



Saving the UAE's Halfa Grass

by Mohammad Shahid and N.K. Rao

Abstract

Halfa grass (*Desmostachya bipinnata*) has previously been recorded from Kalba and Ra's al-Khaimah in the United Arab Emirates (UAE). Recent studies at both of these locations have shown that the species is no longer present. The disappearance of *D. bipinnata* in the UAE is believed to be the result of encroachment on its natural habitat. The species has both fodder and medicinal values and is also important in stabilising soils. During one visit to the Ra's al-Khaimah site, prior to its disappearance, one plant of the grass was collected and planted at the research facilities of International Centre for Biosaline Agriculture (ICBA), Dubai for propagation. The grass has established well at the ICBA and can be used for reintroduction to the wild. This planting of the species at the Centre may have helped to save the species from extinction in the UAE.



Photo 1. *Desmostachya bipinnata* growing close to the coastal area of Ra's al Khaimah in 2007

Introduction

Halfa [*Desmostachya bipinnata* (L.) Stapf] is a rhizomatous perennial grass, which grows mostly in desert and semi-desert environments. It is a C4 plant with long and sturdy rhizomes that help in stabilising sand. A salinity- and drought-tolerant grass, it can be grown in marginal lands with high salinity and a shortage of fresh water as a fodder for livestock.

Halfa is used in many traditional medicines in India to cure leucorrhoea, urinary tract infections, dysentery, menorrhagia and several other diseases. The plant can also be used for making ropes, brooms and thatch. In the Indian subcontinent, it has been used for millennia in

sacred ceremonies (Griffith, 1896). According to legend, Lord Buddha was sitting on a mat made of *D. bipinnata* when he attained the enlightenment (Williams, 2006).

D. bipinnata is native to parts of Northeast Africa as well as West and South Asia, (Cope, 1982). In the Arabian Peninsula, the species has been reported in Oman (Ghazanfar, 1992) Saudi Arabia (Chaudhary, 1989), UAE (Jongbloed, 2003) and Yemen (Wood, 1997). In the UAE, the species was found at Kalba in the emirate of Sharjah (Jongbloed, 2003) and in the coastal zone of Ra's al-Khaimah (unpublished data).





Photo 2. *Desmostachya bipinnata* planting at the International Centre for Biosaline Agriculture (ICBA)

Materials and Methods

Between 2007-13, the authors undertook a number of expeditions throughout the UAE to document the local wild flora, with a focus on plant species considered to be rare. *Desmostachya bipinnata* (L.) Stapf was noted by A. R. Western once at Kalba, an East Coast town in the emirate of Sharjah (Jongbloed, 2003). The authors conducted many visits during 2007-09 to the Kalba area to search for the species, but without success. In 2007, however, they were able to locate about 50 plants of *D. bipinnata* growing at about 200 metres from the coast in Ra's al-Khaimah emirate (25°38' 34" N, 55°44' 03" E; Picture 1). The species was growing in association with other plants, including *Zygophyllum qatarense*, *Cornulaca monacantha* and *Heliotropium digynum*, in a sandy soil.

Seeds of five *D. bipinnata* plants were collected from the site and tested for germination at the seed laboratory of International Centre for Biosaline Agriculture (ICBA), Dubai, UAE. The results indicated that the seed of the species from Ra's al-Khaimah was not viable. Subsequently one plant with its roots was carefully removed from the site. All of its tillers with roots were separated meticulously and planted separately at the ICBA field research facilities in May 2008.

Results

In 2013, the research team from ICBA revisited the *D. bipinnata* site in Ra's al-Khaimah, but no plants of the species were found. The area had been cleared for construction. With the elimination of the flora from the site, the last-known *D. bipinnata* plant in the UAE had gone.

Planting of *D. bipinnata* at ICBA was, however, successful (Photo 2). The species has established well in the field and propagates through rhizomes. It began flowering two months after being transplanted at the Centre.

Conclusion

Development in different parts of the UAE is having a deleterious effect on the country's native flora. Due to the extent of new construction, especially in areas close to cities and towns, many wild plant species are rapidly being lost, the loss of *Desmostachya bipinnata* in its natural habitat in the country is one example. The UAE ecotype of the species is being protected at ICBA and can be reintroduced to the wild in the future, with the help of relevant agencies.

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Mohammad Shahid and N.K. Rao

International Centre for Biosaline Agriculture
Dubai, United Arab Emirates

Email: m.shahid@biosaline.org.ae

