

Population structure of Dragon Trees on Soqotra

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Knowledge of tree population structure is a key factor for determining the procedure and urgency of their early and effective conservation. Unique woodlands of *Dracaena cinnabari* on Soqotra Island – last preserved relics of the Mio-Pliocene xerophile-sclerophyllous southern Tethys Flora – were examined in detail, especially with regard to their age structure. The problematic nature of determining the age of an individual tree or specific populations of *Dracaena cinnabari* (DC) is illustrated on models relating to orders of branching, frequency of fruiting, etc. which give conditions to calculate actual tree age.

Detailed statistical analyses of the set of 50 trees at 4 localities were performed in order to define a model reflecting relationships between specific growth habit and actual age. The range of the probable age of one ‘sausage-shaped’ section of DC determined by the Czech team reaches values of 13.7 - 29.6 years (mean value 18.7). Based on statistical analyses as well as on direct field observations, DC populations on Soqotra do not regenerate to a great extent and their age structure generally indicates overmaturity. According to the analysis of dead trees, it is evident that, on average, DC in populations at Firmihin die after reaching 17 orders of peripheral branches. Therefore, with 95% probability, it is possible to expect that the larger part of the world’s most extensive ‘Dracaena woodland’ complex at Firmihin will be in the stage of intensive disintegration within 30 to 77 years.

An alarming comparison can be made with the case of Diksam plateau where, in the past, existed one of the supposedly largest DC forests, which at present is in a stage of advanced disintegration – starting more than 100 years ago – with too few scattered patriarch trees (perhaps up to 350 years old).



Meteorological data were also recorded from Firmihin during 4 days (September 26-29, 2002) when rainfall reached an incredible 304.8 mm. The Czech team has also produced the first detailed land-cover map of Soqotra Island distinguishing 19 terrestrial land-cover classes. Overall accuracy of the map achieved is more than 80%. Therefore, estimates of the area and degree of coverage of individual land-cover classes within Soqotra Island have brought a promising overview on state of island biotopes. Analyses show that the area of Dracaena woodland land-cover class on Soqotra reaches 3658 ha (incl. 228 ha of open forest in the FAO sense), i.e. 1.1 % of the total island area.