



# THE DIVERSITY OF THE SANTANA FORMATION PALEOENTOMOFAUNA (LOWER CRETACEOUS, NORTHEAST BRAZIL)

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## INTRODUCTION

The lowermost part of the Santana Formation (Crato Member) is one of the sedimentary units of the Araripe basin, Northeast Brazil; it is situated on top of a variety of sediments type, but largely on top of the Batateira Formation of fluvial origin. It is a sequence of laminated organic rich limestones deposited in a lagoon/lacustrine environment, with important outcrops around the village of Crato and Nova Olinda. The lowermost unit is a sequence of laminated stones, at millimetrical scale, mined for the building industry; the sequence bears one of the most impressive arthropods (mainly insects) fossil fauna in the world. Insects, arachnids, crustaceans, myriapods are associated with plants (angiosperms), rare feathers, frogs, crocodiles, lizards, pterosaurs, dinosaurs, and the little fresh waters fish *Dastilbe*, as well as other fish groups.

## OBJECTIVES

The objective of this contribution is to furnish an updated position of the Araripe paleoentomofauna diversity (updated from Martins-Neto, 1987, 1999, 2005).

## RESULTS AND DISCUSSION

At the present stage of the knowledge they are know 306 described species for the Santana Formation (Lower Cretaceous, northeast Brazil) and the distribution of this paleoentomofauna reveals that the better represented groups are Orthopteroida (Ensifera + Caelifera + Phasmatoptera), with 72 described species (23.5%), Hemipteroida (Auchenorrhyncha + Coleorrhyncha + Heteroptera), with 71 (23,2%), Neuropteroida (Neuroptera + Raphidioptera + Megaloptera), with 66 (21,5%), Paleoptera (Odonatoptera + Ephemeroptera), with 40 (13%), Blattopteromorpha (Blattoptera + Isoptera + Dermaptera), with 19 (6,2%), Amphiesmenoptera (Trichoptera +

Lepidoptera), with 12 (3,9%), Hymenoptera, with 10 (3,2%), Coleoptera, with 9 (2,9%), Antliophora (Diptera + Mecoptera), with 6 (1,9%), and Diplura, with just one. The represented families also is very diverse: Diplura, just one (Japygoidea); Odonatoptera, 9 (Araripegomphidae, Araripelibellullidae, Araripephlebiidae, Aeschnidae, Aeschnidiidae, Cretapetaluridae, Proterogomphidae, Euarchistigmatidae, Hemiphlebiidae); Ephemeroptera, 7 (Hexagenitidae, Siphonuridae, Eutyplocidae, Oligoneuriidae, Potamanthidae, Polymitarciidae, Ephemeridae); Blattoptera, 3 (Mesoblattinidae, Blattulidae, Umenocoleidae); Orthoptera, 15 (Baissogryllidae, Cearagryllidae, Gryllidae, Gryllotalpidae, Euclydesidae, Brauckmanniidae, Locustopsidae, Bouretidae, Araripeleustidae, Tridactylidae, Prezotophlebiidae, Aerophasmatidae, Proscopiidae, Stenopelmatidae, Elcanidae); Dermaptera, 1 (Labiidae); Isoptera, 1 (Hodotermitidae); Hemiptera, 22 (Scherbakoviidae, Cariricercopsidae, Prolixiidae, Cercopionidae, Procercopidae, Achilidae, Cixiidae, Lalacidae, Cicadellidae, Jascopidae, Boreoscytidae, Tettigacthidae, Palaeontinidae, Belostomatidae, Pachimeriidae, Tingidae, Veliidae, Gelastocoridae, Naucoridae, Hydrometridae, Progonomicidae, Pseudonerthridae); Neuroptera, 16 (Chrysopidae, Berothidae, Sisirydae, Psychopsidae, Araripe neuridae, Palaeoleontidae, Babinskaiidae, Mesochrysopidae, Ascalaphidae, Roeslerianidae, Makarkiniidae, Raphidioidea, Rafaelidae, Limaiidae, Allopteridae, Cratochrysidae); Coleoptera, 7 (Staphilinidae, Carabidae, Pirochroidae, Nemonychidae, Belidae, Ecoptarthridae, Brentidae); Hymenoptera, 8 (Scoliidae, Tiphidae, Sphecidae, Ephialtidae, Rhopalesomatidae, Anaxyelidae, Proctotrupidae, Formicidae); Lepidoptera, 1 (Eolepopterigidae); Trichoptera, 3 (Leptoceridae, Rhyacophilidae, Raptortrichopsidae); Mecoptera, 1 (Bittacidae), and Diptera, 4 (Asilidae, Tabanidae, Tipulidae, Brachycera indet).

## CONCLUSION

The knowledge about the diversity of the Santana Formation paleoentomofauna is systematically growing and far from the definitive number of taxa. The first check list was made at 1987 when just three species were listed (Martins-Neto, 1987). After twelve years (Martins-Neto, 1999) this number was elevated to expressive 183 named taxa, and six year after for 278 (Martins-Neto, 2005). Now, at present contribution, the known taxa are 306, 10% more, just two years after the last check list, consisting in the most abundant and diverse depositional site of fossil insects for the Cretaceous times.

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