

# THE LACUSTRINE DELTAIC SEQUENCE FOSSIL-PRONE OF THE ARAÇATUBA - ADAMANTINA FORMATIONS (UPPER TURONIAN - LOWER CONIACIAN, BAURU GROUP – PARANÁ BASIN) AND ITS PALEOVERTEBRATE RICHNESS IN SOUTHWEST OF SÃO PAULO STATE, BRAZIL

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**ABSTRACT:** The lacustrine deltaic sequence of the Upper Turonian Araçatuba (ARA) and Adamantina (ADA) formations in the southwestern São Paulo state have been yielded several paleovertebrate remains. In this region, the main exposures of this sequence occur in the Álvares Machado municipality, near Coronel Goulart (CG) district. The fossil record comes from the contact between the ARA and ADA formations. This interval is dated in the Upper Turonian – Lower Coniacian by biostratigraphy of ostracods integrated to sequence stratigraphic data, through regional and local stratigraphic correlations. In this interval we recognized muddy-sandstones and fine sandstones with convolute laminations and dispersed muddy clasts in lobes interbedded with fines in the top of the ARA. These vertical coarsening upward profile, facies associations and depositional architecture are here interpreted as gravity lobes formed by hyperpycnal flows on a lacustrine prodelta. This interval is recovered by cross-laminated, sigmoidal cross-stratified fine sandstones and intraclastic conglomerates of mouth bars in delta front context. The contact between the prodelta and delta front facies associations is marked by change facies surface (CFS). The paleovertebrate record is formed by Crocodyliformes, Testudines, Peixes and Dinosauria. We found three well-preserved Crocodyliformes with cranial and postcranial skeletons and several isolated remains. Two specimens were found in hyperpycnal lobe in the top of the ARA, and they are semi-articulated with incomplete skulls and twisted postcranial semi-articulated skeleton. A third specimen were found in mouth bar in the base of the ADA, and it is semi-articulated with the snout preserved detached from the articulated skeleton not twisted, but apparently compressed vertically. It was recovered in association with two well-preserved Testudines with plastron and carapace together a possible Testudines egg, and several isolated fragments of plastron and carapace. Fishes were also recorded by cranial and scales that were discovered in muddy-sandstones in hyperpycnal lobes together Crocodyliformes and Testudines in the top of ARA. Dinosaur remains are rare and a theropod tooth was the unique discovery done in the intraclastic conglomerates of the top of the mouth bars deposits. The disarticulated bones and semi-articulated skeletons are mainly preserved in prodeltaic hyperpycnal lobes, whereas in the mouth bars of the delta-front were found the best preserved articulated skeleton. This stratigraphic interval is partially correlated to the “Tartaruguito” site, located Pirapozinho municipality, 10 km far from CG area, in which the turtles and crocodiles fossils where recovered from fine laminated sandstones of crevasse lobes and crevasse channels of proximal delta front interval of the ADA, just above the mouth bar levels of CG. This rich paleovertebrate record shows the lacustrine deltaic sequence of ARA-ADA is fossil-prone because have been yielded several paleovertebrate specimens in good taphonomical degree of preservation. Additionally, this record enlarge the chronostratigraphic paleontological frontier to the base of the Upper Cretaceous interval of the Bauru Group, in which the fossil bearing levels are restricted to the uppermost levels of the Adamantina, Presidente Prudente and Marília formations.

**KEYWORDS:** LACUSTRINE DELTAIC SEQUENCE, ARAÇATUBA-ADAMANTINA FORMATIONS, PALEOVERTEBRATE RICHNESS.