

THE INVASION OF PROSOPIS JULIFLORA IN SOMALIA AND PILOTING OF POSITIVE UTILIZATION

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Introduction

Prosopis juliflora (Sw.) is a shrub native to Mexico, South America and the Caribbean. It is fast growing nitrogen-fixing and tolerant to arid conditions and saline soils. It's known to hold the record for depth of penetration by roots. *Prosopis juliflora* roots were found growing at a depth of 53.3 meters (nearly 175 feet) at an open-pit mine near Tucson, Arizona². Study conducted by Elfadle and Luukkanen (2006)³ suggest that the root system has allelopathic and allelochemical effects that inhibits the germination and spread of other plant species. *Prosopis juliflora* can produce a variety of valuable goods which include: a) construction materials, b) charcoal, c) soil conservation and d) rehabilitation of degraded and saline soils. Concerns about deforestation, desertification and fuel-wood shortages in the late 1970 and early 1980's prompted a wave of projects that introduced *Prosopis juliflora* and other hardy tree species to new environments across Africa. Because of its deep rooting system and aggressive growth, *Prosopis juliflora* has survived where other tree species have failed and in many cases become a major nuisance denying native plants water and sunlight. *Prosopis juliflora* has invaded, and continues to invade, millions of hectares of farm lands and range lands in South Africa, East Africa, Australia and coastal Asia (Pasicznik et al, 1999)⁴. In 2004 it was rated one of the world's top 100 least wanted species (Invasive Species Specialist Group of the IUCN, 2004).

Invading *Prosopis juliflora* tends to form dense, impenetrable thickets, associated with unfavorable impacts on human economic activities. In addition, it suppresses the growth of other plant species by denying the plants the most valuable growth factors, light and water. In northern Sudan (Gash delta of the Atbara River), the land has been almost completely taken over by *Prosopis juliflora* (Catterson, 2003)⁵. Similarly, in the Awash basin of Ethiopia, it is aggressively invading pastoral areas in the Middle and Upper Awash Valley, and Eastern Harerge. It is one of the three top priority invasive species in

¹ Somali Agricultural Technical Group is a registered non-profit association of Somali professionals and friends of the country dedicated to assisting in the reconstruction of Somalia and its agricultural heritage. Stag's mission is to strive for peace and prosperity through sustainable agriculture development. Visit www.satg.org for detail. The ministry of environment is closely collaborating with SATG for the preparation and implementation of its environmental related projects.

² Raven, Peter H.; Evert, Ray F.; Eichhorn, Susan E.; ed (2005) "Chapter 24". Biology of plants (7th edition ed.). New York, USA. Freeman, pp. 528-546

³ Elfadle, M.A., and O. Luukkanen, 2006. Field studies on ecological strategies of *Prosopis juliflora* in a dry land ecosystem, Journal of Arid Environment, Vol. 66, No. 1, pages 1-15.

⁴ Pasicznick, N. et al. 1999. *Prosopis*-pest or providence, weed or wonder tree? European Tropical Forest Research Network Newsletter. 28:12-14.

⁵ Catterson, T. 2003. USAID strategic integrated plan in Sudan, 2003-2005 environmental threats and opportunities assessment. USAID/REDSO/NPC and the USAID Sudan Task Force. Washington, March 2003.

Ethiopia, Sudan and Kenya and has been declared a noxious weed. Sudan has passed a law to eradicate it (Sudan Update, 1997)⁶.



***Prosopis juliflora* in Somalia**

The year of introduction into Somalia is not yet clear, however, there is little documentation that might give some ideas about the introduction. For example, AFRICARE (1983)⁷ reported the introduction of *Prosopis juliflora* in Somalia as part of a reforestation project for sand dune stabilization in a refugee impacted areas in the Hiran region of central Somalia. In this study, eighteen tree/shrub species were planted and have become established. Among the tree species, *Prosopis juliflora* out-performed all other tree species. The testing of *Prosopis chilences* as part a reforestation project in southern Somalia was reported by Leslie (1989)⁸. The introduction of the *Prosopis juliflora* in Somaliland was reported in 1959 by Mooney, the first forest officer to the protectorate. Mooney (1959) noted small experimental planting at Sheikh, Gaan Libah, Lafarug, Berbera and Manjassah. The species listed are *Eucalyptus camaldulensis*, *Pinus halepensis*, ***Prosopis sp.*** and *Acacia sp.* San dunes stabilization program started in Marka and Shalanbood in 1973. Up to 1980 about 5,900 ha were claimed as stabilized (FAO, 1984). The species used in the stabilization included *Commiphora spp.*, and *Anacardium occidentale*. No mention on *Prosopis juliflora*.

⁶ Sudan Update. 1997. Desert tree is a victim of its own success. Sudan Update: Vol. 8, No. 22, 11/97.

⁷ AFRICARE. 1986. c/o American Embassy, Mogadishu, Somalia, USAID, Washington. DC 20523, USA

⁸ Leslie, A.D. 1989. Agroforestry Survey of Somalia. British Forestry Project. Somalia Research Station. Working Paper No. 9.

Scope of the issue

Studies conducted in various parts of the world concluded that the benefits of *Prosopis juliflora* outweigh the problems. Esther and Brent (2005)⁹ suggest the benefits of *Prosopis juliflora* as: a) use of the tree as fuel wood and charcoal for subsistence and sale, b) use of pods for livestock fodder and ropes made from bark, c) increase honey production and e) reduced dust storm and control of sand dunes. The negative effects include: a) invasion into crop fields, grazing areas, wetlands and lakeshore, b) The cost of clearing, loss of grazing territory, and making fishing more difficult, c) making the area invaded by *Prosopis juliflora* less accessible to human and animals, d) hard wood causes cutting tools to wear out quickly, e) consumption of the sweet pods causing damage to the teeth of goats, f) sharp thorn causing wounds to goats and cattle, g) increase malaria incidence in the areas heavily invaded by *Prosopis juliflora*.



Conclusion

Prosopis Juliflora is a plant that presents both opportunities and costs to the communities in areas which it has established itself.

Due to the limited information and knowledge by the local people on the fast spreading, coppicing and undesirable characteristics of *Prosopis juliflora*, the plant is largely ignored or considered a useless weed. It is still paradoxical that *Prosopis* is advantageous and disadvantageous for the local people. Some groups are in need of it while others are looking for techniques to eradicate it from their surroundings.

Prosopis juliflora seems to be a good option for rehabilitation of seriously degraded dry sandy areas, where the spread will not get out of control. It is extremely important to limit

⁹ Esther Mwangi & Brent Swallow, June 2005. Invasion of *Prosopis juliflora* and local livelihoods: Case study from the lake Baringo area of Kenya. ICRAF Workshop Paper – No. 3. Nairobi: World Agroforestry Centre

the planting areas and ensure careful monitoring and control so that extensive spread cannot occur in the same manner that has caused difficulties in some irrigated agricultural schemes.

There is a dire need for alternative source of wood and wood products other than the heavily pressured acacia species. *Prosopis juliflora* can provide a useful alternative, resulting in reduced threats to native woodland resources.