2012: 16. Sadovy et al. 2012: 516. Angulo et al. 2013: 999 (Costa Rica). Page et al. 2013: 130. Smith-Vaniz and Collette 2013: 172. Aguilar et al. 2014: 594 (Cuba). Robertson et al. 2016: 144 (Campeche Bank, Gulf of Mexico). Brule 2018: 1. Ma and Craig 2018: 455. Raz-Guzmán et al. 2018: 346 (Veracruz, Mexico). Robertson et al. 2019: 81 (Campeche Bank, Gulf of Mexico). Parenti and Randall 2020: 70. Robertson et al. 2020: 162 (Sint Eustatius).

Serranus stathouderi Vaillant & Bocourt 1878: 69 (no locality; holotype: MNHN 0000-7360).

Neotype: UF 139198, 280 mm SL, Colombia, R/V Geronimo, 3 Oct. 1965.

Other material: SMNS 1085 (1), no locality data; UF 10001 (1), Bahamas, New Providence Island; UF 10585 (1 skeleton), Leeward Islands, Basseterre; UF 11454 (1), Leeward Islands, Antigua; UF 11904 (1), Leeward Islands, Antigua; UF 12110 (1 skeleton), Leeward Islands, Antigua; UF 12732 (2), Leeward Islands, Antigua; UF 13951 (1), Bahamas, Andros Islands; UF 17466 (3), Cayman Islands, Grand Cayman Island; UF 17471 (1), Cayman Islands, Grand Cayman Island; UF 20147 (1 skeleton), Jamaica, Kingston; UF 25249 (1), Cayman Islands, Grand Cayman Island; UF 27132 (1 skeleton), Leeward Islands, Basseterre; UF 27133 (1 skeleton), Leeward Islands, Basseterre; UF 30006 (1), Bahamas, Cay Sal Island; UF 30012 (1), Nicaragua, Serrana Bank; UF 30862 (2), Bahamas, Little Bahama Bank; UF 31565 (1 skeleton), U.S.A., Florida Keys; UF 31921 (1 skeleton), Bahamas; UF 32099 (1 skeleton), Leeward Islands, Saint Eustatius; UF 32290 (1 skeleton), Bahamas; UF 32291 (1 skeleton), Bahamas; UF 35378 (1), Bahamas, Little Bahama Bank; UF 38615 (2), Jamaica; UF 38616 (1), Bahamas, Berry Islands; UF 38617 (3), Honduras, Guanaja; UF 38618 (1), Honduras; UF 38619 (1), Honduras; UF 40720 (1), U.S.A., North Carolina; UF 40721 (1), U.S.A., North Carolina; UF 47897 (1 skeleton), Bahamas, Turks and Caicos Islands; UF 48208 (1 skeleton), Haiti; UF 48321 (1 skeleton), Barbados; UF 48845 (1 skeleton), Puerto Rico; UF 81822 (1), U.S.A., Florida Keys; UF 103671 (1), U.S.A., Florida Keys; UF 103766 (1), Bahamas, Little Bahamas Bank; UF 110013 (1), U.S.A., Florida Keys; UF 111089 (1), U.S.A., Florida Keys; UF 111501 (1), U.S.A., Florida Keys; UF 111622 (1), U.S.A., Florida Keys; UF 119005 (1), U.S.A., Florida Keys; UF 139192 (1), Colombia; UF 139194 (1), Honduras; UF 139197 (1), northwestern Caribbean Sea; UF 139198 (1), Colombia; UF 151540 (2), U.S.A.; UF 160224 (1), Virgin Islands, Saint John; UF 160481 (1), Virgin Islands, Saint John; UF 160528 (1), Virgin Islands, Saint John; UF 160801 (1), Virgin Islands, Saint

Table 3. Morphometric data and proportions of the neotype of *Epinephelus guttatus* (Lacepède 1802), UF 139198 (280 mm SL).

Measurements	mm	% of SL
Standard length	280	
Greatest body depth	111.40	39.79
Body width	58.54	20.91
Head length	134.99	48.21
Snout length	36.48	13.03
Orbit diameter	22.89	8.18
Interorbital width	21.34	7.62
Caudal-peduncle depth	29.42	10.51
Caudal-peduncle length	54.54	19.48
Predorsal length	122.81	43.86
Preanal length	197.83	70.65
Prepelvic length	129.81	46.36
Upper-jaw length	65.02	23.22
First dorsal spine length	20.80	7.43
Longest dorsal spine length	46.96	16.77
Longest dorsal soft ray length	41.84	14.94
First anal spine length	15.06	5.38
Second anal spine length	28.22	10.08
Third anal spine length	29.72	10.61
Longest anal soft-ray length	44.77	15.99
Caudal-fin length	56.30	20.11
Pectoral-fin length	38.19	13.64
Pelvic-spine length	28.01	10.00
Pelvic-fin length	51.20	18.28

Croix; UF 160812 (1), Virgin Islands, Saint Croix; UF 160813 (1), Virgin Islands, Saint Croix; UF 160814 (2), Virgin Islands, Saint Croix; UF 160815 (1), Virgin Islands, Saint Croix; UF 160846 (1), Virgin Islands, Saint Croix; UF 164529 (1), Virgin Islands, Saint Croix; UF 164797 (1), Virgin Islands, Saint Croix; UF 166477 (1), Nicaragua; UF 203353 (1), Bahamas, Elbow Bank; UF 204957 (1), Virgin Islands, Saint John; UF 204991 (1), Virgin Islands, Saint John; UF 205057 (1), Virgin Islands, Saint John; UF 206851 (1), Mexico, Quintana Roo; UF 207062 (1), Haiti; UF 212173 (1), Bahamas, Eleuthera Island; UF 213032 (1), Venezuela, Los Roques Islands; UF 213113 (1), Venezuela, Los Roques Islands; UF 213257 (1), Bahamas, Berry Islands; UF 213997 (1), Bahamas, Abaco Islands; UF 214939 (1), Jamaica; UF 215349 (1), Venezuela, Los Roques Islands; UF 220491 (2), U.S.A., Florida Keys; UF 222057 (2), Venezuela, Los Roques Islands; UF 222112 (2), Bahamas, New Provicence Island; UF 224082 (1), Colombia, Albuquerque; UF 228647 (1), Leeward Islands, Saba; UF 228689 (3), Leeward Islands, Barbuda; UF 229880 (1), U.S.A., Louisiana; UF 230393 (1), Windward Islands, Saint Lucia; UF 232703 (1), Venezuela, Los Roques Islands; UF 240697 (1), Leeward Islands, Barbuda.

Diagnosis: (after Heemstra and Randall 1993: 161) Body depth distinctly less than head length, depth contained 2.7 to 3.1 times in standard length (for fish 17 to 38 cm standard length). Head length contained 2.3 to 2.4 times in standard length; preopercle evenly serrate, without salient angle; posterior nostrils larger than anteriors. Gill rakers 8 or 9 on upper limb, 16 to 18 on lower limb, total 24 to 26. Dorsal fin with XI spines and 15 or 16 rays, third or fourth spine longest, interspinous membrane incised and produced into a short flag behind tip of each spine; anal fin with III spines and 8 rays; pectoral-fin rays 16 to 18; rear edge of caudal fin rounded. Lateral-body scales ctenoid, 87 to 104 lateral-scale series.

Description of neotype: (Fig. 10) Morphometric data and proportions are given in Table 3. Dorsal-fin rays XI,15; anal-fin rays III,8; all dorsal and anal soft rays branched, last to base; pectoral-fin rays 16, uppermost

unbranched (lowermost ray also unbranched); pelvic-fin rays I,5; principal caudal-fin rays 17, upper and lower unbranched; upper procurrent caudal-fin rays 8, posterior two segmented; lower procurrent caudal-fin rays 7, posterior two segmented; lateral-line scales about 55, plus 3-4 pored scales on caudal-fin base; longitudinal scale series 87; 16 scales above lateral line to origin of dorsal fin; ca. 20 scales below lateral line to origin of anal fin; circumpeduncular scales about 66; gill rakers 8 + 15; pseudobranchial filaments 47; branchiostegal rays 7; vertebrae 10+14 (Fig. 11).

Body depth 2.5 in SL; body compressed, body width 1.90 in depth; head length 2.1 in SL; dorsal profile of head convex, slightly indented anterior to orbit; snout length 3.7 in head; orbit diameter 5.9 in head; interorbital width 6.3 in head; caudal-peduncle depth 4.6 in head; caudal-peduncle length 2.5 in head.

Mouth large, maxilla extending to a vertical at rear end of orbit; upper-jaw length 2.1 in head; mouth slightly oblique, forming an angle of about 15° to horizontal axis of head and body, lower jaw slightly projecting; depth of maxilla (including supramaxilla) about equal to four-fifths of orbit diameter; ascending process of premaxilla extending to above anterior nostril; a pair of stout incurved canine teeth anteriorly in jaws, lower pair medial to upper pair; upper canines about one-fifth orbit diameter; front of upper jaw with about six rows of slender inwardly depressible teeth, progressively longer posteriorly, longest about twice as long as anterior canines; side of upper jaw with about 28 fixed conical teeth that curve inwardly and posteriorly, and a continuation of band of slender depressible teeth from front of jaw, narrowing to a single row posteriorly; a V-shaped band of very small teeth on vomer in two or three irregular rows, and a narrow band of very small teeth on palatines in two or three irregular rows. Tongue slender with numerous small papillae on upper surface. Longest gill raker at angle longer than longest gill filament on first arch, 2.5 in orbit diameter.

Anterior nostril a flaring translucent membraneous tube, higher anteriorly, in front of lower margin of eye by a distance equal to 2 in orbit diameter; posterior nostril larger, round with a slight rim, dorsoposterior to anterior nostril, the internarial distance four times in diameter of anterior nostril.

Opercle with three prominent flat sharp spines, the central spine above lower spine, and closer to lower than upper spine; posterior edge of preopercle serrate, rounded corner and posterior margin fleshy; margin of subopercle and interopercle smooth; dorsal edge of opercular membrane nearly straight, angular.

Lateral line following dorsal contour of body towards caudal peduncle; scales on body ctenoid; scales on cheek small, becoming embedded anteriorly; small embedded scales on side of snout; embedded scales dorsally on snout extending forward to level of anterior nostril; no scales on maxilla; small scales on median fins, progressively smaller and more embedded distally, reaching nearly to fin margins; small scales on lateral surface of pectoral fins and basal medial surface of pelvic fins.

Origin of dorsal fin on level between tips of upper and middle opercular spines, at level of sixth lateral-line scale, the predorsal length 2.34 in SL; spines of dorsal fin slender; first dorsal-fin spine 6.5 in head; longest dorsal-fin spine (eighth) 2.87 in head; longest dorsal-fin soft ray (ninth) 3.2 in head; posterior end of dorsal fin reaching posteriorly to base of caudal fin, posterior end of anal fin not reaching to caudal-fin base; origin of anal fin below of last dorsal-fin spine, the preanal length 1.42 in SL; first anal-fin spine 9.0 in head; second anal-fin spine 4.9 in head; longest anal-fin soft ray (fifth) 3.0 in head; caudal fin truncate, caudal-fin length 2.40 in head; pectoral fins rounded, middle rays longest, 3.5 in head; origin of pelvic fins situated behind lower base of pectoral fins, the prepelvic length 2.2 in SL; pelvic fins not reaching anus, second soft ray longest, 2.6 in head.

Colour in life: (Fig. 12) (after Heemstra and Randall 1993: 161) Ground colour buff, greenish white, or pale reddish brown, head and body covered with bright red spots, the dorsal spots reddish brown; spinous dorsal fin olive with yellow flags at tips of the spines; soft dorsal, caudal, and anal fins olivaceous, with a broad blackish submarginal band and narrow pale edge; pectoral fins pale orange-red with darker red spots on the base; pelvic fins coloured like body but darker distally and along leading edge.

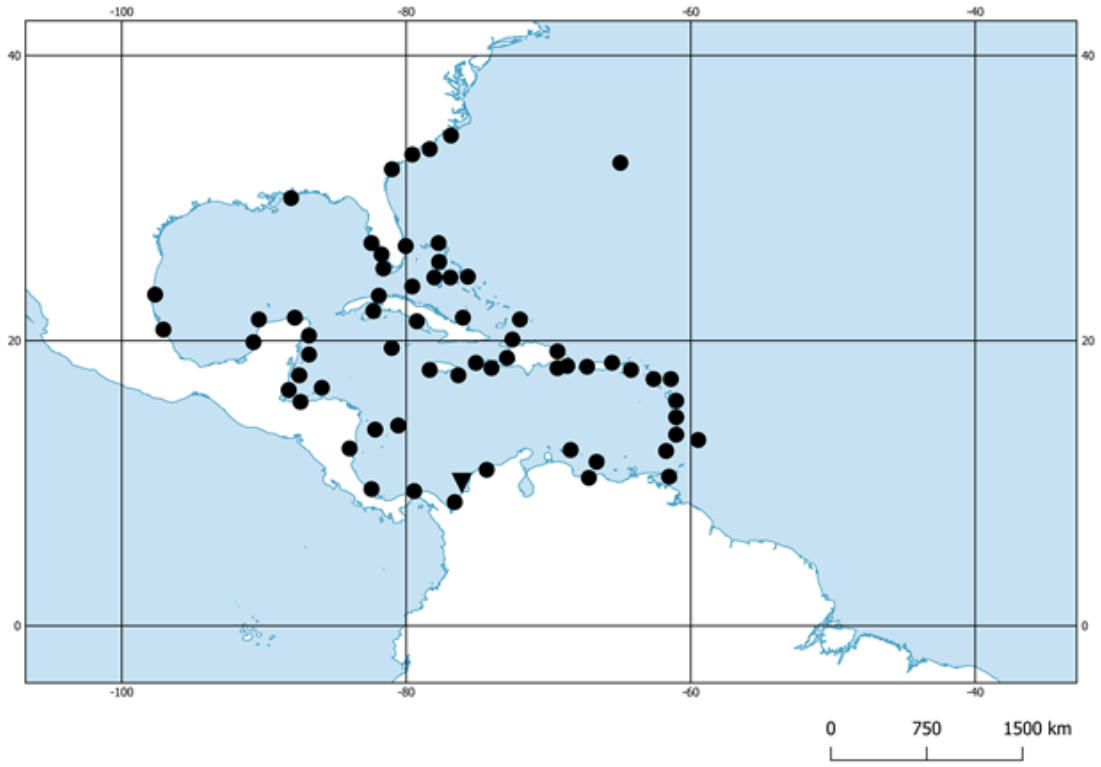

Figure 13. Geographical distribution of *Epinephelus guttatus* (Linnaeus 1758). Triangle: Neotype, UF 139198. Closed circles: Other records.

Distribution: (Fig. 13) Western Atlantic: Bermuda and North Carolina (U.S.A.) south to Trinidad and Tobago, including eastern and southern Gulf of Mexico and Caribbean Sea.

Remarks: In our research on the sources of the name *Perca guttata* Linnaeus 1758, we found that it was based on the 'Gvarvgvarv' (=Guaruguaru) of Markgraf von Liebstad (1648: 169, fig.), the 'Cugupuguacu cogener, corpore rotundiore' of Sloane (1725: 280, pl. 247, fig. 2), the 'Cugupu-guacu brasiliensibus' of Willughby (1686: 303), the 'Cugupu guacu' of Ray (1713: 127), and the 'Cugupuguacu' of Catesby (1771: 14, pl. 14). The type localitiy was given as 'America', but would have been Brazil. No type specimens of *Perca guttata* Linnaeus 1758 have been preserved (Fricke et al. 2021b).

This causes a major problem, as the *Epinephelus guttatus* (Linnaeus 1758) of current usage does not occur in Brazil. The sources were in fact based on the *E. adscensionis* (Osbeck 1765) of current usage.

The first available name for the *Epinephelus guttatus* (Linnaeus 1758) would be *Lutianus lunulatus* Bloch & Schneider (ex Parra) 1801 from Havana, Cuba, which was based on the 'Cabrilla' of Parra (1787: 93, pl. 36, fig. 1), no types of this taxon are extant (Fricke et al. 2021b). Additional junior synonyms are *Serranus maculosus* Valenciennes in Cuvier & Valenciennes 1828 (probably from Martinique, holotype extant at MNHN), *Epinephelus cubanus* Poey 1865 (from Cuba, possible holotype extant at MCZ), and *Serranus stathouderi* Vaillant & Bocourt 1878 (no locality stated, holotype extant at MNHN). Another taxon, *Serranus catus* Valenciennes 1828, is a composite species, with the possible syntype MNHN 0000-0885 being identified as *Epinephelus guttatus* (Linnaeus 1758), but also being an unneeded replacement name for *Perca maculata* Bloch 1792, which is identified as *Epinephelus adscensionis* (Osbeck 1765) of current usage.

The names *Holocentrus punctatus* Bloch 1790, *Holocentrus pirapixanga* Lacepède 1802, and *Serranus pixanga* Valenciennes 1828 were assigned to the synonymy of *Epinephelus punctatus* (Linnaeus 1758) by some previous authors, but are now transferred to *E. adscensionis*.

Strictly applying the ICZN rules, the oldest available name for the taxon would therefore be *Lutianus lunulatus*

Bloch & Schneider (ex Parra) 1801. This would be highly disruptive for the stability of nomenclature.

For the *Epinephelus guttatus* (Linnaeus 1758) of current usage, we have detected at least 75 subsequent usages of the name *guttatus* as valid (see the synonymy above), while *lunulatus* was never used as valid after 1801; nor were the names *maculosus, catus, arara, cubanus* or *stathouderi* used as valid by subsequent authors after their original descriptions.

In order to stabilise the current usage of the name *Epinephelus guttatus* (Linnaeus 1758) in the sense of Heemstra & Randall (1993), we here consider *Perca guttata* Linnaeus 1758 as a species description independent and different of *Perca adscensionis* Osbeck 1765. The specimen UF 139198 is hereby selected as the neotype of *Perca guttata* Linnaeus 1758 (see Fig. 10). The locality of the neotype in the Caribbean Sea off Colombia is as close as practical to the original type locality in Brazil, where the species of current usage does not occur. The southerneastern range limit of *Epinephelus guttatus* (Linnaeus 1758) is now restricted to Trinidad and Tobago and Suriname (see Fig. 13).

Key to Western Atlantic spotted epinepheline groupers (after Heemstra & Randall 1993, modified)

1a. Dorsal-fin spines IX……*Cephalopholis cruentata*
1b. Dorsal-fin spines X or XI……2
2a. Black saddle blotch on caudal peduncle and 3 to 5 dark blotches at base of dorsal fin; no blackish margin on soft-rayed part of dorsal fin; pectoral-fin rays 18 to 20……*Epinephelus adscensionis*
2b. No black saddle on caudal peduncle; no dark blotches at base of dorsal fin; soft dorsal fin with blackish margin; pectoral-fin rays 16 to 18……..……*Epinephelus guttatus*

Acknowledgments

We are grateful to the late John E. Randall (BPBM) and Richard Pyle (BPBM) for providing live colour photographs of western Atlantic spotted groupers, and to Lucie Goodayle (BMNH) for taking photographs of the neotype of *Epinephelus adscensionis*.

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