

“Lost Worlds of Archaic Gardens” – 2018 Exhibition in the Botanical Garden of the Faculty of Science, University of Zagreb

Acta Botanica Croatica is an international scientific journal published by the Department of Biology, Faculty of Science, In the 2018 season, the Zagreb Botanical Garden of the Faculty of Science will present an exhibition created by the Garden curators, Dr Sanja Kovačić, Dr Dubravka Sandev and Dr Vanja Stamenković, in cooperation with the Faculty's botanists, palaeontologists, geographers and chemists. The exhibition, named “**Lost Worlds of Archaic Gardens**” (in Croatian: *IZGUBLJENI SVJETOVI – pradávní vrtovi devona, karbona i krede*), will present the evolution of the Plant Kingdom on our planet through the imaginary “gardens” of three well-known periods in the geological time scale: early Devonian (Palaeozoic), late Carboniferous (Palaeozoic) and mid-Cretaceous (Mesozoic). The exhibition is intended for schoolchildren and students primarily, but will also be of interest to the widest audience (Pl. 1A). Through three dioramas – fictional garden beds from the prehistoric times – the visitors will be able to learn how and when the plants conquered land and through hundreds of millions of years finally brought us to the world we know today.

The diorama from the early Devonian (–400 Mya) will be arranged around a painting of the English author Richard Bizley (Lyme Regis, Dorset, UK). This well-known and often repeated scenery, which depicts a famous Rhynie Chert site in Scotland, will be accompanied by models of some of the long-vanished first plants on Earth (rhynias, cooksonias) and some of the living specimens from the Botanical Garden collections, resembling (if not related to) these ancient organisms (e.g. whisk ferns, Pl. 1B, and spike mosses,

Pl. 1C). The visitors will learn what scientists believe today, why and how the earliest plants inhabited the land, still without soil.

The diorama from the late Carboniferous (–300 Mya) will be designed around a computer graphic by another famous palaeo-artist, the American Walter B. Myers (Chicago, USA). The largest forests on Earth, dominated by such primitive plants as clubmosses and horsetails (Pl. 1D) but of enormous dimensions, reigned our planet throughout that period. Even today, many descendants of the early Carboniferous plants grow around the world, such as cycads and araucarias (Pl. 1E). How did the vast coal deposits form and why would that be impossible today...?

Finally, the backdrop for the mid-Cretaceous diorama (–100 Mya) will be custom-made by the Croatian artist Berislav Kržić, recognized for his dinosaur paintings and graphics. The forests of that period are much more familiar to us than any before. The ferns were present, the well-known gymnosperms (for example, sequoias and ginkgos, Pl. 1F), together with some early angiosperms (such as magnolias and water lilies, Pl. 1G), already well linked with their insect-pollinators. But what happened? What caused these vast woods to vanish? Why did the mass extinction events wipe out most of the life on Earth at least five times through the geological history of our Planet...?

The City of Zagreb, Department of Biology (Faculty of Science), Croatian Botanical Society and “Kolding” Ltd. will financially support the exhibition.

Entrance will be free of charge to all visitors.

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Plate 1. A) Exhibition logo “*Flora Palaeozoica*” by Dr Vanja Stamenković, Senior Garden Curator; B) Whisk fern (*Psilotum nudum* (L.) P. Beauv.) from Zagreb Botanical Garden collection (courtesy of the Botanical Garden of Eötvös University, Budapest). Still resembling the earliest plants from the late Silurian, these primitive ferns are actually of more recent ancestry; C) Several species of spikemosses (*Selaginella* spp.) are grown in the Temperate Glasshouse collections of the Garden. That primitive family (Selaginellaceae) of vascular plants evolved in the Palaeozoic; D) The recent “great” horsetail (*Equisetum telmateia* Ehrh.) could reach up to 2.5 meters in height. It is a successor to the large Carboniferous equisetums, such as the famous *Calamites*, that were more than 30 meters tall; E) Norfolk Island pine (*Araucaria heterophylla* (Salisb.) Franco) represents the Araucariaceae family distributed in ancient Gondwanaland. Zagreb Botanical Garden holds several species of this ancient family; F) The maidenhair tree (*Ginkgo biloba* L.) is the single living descendant of the Ginkgoaceae family of gymnosperms, which appeared in the Mesozoic. It is commonly grown in parks and gardens around the world; G) Water lilies (Nymphaeaceae), such as this *Nymphaea* (‘Marliacea Rubra’ cultivar) from the Garden collection, evolved in the Cretaceous. It is thought that they are one of the earliest angiosperm families on Earth still present today.