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OBSERVATIONS ON AN ENDANGERED FAN PALM IN ARABIA

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Notes are given on the status of the relict Arabian populations of the fan palm *Livistonia carinensis* (Chiov.) J.Dransfield & N.Uhl. Its status in Africa is discussed.

INTRODUCTION

Livistonia carinensis (Chiov.) J. Dransfield & N. Uhl is a rare fan palm found in a few scattered localities in southern Arabia and NE Africa. In the Red Data Book (Lucas & Synge, 1978: 429) it is recorded (under *Wissmannia carinensis* (Chiov.) Burret) as vulnerable and probably endangered. The African populations have been visited recently (Moore, 1971) but the Arabian population had not been seen by botanists since it was first discovered by the German explorer H. von Wissmann in 1931. In February 1989 the authors were fortunate to be able to visit the southern Arabian site and assess its present status.

HISTORY OF NOMENCLATURE

Livistonia carinensis was first discovered at Uncud Oasis in Italian Somaliland (northern Somalia) by the Italian botanist Emilio Chiovenda. He described it in *Flora Somala* (1929: 319) as *Hyphaene carinensis* although he had only sterile material at his disposal. Burret (1943), in his work on the Arabian Palms, matched photographs of palms from Mintaq in Southern Arabia taken by H. von Wissmann with Chiovenda's description of *Hyphaene carinensis* and concluded that they were the same. He further concluded that the palms could not be included in the genus *Hyphaene* and so erected the new monotypic genus *Wissmannia* to accomodate them. Monod (1955) obtained fruiting and flowering material of *Wissmannia* from French Somalia (TFAI) and was able to complete the description of the plant, noting its similarity with the Asian genus *Livistonia*. Tomlinson (1961) also noted this similarity. Finally, Dransfield and Uhl (1983) reviewed the status of *Wissmannia* whilst preparing the *Genera Palmarum* (1987) and sunk it in the genus *Livistonia*, making the combination *L. carinensis* (Chiovenda) J. Dransfield & N. Uhl.

Livistonia is a genus of about 28 species distributed from the Himalayas through Indo-china and Malaysia to New Guinea and the Solomon Islands to Australia. The presence of relict populations of *L. carinensis* in S Arabia and NE Africa (see Fig. 1), outside the main area of the genus, is of great phytogeographical interest.

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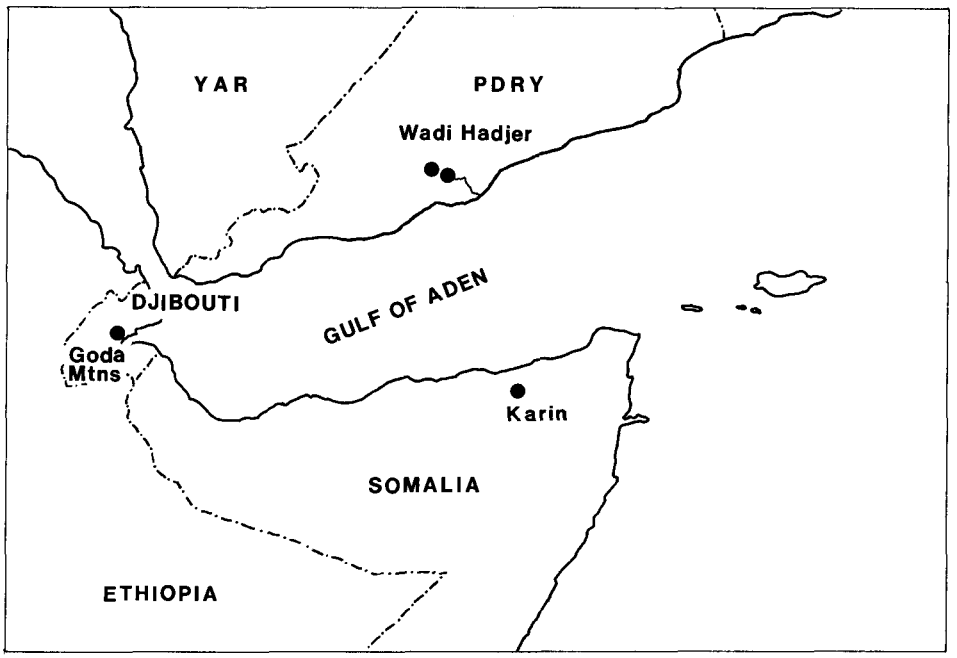

FIG. 1. Map showing distribution of *Livistonia carinensis*.

DESCRIPTION

Livistonia carinensis is a solitary tree palm with trunks to 20 metres tall crowned by up to 40 fan-like leaves. The leaves reach two metres in length and bear recurved spines along the margins of their petioles. The blade is green and up to one metre long. The tiny yellow flowers are borne on branched inflorescences reaching over two metres in length and extending beyond the leaves. The fruit is rounded. For a full description see Burret (1943) and Monod (1955).

SOUTHERN ARABIAN SITES

In Arabia, *Livistonia carinensis* is found only in the Hadramaut Governorate of the People's Democratic Republic of Yemen where it is known as *'N'tug'* or *'Somm'*. The interior of the Hadramaut region consists of a dry, inhospitable limestone plateau, the Jol, which averages about 1000m and rises to 2220m on the mountain of Kor Seban just north of Mukalla, the main town of the area. The Wadi Hadjer carves a winding course through the Jol, hemmed in on both sides by precipitous cliffs. Along the bottom of the wadi is found a luxuriant ribbon of date gardens, fields and villages in stark contrast to the white and sun-baked rolling hills of the surrounding plateau. It is in four villages in the higher reaches of the Wadi Hadjer that *Livistonia carinensis* is found.

It is most plentiful at Mintaq where we estimated there to be about 1000 trees. At the village of Al Ayn around 100 trees were counted. We were unable to visit the nearby sites at the villages of Roba and Goba where local villagers told us there were sizeable stands although not as large as that at Mintaq. These villages were recorded at about 400m a.s.l. (Wissmann recorded 600m which is similar to the altitudes given for the African populations). At Al Ayn the palms grew on sandy soil (pH 7.2-7.5) in dense groves amongst date palms by a small stream in relativeley well-watered situations. At Mintaq the population extended away from the waters edge and up the dry slopes of the wadi sides. By the water it was associated with the tree *Conocarpus lancifolius* Engl., the shrub *Pluchea dioscoroides* (L.) DC. and the tussock grass *Desmostachya bipinnata* (L.) Stapf as well as date palms (*Phoenix dactylifera*). Where it extended away from water on to the drier slopes it grew with stunted specimens of the Doom palm (*Hyphaene thebaica* (Del.) Mart.), and xeromorphic vegetation dominated by succulent *Zygophyllum* species, *Taverniera albida* Thulin, *Cienfuegosia welshii* (T.Anders.) Garcke and *Limonium axillare* (Forssk.) O. Kuntze.

The palms, particularly those close to water at Al Ayn, were regenerating healthily by suckers, and at both Mintaq and Al Ayn the trees were in mixed age populations although on the drier slopes at Mintaq they were mainly mature. Many germinating seedlings were found in the protection of old leaves lying around the base of the trees.

Although the seedlings are grazed, thus preventing regeneration, the main threat to the trees at the moment is from felling to provide timber for building. The situation is the same for the African populations, where the Red Data Book (Lucas & Synge, 1978) mentions that they provide the only straight building timber in the areas where they grow. Recently the situation has become worse in P.D.R.Y. because of the shortage of building material. Some control on cutting was imposed in 1982 when trees could be cut if a payment of 6 dinars (U.S.$30) per tree was made to the local Mamoor (civil administrator). This tax was lifted in 1984 but re-imposed in 1988. We saw piles of trunks cut and ready for building use and furthermore a large proportion of the trees at Mintaq had their lower leaves burnt off which is usually done prior to cutting (see Plates 1 & 2). The fronds are also used, being woven into large baskets in which dates are stored.

The Arabian populations of the palm are apparently far healthier than those in Somalia and Djibouti. The Red Data Book mentions that in Somalia it is known from three sites in one of which it has become extinct and in another reduced to 25 trees. Mats Thulin (pers. comm., 1990) makes the following comments about *Livistonia* in Somalia—'I saw some 15 trees near Karin in 1986 and was told by local people that there are about 50 trees in total remaining in the area (and in all Somalia as far as I know). They have been much used for house building, drainage pipes etc. in the past. The remaining trees are protected but there is scarcely any regeneration. There are young plants but people pick the leaves and stop them from growing up'. In Djibouti, according to the Red Data Book, it is known from seven sites in the Goda mountains. In 1971, in the main locality, there were only 97 trees, in an even-aged population, with no regeneration due to grazing by goats and cattle. However, the WWF Yearbook 1985/6 paints a slightly better picture for the palm in Djibouti.

PLATE 1. Stand of *Livistonia carinensis* in the Wadi Hadjer, P.D.R.Y.—note the lower fronds have been burnt off which is usually done prior to felling.

PLATE 2. Logs of *Livistonia carinensis* prepared for building

The Djibouti II expedition in 1985 examined 29 stands of trees totalling 318 individuals. They found the trees to be regenerating prolifically where there was running water. However, the establishment of the seedlings was threatened by goat and cattle grazing and by the long term effects of diverting the running water for irrigating gardens.

Future

For the continued survival of this palm in Arabia it is important that there should be some restrictions on cutting, also the erection of fencing to allow regeneration should be considered. It could obviously supply valuable local building material and if managed properly would supply timber into the future. A project, under the leadership of one of the authors (MB), has been set up at the nursery of the Ministry of Agriculture and Agrarian Reform at their Research Centre at El Kod near Aden. Seeds and seedlings have been collected and germination studies on three soil media are being undertaken. In February 1990 over 1000 seedlings had germinated. Hopefully the research being carried out at El Kod will secure the survival of this palm in Arabia.

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