



Mobile Pastoralism in Mediterranean Landscapes:

The state of (mobile) pastoralism in five pilot sites

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Cover photo: Icho filling water containers from
a well not too far from the temporary camp
on the route out of Saghrou
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Si Brahim following the rest of his family
and the herd as they start
the ascent toward the High Atlas
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Introduction

Landscapes are “the result of the action and interaction of natural and/or human factors” (ELC, 2000). This is particularly valid for the Mediterranean Basin, with its long history of habitation. Mobile pastoralism, a major traditional cultural practice in the Mediterranean for millennia, is a unique example of this constant interaction.

Being entirely different in essence to intensive livestock production systems, mobile pastoralism has offered the most sustainable way to make the most of the Mediterranean’s rangelands. The strong linkage between the maintenance of mobile pastoralism and the protection of rangeland ecosystems has been supported by a growing body of scientific evidence (Yilmaz et al., 2019).

Local communities all over the Mediterranean basin still engage in many traditional cultural practices, which together with mobile pastoralism contribute to the ecological integrity and diversity of Mediterranean landscapes. However, the threats of modern era that these communities are facing today challenge their

capability to maintain their traditional lifestyles. This calls for urgent action.

In order to conserve these traditional cultural practices which enable the maintenance and management of landscape diversity and halt biodiversity loss in Mediterranean Basin, 13 organizations joined forces at landscape and regional levels with the support provided by MAVA Foundation. At the landscape level, five pilot sites corresponding to three broad landscape types have been identified: Island landscapes (Lemnos Island, Greece and Menorca Island, Spain), Mountainous landscapes (High Atlas, Morocco and El Shouf Mountain, Lebanon) and lowland agro-silvo-pastoral landscapes (Dehesas, Spain, and Montados, Portugal). In addition to interventions at these pilot sites, mobile pastoralism is addressed at the regional level by Roads Less Travelled.

This brief report outlines the state of (mobile) pastoralism in five pilot sites and how the partner organisations support conservation of the practice at the landscape level.



A young Amazigh shepherd with his companion, a Sloghi, looking over his family's herd, Morocco
© Engin Yılmaz, Yolda Initiative

Mobile Pastoralism in the High Atlas (Morocco)



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The High Atlas cultural landscapes have been shaped by diverse practices of Amazigh communities that have inhabited the area for millennia. These traditional practices, which not only maintain an ecological mosaic but also sustain local livelihoods, are vibrant living traditions that are increasingly threatened by changing climatic, economic and social realities.

Global Diversity Foundation (GDF) and Moroccan Biodiversity and Livelihoods Association (MBLA) joined forces to strengthen these traditional practices, including mobile pastoralism, for the conservation of the unique High Atlas biodiversity, and the enhanced wellbeing of the communities that manage and maintain these beautiful landscapes.

In Morocco, mobile pastoralism still relies on common property systems which were devised to efficiently manage the lands as a community. Each community has a traditional usufruct right which allows its members to access the land and utilize the resources for free. These communal lands are held in trust by the state. However, privatization and the subsequent parceling of these lands, as well as land grabbing, are increasingly threatening the common property systems and the tools and institutions, such as Agdals, which have enabled these systems to function sustainably.

Agdal is a traditional land management institution that regulates the access to communal lands and resources mainly by fixing opening and closing dates (Dominguez et al., 2012). It may also regulate usage of some resources and spaces within the land. These decisions are made by the community members and all members have to respect these decisions. Agdals have shaped the cultural landscape of the High Atlas mountains, maintaining the rangeland and forest resources and conserving biodiversity. The key feature of pastoral Agdals is the timing of the opening and closing dates of the pasture in order to allow the vegetation to complete its reproductive cycle before grazing is opened to flocks, thus maintaining and encouraging plant diversity. The constant interaction between people and their environment and ecological processes form

the basis for the practices, strategies and social institutions of mobile pastoralists. Maintenance of mobile pastoralism can not only help conserve the high biodiversity and ecological value of the High Atlas, but also the cultural integrity of the local indigenous communities.

The communally governed rangelands of the High Atlas mountain range are utilised by many mobile pastoralist communities during the summer. The summer pasture of the Ait Atta tribe is located within an area of the pilot site where GDF and MBLA concentrated their conservation work called Agdal Igourdane. However, in line with the overall trend in Morocco, the number of these mobile pastoralist families utilizing Agdal Igourdane and maintaining their traditional livelihood has been in sharp decline. While 100 families migrated in 1984, only 10 did so in 2019.

The Ait Atta tribe traditionally secured their income through the sale of meat, dairy and wool products. However, nowadays livestock in Morocco is mostly reared by mobile pastoralists for meat production. Dairy production is much less profitable and the income from selling wool does not make the activity profitable.

Members of the Ait Atta tribe generally migrate between the Saghrou region and Agdal Igourdane in central High Atlas region following the availability of forage which in turn depends on climatic conditions: winters are harsh in the High Atlas and summers are dry and hot in the Saghrou. Their flocks are composed of sheep, goats and camels; sometimes donkeys and mules are used for transporting equipment and for fetching water.

Agdal Igourdane is located within the borders of commune Ait M'hamed. Community members migrate approximately 200 km from Saghrou region to this location on foot in 15 days. While some migrate with their entire family, others migrate with only some family members. Migration is regulated by law which requires the community members to acquire an official permission before they migrate each year. They also need to respect and avoid private lands on



Si Brahim watching over the herd and guiding others
as they prepare the herd for the day's journey
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their migration routes. A recent legislation titled law 113.13 on Pastoral Migration and the Creation and Management of Pastoral Areas which regulates migration is causing concern among the Amazigh communities in Morocco.¹

According to GDF and MBLA, the main challenge to mobile pastoralism in the High Atlas is little or no access to basic services. In general, the policies regarding basic services in Morocco are not developed in a way that addresses the needs of mobile pastoralists. Particularly health care for mobile pastoralists has serious shortcomings, as Moroccan public health care services tend not to extend to remote and difficult-to-access mountainous areas. Furthermore, the lack of telecommunications infrastructure and coverage in these remote areas prevents pastoralists from accessing phones in emergency cases. Another major challenge is that pastoralist children have fewer opportunities to attend school, as the infrastructure for schooling is very poorly developed in remote and sparsely populated rangelands. They either remain outside the education system or stay with their relatives in villages to attend school during the migration, at the cost of remaining outside their family's traditional lifestyle. The community also lacks proper services and infrastructure along their migration routes. In addition to weathering harsh environmental conditions, including extreme temperature differences between day and night, they have no access to water or markets where they can purchase food for journeys that can last several days.

Acknowledging the role and importance of this mobile pastoralist community, GDF and MBLA have built close relationships with them in order to support them to address some of the challenges they face. GDF and MBLA also conduct field research, including mapping migration routes, in order to better understand the link between mobile pastoralism and biodiversity. Finally, the organisations produce communication materials, including a documentary movie to promote this cultural practice and its importance for nature conservation.

For further information: www.global-diversity.org
& www.mblaassociation.org

Mobile Pastoralism in Iberian Peninsula (Spain & Portugal)



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The wooded pastures of the Iberian Peninsula known as “Dehesa” in Spain and “Montado” in Portugal, are agrosylvopastoral systems of High Nature Value (HNV) and the cultural landscape of southern and central Spain and southern Portugal. As a result of human intervention transforming the original Mediterranean forests over millennia, these sparse wood pastures are made up principally of holm and evergreen cork oak, grazed by livestock (Lesschen et al., 2014). They are adapted to local environmental conditions and representative of diverse territories and culture of the Iberian Peninsula. They are one of the most successful and efficient examples of land management globally with regard to compatibility with nature conservation and many benefits provided to biological diversity and sustainable rural development. Pastoralism, either in the form of sedentary extensive livestock management or transhumance, is the most important cultural practice in the evolution and maintenance of these landscapes. However, the viability of both these landscapes and also extensive pastoralism and transhumance is seriously threatened in both countries.

In order to conserve these landscapes and the cultural practices that shaped them, Trashumancia y Naturaleza (TyN), World Wildlife Fund Spain (WWF) and ANP-WWF Portugal jointly developed a transnational project collaborating with farmers and pastoralists in multiple sites located in Extremadura and Andalucía regions of Spain and Portugal. Due to its indispensable role for the maintenance of these unique landscapes, transhumance is among those cultural practices that the project partners address.

The Iberian Peninsula has a long history of transhumance with domestic herbivores inheriting the ancient routes of their wild ancestors and acting as a major agent in the evolution and maintenance of landscapes. Coherent with the ecological rationale of mobile pastoralism, the movement of transhumant herds follows a seasonal pattern, spending winters in lowland landscapes which mostly are Dehesas and Montados in the southern parts

of Iberian Peninsula and migrating to highland landscapes in the northern parts of the Peninsula in summer (Yılmaz et al., 2019).

Yet transhumance has experienced a sharp decline since the 19th century in Spain. Unfortunately national authorities do not differentiate between mobile pastoralism, sedentary extensive pastoralism and intensive livestock production systems, and therefore Spain has no official inventory at national level regarding the number of the transhumant shepherds.

Transhumants in Spain conduct the practice as individual families. Yet they also have mechanisms and institutions which create and maintain ties between them, such as fairs and festivals. These occasions do not only facilitate information sharing between them but also help with developing and celebrating their cultural identity as a community with their traditional ecological knowledge, values, spirituality, rituals, and institutions.

Their herds consist of either cattle or sheep, and occasionally some goats. Some have their own lands in Dehesas. If it is private land, they rent the land from the landowners. In cases of common pastures, they rent it from the municipalities.

Some transhumant couples move their households seasonally but in general male members of the family move with the livestock during the migration period while the rest of the family remains at a home base. Yet in addition to the ones who are transhumant shepherd themselves, women play an indispensable role within this livelihood: helping with logistics, taking care of children etc. Nevertheless, the separation of family members is and will be one of the main costs of this livelihood until the public policies, particularly regarding basic services such as education and healthcare, are developed in a way responding the needs of mobile pastoralists.

The products they produce are meat, dairy and wool. Yet due to their very low profit margins it has become very difficult to continue this



Avilena cattle grazing in a dehesa
© Engin Yılmaz, Yolda Initiative

livelihood in a sustainable manner. The situation of wool is worse. Despite the high quality of especially merino wool, there is no adequate policy encouraging innovative investments to utilize this product in the country. Subsequently 70-80 % of the wool in Spain is exported to China unprocessed and with a very low price. Proper policies and economic incentives are crucial to conserve this practice. The Common Agricultural Policy of the European Union is supposed to address such difficulties, but it has many elements that disincentivize pastoralists. These include the calculation model regarding direct support payments penalising such extensive pastoral systems; exclusion of part of the wood pastures surface, such as Dehesas & Montados, from permanent pastures category; forcing farmers to plough their grasslands to receive payments etc. Due to these and other regional and national legislative issues, the unique agrosilvopastoral systems of High Nature Value do not receive proper support (WWF & TyN, 2018). Additionally high rental costs, particularly in cases where lands are privately owned, create a competition between pastoralists to access the common lands.

Another major issue is the restrictions on mobility. Due to the importance of transhumance, a professional association of breeders, the Concejo de la Mesta, was created in the 13th century, which acquired legal recognition and classification of the network of migration routes called drove roads. Yet the decline of the practice since the 19th century led to the abandonment and degradation of drove roads. In response to this trend the Spanish Government passed a law safeguarding the network of drove roads in 1995 (Yilmaz et al., 2019). But currently it is estimated that only 40% of these routes are accessible, as the network is fragmented by roads and urban development. Additionally they are lacking the necessary infrastructure such as water points and shelters.

Unfortunately climate change also poses a direct and imminent threat on these communities due to their continuing reliance upon resource-based livelihoods. Additionally it amplifies the adverse effects of all other challenges they face.

According to the project partners, the beneficial role of transhumance should be acknowledged if these landscapes are to be conserved. The movement of the herds fertilizes the soil, spreading grass seed over long distances and helps adaptation to climate change as well as the creation of carbon sinks in the ground. The absence of livestock from grazing areas for long periods of the year allows regeneration of the vegetation and the survival of wild plant species. Their studies show that the ecological impact of the gradual abandonment of this practice has resulted in overgrazing, loss of trees and grasslands, species extinction and wildfires.

Project partners conduct multiple activities to support these communities. They engage with official authorities at local, national and European levels on the rights of transhumant shepherds, the conservation of the drovers' roads, infrastructure, water points, signposting and the creation of a national registry. They also have a team of experts to support actions to uphold transhumant herders' rights and the protection of drovers' roads and pastures. They support the practitioners to maintain their specific traditional grazing techniques such as guided grazing, "redileo"² etc. Other activities include, but are not limited to, communication and awareness-raising; initiating and facilitating networks between the practitioners; providing specific trainings including on exploring new market possibilities.

For further information:

www.pastos.es

www.wwf.es

www.natureza-portugal.org

Pastoralism in Lemnos (Greece)



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Lemnos Island, with its size of approximately 478 km² and a population of around 17,000 inhabitants, is situated nearly midway between Mount Athos and the Dardanelles. Despite of and in response to this geographical isolation and the limitations of natural resources of an island, the knowledge and practices of the islanders evolved for thousands of years in a way that enabled a sustainable relationship between the people and their environment. Yet the gradual replacement of these traditional agro-pastoral practices by intensive land use systems, combined with land abandonment and aggravated by the effects of climate change, threatens the ecological high value landscapes of Lemnos.

In order to conserve the sustainable, traditional agro-pastoral practices on Lemnos and to demonstrate their valuable role in supporting both biodiversity conservation and socio-economic welfare, a project titled "Terra Lemnia" is being implemented under the coordination of the Mediterranean Institute for Nature and Anthropos (MedINA) with its partners: Agricultural University of Athens, University of Aegean, Anemoessa, a local NGO, the Society for the Protection of Prespa, the Hellenic Ornithological Society and the Tour du Valat. The project conducts research and implements on the ground actions, in collaboration with local Lemnian organisations and producers.

Pastoralism has always played a significant role in shaping the landscapes of Lemnos, particularly in Fakos peninsula at the south, and in Mount Vigla at the northwest, which are used almost exclusively for grazing. The main characteristic of pastoralism on Lemnos is its family-based character, still dominant today, and the presence of the *kehaghiades* (a local word for the herder and carer of the land) with the traditional mandras (farms) spread throughout the island. Mandra, in a narrow meaning, is a sheltered space made of natural local materials in the countryside, providing shelter for both *kehaghiades* and their herds. It serves as a place of both production and residence for *kehaghiades*. In the wider meaning it represents the whole animal farm with the surrounding grazing lands and the crop fields.

This traditional mandra system of pastoralism could be considered as the end result of the island's environmental, socio-economic and cultural characteristics. The mandra system forms an integral part of Lemnos' natural and cultural heritage. It is the backbone of a living tradition for the island, clearly depicted through local songs, dances and paintings (Lyratzaki et al., 2019).

Livestock raised on Lemnos is mostly composed of sheep and goats with a current total figure of 60,000 sheep and 10,000 goats. The total figure of cattle is approximately 1,500. Sheep and goat production is mainly focused on dairy and milk is sold mostly to dairies for the production of PDO (Protected Designation of Origin) cheeses to be marketed all over the country. They also sell most of milk-fed lambs and goat-kids to animal traders to be traded outside the island.

The pastoralists utilize the pastures and arable lands with cereal crops destined for both grain and fodder as well as leguminous forage crops on the periphery of their mandras for grazing. The former, in most cases, consist of a local barley variety and is actively grazed during part of the growth period. Grazing land is divided in parcels and animals are moved between them in the form of a rotational grazing system.

Most of the land on the island is private and farmers often rent it from landlords. The proportion of rented land on Lemnos is - and has historically been - much higher compared to other Aegean Islands. Rental agreements in the past (before the 1980's) were made in oral with in-kind payment, based on the customary agreement of *misiako* (meaning 'half'), where *kehaghiades* gave half of their production to the landowner. Today, rental agreements are made in a more formal manner (due to EU subsidy system requirements) and on monetary basis, however some symbolic in-kind provision is still to be found.

The studies conducted within the Terra Lemnia project show that this traditional semi-extensive pastoral system of Lemnos has multiple beneficial effects for the maintenance and

conservation of biodiversity on the island. It is supporting biodiversity of natural grasslands and arable fields. Grazing animals enhance flora richness by creating a patchy vegetation environment, both horizontally and vertically. This leads to a spectrum of habitats for species of both flora and fauna as well as feed for a range of organisms higher in the trophic chain (vertebrates and invertebrates) and finally to a thriving biodiversity. Moreover, grazing animals disperse seeds of grazed plants and transform the consumed vegetative material through digestion in their intestine, thus releasing new nutrients to the environment.

The number of livestock farmers on Lemnos has been declining in recent decades, reaching

approximately 800 individuals according to the Census of 2011. The number of farms is 750 according to the livestock registration records of 2017, but it is also declining as there is a gradual concentration of livestock capital in fewer farms.

There are no financial incentives provided by the national authority but most of the pastoralist farmers receive EU subsidies. Without any support in technical training or consultation from national authorities, farmers mostly rely on technical advice of various inputs suppliers.

According to the findings of the Terra Lemnia project, pastoralists on Lemnos face multiple challenges. As an island, the land availability has a physical limit. Therefore, any further limitation



Vigla - Mandra & Sheep
© Stefanos Dodouras, MedINA

in land access, for example due to conversion of lands to other usages such as crop farming or due to military activities, have a direct negative impact on pastoralists. Pastoralist farmers have a relatively low percentage of land ownership and most of them rent the pastures they utilize. Further challenges include poor access to basic services such as electricity supply or good roads. The difficulty in accessing the national market is particularly crucial considering the record-low milk prices. The oligopoly of industrial dairies for cheese production on the island, combined with high transportation costs to access the national market leave pastoralist farmers exposed to unfair market conditions. In addition, major parts of the island are infested by wild

rabbits destroying a great share of indigenous vegetation and the crops.

Acknowledging the role and importance of the pastoralist farmers on Lemnos and the need to support them, the Terra Lemnia project team, together with several partners, engage directly with the community: working together to conserve crop landraces, to improve grazing conditions and to sustain locally adapted breeds of sheep, to conserve and expand traditional and extensive farming practices, to improve farmers' skills and capacities, to develop networks and design measures for sustainable farming.

For further information: <https://terra-lemnia.net>



Pastoralism in Menorca (Spain)



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Menorca is one of the Balearic Islands of Spain located in the Mediterranean Sea, with an approximate surface area of 700 km² and 200 km of coastline. Due to the remarkable diversity of Mediterranean habitats on Menorca, the high level of compatibility between the development of economic activities, the consumption of resources, and the conservation of heritage and landscapes that it had preserved, UNESCO declared Menorca a biosphere reserve in 1993.

Despite being an intensely humanized territory, Menorca still has an extremely rich tradition of rural landscapes maintained with cultural practices that need to be preserved against the threats they face. Working to conserve biodiversity in Menorca, GOB Menorca (Balearic Group of Ornithology and Defence of Nature Menorca) works also to conserve and promote sustainable land use systems, including pastoralism, on the island.

The history of pastoralism on the island starts at least with the Neolithic pastoralists who settled there about 2000 BC. It has been in a decreasing trend particularly in the last decades. Yet as there is no official inventory, the current number of the pastoralists is not known.

Traditionally crop farming and pastoralism are conducted in a complementary model on the island. The land-use strategy functions in a rotational manner. While one part of the land is allocated for crop production, one is utilized for grazing and the third part is left to rest. Rotating the order of land use between these three parts each year not only prevents degradation of the land but also strengthens the resilience of the land and also the livelihoods of the locals. The herds consist mostly of sheep and cattle, and a lesser amount of pigs, goats and horses. Sheep and goats are reared mainly for meat production, cows for dairy products and meat, pigs for sausage. There are almost no communal rangelands on the island. Utilizing private lands requires an agreement with the land-owners. In addition to such rental agreements, sometimes land-owners and pastoralists structure their partnership in the form of a company.

In the context of economic liberalization and globalization, uncertainty and risks become very difficult to afford by pastoralists in Menorca. This is especially the case with prices which are set by global markets that the pastoralists do not have any influence on. Another major problem they face is the increase of land rental costs due to tourism. Despite these challenges, the pastoralists do not receive proper support from the authorities. Most of the institutional mechanisms incentivize farmers to maintain a model of intensive milk production that has no outlet in the markets. There is only one incentive scheme supporting pastoralists, the Biosphere Reserve Agrarian Contract of Menorca (BRAC), based on a more sustainable model. This scheme, which started about ten years ago, is far from being at an adequate level to make a real difference on the island. In the last two years, a crop rotation aid has been incorporated in BRAC, but only 25 farms (approximately 500 hectares in total) have benefited from this mechanism.

Due to pastoralism's role in maintaining the fertility of the soil for agriculture and conserving biodiversity, GOB Menorca considers it sustainable land management that should be acknowledged as an added value in the resulting products. Accordingly, through its Land Stewardship Scheme, GOB Menorca makes agreements with farmers including pastoralists to develop economically viable models which contribute to the conservation of nature on the island. Within this scheme, farmers receive support from GOB Menorca, including trainings, volunteer support, promotion of their products, small investment support etc.





Local breed of cattle in Menorca © GOB Menorca

Mobile Pastoralism in Shouf (Lebanon)



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Shouf Mountain Landscape is one of the last strongholds of wildlife in Lebanon. It comprises the Southern half of Mount Lebanon and the adjacent West Beqaa foothills, where the Shouf Biosphere Reserve (SBR) is located. Shaped by centuries of interaction between nature and people, this agro-silvo-pastoral landscape today is threatened by climatic, economic and social changes that jeopardise its integrity and the balance between nature and people.

Working together to conserve this landscape, Al Shouf Cedar Society (ACS) and Society for the Protection of Nature of Lebanon (SPNL) conduct a joint project which also addresses the local communities of the Shouf Mountain and West Beqaa foothills with their traditional cultural practices, including (mobile) pastoralism. While ACS focuses more on the communities of the Shouf Mountain, SPNL works mostly with the communities at the West Beqaa foothills.

Mobile pastoralist communities played an important role in shaping the landscapes of Lebanon. Yet due to, among other reasons, the expansion of cultivated lands at the expense of rangelands and forests, mobile pastoralism has decreased sharply in the country. At the same time the conflicts between pastoralists, crop farmers and official authorities increased. Decreased ability to access rangelands; high costs of inputs starting with supplementary feed, transportation and veterinary services; low prices for their products; difficulties to access basic services including education made it very difficult to maintain their livelihood in its traditional and sustainable form and forced many of them either to abandon the practice or differentiate their traditional management and overuse the dramatically shrunk rangelands, leading to overgrazing, or to transform their production system to sedentary forms including intensive ones, which has been encouraged by the state.

Another major issue that had an enormous impact on pastoralists in Lebanon are the political conflicts in the region. Lebanon has been a destination country for massive influxes of refugees for decades. But especially since the start of the conflict in Syria in 2011, Lebanon

hosts a great number of refugees with around one registered Syrian refugee for every three Lebanese.³

The influx of refugees significantly increased the pressure on already scarce and fragile natural resources, including rangelands. As the rangeland ecosystem was divided by national boundaries between Lebanon and Syria, cross-border movements for migrating between two countries is a necessity to maintain the practice in a sustainable form for many pastoralists. The conflict in Syria made this cross-border movement almost impossible, while the figure of livestock that crossed permanently from Syria into Lebanon after the crisis started was very high, roughly 30 percent of Lebanon's small ruminants in only the first two years. The situation has forced many pastoralists to sell a significant portion of their animals, in most cases at about 40–50 percent of their normal market price (FAO, 2014).

Even though normally the number of livestock in Lebanon was in a decreasing trend, the increase of livestock number due to animals crossing from Syria contributed to the degradation of already shrunk rangelands especially in northern and eastern Lebanon. Because veterinary services inside Syria had collapsed, the livestock brought to Lebanon were unvaccinated and the capacity of veterinary services in Lebanon has not been sufficient to cope with the resulting threat of diseases (FAO, 2014).

These challenges to mobile pastoralism are also evident in the areas where ACS and SPNL concentrate their work. In the Shouf Mountain there are still some mobile pastoralist families migrating from western ranges to the high pastures of Shouf in summer. These are individual families, unlike the bigger traditional communities in the past, yet they still maintain some of their traditional customs. Their herds are composed of mainly goats. In addition to meat they also produce dairy products which they either sell at home, local markets or to dairy firms. They utilize mostly the communal lands for grazing but occasionally private lands as well. Some also have their own lands. In communal

areas, pastoralists need an official permission from or a rental agreement with the municipality. Utilizing private lands requires an agreement to be signed between pastoralists and landowners. These agreements are not always on a monetary basis. In some cases, providing goat manure to landowner is also accepted as an in-kind payment. The distance from their summer ranges to winter ones varies between 10 and 35 km. Most of them still migrate with the entire family. It is worth noting that some already stopped the tradition of migrating on foot and started to use trucks to transport animals. Unfortunately the migration routes on foot are not recognised nor secured by legislation.

The challenges mobile pastoralists face in the area are no different from the rest of the country. Water scarcity due to climate change, wolf and stray dog attacks can be added to the list. But there is a specific issue to be considered regarding this area. Due to systematic woodcutting over several millennia, subsequent expansion of crop fields and urbanization, the forest ecosystems in Lebanon suffered a lot and a significant amount of these habitats were lost. The Al Shouf Nature Reserve and UNESCO Biosphere Reserve in this area where ACS works is home to a quarter of the remaining Lebanese Cedar forests. *When the Nature Reserve was established in 1996, an old migration route for mobile pastoralists still ran through the middle of it. In accordance with the protected area thinking of the time, the protected area's management stopped the grazing within the park boundaries, which caused considerable conflict. Yet in time the incidence of forest fires became more important due to the lack of grazing and management decided it was time to re-build relationships with local shepherds* (Yilmaz et al., 2019). Working in the region actively for many years, ACS lists the benefits of the practice for biodiversity conservation as including reduced soil erosion and increased soil quality, improved air and water quality, better plant diversity, increased level of control on exotic (weedy) grasses, adding manure to the nutrient cycle, seed dispersal.

Today rotational grazing is permitted in the buffer and development zones of the Shouf

Biosphere Reserve and the park staff look forward to new collaborations and less conflict. The collaborations began with the "Assessment and Evaluation of Grazing Activities at the SBR", a comprehensive report based on interviews with all 18 shepherds herding 11,000 heads on both sides of the Shouf Biosphere Reserve. The report includes a description of the rangelands and their vegetation cover, and a set of recommendations. The collaborations include already initiated support of the reserve to strengthen the resilience of these communities, such as purchasing their products and selling them to visitors. Moreover, the Reserve is also increasing the water accessibility for the mobile pastoralists.

The state of mobile pastoralism in West Beqaa foothills where SPNL works is worse. Pastoralists located at this area do not continue their seasonal migrations between winter and summer pastures anymore but conduct the practice in an extensive form utilizing the close range communal pastures within a radius of max. 30 km around their settlement all year around. While SPNL has experience of working with traditional mobile communities, mainly Bedouins, with specific traditional customs and belief systems, the pastoralists they work with on the eastern slopes of the Shouf Biosphere Reserve -West Bekaa foothills are mainly individual families. As is the case with the western side of the mountain, their herds consist mainly of goats. They utilize communal lands for grazing with a permission from the municipalities. These are Himas of Kherbet Kanafar and Ain Zebdeh, and also Kefrayya. Sometimes conflicts arise with private land owners and the Shouf Biosphere Reserve authority. They have permanent houses as they don't migrate anymore and secure their income mainly by selling the milk they produce to dairy firms. They also sell meat and the cheese they produce on request.

As the Bekaa region hosts the highest number of Syrian refugees along with their herds, competition between shepherds accessing not only the already shrunk rangelands but also the market has become a main challenge. For instance, the price of milk decreased 50% since



Water point on the migration route
© Jamal Hamzeh, SPNL

the conflict started. This is also the case with other products. Lacking proper and efficient support from the authorities including veterinary services, especially the threat of diseases due to unvaccinated animals brought from Syria has been a major problem for pastoralists, causing an expense that they can't afford. No support is available to the pastoralists to access markets or develop their business. External support is only provided by some individual initiatives and NGOs working in the area. In addition, unpredictable climate events due to climate change, such as the drought in 2018 and the heavy rain and snow this year, cause big losses.

According to SPNL, extensive grazing in its traditional, and sustainable, form in this area has a strong effect on species and community diversity, and vegetation dynamics. It creates openings and corridors in forests and rangelands resulting in the emergence of a diversified

landscape that displays greater stability. Further, the corridors created due to grazing, create natural firebreak areas, regulate water runoff, and are home to beneficial insects that increase biological control of crop insect pests, and provide pollination services. Accordingly, SPNL believes that sustainable and controlled grazing will help sustain the biodiversity of the Shouf Landscape and its cultural values.

SPNL engages with pastoralists actively through studies and assessments, and supports them in marketing their products and documenting their trails. They are also working on designing and implementing a management and restoration plan for pilot pastures in the Himas of Kherbet Kanafar and Ain Zebdeh on the eastern slopes of the reserve.

Endnotes

1. <https://minorityrights.org/morocco-rising-tensions-between-nomadic-pastoralists/>
2. The practice of using mobile folds to pen livestock that are moved every few days
3. <http://www.fao.org/3/a-i4379e.pdf>

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