

**TAPHONOMIC SIGNATURES OF PLEISTO-HOLOCENE FRESHWATER
MOLLUSKS (TOURO PASSO FM, RS, BRAZIL): SOME OBSERVATIONS
CONCERNING THE PRESERVATIONAL POTENCIAL OF THE
CORRESPONDING PRESENT-DAY DEAD ASSEMBLAGES**

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Studies on the quantitative taphonomy of the freshwater mollusk assemblages (Recent and fossil) are rare. In this project we surveyed sub-fossil mollusk assemblages found in the Touro Passo Formation (Pleistocene-Holocene), RS, Brazil, as well as the mollusk dead-assemblages found in a sand bar, located in a secondary channel of a meandering to braided section of the Present-day Touro Passo River. A total of 579 mollusk specimens, including fragments, were recovered from one 3D sample (50 x 80 x 20 cm) in a 20 cm thick mollusk-rich fossil layer. Two species of gastropods (*Heleobia* sp. and *Potamolithus* sp.) and six of bivalves (*Anodontites* sp., *Diplodon delodontus wymani*, *D. parallelipedon*, *D. rhuacoicus*, *Diplodon* sp., and *Neocorbicula* sp.) were identified. In a restrictive analysis, with fragments excluded, and correcting the disarticulated valves by a factor of 0.5, the bivalve shells predominate (89.6%), being *Neocorbicula* sp. (46.3%) the dominant species. The analysis show that 96.2% of the shell material was fragmented (324 specimens were identified as Unionoid fragments), and the majority (52.3%) showed 50% to 80% of the shell surface broken. Regarding the bivalves, 0.7% of the shell material was articulated, 15.5% disarticulated, 94.7% showed no hinge or eroded hinge (13.2%), and the majority (95.7%) exhibited no signs of muscle scars. Biologic incrustation was not observed in the examined shells, but calcareous precipitations resembling rhizoconcretions were assigned in 36.8% of them, on the internal (68%) and external (18%) shell surfaces. Cracks (3.8%) were rare. Corrosion on the external surface of the shell material was observed in the majority of the specimens, being those “punctuated” (45.8%) and “crater-like” (28.1%) shell textures the most frequent type of surface alteration. In the examined specimens, the sculpture was partially preserved (60%) or totally removed (15.3%). Losses of shell apical morphologies (umbone/apex) and morphological “deformations” were rare. Our data show that the mollusk bio- and thanacoenoses of the Present-day Touro Passo River are distinct in terms of taxonomic composition and the ranking of dominance. In especial, the taphonomic signatures of the fossil assemblages are very different from those preserved in the dead assemblages collected in the same sampling site (secondary channel). The latter is characterized by the dominance of *D. delodontus wymanii* or *Potamolithus* sp., and also by higher values of articulated bivalve shells (~50%), with well preserved hinges and sculptures, and lower values of small fragments (less than 50% of the shell surface fragmented), even at sampling area level (quadrat). We also cannot find any type of shell accumulation in the present-day river bed, similar to that of fossil concentration. New sampling efforts and taphonomic analyzes are being conducted to investigate the apparent lack of quantitative taxonomic fidelity among the freshwater mollusk thanatocoenosis and taphocoenosis in study area.