

En la actualidad existen dos posturas respecto al estado sistemático de los steinmanellines—un grupo con un registro fósil conspicuo y abundante en el Mesozoico de Argentina, las que encarnan la dicotomía clásica de *lumpers vs splitters*. *Steinmanella* ha sido tradicionalmente reconocido como el único representante gondwánico del grupo con una considerable diversidad específica; sin embargo, propuestas recientes han dividido *Steinmanella* en numerosos géneros argumentando una mejor representación de su historia filogenética. Aquí, nos enfocamos en el estudio de siete especies de steinmanellines del Valanginiano–Hauteriviano de la Cuenca Neuquina (*S. quintucoensis*, *S. subquadrata*, *S. curacoensis*, *S. caicayensis*, *S. pehuenmapuensis*, *S. aff. S. transitoria* y *S. vacaensis*). La variabilidad morfológica de estas especies es cuantificada con técnicas de morfometría geométrica tridimensional, descompuesta en sus componentes interespecíficos, anagenéticos y ontogenéticos, y usada para evaluar las propuestas sistemáticas bajo criterios paleobiológicos. Los resultados muestran que: 1) la mayoría de las especies se encuentran divididas por discontinuidades morfológicas a lo largo de toda su distribución estratigráfica, 2) no reconociéndose transiciones evolutivas graduales entre especies; por otro lado, 3) los agrupamientos de especies de acuerdo a sus patrones de similitud fenética no coinciden con los géneros erigidos en la clasificación moderna, pero 4) las ontogenias de estas especies sugieren que existe más de un género presente en el intervalo estudiado. Estos resultados apuntan a un escenario intermedio entre las propuestas en disputa, y demuestran la capacidad de los criterios paleobiológicos para iluminar y evaluar las propuestas sistemáticas.

*Contribución C-176 del IDEAN.

MESSAGES FROM FIELD GEOLOGY: SIGNIFICANCE OF SEDIMENTARY BRECCIAS ACROSS THE K/Pg BOUNDARY IN SEYMOUR ISLAND, ANTARCTICA

E. B. OLIVERO^{1,2*}

¹Centro Austral de Investigaciones Científicas (CADIC-CONICET). B.A. Houssay 200, 9410 Ushuaia, Tierra del Fuego, Argentina. emolivero@gmail.com

²Universidad Nacional de Tierra del Fuego. 9410 Ushuaia, Tierra del Fuego, Argentina.

In Seymour Island, Antarctica, thick fossiliferous, marine mud-dominated strata of the López de Bertodano Formation preserve one of the most expanded records of the K/Pg boundary worldwide. Concurrently with the extinction level of several fossil groups, including ammonites and marine reptiles, an iridium spike related to the Chicxulub bolide impact is also recorded at Elliot's locality. Recent research, based on environmentally sensitive stable isotopes and trace elements across the K/Pg boundary offers new evidence of subannual seasonal variations in sea-water temperatures and intermittent bottom anoxia or even euxinia. It is not clear, however, how the profuse benthic organisms, represented by dense concentrations of body and trace fossils, managed to survive the seasonal anoxia. Moreover, isotopic evidence suggests that in Seymour Island, both the Deccan Traps volcanism and the Chicxulub impact contributed to the faunal extinction at the K/Pg boundary and to another earlier extinction episode. Potential pitfalls for these interpretations, such as stratigraphic condensation or input of terrestrial waters related to deepening or shallowing intervals, however, were not considered. These potential pitfalls are generally rejected under the assumption that the upper López de Bertodano Formation stratigraphic interval, including the K-Pg, represents relatively uniform deep-water outer to mid shelf settings. On the contrary, we provide here sedimentological evidence that the upper López de Bertodano Formation—the 160-m-thick Unit 9 comprising both the K/Pg boundary and the earlier extinction horizon—records shallowing-deepening asymmetric sedimentary cycles interpreted as parasequences. Each cycle consists of a coarsening-upward package, 3–15 m-thick, of basal micaceous mudstone or sandy siltstone, with abundant fossiliferous and bioturbated glauconite concretions that grades upward to silty fine-sandstone, and finally to fine-grained sandstone with ripple cross-lamination. In several cycles a basal sedimentary breccia—including mudstone chips, shell fragments, and cross-stratified sandstone lenses—is recorded between a gentle erosive surface and the lower concretionary mudstones. A similar sedimentary breccia is also present at Elliot's locality, just above the Ir-enriched layer. This K/Pg breccia is interpreted as representing sea floor erosion and re-sedimentation at the parasequence basal flooding surface. Given the inferred sedimentological context and the considerable distance separating Seymour Island from the Chicxulub impact crater, a tsunami deposit originated by the meteorite impact is rejected. Overall, the López de Bertodano Formation represents a third order stratigraphic sequence, limited by high-relief subaerial unconformities, with a sediment source to the NW of Seymour Island. The López de Bertodano Formation informal Unit 9 is correlative of coarse-grained, SE-prograding, coastal sedimentary facies exposed in Vega Island, which is positioned about 60 km in an up dip direction; hence the parasequences of Seymour Island represent more distal facies in the basin, located near the proximal offshore-distal lower shoreface zone. Basal stratigraphic