



Session: Vegetation Management and Weeds

Response of arid rangelands to deferred grazing in Southern Tunisia



Facts about Rangelands in the ME

- Represent the largest land use
- Shift from pastoral to agro-pastoral system
- Land tenure is complex but mostly it is either communal or state land
- Human (social) aspect is critical for their sustainability
- Contribution to livestock feeding dropped from 75% in early 1980s to less than 20% nowadays
- Rangeland rehabilitation / improvement
 - Shrub plantation (quick fix solution)
 - Mid to Long term protection (exclusion of grazing)
 - Public funds/International organizations



Causes of Rangeland Degradation

**The conversion of the best rangelands
(deeper soils with higher nutrient status) to cropland.**



Encroachment of Agricultural Practices into Traditional Rangeland Areas

Improper grazing practices: Overgrazing and early grazing

- Overgrazing occurs:
 - Too many animals (high SR)
 - Bad timing: early grazing or prolonged grazing period



Removal of vegetation for foraging, fuel and medicinal purposes (uprooting)



Rangelands are the source of wood production for fuel, construction of houses, hedges for protection, livestock pens, making of implements for use in cultivation and houses and small wood as fuelwood for cooking and heating other purposes.



Causes of Rangeland Degradation

Disruption of the traditional grazing system: Use of vehicles for transportation of water to the herds and of the animals to new pastures fosters prolonged grazing on rangelands and uncontrolled movement of the herds.



- Subsidized barley
- Weak institutional support

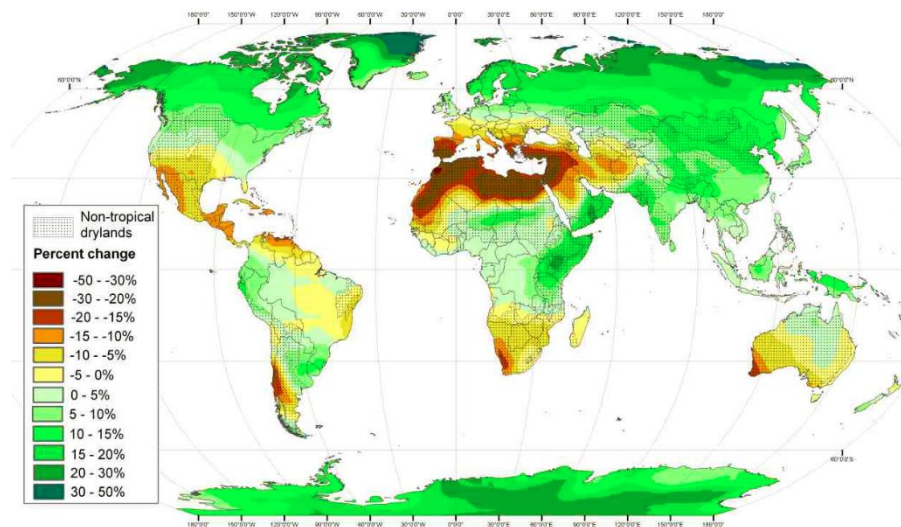


As climate change and regions experience short and long term drought

- Changing rainfall patterns
- More frequent & severe droughts
- Higher temperature



Higher risk of crop failure



Productivity of rainfed agriculture will decrease by 11% by 2080

Protection “Rest” (> 10 years)



**Impact of Long-term Protection
(Protected Area - Kuwait)**

To understand the impact of current rangeland management practices (national strategy), a study is being out in southern Tunisia aiming at assessing the effect of rest duration “deferred grazing” on plant cover dynamics and productivity.

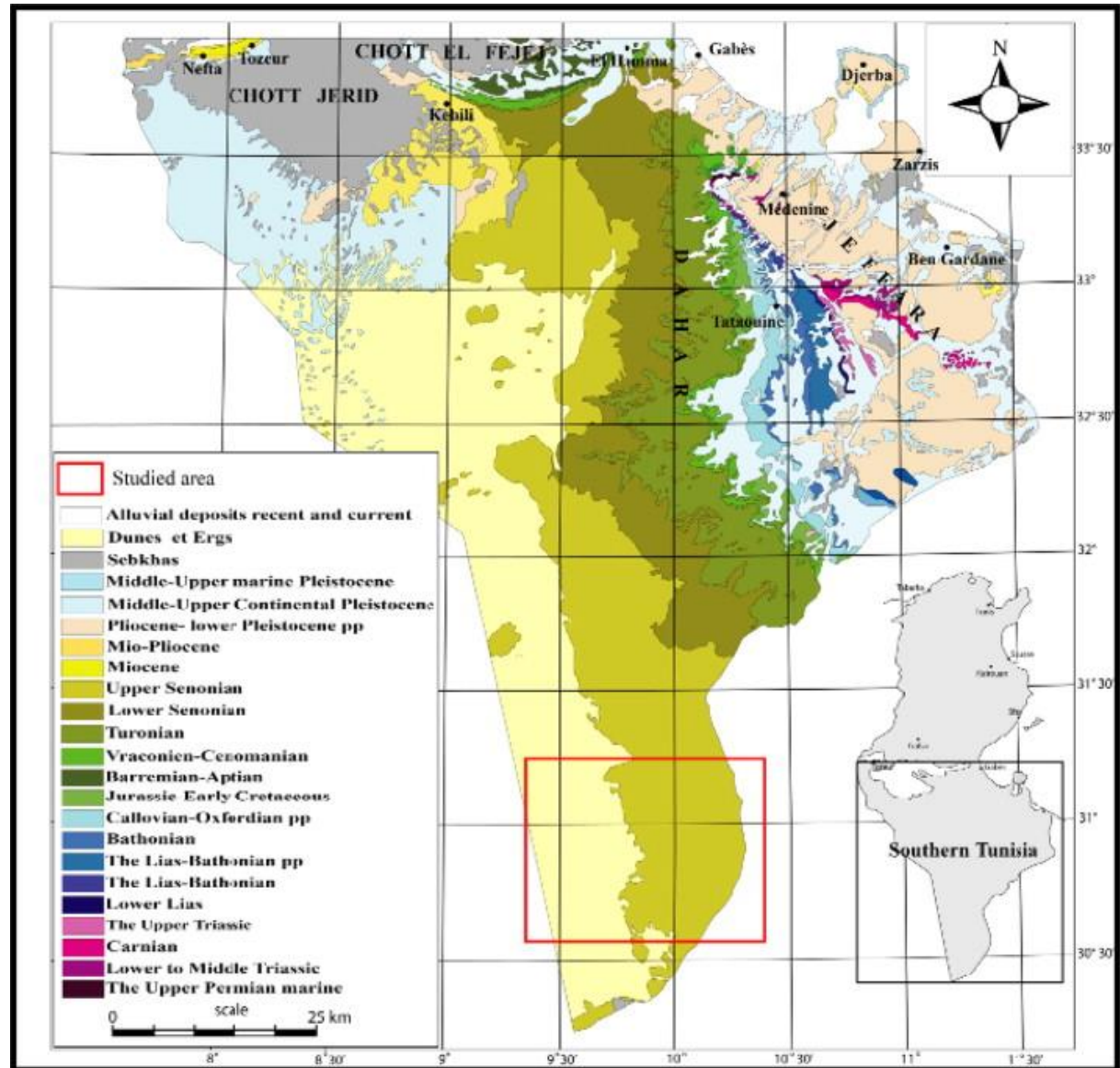


Study site

Southern Tunisia

Rainfall is low and sporadic

The mean annual is estimated ~ 100 mm



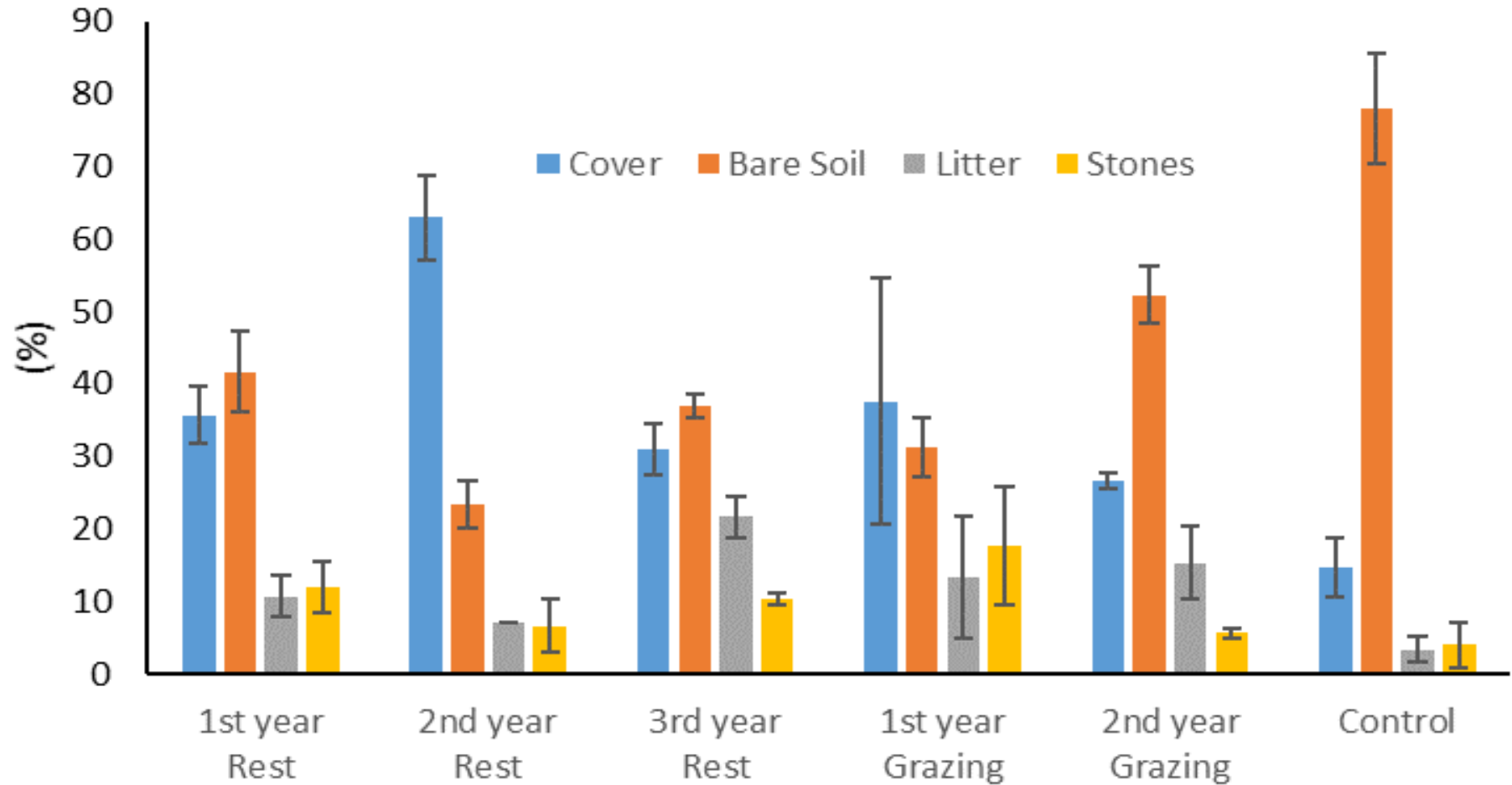
Sampling



Percent plant cover, species composition, plant density and rangeland production were estimated inside the rested sites (1 year, 2 years and 3 years), controlled grazing sites (one and 2 years after 3 years rested sites) and free grazed sites, considered as control.

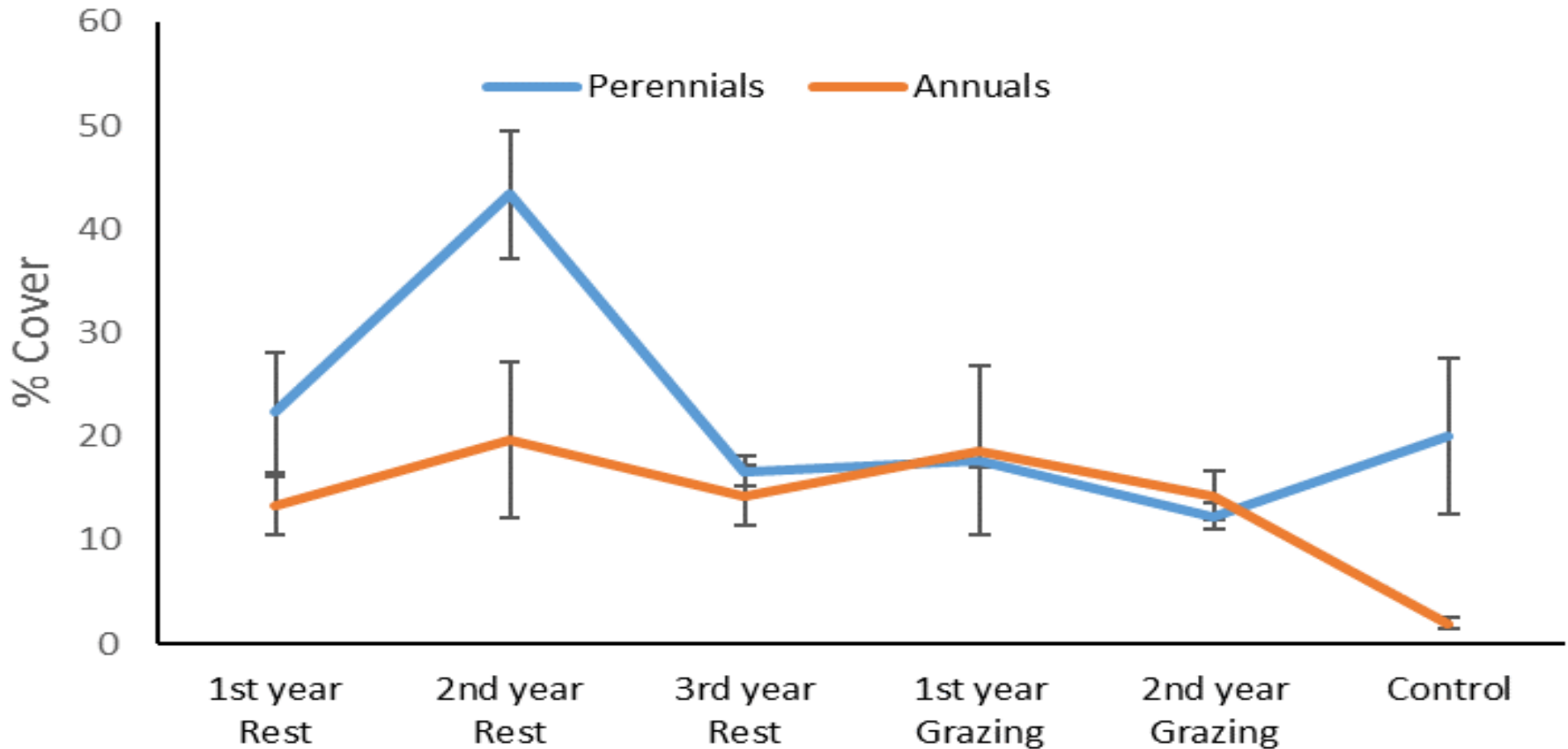


Results



Ground cover (%) per treatment

Results



Perennial and annual cover (%) per treatment

Results

Management Mode	1 year Rest	2 years Rest	3 years Rest	1 st year Grazing	2 nd Year grazing	Control
Rangeland productivity (FU/ha/year)	667	2250	667	680	451	120
Carrying Capacity (Sheep Unit/ha)	1.67	5.62	1.67	1.7	1.13	0.3

Rangeland productivity and carrying capacity

- 2 years resting followed by controlled grazing showed a speedy recovery of these degraded ecosystems.
- Rest is low cost restoration technique (social fencing) which represents an efficient option given the limited or even lack of financial resources to rehabilitate vast arid rangelands.
- Proper grazing have a beneficial effect on vegetative using alternation of short periods of grazing with periods of vegetative rest than long-term protection
- There is a need to educate land managers, agro-pastoralists, extension agents and decision makers how to strike a balance between rangelands and livestock (adequate grazing)..
- These results are still preliminary and need to be confirmed by further monitoring and assessment.

Acknowledgements



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