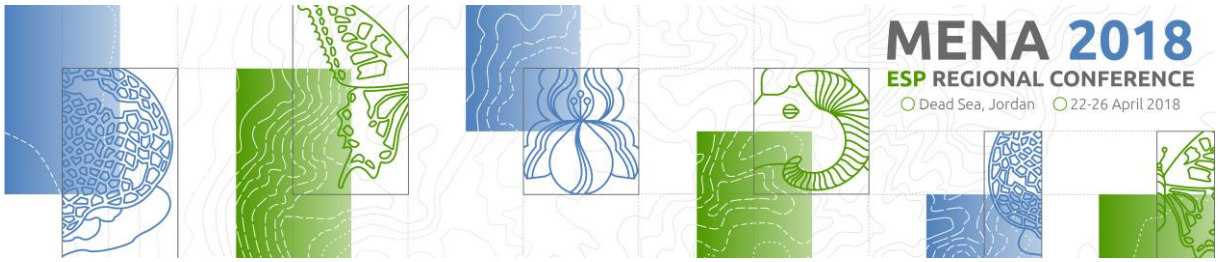


BOOK OF ABSTRACT

I. SESSION DESCRIPTION 1.

ID: B4a

Title of session:

The rangeland ecosystem in Jordan, its services and community-based rehabilitation

Hosts:

	Title	Name	Organisation	E-mail
Host:	Director of Programme	Mustafa Al Shudiefat	Royal Botanic Garden of Jordan	mshudiefat@royalbotanicgarden.org

Abstract:

By Mustafa Al Shudiefat Royal Botanic Garden of Jordan
When the Royal Botanic Garden of Jordan (RBGJ) was first founded, local herders would illegally allow their herds to graze anywhere and everywhere throughout the entire year. They would even cut the fence surrounding the botanic garden and sneak their herds in very early or late at night, so that they could graze inside the site. This was a huge problem, as the RBGJ needed to be able to restore plant cover, conduct vegetation surveys and make biomass estimates without interference from animals. With this in mind, the RBGJ decided to work with local herding families and establish the Community-Based Rangeland Rehabilitation (CBRR) to develop efficient sustainable rangeland management strategies and to improve local livelihoods through sustainable ecosystem management.
Public meetings with livestock owners and key figures in the area were held to discuss the problem, possible solutions, alternative grazing scenarios, and the timing of grazing. These meetings also fostered cooperation and agreement on a sustainable land management approaches. The local herders were offered forage in exchange for not grazing on the site, making it possible for RBGJ to conduct vegetation surveys and biomass estimates and determine sustainable stocking rates and grazing scenarios. The CBRR also provided useful and practical training and advice to the community, and began to establish environmentally friendly income generating programs. In addition, the CBRR taught herders about better health, hygiene, and herd management techniques, and facilitated access to veterinary care.
After training, the CBRR allowed the herders to resume grazing on the site at certain times and under specific conditions. This managed grazing arrangement has yielded positive results for both the land and the livestock owners, and can be replicated in small degraded rangeland areas in other parts of the country. Although only five local herding families cooperated fully with the CBRR in the first year, by 2015, some 48 families were participating. The benefits

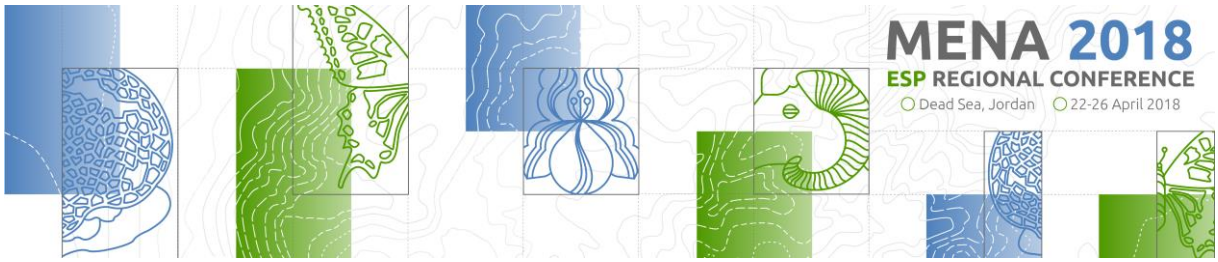
became quickly evident to the early joiners, and by 2009, livestock owners who once grazed the site to bare soil were policing themselves and teaching others.
Managed grazing has allowed natural regrowth of vegetation and a return of wildlife. Limiting the presence of sheep when plants are sprouting has increased the biomass. And soil fertility has improved, through the mixing of organic matter and manure. Biomass increased by 30% from 2008 to 2009, by another 30% from 2009 to 2010, and 10% per year in subsequent years. Some plant species that disappeared from the region years ago have now spontaneously re-appeared. The plant species recorded during RBG plant surveys increased from 436 in 2006 to 580 in 2012.
By giving attention to animal health, incomes have also improved. For instance, one herder's income rose from $8,200 in 2007 to over $20,000 annually. Another herder with a smaller flock began with a net loss of $496 a year, but now earns over $6,300 per year. The CBRR helped improve the socioeconomic status of the herders in the area, decreased poverty, enhanced child education, improved maternal and family health, and led to a more sustainable environment, all of which contribute to the United Nation Millennium Development Goals. Today, over 400 people benefit directly from the CBRR project, and a 1500 have benefitted indirectly. Approximately 200 hectares have been rehabilitated. Given the interest shown by associations, non-governmental organizations and government agencies, the CBRR is planning to share and transfer its expertise to other herding communities.
It is clear that the governance approach and positive socioeconomic effects for the local community should be part of any effort to restore ecosystems in forests and rangelands. The CBRR intends to replicate this model in other areas, and develop sustainable grazing protocols that can be used to improve the quality of rangeland habitats and the livelihoods of pastoralists throughout the region.
For more information see the project website:
http://www.royalbotanicgarden.org/page/community-based-rangeland-rehabilitation.

Goals and objectives of the session:

To Promote Rangeland management through governance approach. To Highlight Rangeland ecosystem services. To Highlight the socioeconomic impact of the Rangeland restoration and services.

Planned output / Deliverables:

The Audience will:
- Understand the concept of Rangeland management through governance approach.
- More able to understand the Rangeland ecosystem services.
- More aware about the socioeconomic benefit of the local community through ecosystem services.



Voluntary contributions accepted:

Yes

Related to ESP WG or NN:

BWG 4- Drylands

SESSION DESCRIPTION 2.

ID: B4b

Title of session:

Sustainable rangeland management strategies and practices under the umbrella of Healthy Ecosystems for Rangeland Development (HERD)

Hosts:

	Title	Name	Organisation	E-mail
Host:		Samar Taha	International Union for Conservation of Nature, Regional Office for West Asia (IUCN ROWA)	Samar.taha@iucn.org

Abstract:

Rangelands comprise around 54 % of terrestrial ecosystems globally sustaining around one third of the of world population. Yet, its various important ecosystem services, such as sustenance for livestock, improvement of water quality, increased groundwater recharge, supply of medicinal herb conservation, provision of biodiversity and carbon sequestration, has been long underestimated. Indeed, the different services are valued differently by each user. For pastoralist, rangelands play a key role in preserving their livelihoods and maintaining the social fabric.

Recent studies often refer to rangelands as a one of the most degraded biomes in the world. Land degradation in rangelands is not only alarming because of the environmental consequence such as loss of biodiversity and decline of soil fertility but also because it has major impact on marginalized populations around the world and because it poses a serious threat to the global livestock productivity. Moreover, the global cost of the loss of the

regulating and supporting ecosystem services, such as carbon sequestration and the relevant climate change impacts, may have greater and more widespread consequences.

Accordingly, long-term investment in rangeland governance systems that apply sustainable rangeland management (SRM) is vital to achieve Land Degradation Neutrality. However, national and international interventions should address the limited practical experience in the SRM and the failure of national policies and its institutions in effectively engaging the communities.

On a global scale, customary land use governance institutions have historically maintained the balance between users' livelihoods and the natural regeneration rate and ultimately preserved ecosystems. In West Asian and North African countries, traditional institutions for sustainable pastoralism, such as Al-Hima, have been recently revived to support the resilience of rangelands through strengthening the communal conservation systems.

The concept of HERD – Healthy Ecosystems for Rangeland Development – was conceived as a global initiative through the World Initiative for Sustainable Pastoralism (WISP), which was funded by GEF from 2005 to 2009. In 2018, IUCN and UNEP, in cooperation with national and regional partners, are conducting a project which is considered the first of a program of interventions that revolve around the concept of HERD. The current GEF intervention focuses on Jordan and Egypt and on the specific issue of desertification (or land degradation in drylands), which affects pastoral rangelands in these two countries. The next step will be employing the framework of principles and good practices that will be established in this project in other 'HERD projects and initiatives'.

Goals and objectives of the session:

Introduce HERD concept to sustainably manage pastoral rangelands for the provision of ecosystem services and protection of biodiversity and discuss the opportunities for up-scaling the concept on a regional and global level.

Planned output / Deliverables:

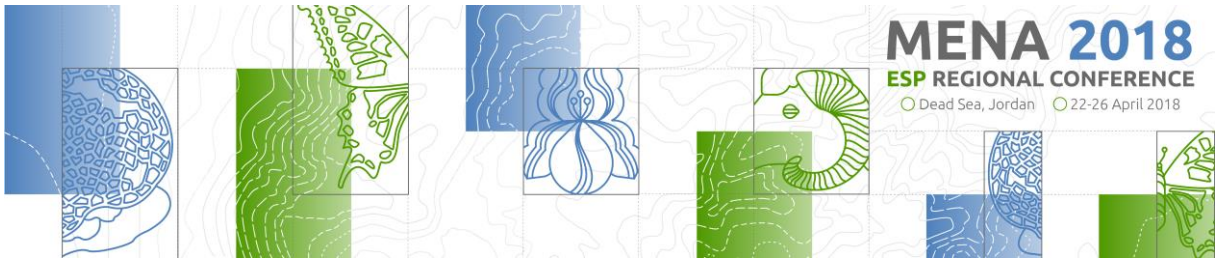
- Discussion of good practices in restoration and protection of communal rangelands in the Arab region and globally.
- Recommendations on needed policy reform needed to support communal rangeland restoration and protection and adoption of successful examples such as Hima.
- Proposing mechanisms for scaling up SRM initiatives

Voluntary contributions accepted:

Yes

Related to ESP WG or NN:

BWG 4B-Grassland



II. SESSION PROGRAM

Date of session: Click here to enter text.
Time of session: Click here to enter text.

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
10:30-10:50	Mustafa	Al Shudiefat	Royal Botanic Garden	The rangeland ecosystem in Jordan, its services and community baed rehablitation
10:50-11:10	Leqaa Jomana	Al Harbeed Hijazi	Khanassri Sheep Research Station; National Centre for Agricultural Research and Extension	Feedlot systems and sheep dietary imbalance in the Jordan Badia
11:10-11:30	Ranjin	Murali	The nature conservation foundation, Manipal university, and the snow leopard trust, India	A socio-ecological understanding of ecosystem service management in a high-altitude pastoral system
11:30-11:50	Lin	Zhen	Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China	Assessing the effects of ecological restoration approaches in the alpine rangelands of the Qinghai-Tibetan Plateau
11:50-12:10	Samar	Taha	International Union for Conservation of Nature, Regional Office for West Asia (IUCN ROWA)	Sustainable rangeland management strategies and practices under the umbrella of Healthy Ecosystems for Rangeland Development (HERD)
12:10- 12:30		General Discussion		

III. ABSTRACTS

1. Type of submission: ***Voluntary contribution***

B. Biome Working Group sessions: B4 Sustainable rangeland management and community-based rehabilitation

Feedlot systems and sheep dietary imbalance in the Jordan Badia

Authors: Leqaa Al Harbeed, Jomana Hijazi

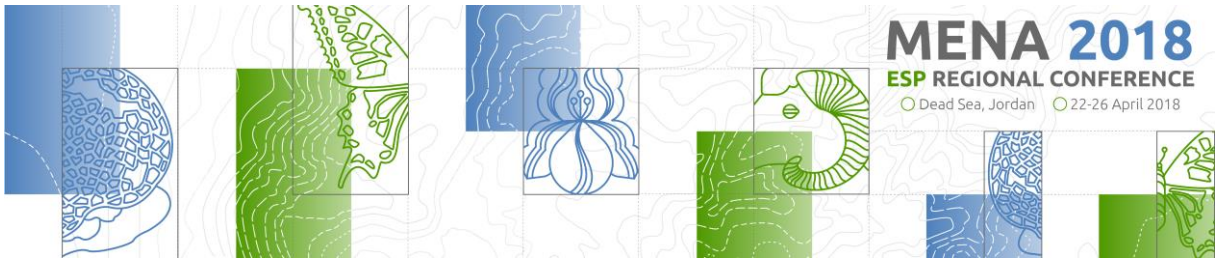
Presenting Author: Jomana Hijazi

Other authors: Muhi El Dine Hilali, Mourad Rekik

Affiliation: Khanassri Sheep Research Station; National Centre for Agricultural Research and Extension

Contact: m.rekik@cgiar.org

Sheep and goats' production is a mainstay of the agricultural production systems in the Jordan Badia. Overgrazing and poor governance of communal grazing areas are very often pointed out as being the major causes of the landscape degradation. The high pressure from livestock is exacerbated by the presence of high numbers of "unproductive animals". This has led to the adoption by farmers of alternative feeding systems essentially based on the use of supplemental purchased feed. This paper assesses efficiency of the feedlot system in the Jordan Badia and its adequacy in fulfilling the livestock nutrient requirements. Findings are based on flocks' diet monitoring backed by informant interviews in the Majdiyah village between 2016 and 2017. Analysis of the feeding calendars confirms the predominance of supplemental purchased feedstuff in providing the essential nutriments at critical physiological stages (e.g. late pregnancy and suckling period). The ratio of concentrate-like type of feed to roughages (80:20 in average) is highly imbalanced and certainly not supportive of adequate digestion in ruminant species. The chemical composition revealed very low content in crude proteins of most of the feed resources except for wheat bran (13.35%). This highlights the importance farmers give in having regular supplies from this resource. Further evidence on the imbalance of the feedlot system comes from the analysis of blood-borne nutritional metabolites. Plasma levels of urea are 5 to 6-fold higher than normal physiological levels in both sheep and goats (5.85±1.34 and 6.06±2.16 mmol l-1 in respectively, sheep and goats) indicating a low digestive efficiency of proteins. Furthermore, a severe deficiency in calcium was observed at stages where calcium reserves are crucially important to support mammary growth, colostrum accumulation and milk synthesis. Recommendations are put forward on how to improve efficiency of the feedlot system including a rational use of the existing natural vegetation.



Keywords: Badia – Sheep – Goats – Feeding systems – Nutritional imbalance

2. Type of submission: ***Voluntary contribution***

B. Biome Working Group sessions: B4 Sustainable rangeland management and community-based rehabilitation

A socio-ecological understanding of ecosystem service management in a high-altitude pastoral system

Author: Ranjin Murali

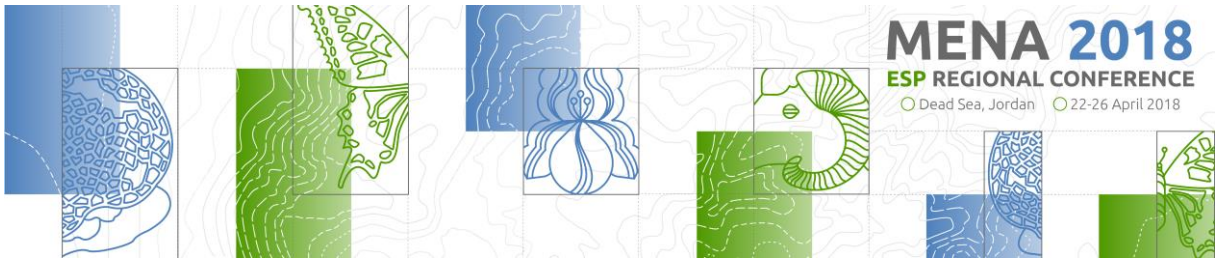
Affiliation: The nature conservation foundation, Manipal university, and the snow leopard trust, India

Contact: ranjini@ncf-india.org

Pastoralism is an economic and cultural way of live for around 200 million people world-wide and grazing pastures cover about 25% of the earth's terrestrial surface. Pasturelands, while extensively grazed by livestock, are also of immense conservation importance as they support a wide range of ecosystem services and biodiversity. For our study, we were interested in understanding under what socio-ecological conditions are ecosystem services from a rangeland sustainably managed? To answer this question, we focused on a pastoral community in a cold desert system, in the Indian Trans-Himalayas. We focused on this community as they have been practicing agro-pastoralism for centuries and have been sharing space with wildlife such as wild ungulates and the snow leopard. We adapted the socio-ecological framework developed by Ostrom (2009) and refined by McGinnis and Ostrom (2014) to answer our question. Our focal ecosystem service was harvest (both grazing and physical removal) from the pasturelands. We conducted extensive unstructured and semi-stuructured interviews with people from the local community. We found that local history was one of the most important variables for driving the outcomes of the pastoral system, which has been overlooked in other SES studies. In addition, monitoring and information sharing contributed to strong self management.

Our research highlights variables and interactions that are important for sustainable management of pasturelands. These variables can be distilled across other systems and used for developing a conservation toolkit that can be used to beter manage community run pastoral systems across the world.

Keywords: Pastoral system, sustainable management, ecosystem services, cold desert



3. Type of submission: ***Voluntary contribution***

B. Biome Working Group sessions: B4 Sustainable rangeland management and community-based rehabilitation

Assessing the effects of ecological restoration approaches in the alpine rangelands of the Qinghai-Tibetan Plateau

Author: Lin Zhen

Affiliation: Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

Contact: zhenl@igsnrr.ac.cn

Ecological restoration has increased in prominence since the last century as an active way to reverse ecosystem deterioration derived from human interventions. As one of the ecological vulnerable regions in China and the world, the rangeland in the Qinghai-Tibetan Plateau has gone through significant changes under the influence of rapid socio-economic development, which brought about considerations for the restoration of degraded ecosystems. The goal of this study was to assess the ecological and socio-economic effects of restoration approaches adopted by local herders for implementation of the government initiated ecosystem rehabilitation programs in the Qinghai-Tibetan Plateau. Data were collected using structured questionnaires delivered to 195 herders living in areas with average elevation above 3773 m. Land use maps, MODIS images, and government statistics were also used for the study. It was found that local herders have adopted five major approaches to ensure success of the restoration programs in order to meet the overall objective for ecosystem protection. The vegetation coverage, especially for high and very high coverage grasslands, increased across the study sites and across approaches used. Furthermore, households who employed integrated approaches tended to have more animals to rear, higher capability of resisting risks, and higher income than those who did not. These findings imply that balanced ecological and economic development is possible when appropriate management approaches are adopted. However, evaluation and monitoring of grassland conditions are needed to readjust restoration policy and associated approaches in a timely manner.

Keywords: ecological restoration approaches; NDVI; animal grazing; income; Qinghai-Tibetan Plateau