# A Trip to Somaliland and Alarming Environmental Observations By

Mohammed M. Mirreh

4508 King Edward Court Annandale, Virginia USA

June 20012

This short report is based on reconnaissance survey observations made during my visit to Somaliland in April-May 2012 and will highlight, deterioration of rangelands visited, the invasive mesquite and wildlife in captivity. Somali names are in parenthesis and italicized in this report.

### Rangelands

The field visits were to areas that were familiar to me some thirty years ago when I was a director of the Range Training Institute of Burao ( currently the Burao University) and technical field officer responsible for monitoring rangelands and establishing seasonal grazing reserves together with the Director (Mohamed Muse Awalle) of the Northern Range Development Project funded by the Kuwait Fund foe Arab Economic Development and under trust fund with United Nations Food and Agriculture Organization (FAO). As this was a short private trip constrained by time and flight reservations, I have not had the luxury of extensively traveling to the different ecological zones of the rangelands in Somaliland. My trip was therefore confined to two key areas of rangelands close to Burao, this were Aroori and Ban cawl. Both areas were vast open grass plains dominated in the past by perennial grasses of <u>Chrysopogon aucher</u>i (Dareemo), Eragostis sp (Dixi), Cenchrus *ciliaris* (ciir dhuuq) *Cynadon* dactylon (*Doomaar*) and with shrubby layer dominance of indigofera sp (Jilab) and sparce stands of Verononia cinerascens (Hiil). In gravelly areas that produce local runoff to small depressions, good stands of Adropgon cytrocladus (Duur) used to be present in a pattern that used to appear as vegetation arcs on the land escape. A common feature of these grass plains was the presence of large herds of Gazella sommeringi (*Cawl*) and good population of Struthio camelus molibdophanus (*Goroyo*). These animals together with the Oryx beisa (Biciid) are typical indicators of habitat type as they prefer open grass plains for their survival, primarily to have open sighting to escape from predators. The *Cawl* and the *Biciid* have similar grazing behavior to sheep and are grazers (predominantly grass and forb eaters).

During this visit, I could not recognize any of the two areas and had it not been for their coordinates, I would have thought that I got lost in the wild. The vast open grass plains do not exist any more and the dominant species are no longer the same. The most conspicuous features that casual observers could see from the distance ( *Cawl and Goroya*) in the past can longer be sighted. While decimation of wildlife by hunting can be a contributing factor, a critical issue even if not hunted is the complete habitat change from open grassland to shrub and tree plain. The area is currently dominated by upper layer of acacia and understory of low shrubs of Indigofera sp and Verononia sp. The perennial grasses that used to dominate the area are at the verge of extinction. The remaining grasses were observed to be grubbed to the ground (photo 1). Perennial grasses found in the area were supposed to have very high grazing persistence as their growing buds are generally found at the root crown below ground thus escape removal by herbivores. Continuous yearly-long grazing without resting resulted repeated defoliation of the above ground photosynthetic surface. Plants were not therefore able to make enough carbohydrate reserves in their below ground parts for regrowth. This led to their weakening and reduced biomass production and ground cover and put them in competitive disadvantage. Reduction in both density, dispersion and cover of grasses created open spaces that allow soil-seed-contact and establishment of seedlings of acacia and other shrubby vegetation. The tree/shrub layer make a good vegetation cover of the area at present and there is clear spatial expansion of different acacia species to the area and if not somehow managed and checked will convert grass plains to areas with low biological value. The current healthy stands of trees and shrubs (photo 2) in the area certainly have very high carbon fertilization and will definitely contribute to carbon sequestration but this poor country is not in a position of carbon trading. The loss of high value grass plains to acacia and other low value brush will reduce both the monitory and biological values of these plains.

According to the five-year (2012-2016) National Development Plan (NDP) of Somaliland, situation analysis of the livestock sector indicate that 60% of the growth domestic production and 85% of the export earning come from livestock trade to the Gulf countries and particularly to Saudi Arabia. Livestock trade with Saudi Arabia is mainly dependent on the yearly Haj market. Key animals preferred for slaughter by Hajis during the Eid Alodha are sheep and cattle though some use goats and camel. Sheep and cattle are grazers (grass eaters) while goats are browser and camel is very versatile and is both a grazer and browser. Browse (trees & shrubs) though rich in protein are generally deficient in energy. Grasses are rich in energy and are the bulk feed for ruminants and particularly during the dry season when the availability of bulk feed is critical for the survival of livestock. The loss of perennial grasses from rangeland ecosystems in an arid environment with frequent droughts is a disaster for the livelihood of pastoralists and if the current downward trend of condition of perennial grassland areas continue, sheep and cattle cannot be raised in the rangelands in the near future **a**nd the productivity of camels will significantly decline. While camel browse protein rich acacia tress, the intake from the thorny acacia will not be enough and the animal will need the grass component as bulk feed and as energy supplement. It is a common feature to see emaciated camels in dense stands of acacia indicating the low intake from acacia (photo 3).

The loss of grass plains will not impact on domestic animals only but large group of fauna including antelopes, ostriches and their predators will be eliminated from this ecosystem thus loss of natural biodiversity.

Perennial grasses in aridland have very high resilience to drought as they are adapted to seasonal fluctuations in precipitations and frequent droughts. Their above ground biomass dries up in the dry season reducing transpiration water loss from the plant and allowing below ground plants to regrow during rainy seasons. Any national strategy for drought mitigation should focus managing rangeland resources to have carry over perennial grass as bulk feed in dry season and drought ( bulk feed is to animals what bread is to humans).

#### Recommendation

Although a detailed quantitative inventory of the vegetation and the study of the natural biodiversity of different ecological zones of the rangelands is needed, the following programmes and enabling projected are suggested:

- in sutu conservation of different perennial grasses as seed source for national seed multiplication programme for rehabiltating rangelands. This will require survey and identification of relict areas and fencing small exclosures with the full participation and agreement of the pastoral communities and by fully engaging customary laws of the communal system.
- 2. Reverse the current trend of rangeland deterioration through a system of land management that will promote mantaining the grass component and other herbaceous vegetation of rangeland as a dryseason feed. This will perhaps require community based seasonal reserves. Management can be combined with assisted regeneration using improvement techniques.
- 3. Livestock production is an industry which is the back bone of Somaliland's economy and livelihood of the pastoral and agropastoral communities. As every industry needs raw materials, forage from rangelands is the cheapest raw material that produce organic products of meat and milk for the country and major GDP and foreign currency earnings. Somaliland however, is a waterdeficit country with no potential for large scale irrigated forages, it is therefore extremely important that rangelands which is the only source of feed for the country's livestock ( crop residue is insignificant) should be high in the priority of the government's development strategy.
- 4. Somaliland has many universities and it is extremely important that the universities be the knowlegebase and should play key role in the national development through scientific research. some of the universities should therefore have specialized colleges in renewable natural resources such as; ragelands, forestry, wildlife and watershed hydrology. Curriculum development and allocation of land as experimental station in different ecological zones of the country is essential.



Photo 1. Chrsopogon aucheri (*Dareemo*) grubbed to ground level and sprouting from the root crown



Photo 2. Acacia enchroachment in Aroori plain





Photo 3. emaciated camel in a browse range dominated by acacia

## Invasive Mesquite and its impact (Garanwaa)

Somaliland is infested with one of the most dangerous invasive plants in the world and is now one of the most conspicuous trees in the landscape. This species locally known as *Garanwaa* or the unknown tree is native to Peru, Chile and Argentina and spread to most countries of central and south America. This species introduced to many aridland ecosystems including Somaliland is <u>Prosopis juliflora</u>, commonly known as mequite. Mequite is called the accursed tree by many countries and is destroying the natural biodiversity and the livelihood of many famers. I personally saw heavy infestation of this species in Sudan, Sultanate of Oman and Yemen. The species is a prolific plant producing large quantity of seeds, has deep tap roots and lateral surface roots that can absorb moisture from a large surface area. The species also has sharp thorns and unpalatable leaves which deter browsing, thus their photosynthetic surfaces can make large quantity of carbohydrate reserve and store them in their root crown for regrowth. These characteristics make mesquite an aggressive plant which can outcompete native species and can easily establish when they find their niche in open spaces and particularly areas with good soil moisture. The only part of the plant eaten by domestic animals and particularly goats, are the pods that contain the seeds. The seeds have hard coats that induce dormancy and germinate only when scarified or soaked in water but animals ingest fruits and the seeds are treated inside the rumen of animals and pass their feces ready to germinate and is the major mechanism of their dispersal. In my trip to Somaliland, I saw serious invasion of mesquite. The species was present in all the areas visited including urban centers.

Dense stands of the species is primarily found in more mesic habitats of drainage channels (*Togaga*), irrigated farms, areas with temporary water ponds and in small depressions. In some areas along the road between Hargeisa and Berbera, the runoff from the pavement and the disturbed road sides created microhabitats for the establishment of mesquite forming dense and impermeable thicket. The species has already over powered local species in depressions with deep soils that receive runoff from adjacent slopes thus significantly reducing the natural biodiversity.

In the old spate irrigate scheme of *Beer*, mesquite colonized the area and farmers are struggling to fight the spread of the species ( photo 4). In *Burca Yar*, an area with shallow wells and one of the most important watering points for livestock, the species is making impermeable dense stands (photo 5). The villagers noticed and are complaining about the drying up of wells because of the mesquite infestation . Mequite is known to have very deep root system that can access ground water. Individual multi-stemmed plants growing along water coarse of *Togdheer* stream I observed , have canopy coverage of more than 15 meters with a very high leaf area index. Thus giving the plants large surface area for transpiration. The roots are therefore constantly pumping underground water to the atmosphere through evapotranspiration of the mesquite canopy, lowering the ground water table. This is threatening a major resource traditionally used by generations.

In the coastal area, the species already spread into the sandy beaches of Berbera. In *Batalao* mequite is already forming a thicket along the beach (Photo 6). This will have serious environmental and economic impact. The sandy areas have high diversity of native plants but the colonizing invasive species is already eliminating them. Loss of the beaches to this alien species will be a national disaster as already some of the beaches such as *Batallao* are tourist attractions of Somalilanders who come back to the country from oversea during family vacations and has the potential of developing it for international tourism.

#### Recommendation

- Mesquite is one of the most notorious and aggressive invasive species that can easily colonize any area with the right conditions for its establishment. It is already colonizing many habitat types of Somaliland including farms, drainage channels, streams, beaches and is expanding its colonization to microhabitats in open rangelands. It is already impacting on the ground water of critical watering points. We should not allow mesquite to destroy the country's natural biodiversity and the livelihood of people . It is therefore important to start a national campaign of eradicating the plant before it overpowers and destroys the nation's meager resources. Certainly considerable funds will be needed and the government should seek technical assistance from international organization such as UNEP and FAO (FAO Forestry Department) as this is an introduced invasive species threatening the biological diversity and livelihood of people.
- 2. The government should strictly control introduction of exotic plants to the country as there is the risk of invasiveness and new pests with them.



Photo 4. Beer; Mesquite invading a farm

Mesquite cleared by uprooting



Photo5.

Mequite infestation of Burco Yar



Photo 6. Mequite infestation of *Batalaal*o beach of Berbera

### Wildlife in Captivity

Somadiland is blessed with national treasure of wildlife many of them endemic but sadly many are already under IUCN (International Union of Conservation of Nature) list of threatened species.

Although not in the picture or clearly developed, wildlife diversity in Somaliland is a viable national wealth that can contribute to the national economy through ecotourism . This national resource is under serious threat from both habitat degradation and illegal hunting and trade. It appears that there is profound lack of awareness at all levels of the society including the government about the importance of the national fauna.

There is no protection of wildlife and animals are constantly hunted and sold in local markets. Rich people who own big hotels contributed to the destruction of wildlife in Somaliland as they purchase the animals and parade them in front of their customers under dreadful conditions. Captive antelopes are common features in Hargeisa in some of the big hotels and restaurants frequently visited by government ministries, law enforcement officers and legislators. These animals are not under captive breeding programmes managed by scientists who create the proper environment and away from human disturbances. The animals paraded in the hotels and restaurants will not breed under constant disturbance and will eventually die off without leaving offspring. In the wild animals have natural survival adaptation instincts to breed and survive in the ecosystem. Their population is controlled by natural predators which are sadly hunted. For example Some hunters reported to me that they capture lion cubs and kill adults. These animals end up in the custody of very famous politicians without realizing that this is common national property that should be protected in their natural habitats. It is the responsibility of the government and community to preserve natural biodiversity for economic development and for future generations.

### Recommendation

The government should open rescue centers and confiscate animals privately kept and should be released into their natural habitats. The government should also stop illegal capture of animals and seek technical assistance in wildlife conservation and conservation education.



photos 7,8,9 &10 are antelopes under captivity in one of the hotels in Hargeisa

Photo 7. Litrocranius walleri (Garanuug)



Photo 8. Tragelaphus imberis (Geri) the lesser kudu



Photo 9. Ammodorcas clarekei (Dibtaag)



Photo 10.

Gazella sommeringi ( cawl)