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Locomotion speeds from trackways: Predatory dinosaurs moved faster than herbivorous dinosaurs SCOTT A. LEE, University of Toledo — Fossilized trackways from dinosaurs leaves evidence of their locomotion from the stride length S and foot length F which yields the leg length L. From studies of living animals, it is known that a walking animal has a relative stride length RSL (= S/L) less than 2 and a running animal has a RSL greater than 2. A statistical analysis was performed of trackways associated with three groups of herbivorous dinosaurs: sauropods (N = 23), the armored ankylosaurs and stegosaurs (N = 10), and the unarmored ornithopods (N = 23) as well as the predatory theropods (N = 35). The average RSL of the sauropods and the armored dinosaurs were both 0.9 ± 0.3. The ornithopods had an average RSL of 1.2 ± 0.2. None of the trackways associated with herbivorous dinosaurs have an RSL greater than 1.5, indicating that they were all walking. The theropods showed the fastest and most varied locomomtion: their highest average RSL was 1.8 ± 0.7. Nine of the theropod trackways had an RSL greater than 2.0, indicating that the dinosaurs were running when they made those trackways. One of the theropod trackways had an RSL of 4.5, indicating that it was running very fast compared to its body length.

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