

IMPORTANCE OF THE COLLECTION OF THE “LABORATÓRIO DE PALEONTOLOGIA E EVOLUÇÃO” OF THE GOIÁS FEDERAL UNIVERSITY TO THE PALEONTOLOGICAL RESEARCH IN THE GOIÁS STATE, BRAZIL

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RESUMO. Importância da coleção do Laboratório de Paleontologia e Evolução da UFG para a pesquisa paleontológica no Estado de Goiás. No início de 2015, o Laboratório de Paleontologia e Evolução (Labpaleoevo) da Universidade Federal de Goiás (UFG), Campus Aparecida de Goiânia, incorporou 335 espécimes de fragmentos de fósseis à sua coleção. Este acervo encontra-se em processo de implantação e institucionalização, mas desde o começo têm sido utilizados métodos curatoriais paleontológicos apropriados para a organização desta coleção científica. O objetivo deste artigo é apresentar o processo de institucionalização do Labpaleoevo e seu acervo fossilífero, o qual pode fornecer novos dados para o Paleontologia brasileira, que possibilitará expansão de inúmeras pesquisas paleontológicas no estado de Goiás, além de dar suporte de curadoria de espécimes fósseis ao curso de Geologia da UFG.

Palavras chave: Paleontologia, curadoria, acervo, estado de Goiás.

ABSTRACT. At the beginning of 2015, the Laboratório de Paleontologia e Evolução (Labpaleoevo) of the Goiás Federal University (UFG), Aparecida de Goiânia Campus, added to its collection 335 specimens of fossils. Most specimens are from the sedimentary basins of Araripe, São José de Itaboraí, and Paraná, located at the states of Ceará, Rio de Janeiro, São Paulo, and Goiás. This collection is still in process of implementation and institutionalization, proper methods for curating the paleontological material are being applied. The present paper aims to present the institutionalization process of Labpaleoevo and its fossil collection, which has the potential for revealing new data important to the Brazilian Paleontology. As a consequence, this process will give the UFG's Geology Course support to the curation of fossil specimens, and may enhance many paleontological studies in Goiás State as well.

Key words: Paleontology, curation, collection, Goiás State.

INTRODUCTION

The Goiás State has a great geodiversity that comes of its fossiliferous deposits. To know and protect this natural patrimony is important to its preservation. The organization and conservation of scientific collections contribute to such preservation, since the collections allow building the scientific understanding of this valuable material derived from natural processes.

Scientific collections are of great importance to Paleontology because it is the most significant way of recording and holding fossil specimens of academic interest. As scientific patrimonies, these collections provide the means to the development and legitimation of the field of Paleontology. A collection allows the access of researchers to

important materials of the geological patrimony; and the description of specimens provides relevant results that generate scientific divulgation and publications (CRISTIN; PERRILLIAT, 2011; PINTO et al., 2011). Fossils and its records are valuable elements to scientific production in Paleontology, enabling the growth of knowledge in this field.

Usually, paleontological collections are located at universities and museums among which we highlight the following Brazilian institutions: Museu Nacional of the Universidade Federal do Rio de Janeiro; Museu dos Dinossauros de Uberaba, in the rural district of Peirópolis, Uberaba city (Minas Gerais State); Laboratório de Macrofósseis of the Geology Department of the Universidade Federal do Rio de Janeiro, and many other institutions in Brazil (MOREIRA et al., 2008; TAVARES et al.,

2010; PÁSSARO et al. 2014). Recently, Pássaro et al. (2014) published the most complete list of the main institutions of paleontological interest that house Brazilian fossil collections. This same work show the importance of having and/or implementing proper places to house and expose fossil collections.

As from 2015, it started the process of implementation and institutionalization of the research laboratory of the Universidade Federal de Goiás, which is named Laboratório de Paleontologia e Evolução (Labpaleoevo).

MATERIALS AND METHODS

The systematization of Labpaleoevo started in March 2015 following the basic procedures suggested by Carvalho (2010), but the methodology used here for the taxonomic organization of specimens follows the directions of the International Code of Zoological Nomenclature (RIDE, 2003). All fossil specimens are being cataloged and numbered with specific acronyms that attend the following pattern: taxonomic level according to the categories of Linnaeus, where each order or higher taxonomic level is indicated by a letter. Each screened and cataloged specimen was listed according to the pattern "Paleo-UFG/P – 0000", where: "Paleo-UFG" corresponds to the acronym of Paleontologia Universidade Federal de Goiás; "P" is a letter that varies according to the taxonomic identification of the specimen (Table1); and "0000" is a four-digit number that starts at 0001 for each taxonomic level.

Moreover, the specimens are already registered in a book with the following information: collection number; material identification; locality; geological unity/age; collector; and observations. Each fossil will also receive a record card filled with the aforementioned information.

Table 1. Acronyms of the paleontological collection of the Laboratório de Paleontologia e Evolução, UFG

Legenda	Taxonomy
Paleo-UFG/P	Plantae
Paleo-UFG/I	Invertebrates
Paleo-UFG/V	Vertebrates
Paleo-UFG/lc	Ichnofossils

After the analysis of each fossil and its description and classification in the record card, the material is stored in cabinets according to its taxonomic strata.

The present study is based on the record cards of the fossil collection and on the bibliographic collection of the Labpaleoevo.

RESULTS AND DISCUSSIONS

Some projects elaborated by the Labpaleoevo/UFG lead to several field works for paleontological prospection where a systematic activity was applied for the collection of fossils. In addition, it is worth to note that part of the collection was donated by other institutions. Therefore, the paleontological collection of this laboratory holds 335 fossil specimens consisting of 18 ichnofossils; two plants; 251 invertebrates; and 76 vertebrates (Table 2). However, according to the Record Book of the Labpaleoevo scientific collection, there are 23 record numbers (first remains registered) that correspond to more than five times the number of fossil specimens that were registered. Therefore, each record number may represent more than one fossil piece.

Most of these fossils are exclusively from the fossil deposits of the Mesozoic sedimentary basins of Brazil, but there are also a few other important specimens of different geological ages (as, for example, mesosaur remains from the Paleozoic of Goiás State).

Table 2. Labpaleoevo fossil collection

Taxon	Number of specimens	Locality	Stratigraphy	Age
Fish	28	Ceará	Araripe Basin	Lower Cretaceous
Mollusk	239	Rio de Janeiro	Itaboraí Basin	Cretaceous
Sauropoda	5	Maranhão	São Luís Basin	Cretaceous
		São Paulo	Bauru Group	Cretaceous
Turtle	17	São Paulo	Bauru Group	Cretaceous
Arthropoda	10	Ceará	Araripe Basin	Lower Cretaceous
Amber	6	Colombia	?	Cenozoic
Mesosaur	11	Goiás	Paraná Basin	Paleozoic
Trilobite	2	Bolívia	?	Palaeozoic
Dinosauria	7	Maranhão and São Paulo	São Luis Basin and Bauru Group	Cretaceous
Coquine	1	Rio de Janeiro	?	?
Wood	2	Tocantins	Parnaíba Basin	Permian
Stromatolite	1	Rio de Janeiro	?	?
Theropod	4	São Paulo	Bauru Group	Creaceous
Titanosauria	4	Goiás and São Paulo	Bauru Group	Cretaceous

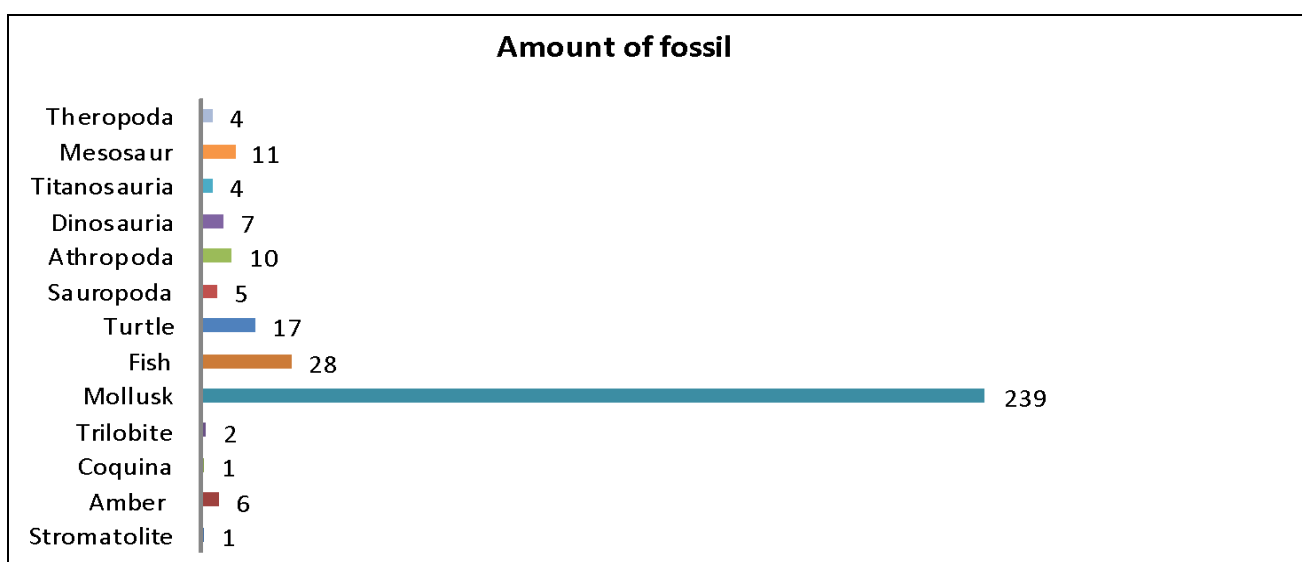
Great part of the specimens in the collection was donated to the laboratory or collected during field works in southern Goiás State and in western São Paulo State.

There are few plant specimens in the collection (eight; see Table 2) whose provenance are the Paranaíba, Araripe, and Paraná basins. Part of the material came identified as Pordocarpaceae (Paraná Basin), while the specimens from other geological unities still need identification.

The fossil mollusks are the most numerous in the collection (71.34%) (Figure 1). The first screening at Labpaleoevo identified 158 gastropods and 111 bivalves (Table 1). These fossils are mainly from the

Araripe, Paraná, and São José de Itaboraí basins. Among them, gastropods are the most abundant (and also the better preserved), and great part is from the São José de Itaboraí Basin. In smaller numbers (considering its preservation state) there are the bivalves, which have fractures caused by bad stowage or by perforations produced when the individual was still alive. The other few specimens in the invertebrate collection consist of trilobites from the Paleozoic of Bolivia, and other arthropods from the Araripe Basin that still lack specific identification. There are six ambers, being two from the Miocene of Colombia (these contain odonates), while the rest is still unidentified.

Figure 1. Amount of Labpaleoevo fossil collection



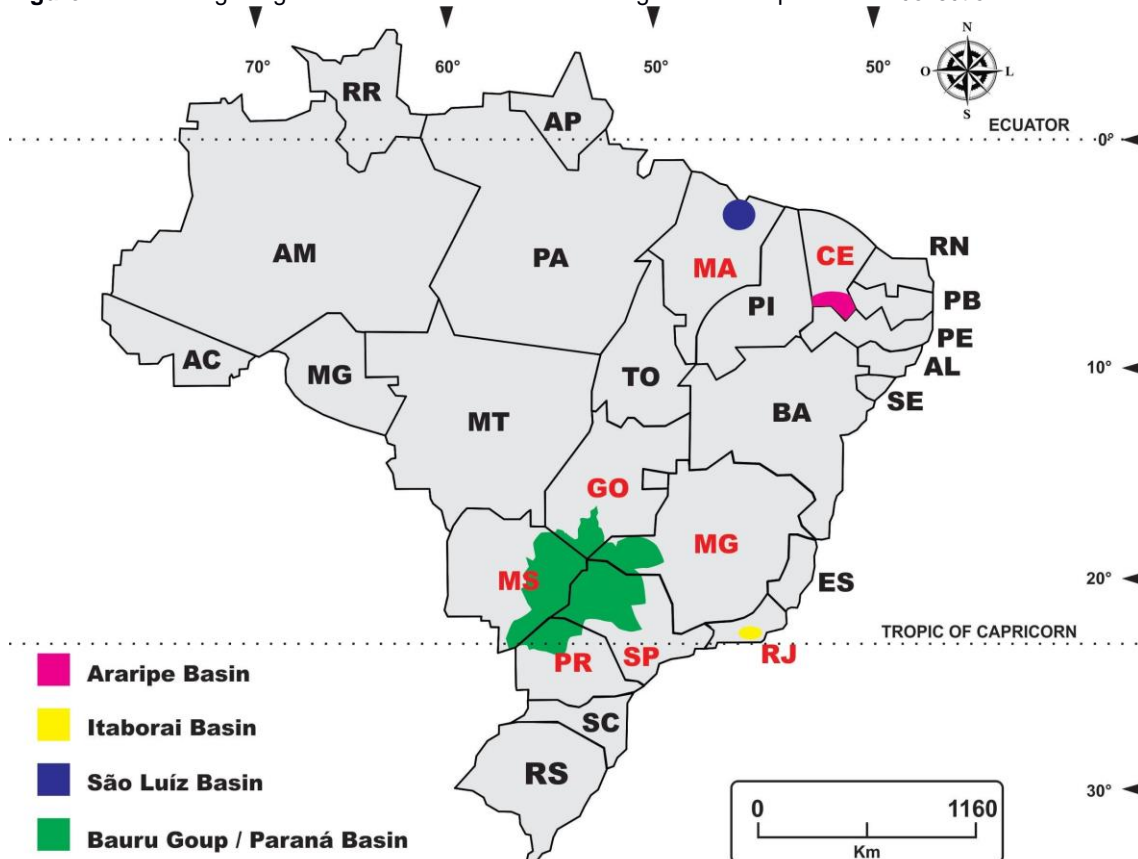
The fossil fish represent 8.36% of the collection and are represented by Osteichthyes indet. (20) and Acanthodii (eight). There are few tetrapod specimens, of which the most are from the Bauru Group (Paraná Basin), while the rest is from other Brazilian sedimentary basins.

Furthermore, the Labpaleoevo's collection also holds 164 limestone blocks (where each block may contain many specimens), and 46 isolated fragments to be screened and cataloged. Part of this material comes from new fossiliferous sites in southern Goiás State. Simbras et al. (2013) and Nadote e Simbra (2015) have reported important taxa to these localities, and the material is housed at the Labpaleoevo to be prepared and described. According to these authors, southern Goiás State shows a great fossiliferous potential that classifies the region as a promising area for paleontological prospection in the Bauru Group of Central Brazil.

The collection also holds sandstone blocks and

carbonate conglomerates from the Araripe and Bauru basins that may contain fossil teeth, scales and bones. These blocks are sources of specimens that will be added to the collection of Labpaleoevo in the future. Therefore, these blocks are classified in the collection as "unidentified". The blocks will increase considerably the number of cataloged fossils, and further studies of this material may also result in several scientific publications.

The collection holds materials from the Northeast (Ceará and Maranhão states) Southeastern (Rio de Janeiro and São Paulo states) Central West (Goiás State), and Northern regions (Tocantins State) of Brazil (Figure 2). Therefore, it is clear that this collection has a great diversity of fossil materials from different Brazilian states, with a large number of samples acquired mainly by donations as well as from field collections, showing its importance for the scientific community.

Figure 2. Brazilian geological formations whose fossils integrate the Labpaleoevo's collection

CONCLUSION

Although incipient, the Labpaleoevo's collection are of great importance to the Paleontology of Central Brazil due its diversity and preservation, being available to all in the scientific community. In fact, today, these materials is the main source of paleontological research in the Goiás State. It is properly regimented (collection registered according to acronyms, and with screening analyzes and proper conservation of specimens) so that the material can be used for monographs, dissertations, and theses. The collection is already been visited by several researchers in Geosciences. Furthermore, since 2015, many scientific publications regarding some of these materials have already been made.

Therefore, the collection of the Laboratório de Paleontologia e Evolução may provide new data to the Brazilian Paleontology, allow the expansion of the paleontological research in the Goiás State, and give support to the Geology Course of the UFG.

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