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## 55 Ophiuroidea Types from the Tropical Eastern Pacific within the Museum of Comparative Zoology, Harvard University

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The Museum of Comparative Zoology (MCZ) at Harvard University was founded in 1859 by Louis Agassiz. The MCZ contains over 21 million specimens (extant and fossil) in ten departmental collections. The Department of Marine Invertebrates houses some of the most important species of echinoderms from the Tropical Eastern Pacific (TEP), with many collected from early 19th century expeditions including the “Albatross”, “Zaca” and “Velero”. The echinoderm collection in general has approximately 25,000 lots of which 7,083 lots are currently databased; of these 1,850 lots (26.3%) are Ophiuroidea. Approximately, 542 lots of the Ophiuroidea have their distribution in the TEP with 123 lots attributed as Types. The 69 Type species are within 2 orders, 16 families and 37 genera and are represented by 572 specimens in total. The families most represented are the Ophiuridae (16 species) and Amphiuridae (14 species) while the Asteroschematidae, Gorgonocephalidae, Ophiochitonidae, Ophiomycetidae and Ophiomyxidae each contain only one species. Most of the type material in the TEP is from México, Panamá and the Galápagos Islands and were collected from 1859 to 1939 with many species attributed to the following authors: Le Conte, H.L. Clark, Lyman, Lütken & Mortensen, Verrill, Hill, Nielsen and Ziesenhenné. In the USA, there are other museums housing a significant amount of ophiuroid Types from the TEP. However, the MCZ contains the most well represented collection of these Types. In the TEP, there are approximately 185 species of ophiuroids described, 36.5% of these Types are at the MCZ. All echinoderm material and types housed within the MCZ along with associated data is fully searchable on our online database at <http://mczbase.mcz.harvard.edu/SpecimenSearch.cfm>

Keywords: America, brittle stars, collection.

## 61 Taphonomy and Echinoids: A Quasimetric Approach to Quantify Taphonomic Alterations

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Echinoid tests feature a variety of skeletal features including tubercles, knobs and pores. These characters are exposed to the environment directly after death and decay of soft tissues resulting in taphonomically altered or destroyed tests. Clypeasteroid echinoids feature an internal support system that connects the oral and aboral test sides and thus stabilize the test after death. The clypeasteroid echinoid genus

*Echinocyamus* can be common in a wide variety of Recent and fossil habitats and is often found as complete and well-preserved tests. This genus is thus predestined for comparative analyses of taphonomy with respect to ecological parameters, sediment types and different time slices due to their abundance and relative stability. In the presented research, numerous recent *Echinocyamus pusillus* from Giglio Island (Mediterranean Sea, Italy) are analysed for six characters including the preservation of (1) stereom, (2) tubercles, (3) pores, (3) degree of fragmentation, (4) encrustation rates and (5) drillholes frequencies. Analyses were performed using a quasimetric approach to obtain data which can statistically analysed with parametric and non-parametric tests. Abrasion analyses were categorized into 3 grades ranging from very well preserved (Grade 1) to highly affected (Grade 3). In addition, the area of the test affected by the taphonomic processes was estimated in 5 categories, not present (category 1), present on up to 25 % of the test surface (category 2), 25 to 50 % (category 3), from 50 to 75 % (category 4) and more than 75 % (category 5). With the aid of this data, a taphonomic value can be calculated which ranges in a quasimetric scale between 1 (non or low affected tests) to 3 (highly affected tests). Taphonomic values are compared with respect to different localities, depths and size classes as well as to comparable data on *Echinocyamus crispus* from tropical settings of the Red Sea. The results show that most individuals are rather well preserved (taphonomic grades between 1 and 2) with only few individuals showing higher levels of damage. This result is discussed with respect to depositional environments and surface residence times of the echinoids.

## **49 Echinoderms (Echinodermata) in Akumal Bay, Quintana Roo, Mexico**

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The Mexican Caribbean shares with some countries of Central American the second largest coral barrier reef in the world, these ecosystems contain high biological diversity. Akumal Bay in Quintana Roo, it is an important tourist area, however also generate and promote strategies for conservation of their ecosystems. Akumal Bay, Quintana Roo has large sea grass communities, which are known for their great importance as habitat for many marine species, some of them are echinoderms. There is no information echinoderm diversity at Akumal Bay. This work provides a taxonomic update list, bathymetric information, and type of substrate where the species live at Akumal Bay, Quintana Roo. A 2007 investigation at Akumal Bay reports 14 echinoderm species: class Asterozoa (1 species), class Ophiurozoa (12 species), class Holothurozoa (3 species) and class Echinozoa (one species). In this work, 20 species of the class Ophiurozoa were identified and two species of class Asterozoa. The present work will include identification keys, photographs (complete specimen and relevant structures for identification).