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## **Comparative study of the fore-limb of the Early Triassic cynodont *Thrinaxodon liorhinus*. Exploring burrowing anatomy.**

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Therapsids were severely affected by the Permian-Triassic mass extinction event and only a few lineages were able to survive. One of the main behavioural responses that most likely aided in Therapsid survival across the extinction event was burrowing. Several fossils of the therapsid, *Thrinaxodon* were found in curled up position and assumed to have died in a burrow, leading to the idea that this taxon was perhaps a digger. To date, limb structure of *Thrinaxodon* has not been systematically compared to extant burrowing specialists. Besides exhibiting potential burrowing adaptations, the limbs of *Thrinaxodon* have been described as exhibiting a transitional phase between classic sprawled limbs of reptiles and mammalian parasagittal postures. The forelimb (humerus, radius and ulna) of *Thrinaxodon liorhinus* is compared with cursorial forms such as the reptile *Varanus*, and mammals *Felis domesticus* and *Thylacinus cynocephalus*, as well as with digging mammals, *Vombatus* and *Lasiornis*. This series of nested comparisons permits interpretation of the functional morphology of the fossil *Thrinaxodon* as being more similar to a cursorial or digger animal. New insights into the behaviour of the fossil *Thrinaxodon* are discussed by describing and completing morphometric analyses on forelimb skeletal elements. These results advance present understanding of *Thrinaxodon* limb structure, mobility, habitat and ecological preference.

**Submit a paper<br>for peer review<br>(SA Journal of Science)?<br>(Yes / No / Maybe)**

Maybe

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