

**TURNING A SPECIES INTO ANOTHER: PRELIMINARY CONSIDERATIONS ON
THE DEFORMATION OF THE SPECIMENS OF *JACHALERIA* BONAPARTE, 1970
(SYNAPSIDA: DICYNODONTIA), AND THE VALIDITY OF THE SPECIES *J.*
CANDELARIENSIS ARAÚJO & GONZAGA**

MORATO, L.¹; VEGA-DIAS, C.²; SCHWANKE, C.³; SCHULTZ, C.L.¹;

¹ Departamento de Paleontologia e Estratigrafia, UFRGS, RS

² Departamento de Ciências Biológicas, URI – Campus de Erechim, RS

³ Instituto de Biologia Roberto Alcântara Gomes, UERJ, RJ

The genus *Jachaleria* (Synapsida: Dicynodontia) was recently revalidated, in face of proposals of synonymy with the genus *Ischigualastia*. However, the validity of the two species assigned to that genus, the type species *J. colorata*, from Argentina, and the Brazilian species *J. candelariensis*, from Rio Grande do Sul state, both from Late Triassic, was not yet examined. The cranial morphology of *J. colorata* was described only preliminarily based on a single specimen (Paleont. Vert. Lillo, PVL 3841), poorly preserved and dorsoventrally compressed; additional materials posteriorly attributed to this species include a more complete skull, with lower jaw (Museo de Ciencias Nat. de San Juan, R55), and a skull fragment (R57). The materials attributed to the Brazilian species include a nearly complete and well-preserved skull (Univ. Fed. Rio Grande do Sul, UFRGS-PV0151T, holotype) and the rostral and orbital portions of a second skull (UFRGS-PV0147T). In face of the characters of these later two skulls, the diagnosis of *J. colorata* can be totally applied to the Brazilian species, hence defining only the genus. Several characters described in the diagnosis of *J. candelariensis* to differentiate it from *J. colorata* (e.g. the ventral margin of the pre-maxilla straight and horizontal, the caniniform process of the maxilla oriented vertically downwards, as its axis form a right angle with the ventral margin of the pre-maxilla, and the shape of the orbit) can be obtained with relatively simple deformations, and therefore might not represent true autapomorphies of this taxon. In order to test this hypothesis, a methodology to retrodeform fossils tectonically affected was used, calculating the strain ellipses necessary to change the forms of the skulls PVL 3841 and R55 to agree with the morphology presented by UFRGS-PV0151T. Firstly, it was attempted to determine the ellipses algebraically, but since it was not possible to obtain one single ellipse that could satisfy all the angular relations found in UFRGS-PV0151T, approximations were obtained using graphical methods (Mohr constructions and Breddin graphs). However, this discrepancy doesn't mean that the skulls are intrinsically distinct from each other, and therefore represent different species. UFRGS-PV0151T is heterogeneously deformed, and this could have occurred with the Argentinean skulls; such heterogeneity could account for the small differences in the angular relations obtained from calculation. In fact, even applying a mean value of deformation, the resulting similarities between the skulls are remarkable. Among the distinctive characters described for *J. candelariensis*, the presence of a losangular extranumerary bone between the nasals and frontals is the more conspicuous. Notwithstanding, this bone seems to be also present in the Argentinean species; the poor preservation of the Argentinean holotype avoids clear identification. Other characters, such as rugosities in the pre-frontals and post-orbitals of *J. candelariensis*, as well as a post-orbital furrow, were not observed in the holotype of *J. colorata*, but it can not be discarded that the absence of these structures might be an artifact of preservation and/or preparation, nor an intraspecific variability, as sexual dimorphism.