

# AMS RADIOCARBON DATING OF FRESHWATER MOLLUSK SHELLS FROM THE TOURO PASSO FORMATION (PLEISTOCENE-HOLOCENE), RS, BRAZIL

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The Touro Passo Formation is an alluvial vertebrate-bearing unit mainly developed in the Pleistocene of southern Brazil, which also bears fossil mollusks, archaeological remains and levels of immature carbonatic soil profiles. Previous information on the age of sub-fossil mollusk shells of this unit was based, in part, on indirect observations. Based on archaeological studies, the age of the specimens found in Present-day deposits could range from 0 to 3,500 years B.P. Shells found in a shell-rich bed, located in an alluvial sand bar of the Present-day Touro Passo River, could have 15,400 years B.P., according to termoluminescence measurements of its sediments. Nevertheless, the time-averaging recorded for marine and freshwater mollusk dead assemblages usually varies from hundred to thousand years, suggesting that the age of the fossil shells from the Touro Passo Formation could be different from that of the sediment. Fossil shells dated via <sup>14</sup>C found in possible coeval Uruguayan beds (Sopas Formation), yielded ages of 43.000 to 45.000 years B.P., suggesting an older age to the Brazilian specimens. Here we present the results of the individual AMS radiocarbon dating of two mussel shells (*Diplodon delodontus wymani* and *Diplodon rhuacoicus*) collected in the same shell-rich bed previously dated by termoluminescence. Both shells were submitted to an acid etching pretreatment and analyzed by the Beta Analytic Laboratory (Miami/Florida). The conventional radiocarbon dating was calibrated using the Pretoria Calibration Procedure, including <sup>13</sup>C/<sup>12</sup>C ratios, and the ages register the ranges to calendar years (BC) and Radiocarbon years (BP). Calibrate dating of the specimen of *D. delodontus wymani* was of Cal BC 17,620 to 16620 (Cal BP 19,570 to 18,570), and of Cal BC 18,740 to 17,060 (Cal BP 20,690 to 19,020) to the *D. rhuacoicus* specimen. The conventional radiocarbon ages of the specimens were 15,970 +/- 90 BP and 16,650 +/-230 BP, respectively. The range of the calibrated ages suggests that both shells could be contemporaneous, or have a difference of about 2,000 years. Based on the dating results for *D. delodontus wymani*, shell reworking is here suggested, since the conventional age of this mollusk shell seems to be older than the inferred age of the sediments. The known taphonomic differences among the molluscan taphocoenosis from the Touro Passo Formation and the Present-day shelly thanatocoenosis of this river seem to corroborate this observation. The former assemblage shows higher degrees of corrosion and higher frequencies of fragmented shells, forming 20-cm thick, loosely packed shell concentrations. Similar shelly accumulations were not recorded in the Present-day Touro Passo riverbed, yet. More dating results are, however, necessary to corroborate these assumptions.