

Information about the Environment and for travellers in Crete:

“Living fossil” since 375 million years The Great Horsetail (*Equisetum telmateia*)



(*Pseudobornia*)

The Great horsetail is the largest kind of horsetail. Its Latin name is derived from the Greek „telema-
taiios“ (=mire) and refers to the preferential location of the plant.

Its habitat includes Europe (including Crete, excluding north and northeast Europe), Middle East, North
Africa and large parts of the western North America. It grows particularly on chalky soil of seep-wet
source corridors in the penumbra of leaves and coniferous forests.

The green summer sprout with whitish 1 to 2 cm thick stems reach stature heights of 40 - 150 cm and
become only in rare cases up to 2 m high. The branchless sprouts, at whose end the spur-bearing head
sits, are from brownish colour and appear between the end of April and early May and are with 20 - 40
cm much smaller than the later growing summer sprouts. The sporophyll stem becomes high up to 6 cm.
The side branches are normal.

Since dead plants decompose only very slowly, the remainders of the previous year sprouts usually lie
under the new existence. The dead stems keep their whitish colour very long. The number of chromo-
somes amount to $2n = 216$.

Horsetails are perennials, which spread vegetative with their rhizome. They are to be recognized easily by
their sprouts. Each branch is composed of a set of knot (Nodi) with intermediate internodes. Inconspicu-
ous leaves (micropyle) rise at every knot and with some kinds also lateral sprouts. Both the leaves and the
branching are whorled arranged. As hydrophyte most kinds have mikrophylle hydathoden at there top,
which serve the intensified water delivery.

Rhizome becomes length of up to 6 m. The reproduction is possible by runners and even by individual,
minced pieces of sprouts.



The spurs container (sporangia) are too fifth up to tenth at the lower surface of the sporangia carriers
(“sporophyll “), which look like one-legged small tables. These are twisted in peg-shaped sporophyll
stems at the shoot top arranged. The spurs are always arranged alike, independent of the sex (isosporous).
The fossil Calamites were partially “heterospor”, so that it is assumed that the Heterosporie was lost.

They possess at the external layer (exospores) two ribbons (Hapteren) with spatula shaped ends, which are wound around the spore in the damp condition. When the spurs drain, then the Hapteren unfold and causes thus a chaining among themselves. Some kinds carry the sporophyll at the green sprouts, others have special (not green) sprouts exclusive for the reproduction.

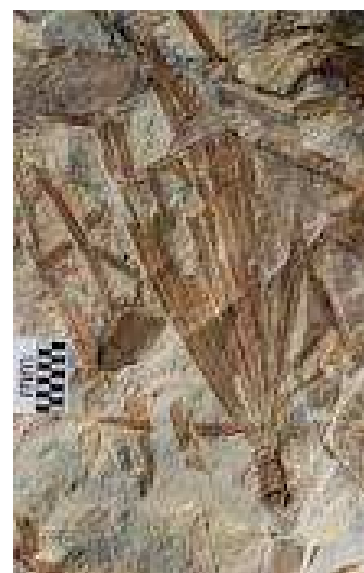
On Crete the Great horsetail is still to be frequently found at exposed places (often also widespread), therefore see the pictures below and also at page 3 of our leaflet 340-10/E



A characteristic of the horsetail is the storage of silicon (as lignin replacement) into the cell wall. The plant contains silicic acid up to 7%. These storages make the horsetail a gentle abrasive cleanser (common horsetail).

Palaeo-botany

The today's horsetails are the last survivors of a formerly species-rich group within the pteridophyta, the Equisetopsida. The Calamites (Calamitaceae) belonged to this taxon, which are known by fossils from the Permian and carbon; therefore see the picture below.



They were lignified, reached stature height of up to 30 meters and 1 meter trunk diameters and formed an important component of the hard coal forests. The first horsetails occur in the upper Devonian before approximately 375 million years (Pseudobornia bronni). Therefore the horsetails can be called “living fossils “. A in 2008 excavated petrified horsetail tree was certified by the Palaeontology society as “fossil of the yearly 2010”.

