The Late Jurassic vertebrate footprint collection of the Sociedade de História Natural in Torres Vedras (Portugal)

Diego Castanera[1]* Bruno C. Silva[2,3], Vanda F. Santos[4,5], Elisabete Malafaia[5,6], Matteo Belvedere[7]

1 Institut Català de Paleontologia Miquel Crusafont, Universitat Autònoma de Barcelona, c/ Escola Industrial 23, 08201 Sabadell, Barcelona, Spain.

2 Laboratório de Paleontologia e Paleoecologia, Sociedade de História Natural, Apartado 2564-909 Torres Vedras, Portugal

3 European Centre of Paleontology, Department of Biosystematics, University of Opole, ul.Oleska 48, 45-052 Opole, Poland

4 Departamento de Geologia. Faculdade de Ciências da Universidade de Lisboa, Edifício C6, Piso 3, Campo Grande. 1749-016 Lisboa, Portugal

5 Instituto Dom Luiz, Universidade de Lisboa. Edifício C6. Campo Grande. 1749-016 Lisboa, Portugal

6 Grupo de Biología Evolutiva. Facultad de Ciencias. Universidad Nacional de Educación a Distancia. C/ Senda del Rey, 9, 28040 Madrid, Spain

7 Corso Italia 46, 32046, San Vito di Cadore, Italy

*presenting author, diego.castanera@icp.cat

Abstract:

The Late Jurassic of the Lusitanian Basin (Portugal) has yielded significant theropod and sauropod tracksites (e.g.: Pedra da Mua, Avelino, Cabo Mondego) plus recent findings of isolated dinosaur tracks. The Sociedade de História Natural (SHN) in Torres Vedras houses a significant collection of yet mostly undescribed dinosaur tracks from the Late Jurassic. The footprints have been collected from different Kimmeridgian-Tithonian geological formations (Amoreira-Porto Novo, Alcobaça, Sobral and Freixial formations) that mainly outcrop across the Consolação and Turcifal sub-basins of the Lusitanian Basin. The footprints have been collected in different localities at the base of the cliffs, mainly isolated and dispersed. The collection is composed of more than a hundred of footprints and the majority of them are preserved as isolated sandstone natural casts. Nonetheless, some specimens are preserved as microconglomerate natural casts or in limestones (either as casts or true tracks). The majority of the footprints are tridactyl dinosaur tracks of variable sizes. Among them, several symmetric with high interdigital angle and low mesaxony tracks probably produced by ornithopod/ornithischian dinosaurs are noteworthy. Three main morphotypes (*Anomoepus*-like, *Dineichnus*-like and Iguanodontipodidae) have been identified. In addition, medium to large sized theropod tracks (*Megalosauripus transjuranicus*-like) have been also identified. Small (grallatorid-like) and gigantic theropod and sauropod tracks, plus some possible crocodylomorph traces complete this outstanding collection. These new occurrences increase the previously known Late Jurassic ichnodiversity in the Lusitanian basin.

Keywords: Ornithopoda, Theropoda, Sauropoda, Crocodylomorpha, Kimmeridgian, Tithonian