

Volume 4, July 2017

Welcome to the Mountain Ecosystem Newsletter

This is the newsletter of the Mountain Ecosystems Specialist Group and the first in this intercessional period (2017-2020). This short publication attempts to highlight the diversity of our members and the varied issues they work on in relation to mountain ecosystems.

The Mountain Ecosystems Specialist Group was formed in 2008, with the objective of “increased use of integrated approaches for ecosystem management across the world’s mountain areas”. **Since then our membership has steadily grown, from 48 in 2013 to 109 members today.** Our members represent all corners of the world and are diligently working towards the integrity of mountain ecosystems and the well-being of communities who rely on them in a variety of different yet interconnected ways.

Based on your valuable feedback, some areas of interest that have been identified for this intercessional period include:

- 1) **gender and ecosystem management**
- 2) **indigenous knowledge and conservation practices**
- 3) **social learning and nature-based solutions**

with a focus on the inclusion of women, youth and indigenous peoples

Over the next few months, I will be developing action plans for each of these priority areas. The goal is to support IUCN by generating scalable knowledge from community and field-setting contexts for policy and practice. Members whose work aligns with any of these priority areas and would like to be involved, please get in touch!

There continues the need to emphasise mountain ecosystems both within CEM and the broader environmental conservation movement, given the imperative for ecosystem management in mountain areas and the multiple threats they face.

I would like to thank our out-going Chair Dr Martin Price for his efforts towards the development of this group. We have an opening for a new Co-Chair. Those interested in the position, please refer to the announcement towards the end of the newsletter and send in your detailed CVs at your earliest.

I hope that you find the articles in this issue of interest, and wish you all the best with your activities in mountain and other areas!

Omer Aijazi



Articles and News

South America

Mountain Peatlands in the Nor Yauyos Cochas Landscape Reserve, Peru

by **Mónica Sofía Maldonado Fonkén**

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Bofedales are high Andean wetlands found in Peru and other parts of South America. They can be mires or peatlands. As vital sources of water and forage, they are important for traditional land management in high altitude areas. These complex ecosystems retain water in the upper basins of the cordillera and regulate its flow, store carbon and are biodiversity hotspots. In Peru, they are threatened by factors such as overgrazing, mining, peat extraction and infrastructure development.

The Nor Yauyos Cochas Landscape Reserve (NYCLR), an IUCN CEM member in Peru is working towards the conservation of the upper basin of the Cañete (Lima) and Pachacayo (Junin) rivers. The NYCLR is contributing to knowledge generation on *bofedales* by conducting several studies on vegetation ecology. Important objectives of this research include the characterization of vegetation communities and their relationship with “cultural infrastructure” and environmental factors (such as soil, peat, water, precipitation and temperature); assessment of the carrying capacity of grasslands for Andean camelids (*vicuña* and *alpaca*); and the restoration of ecosystem services. Maintaining respectful relationships with local communities and developing a solid understanding of their wetland

and grassland management techniques is vital for the success of this research.

“Cultural infrastructure” such as infiltration channels, refers to the infrastructure developed by local communities in pre-Hispanic times to manage water and grasslands, and to expand the area of *bofedales* to support livestock. The restoration and maintenance of this infrastructure could improve the ecosystem services of *bofedales* in upper basins. This is of critical importance in a region which has witnessed the fragmentation and reduction of some 55.34% of its wetland areas between 1962 and 2015 (Peña, 2017). Additionally, students from several universities such as Peruvian University Cayetano Heredia (Peru), National Agrarian University La Molina (Peru), Catholic University Sede Sapientae (Peru) and Greifswald University (Germany) are supporting this research initiative as part of their graduate thesis.

For further information on this research initiative, please visit this [link](#).

This research is made possible by the support and patronage of the NYCLR and its staff.

Useful resources:

Peña N. (2017). Changes in the extension of high Andean wetlands in 5 districts of the upper basin of Cañete river between 1962, 1975 and 2015. Poster. *Peruvian Congress of Wetlands. Lima.*



Niskar Peña from Peruvian University Cayetano Heredia in a *Distichia* peatland, Nor Yauyos Cochas Landscape Reserve (Photograph by Mónica Maldonado)



Cultural infrastructure in Tanta, Nor Yauyos Cochas Landscape Reserve (Photograph by Mónica Maldonado)



North Africa

Overview of Moroccan Mountains

by Dr. Mohammed Sghir Taleb

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Eastern Middle Atlas mountain range (Photograph by Mohammed Sghir Taleb)

Morocco has 4 major mountain ranges. They cover almost 21% of the country's total surface area and are home to some 20% of the national population.

Mountain Range	Area (Km ²)	%	Mountains	Altitudes (m)
Rif and Beni Snassen	26,865	18.2	Tidirhine	2456
Middle Atlas	31,928	21.7	Bou Naceur	3340
High Atlas	57,184	38.8	Toubkal	4167
Anti Atlas and Saghro mountain	31,399	21.3	Siroua	3305
Total	147,376	100		

Major mountain ranges in Morocco

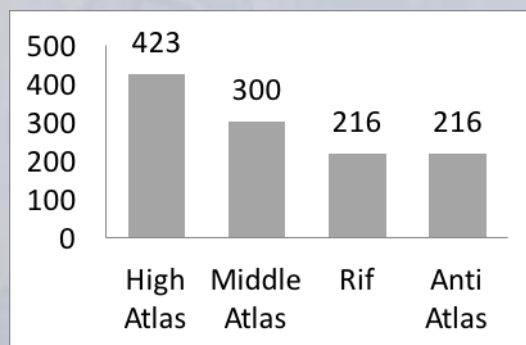
Major natural forest ecosystems of Morocco include fir (*Abies maroccana*), Atlas cedar (*Cedrus libani*

subsp. *Atlantica*), holm oak (*Quercus rotundifolia*), cork oak (*Quercus suber*), red juniper (*Juniperus phoenicea*), cade juniper (*Juniperus thurifera*), pine (*Pinus halepensis* and *Pinus pinaster*), Thuja (*Tetraclinis articulata*), Atlas cypress (*Cupressus atlantica*) and the Argan tree (*Argania spinose*). Similarly, steppe ecosystems include *Juniperus communis*, *Ceratonia siliqua*, *Stipa tenacissima*, *Artemisia* spp. and spiny xerophytics (*Alyssum spinosum*, *Bupleurum spinosum*, *Erinacea anthyllis*, *Vella mairei* and *Cytisus balansae* etc.) Interestingly, mountain flora comprises of 75% of Morocco's total flora.



The rare *Saxifraga longifolia* (Photograph by Mohammed Sghir Taleb)

The mountainous regions of the Rif and Atlas are also significant for endemism and rarity:



Number of endemic taxa by mountain range



Agdal and Azibs: Ancestral History of Transhumance in the High Atlas Mountain Range of Morocco

by M. Alami, Ph.D.

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Community pastures of the Oukaïmeden plateau (High Atlas mountain range) are managed by local communities living in neighbouring valleys. The traditional community management system, called *Agdal* limits access rights and use according to customary law. *Agdal* is a social and ecological practice- a community-based natural resource management technique- in which “access rights and use of natural resources are governed by a local institution – usually the village, inter-village or inter-tribe assembly – which fixes rules concerning periods and modalities of differentiated natural resource exploitation” (Genin and Simenel, 2011). *Agdal* consists of leaving grazing rangeland or forest land fallow during a period of the year, to allow plant regeneration. The Oukaïmeden *Agdal* is closed for use from March 15th to August 10th. These dates were introduced in ancient times and are renewed each year without any reminder

The area is divided between two major right-holding tribes: Ourika and Rheraya. Every year on August 11th, the arrival of seasonal nomads to this sacred site is marked with a celebration: a *moussem* (a type of annual fair with economic, cultural and social functions) known as Anmougar in Amazigh language which includes sacred worship rituals dedicated to the patron saint of *Agdal* Sidi Fares. On the eve of the opening of the *Agdal*, herders arrive at each pass, then enter the plateau with their family and livestock to settle in their respective *azibs*. These altitudinal sheepfolds or transhumance villages are

built with locally available materials such as Oukaïmeden hard rock and Juniper cade rot wood.

Agdal offers a holistic conceptual framework integrating ecosystems and resources, knowledge and practices, rules and institutions, representations and beliefs, within a territory (Auclair et.al, 2011). It shares several similarities with other concepts and practices such as Ethiopian protected church forests and the Hema pastoral system found in the Middle East. *Agdal* has demonstrated its effectiveness in terms of environmental conservation and offers important social and economic functions, but is being increasingly abandoned in favour of individual modes of land management.

Useful resources:

Auclair, L., Baudot, P., Genin, D., Romagny, B., & Simenel, R. (2011). Patrimony for resilience: evidence from the forest *Agdal* in the Moroccan High Atlas Mountains. *Ecology and Society*, 16(4): 24.

Genin, D., and R. Simenel. (2011). Endogenous Berber forest management and the functional shaping of rural forests in southern Morocco: implications for shared forest management options. *Human Ecology* 39(3):257-269.



A group of agronomy students visit the Agdal region as part of a course taught by Dr Alami. The trip was supervised by the Director of the National Park of Toubkal (High Atlas) (Photograph by M. Alami)



A meeting with mountain shepherds in a traditional *Azib*. We discussed their land management methods and the constraints they face (Photograph by M. Alami)



Central America

Participatory Mapping with Open Source for Resilience Building against the Challenges of Climate Change

by Julio May and Bernal Herrera-F

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Participatory mapping involves a series of methods to collect primary data in an organised manner, by means of inputs provided by individual persons with specific knowledge based on their membership to a group or community related to the place of intervention. Such methods are considered participatory if they can commit a public towards the achievement of goals that contribute to the improvement and general well-being of their community.

The Sarapiquí Carbon Neutral and Climate Resilient Initiative (SCNCR) led by FUNDECOR endorses the introduction of newly emerging participatory technologies to leverage resilience building capacities and to address the challenges posed by climate change throughout the Central Volcanic Range in Costa Rica.

After regrettable flooding events occurred in the Sarapiquí River Basin in late June and early July 2015, FUNDECOR took up the tasks of researching, gathering and making available a group of tools specifically designed to promote a culture of adaptation to the adverse effects of climate change. This approach pursues community empowerment based on innovative primary data collection techniques to collect data related to flaws in key public infrastructure, the spatial distribution of the disaster and the capacity of official institutions to respond to the emergency. The methodological strategy comprises a set of open source software

applications specially designed to collect geographical data, as well as information from digital forms. Some of these are briefly described as follows:

ODK: is an open access application that facilitates the design and publication of surveys for Android OS platforms, even without access to an internet connection. In Sarapiquí, it was used to collect data from key informants at emergency response institutions.

Field Papers: is a web application that enables the creation of a tiled regional atlas, useful for managing the input of geographical data. This technology promotes the mapping of phenomena otherwise not documentable by formal means, as it allows the digitalization and geo-referencing of handwritten strokes and areas that are drawn on paper.

Humanitarian OSM: is the humanitarian branch of the OpenStreetMap project. This relies on a combination of web technologies and volunteer networks of the “wiki” kind, to facilitate participatory mapping events known as “mapathons”. This tool contributes greatly to the process of geographical data collection, but also promotes capacity building and team leadership skills among its participants.

FUNDECOR aims to build resilience in the region to the adverse effects of climate change. This will be a complex process of sociocultural evolution for a territory appointed by the National Emergencies Commission (CNE) as highly vulnerable to extreme atmospheric events.

With the use of these innovative technologies, for the first time FUNDECOR was successfully able to



map the actual scale of flooding events as they were perceived by local populations in the areas close to Puerto Viejo de Sarapiquí. Similarly, FUNDECOR identified the most vulnerable flood-affected communities located in the mid-low part of the basin. They also successfully pinpointed with great accuracy a series of vulnerable sites prone to flooding and collapsing bridges located along main roads. All these processes and findings were featured on a transparent and participatory environment with web-based backups.

For further information, please visit [FUNDECOR](#).

Useful resources:

Comisión Nacional de Emergencias. (2014). Estrategia para la Gestión del Riesgo de Desastre en el Sector Educación de la República de Costa Rica. Jiménez & Tanzi S.A. San José, Costa Rica.

FUNDECOR (Fundación para el Desarrollo de la Cordillera Volcánica Central) (2016). Proyecto de Mapeo Ciudadano Participativo en Sarapiquí. Sarapiquí C-Neutral Clima Resiliente. Sarapiquí, Costa Rica.

Humanitarian OpenStreetMap Team. Queried on April 12th, 2017. Available online: <https://www.hotosm.org/>

Steinberg, Steven et al. (2015). GIS Research Methods. ESRI Press. San Diego USA.

Europe

EUSALP AG-7: Developing Ecological Connectivity in the Alps through Transnational Cooperation

by **Gioele Passoni**, CEM Young Professional

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Comprising of 7 countries, the Alpine region reflects demographic, social, economic, cultural and linguistic diversity. This is only matched by the variety of governance systems and traditions found in the region. The Alps are also known for their natural beauty, varied landscapes, rich biodiversity and cultural heritage. At the moment, the Alps are facing major challenges such as economic globalisation, demographic trends and climate change.

To tackle these challenges and move towards sustainable development, in 2016 the European Commission launched the Alpine macro-regional strategy (EUSALP). Its main aims are improving cross-border cooperation among Alpine states, identifying common goals and implementing them more effectively through transnational collaboration. Member countries include Austria, France, Germany, Italy, Liechtenstein, Slovenia and Switzerland.

The strategy is implemented with the help of nine Action Groups (AG). Among these, **AG-7 aims to develop ecological connectivity throughout EUSALP member countries**. AG-7 is composed of more than 20 members from a broad range of civil society and government actors across its member countries representing various administrative levels. AG-7 aims to preserve the integrity and functioning of ecosystems, including the conservation of biodiversity and the provision of ecosystem services in its target areas. As such, AG-7 is working towards setting up a comprehensive macro-regional scheme by applying the EU Strategy for Green Infrastructure (GI) to regional scales and making the Alps an outstanding candidate for GI in Europe. The AG-7 will thus provide the framework for developing a strategically planned and functionally interconnected network of natural and semi-natural areas -including rural and urban regions- which will



ensure diverse advantages for nature, as well as offer social benefits and economic prosperity to communities.

The main objectives of AG-7 are:

- To identify Alpine GI elements of transnational relevance, improve governance approaches and explore funding opportunities.
- To promote the various benefits of GI as complementary solutions to grey infrastructure and bring GI onto the political agenda of the Alpine region.
- To trigger tangible implementation initiatives and liaise with implementation partners from all relevant sectors to make GI visible and close gaps in the trans-European “matrix for life”.
- To allow the benefits of ecological connectivity to emerge at ecosystem and societal levels, enhancing resilience to threats such as climate change.
- To develop solutions to halt biodiversity loss and address challenges such as missing connections between natural areas and homogeneous and impoverished lowlands.

The members of AG-7 meet two times per year to discuss progress and future steps. A workshop on Green Infrastructure also took place in June 2017.

For more information about EUSALP and AG-7, please visit the [AG-7 website](#).



Delegates discussing green infrastructure during a recent AG-7 meeting (Photograph by Michaela Kuenzli)

Asia

Energy Efficiency and Gender: An Emerging Issue for Mountain Ecosystems

by Pradeep Mehta, PhD

Managing Trustee & Chairman - CHINAR

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An important emerging issue in the mountain ecosystems of Asia is energy efficiency. Conventional stoves are used in much of the region which are not energy efficient and produce large amounts of harmful smoke. In addition to adversely impacting the environment and increasing pressures on forests, these stoves pose health problems mainly amongst women who are their primary users. Therefore, there is an important gender element to these stoves. There is an urgent need to promote energy efficient stoves made from locally available materials and involving women in their construction. Additionally, alternative energy solutions like biogas and solar energy should be



promoted. These efforts can improve the health of women and the mountain ecosystems on which they are reliant. For more information visit [CHINAR](#).

Personal Reflections

Humanity in the Balance: Everest Region, Nepal

by ANaturalResource

Email: watertodrink@anaturalresource.com

Perhaps the mystique and mystery associated with Nepal are in its intimate relationship to Mt. Everest. Known for its grandeur and enormity, this mountain region has only recently become associated with environmental degradation, corruption of nature and spirit and the struggle for power. There are untold human risks in accessing the ecological miracles of the region.

The Everest region of Nepal has been known to easily take lives due to its extreme conditions. Nepal's rating as one of the "poorest" country in the world, is contrasted with the disparity in riches from ever increasing tourism, and an influx of external funding amidst recent disasters. These contribute to a clash of culture and beliefs, technologies and tradition. While some have withstood the rising pressures, there are those who have not.

With the headwaters of the Ganges River also in its midst, those who embark on the Everest region may take for granted the integrity and ethics embodied by experienced mountain guides - carriers of gear-who point the way and know the routes in a remote region where vulnerable voyagers are far from their comfort zone. This is a place where travelers not

familiar with language or culture often fall prey to health or other crises.

What are the risks associated with trusting a personally unknown guide to lead you in a country and wilderness where human life is considered cheap and degradation is common? Are there quality control mechanisms in place to monitor or send information when trouble ensues? How can we integrate safety in travel to remote places, some of which may hold the last remnants of pristine environments, not only for the awe-inspiring mountain climbs but for the benefit of all such as scientific research?

For further information, please visit:

<http://anaturalresource.com/> The author invites readers to send their suggestions and responses to the above questions to the email listed above.

Shape of the Mountain

by Philip Liwei 陳立偉

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The first time I went to the Himalayas for trekking, I was only 25, young and naïve. With rising altitudes, modern comforts such as soft drinks, chocolate bars and Wi-Fi disappeared. As I neared my final destination, I felt like the king of the world. I had made it this far, to the peak of the summit. To my surprise, I spotted a tea hut. *What? Someone else was already up there, and selling tea?* I couldn't believe it!



This experience left a lasting impression on me. I promised myself to return to the Himalayas and reconnect in a much different way. Since then, I have been to Ladakh, northeastern India where I have farmed with local communities, participated in conversations and workshops on rural mountain development and on other issues. I have been in the presence of indigenous mountain women to collectively discuss strategies to renew local livelihoods in ways that also protect nature. I participated in conversations and workshops with local communities to better understand various issues pertaining to sustainable rural mountain development. I also worked on a farm in Ladakh where I was in charge of herding cows. I walked the cows, *more like the cows walked me around the mountains*. I have also worked in Southwestern China in the river valley mountains where children serving as guides, showed me local plants and explained to me the medicinal benefits of each plant.

Member Achievements

Congratulations to Dr. Pradeep Mehta for being selected for [FAO's IPROMO 2017 Training Programme](#) on environmental and economic issues for enhancing mountain sustainability. The course will be delivered in collaboration with the Mountain Partnership in Italy from July 5th to July 19th, 2017.

Dr. Pradeep Mehta recently conducted a research expedition on biodiversity and ecosystem services in the Himalayan region of India. The expedition focused on the role of pollination in sustainable agriculture and included participants from 4 different countries. Dr. Metha also designed and conducted several teacher training workshops on

linking classrooms with environmental education. Eco-club teachers from various districts of Delhi participated in these sessions.



Teachers learning scientific methods of assessment
(Photograph by Pradeep Mehta)

Symposiums, Workshops and Conferences

Mountains 2018 –Nova Friburgo, Brazil shared by Martin Price

Director of the Centre for Mountain Studies, Perth College,
University of the Highlands and Islands





Mountains 2018 is an international conference that will bring together scholars, professionals, policy makers and others involved with multiple aspects of the mountain world. The Conference seeks to stimulate and disseminate knowledge about the topic based on lessons learned from scientific research and practical experiences related to the usage and challenges of promoting sustainable development in mountain territories, including how mountains can contribute to the Sustainable Development Goals.

Mountains 2016, the first of the series, occurred in Bragança, Portugal. One of the outcomes of this event was the launching of the **Lusophony Mountain Research Network – Lumont** to encourage exchange among Portuguese speaking members. The establishment of this network provided additional support for Brazil to organise the next Conference. As a result, **Mountains 2018** will take place, in Nova Friburgo, located in the mountain region of the state of Rio de Janeiro, on December 11th-15th.

Mountains 2018 will be organised along two axes: III Workshop on Sustainable Development in Mountain Regions; and the II International Conference on Research for Sustainable Development in Mountain Regions. The Workshop will focus on practical experiences related to sustainable development in mountain regions, gathering professionals and other stakeholders actively working towards this urgent goal. The Conference will discuss issues related to scientific research and perspectives to enhance and disseminate knowledge about mountains, gathering researchers and other professionals interested in the topic. English will be the official language of both events. Aiming at encouraging a significant level of decentralisation in the planning process of

the event, the organisers invite institutions, the private sector, researchers and other professionals interested in contributing to the concept of the event and its organisation and providing support. For further information write to mountains2018.br@gmail.com



The 9th World Conference of the Ecosystem Services Partnership (ESP) will be held in Shenzhen, China 11-15 December 2017. The overarching theme this year will be “Ecosystem Services for Eco-civilization: restoring connections between people and landscapes through Nature Based Solutions”. The call for abstracts is now open. Deadline is 19 August 2017. More information and abstract submissions can be found [here](#).

1st West Africa Mountain Forum 2017

Shared by Yawo Kouma Jules Adjima
 Coordinator of PSM West Africa, Focal Point of Mountain Partnership, Co-Chair IUCN-CEM West and Central



From October 5 to 8, 2017. The 1st West Africa Mountain Forum will be held in Kpalimé, Togo. The forum is being organised by the Platform of Civil



Society Organisations for the Safeguard of Mountains (PSM) in partnership with the Togolese Ministry of Environment and Forest Resources and the Mountain Partnership.

The main theme of the event is “**The contribution of mountains to the development of the economy and the adaptation to climate changes**” and aims to promote sustainability and environmental justice by urging governments, local decision makers, traditional leaders and NGOs dealing with environmental protection, through lobbying and advocacy, to take into account the sustainable management of mountain ecosystems in their national development policies and action plans.

The forum aims to gather at least, 100 scientists, researchers, traditional leaders, representatives of women rights organisations, national and international NGO’s representatives from Africa, Europe, Asia and America. All those interested in the theme of the forum are encouraged to attend.

Registration: The registration process will start from May 30 to July 31, 2017 and the registration form is available [here](#). it should be filled and send back to: forummontagne@gmail.com and julio.adji@gmail.com

Communities, Conservation and Livelihoods, International Conference May 28-30, 2018



The International Union for Conservation of Nature (IUCN)’s Commission on Environmental, Economic and Social Policy (CEESP) and the Community Conservation Research Network (CCRN), two major international networks, have teamed up to co-organize **Communities, Conservation and Livelihoods**, a global conference taking place May 28-30th 2018 in Halifax, Canada. Communities, Conservation and Livelihoods will be a unique highly-participatory gathering to explore the crucial role of local communities, around the world, in conserving local environments and at the same time supporting local economies and livelihoods. The meeting will also examine how governments, through their policy and practice, can best support these local conservation and livelihood initiatives.

Announcements

Call for Co-Chair of the Mountain Ecosystems Special Interest Group

The Mountain Ecosystems Special Interest Group is looking for a Co-Chair to assist in the planning, organization and implementation of the network’s mission and 2017-2020 work plan. While all interested individuals are encouraged to apply, special consideration will be given to candidates located in non-industrialized countries and those working directly with local communities in mountain ecosystems. Please send your resume to Omer Aijazi at omer.aijazi@gmail.com by **July 30th, 2017** with the subject line marked as “application for co-chair”.



The Mountain Ecosystem Specialist Group provides expert knowledge and guidance on integrated approaches to the management of natural and modified ecosystems to promote biodiversity conservation and sustainable development in mountain areas for the well-being of all those who depend on them. We are respectful towards traditional ecological knowledge systems and recognize the role of communities as being central to effective ecosystem management. We aim to generate knowledge on the unique challenges faced by mountain ecosystems and the communities who rely on them, sharing inter and transdisciplinary guidance for policy makers and ecosystem managers.

For further information about the specialist group, contact group lead: Omer Aijazi omer.aijazi@gmail.com



Siran Valley, North West Pakistan (Photograph by Omer Aijazi)