

means a person losing a tooth through conflict can get three camels as compensation from the other party. Intra-clan conflict usually lasts for a short period of time and is often solved through traditional social organization.

4.10. Value of plant species in afdem district

Table 9: plant species in afdem district

Plant Species	Local name	Purpose/uses
<i>Acacia mellifera</i>	Bilcin	For shelter
<i>Acacia nubica</i>	Gumer	For feed
<i>Acacia Senegal</i>	<i>Cadaad</i>	For feed
<i>Acacia tortilis</i>	Qudac	For feed and shelter
<i>Acalypha fruiticosa</i>	<i>Digir</i>	For feed
<i>Balanites aegyptica</i>	Oude	For feed
<i>Dobera glabra</i>	<i>Gresee</i>	For feed
<i>Grewia bicolor</i>	Demeruri	For feed
<i>Grewia tenax</i>	Casheado	For feed and medicine
<i>Grewia Villosa</i>	Gomesh	For feed
<i>Salvadora persica</i>	Cadey	For feed and clean teeth
<i>Tamarix aphylla</i>	Duur	For feed and shelter
<i>Ziziphus mucronata</i>	<i>Gob</i>	For feed, medicine and shelter

In the study Area, plants species are used for different issues, the main being as a source of stock feed for browsers during the dry period and build shelters. So that the plant species found in the district, the fruits of *Grewia bicolor*, *Grewia Illosa*, *Grewia tenax*, *Ziziphus mucronata*, the *Acacia senegal* and *Salvadora persica*, *Acalypha fruiticosa* as well as *Acacia nubica* were recorded as the most necessary woody plants species, which provide fruit and seed during little rain and long period. Furthermore, *Acacia mellifera*, *G. tenax* and *Z. mucronata*, were detailed for their use as medicinal plants against Trypanosomiasis and headache respectively, for animals and people. So this findings was in line the studies by (fikirte, 2008) who indicated that woody plants species are used for different purposes, the primary being as a source of livestock feed for browsers during the dry period and medicinal value.

4.11. Expansion of unwanted plant species

Table 10: Reasons for invasion by unwanted plant species

Reasons	frequency	percent
Drought	17	34%
Over grazing	11	22%
Flood	14	28%
Animal dung	8	16%
Total	50	100%

Source: field survey

Encroachment of unwanted plant species has been considered a menace to the deterioration and decline of the pastoral rangeland. in Afdem district, invasion of unwanted plants particularly woody species are found commonly. Major invasive species in the rangelands include *Prosopis juliflora L*, *Solanum incanum* and *Cadaba farinose*. The pastoralists in Afdem district perceived that woody plants invasion has been among their major problems. In the study area, the households indicated that the major causes of invasion of woody species to be drought, flood, overgrazing and animal dung. As perceived by the communities, the present finding was in agreement with the reports of previous studies in the different pastoral areas of Ethiopia (Ahmed, 2003; Belaynesh, 2006; Teshome, 2006). The greatest impact of invasive woody species was the shortage of herbaceous layer (canopy effect), bloating due to their seed , reduction in the size of the grazing land and closing of the road by their branch especially *Prosopis juliflora*. Because of its thicket formation, it has hindered the easy movement of people and livestock (FARM-Africa, 2006).

4.12. Limit measures for unwanted plant species

Table 11: Limit measures for unwanted plant species

Pastoralists' effort	frequency	percent
Cutting	15	30%
Burning	6	12%
Uproot the plant	12	24%
Nothing is done	17	34%
Total	50	100%

Source: survey data

The study found out that in most of the sites, traditional invasive plant species protective limits have been practiced little. Most of the respondents replied that the few measures practiced to minimize unwanted plant species and also cutting and uproot the plant before it reach seedlings stage were the major limited measures which made in the study district. This findings was contrary the study of (Gemedo, 2004) that Use of fire, extensive grazing and mobility were some of the adaptive strategies of the Booran pastoralists. And the reason is that the area were communal grazing land and difficult to use fire. In the study district, the respondents stated that the combination effect of both invasive plant species and cross mobility of animals had negative impacts on rangeland resource and leading to ecological destruction. This finding was relate the ones was reported by (Fikirte, 2008) who again indicated that that the cumulative effect of both invasive woody species and cross border livestock migration (migrant livestock's from neighboring districts in to the limited rangeland) had negative implications on rangeland ecology leading to sever rangeland degradation.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion and Recommendation

The main source of income in the study district was from the sale of live animal (mainly small ruminants) and their products (mainly milk). Pastoralism was the dominant production systems in the study area and the natural grazing land is the major and only source of livestock feed. There is no privately owned land in the study district, enclosing the land for private purpose is strictly forbidden. Due to their cultural believe, property of land belongs only to God. Even if, the result of the vegetation cover in the grazing areas showed that their grazing lands were destructed, most of the respondents preferred communal ownership of the grazing land for the period of time that is to come. In the study area, the community practices major indigenous methods for the management of rangeland which are seasonal migration, herd splitting to avoid intensive grazing pressure, range land classification on the species base (Hilly areas which are used for goat and camel herding) and soft grazing on deteriorated rangeland through grazing for a short period are the major management practice of rangeland resource. Their traditional herd management practices included mainly allocation of livestock according to distance from water points, vegetation types and based on the land form, i.e. camels and goats are allocated more on the mountainous parts of the district. Apart from such herd splitting practice, the Afdem herders made periodic assessment of the rangelands resource as part of the traditional resource management practice, the movement is guided by a team or an individual of range scouts (*Sehan*) who monitor the state of a rangeland before allowing herds to use it. The pastoralists listed drought, over grazing, and flood as the main reasons for the decline in rangeland resource. Furthermore, the practices pursued to cope with drought by Afdem herders included: migration, herd splitting and selling of livestock. Most of the households replied that

there was a conflict with Somali, Afar and Oromo ethnic groups regarding rangeland resource utilization and that the most conflict resolved through community elders and Government interference accounted and the others still not resolved.

From the findings of this study, it can be clearly concluded that recent increases in livestock populations and frequent droughts have damaged physically the effectiveness of traditional management to minimize risks of livestock losses during drought. The go down in rangeland resource has affected the livelihood of the pastoralists and has made them very susceptible to every climatic threat. As a result, increasing practices of drought coping mechanisms and responses to disaster using both indigenous and modern methods must be given due attention.

The present findings revealed also that the present rangeland resource has become worse and highly influenced by the frequent droughts, overgrazing, and flood. To sustain the pastoral production system in the district, the present rangeland resource of communal rangeland should be reversed through rehabilitation of the grazing land by enhancing the existing vegetation through area closure or resting highly degraded areas to allow regeneration of vegetation; conservation of the rangeland resources through technical and technological supports like, developing water points such as pond's and cisterns as deemed necessary, and water harvesting activities to improve ground water discharge, to enhance the rangeland species composition, selective thinning of invasive woody plants especially *Prosopis juliflora*. Moreover, increasing of the pastoralists indigenous knowledge through giving attention and recognition, as well as organizing awareness creation programmes on proper rangeland management and improvement measures (e.g., proper grazing management, resting of grazing lands) appropriate to the area must be undertaken. In the district, expansion of rain fed crop production might be with high of risks, because of the uncertain and not able to be trusted the nature of the rain as well as the nature of the community. Therefore, emphasis should be given on improving rangeland management practice and looking for additional livelihood options based on their knowledge and available resources. Furthermore, the existing infrastructures, facilities and services indicated that, more than any other pastoral groups in Sitti zone, the Afdem pastoralists have been not receiving enough care in terms of research and development attempts. These low of infrastructures and facilities have been the main obstacles in the district. In order to revert the obstacles and to use well the potential livestock resources, further efforts would be expected and should be done by government and concerned bodies through due attention to the development and improvement of infrastructures and facilities such as road, health services, market, education that link the pastoralists to external society and create their awareness to efficient management practice of the rangeland resources around their environment.

As a scope for future research work in the study district, the following points can be considered:

- ✓ All stakeholders must be involved in the planning and execution of management strategies with full participation of pastoralists and government and non-governmental organizations.
- ✓ The degree of invasion of *Prosopis juliflora L* and its relation to the rangeland degradation should be given due attention.
- ✓ Integrating indigenous and scientific knowledge to adapt rangeland degradation and to manage range land resources should be given due attention.
- ✓ Rangeland resource trend, chemical composition of the key feed resources and soil characteristics should be studied, so that actual carrying capacity of the rangeland can be assessed with certainty.
- ✓ Since drought (extended dry periods) has such an impact on pastoral production systems, minimizing its effects will have significance direct impact on the livelihood of afdem pastoralist.

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