

Paleontological inheritance of West Antarctica: Preliminary report of the newly found Mesozoic/Cenozoic fossil vertebrates from Antarctic Peninsula

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During December 2015 / February 2016, within the activities of the "Vertebrate Paleontology of the James Ross Basin, Antarctic Peninsula" project of the Instituto Antártico Argentino, principal fossiliferous localities of Marambio (=Seymour) Island, northeast Antarctic Peninsula (marine late Cretaceous, K-Pg and Paleogene outcrops), and Cape Longing, Antarctic Peninsula (marine Jurassic) were prospected seeking for marine and terrestrial vertebrates. An exceptional latest Cretaceous to Eocene shallow – marginal marine sedimentary sequence (over 2000 m thick) is exposed on Marambio (=Seymour) Island, located then and now at ~65°S. The López de Bertodano Formation (late Cretaceous to early Paleocene) contains the K–Pg boundary (identified using biostratigraphy and an iridium anomaly) and is overlain by the Sobral Formation (Paleocene), the Cross Valley Formation (?late Paleocene), the La Meseta Formation (early-middle Eocene), and the Submeseta Formation (late Eocene).

New extensive collections of vertebrate fossils from Marambio (=Seymour) Island include late Eocene Submeseta Formation cetaceans, sharks, and birds; early-middle Eocene La Meseta Formation teleostean fishes, sharks, birds, terrestrial mammals, early Paleocene Sobral Formation teleostean fishes and sharks, and late Maastrichtian López de Bertodano Formation teleostean fishes, sharks, plesiosaurs, mosasaurs and dinosaurs. The taxonomical, ecological and biostratigraphical information of these fossils will be analyzed and the results will be used for paleoenvironmental reconstruction and identification of the oceanographic changes that occurred prior to the Gondwana break up and after the demise of the connections between Antarctica and South America.

Also we report the discovery of a new marine fossil assemblage from the marine Jurassic sites of Longing Cape, eastern Antarctic Peninsula. It includes fishes, ichthyosaurs and plesiosaurs, and is one of the richest Jurassic marine biotic assemblages found in Antarctica.