

CEPF funded project – 63257
Determination of Important Areas for Plants
and Creation of Three Plant Micro-Reserves
to Conserve Rare or Endemic Species in Lebanon

- Process Framework -
Baskinta Plant Micro-Reserve - District of Metn



The seeping cliff of which *Drosera rotundifolia* occurs, September 2014



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A - Project background

A.1 Environmental context

Country

Lebanon embodies perfectly the Mediterranean priorities in biodiversity conservation. This small territory with complex topography and hydrography shelters a large diversity of habitats and species that are threatened by climate change and human activities. Around 70% of the country consist of mountainous regions, with many steep-sided valleys that run to the sea. The fact that the highest peak of Mount Lebanon, which culminates at an altitude of 3060 meters, is only 30 km far from the sea, illustrates the prevalence of mountains in the country.

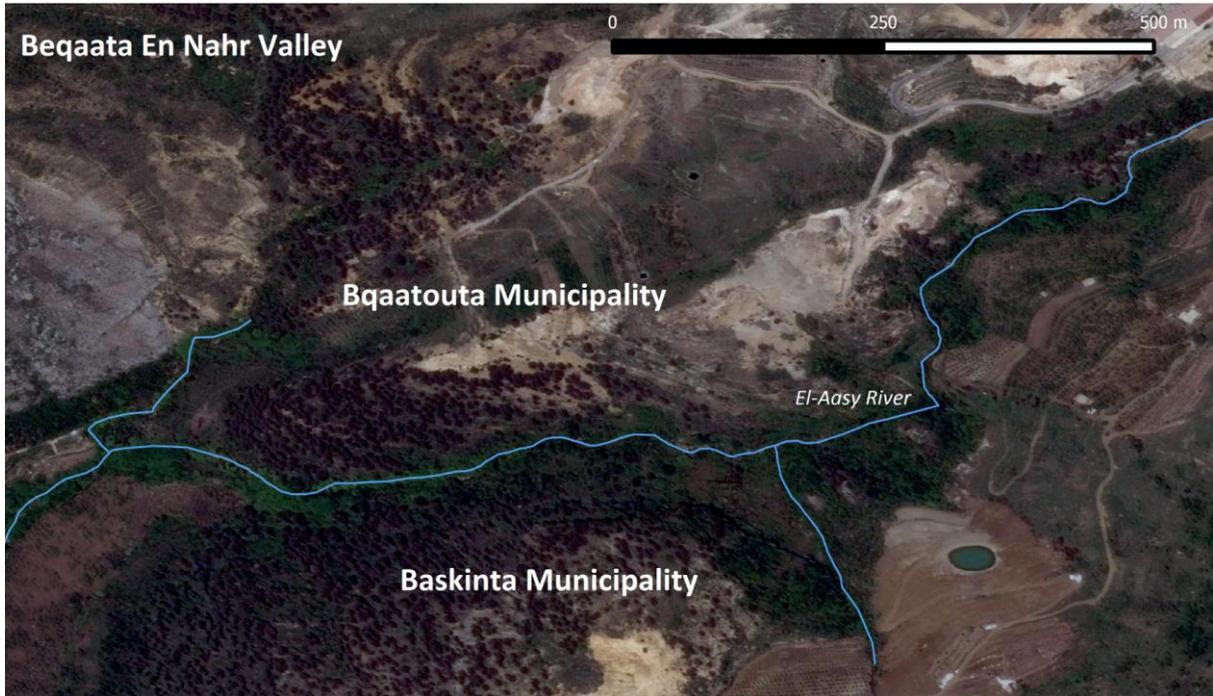
Numerous key zones for species conservation have been identified and are still not included in existing reserves. The project will aim at creating plant micro-reserves on three sites that shelter endemic or rare species or species that are at the edge of their distribution range.

Location of the Micro-Reserve of Beqaata En Nahr Valley

The selected natural site of the Metn District lies on both sides of a river (Nahr al-Aasy, not to be confused with its homonymous in the Beqaa Valley) and is located on both the Baskinta and Bqaatouta municipalities. The precise name for the site locality is Beqaata En Nahr (georeferenced in decimal degree: 33.9652, 35.7863). The entirety of the site is characterized by an uneven terrain. It consists of a small steep-sided valley with an altitude that goes from 1200 to 1350 meters, through which the river flows and is mostly surrounded by cliffs. The area of the intended micro-reserve covers around 12 ha. The surrounding area contains habitations, orchards, planted pine forests and unused lands due to sloping topography.

The place remains majorly unknown, except by locals of the region. However, it is one of the last known locations of the round-leaved sundew (*Drosera rotundifolia*), an insectivorous plant which is the species that first motivated the selection of the site to create a Plant Micro-Reserve (PMR). Without the help and cooperation of Youssef Abou Hamad, an agricultural engineer, and his friend Nizar Haddad, an inhabitant of Baskinta, the unique biodiversity of this place would still remain unknown to the scientific community.

The site shelters an incredible biodiversity with some rare and endemic species for Lebanon. The North facing slope is the most fascinating feature of the valley with its acidic and ferruginous seeping cliffs of sandstone. It is among the last Mediterranean habitats for Tertiary relict plant species that grow in fresh and shaded places and that have nowadays a more northern distribution, as the round-leaved sundew, Rhododendron of Pontus (*Rhododendron ponticum* var. *brachycarpum*) and some rare fern species.



Site selected for the PMR



Drosera rotundifolia in Beqaata En Nahr in July 2014

A.2 Economical context and Natural resources

Social, economic and geographic setting of the communities in the project area

The Governorate of Mount-Lebanon is among the richest regions of the country. Very few inhabitants depend entirely on agriculture for their living. Many villagers have left the mountain due to lack of work opportunities in these areas. Jobs are more easily found in the towns of the coastal areas. However, links with their village of origin are not completely broken as many keep a member of family in the village and still own some land. The current trend is to build on the family lands, mainly on orchards, agricultural fields or natural vegetation like shrubs and woods. Personal houses, restaurants, hotels or resorts are being increasingly built since the last two decades.

Land tenure

Similarly to the land tenure system in many western countries, the lands in Lebanon can be owned by privates, by the municipalities or by religious entities. All titles of property should be registered at the municipality, or at the central agency for spatial planning. The data should also be accessible to anyone who asks for maps, plot number and name of land owners although in practice everything is more complicated and less transparent. The maps provided to the public are often not very accurate and were hand drawn between the fifties and the seventies, before the civil war. The latter has brought a lot of confusion to the system and many owners were dispossessed of their lands while fleeing the conflict. Moreover many public lands were occupied by privates, built on and never given back to the State.

Water resources

The Assi river is one of the many that meet downstream to form the Dog River (Nahr al-Kalb), which then flows into the Mediterranean Sea. Within 50 meters upstream of the site, a water bottling factory (Sannine of the Malia Group) utilizes underground springs. In Lebanon, river water is rarely drunk due to pollution and a large part of the population, even those living next to natural springs, drink bottled water.



Nahr al-Aasi in September 2014

Agriculture

Agriculture in the mountainous regions of Mount-Lebanon is mostly limited to orchards of temperate fruit and nut trees like Persian walnut, apple, cherry, or plum. Stone pine (*Pinus pinea*) is also commonly planted on the slopes and provides pine nuts. Mountainous cultivated lands are divided into small plots. Among all the governorates of Lebanon, Mount-Lebanon has the lowest agricultural land area with around 10% of the total agricultural land area of the country, due to uneven terrain. The largest agricultural land areas are located in the Beqaa Governorate (Ministry of Agriculture 2002).

In Lebanon, less than a quarter of the labour force takes advantage, directly or indirectly, of agricultural activities and only 7% of the labour force are farmers (Ministry of Agriculture 2004). A characteristic feature of Lebanese agriculture is that most Lebanese farmers do not work the land by themselves but hire foreign workers mainly Syrians.

Lebanese agriculture is gangrenous and currently stepping backwards. High costs of input in the production process make Lebanon the least competitive producer in agriculture in the region. Furthermore, the government has always overlooked the agricultural sector. No subvention system has existed, nor any supervision program regarding agricultural practices, quality control, transparency or logistics. Many abandoned plots end up being built upon or turn simply into fallow land (European Union 2011).

Grazing system

Herds of goats and sheep are very common in Lebanon and are concentrated in the two ranges of mountains, Mount Lebanon and Anti-Lebanon. Similarly to other mountainous ecosystems, the grazing is organised into seasonal transhumance. In winter, herds graze at low altitude in the valley, whereas in summer time they move to pastures at high altitude, most often between 2000 and 3000 meters. These high places are locally called “jurd” and are mostly uninhabited due to extreme environment conditions. The snow cover lasts on the jurd until the beginning of the summer and reappears only in autumn, which allow shepherds to remain there often for more than five months.

As for agriculture, the occupation of shepherds is abandoned by Lebanese. Most frequently, Syrian shepherds lead the herds; however bosses who manage the herds and choose the grazing places are Lebanese.

There are a lot of issues between shepherds and landowners. Some private landowners can rent or simply allow herds to graze on their land, which is also the case for lands belonging to municipalities. However it happens that shepherds spot unfrequented lands and graze on them, hoping that nobody will see them.

On our site, no grazing occurs normally and the luxuriance of the vegetation reflects it clearly. Nevertheless, in September 2014 marks of grazing were observed on the site. Due to low rainfall during the winter 2013-2014, the summer was very dry and shepherds ventured to regions where they were not used to go, trying to feed their herds. Their presence is refused by most of the local community who considers that the regular pastures are located in the jurd and not in orchards, neither in the surroundings of the village. Therefore, whenever a shepherd and his herd are observed where they should not be, villagers ask them to leave.

Forestry activities

In the past, forests covered a much larger area of Lebanon while nowadays it is limited to less than 13% of the country's area. Remaining forestry activities only involve non-timber products while timber is imported into Lebanon due to a lack of trees of sufficient quality for this purpose. Some of the most important forests are included in natural reserves (European Union 2011).

People around the area of the planned micro-reserve only cut trees for firewood although most of the population commonly uses heating oil, locally named as “mazout”. Non-wood forest products are few but intensively exploited in Lebanon. Aromatic plants are the most targeted products and so may become scarce in the future. Pine nuts are also included in these products but most of the pine stone forests are planted and managed. Reforestation campaign efforts have been recently increasing but they must be relativized in terms of biological quality as only profitable, economically important species are planted. Often the newly planted areas do not correspond to the rehabilitation of natural forest habitats because municipalities or landlords prefer to plant pine stone instead of other indigenous tree species. The planted forests though consist of homogeneous pine stone forest with poorly diversified understorey flora.

In contrast with rural communities in other countries of the Middle Eastern region, Lebanese knowledge about ancestral uses of local flora species has dramatically decreased as the younger generations show little interest for it and is becoming mainly urban.

Recreational activities

Hiking activities

The only path around the site is old and narrow and with the exception of local people, very few know the place and even fewer people go there to take a walk. Most of the people visiting this valley are local hunters.

Hunting

In Lebanon, hunting is a purely recreational activity and does not aim for any kind of subsistence. Officially, hunting has been completely prohibited since 1994, however as with many other laws, it has no practical application and hundreds of hunters can be observed during sunny weekends, tracking internationally endangered bird species without being disturbed. To confuse matters further, other legislation was made in 1997 to re-allow hunting, however this was then repealed. Like many other rural regions, the targeted region is not spared from hunting activities although local community people have reported to us that the concerned site was visited only by few local hunters.

A.3 Legal framework

Creating a legal framework for the reserve

The micro-reserve will require its own legal framework in order to have natural habitats and flora preserved and respected by locals and visitors. The objective is to make sure that no house or road will be constructed on the site. The laws should be discussed with landowners to get their approval.

Currently applied laws

Currently, the plots of land that may be included into the micro-reserve are subjected to local laws and decrees that have been enacted by the municipalities. So far, only decrees enacted by the municipality of Baskinta have been communicated to us. There is already a law preventing any kind of construction within a distance of 70 meters from both sides of the river. We are also looking forward to receiving more information about the decrees in force according to the municipality of Bqaatouta.

Plant Micro-Reserve designation in Lebanon

Unfortunately, creating a new kind of protected areas in Lebanon would have taken years because of the slowness of the administration. The Ministry of Environment (MoE) himself advised us to choose among the existing designations of protected areas to ensure the protection of our sites. There are three types of designations for protected areas in Lebanon:

-Natural Reserve: the most complete protection to ensure the respect of environment at every level. All lands designated as natural reserve become almost property of the State and the MoE takes in

charge every aspect of the protection. Any monitoring committee in charge of the reserve would therefore be funded by the MoE. The laws that apply to the natural reserve are very strict as in Europe and prevent any kind of disturbance.

-Natural Site: Almost the same as the natural reserve, however the legislation can be very light and unbalanced. Many protected sites can have reduced areas and the legislation does not aim at protecting nature in itself. For example a church or geological sites can be protected under this designation. The legal framework is defined by the landowners, the municipality and the MoE, and can be very different depending of the type of the site.

-Hima: « Hima » means protected in Arabic. It is a traditional system for monitoring the exploitation of natural resources within a small region, a village and its surroundings for example. It aims mainly at monitoring the date and the period of grazing and the quantity of harvested wild plants and hunted animals. At the moment, the municipalities are the main managers in this kind of protected area.

A.4 Threats

The concerned site, as any other natural site in Lebanon, is under many threats. Housing and roads construction is the most important threat that is ongoing in the country. As explained above, due to demographic pressure and to an in-vogue trend, it is nowadays common to have people building houses in the mountain, back to their village of origin. Few decades ago, the opposite trend was dominant and every villager wanted a “pied-à-terre” in Beirut or another coastal city. Nowadays people settle in Beirut mainly to find a job but most of them like the comfort of the mountain village and its coolness, especially during summer time. Luxury resorts are also being built to receive Lebanese tourists, locals and diaspora, who don't own any property in the mountains. These resorts are made for both summer and winter activities.

Another major threat is quarries, especially on regions where the bedrock is sandstone, which is the case in our site. Quarries are very common in Lebanon and miss spatial planning. They can be observed anywhere and they totally destroy natural habitats and disfigure the mountainous landscape. The second population of round-leaved sundew that we knew in Mayrouba was completely destroyed by a quarry.

Grazing is a newly appeared threat freshly observed on the site during September 2014. Using machete, they literally cut the vegetation on the site, even very far from the trails, only to find watering places that occur at the bottom of the seeping cliffs. However, shepherds naturally don't come in these areas, or are systematically chased by locals and farmers.

Another major threat is climate change and droughts as the habitat we want to protect are relic plants confined to cool and shaded places in mountain regions. However, designating a PMR for our site will not protect them from climate change.

There is no traditional use for most of the species present on the site, except oregano (*Origanum*) and sage species (*Salvia*) which are common species and not threatened so far. Every year, workers come nearby the site in October to harvest pine stone cones.

B. Participatory implementation

B.1 Potential Impact of the micro-reserve creation on local livelihoods through involuntary restrictions

At present, the site is not used for the livelihoods of any community. The uneven topography of the site prevents many human activities. The micro-reserve creation should not have any negative impact on the local community as it does not restrict their access to natural resources. Nobody relies on natural resource exploitation on the targeted site. No habitations are present on the site and no agricultural activity takes place there. The site is also not involved in any wood exploitation as both slopes are mostly covered with shrub-like vegetation and small-stature trees. The creation of the micro-reserve will not prevent people from having access to the river as it flows downstream toward habitations.

Regulations have already been issued by the Ministry of Agriculture to regulate collection of medicinal and aromatic plants but they are contradictory. The first decision of February 1996 prohibits the export of aromatic plants whereas the second allows export but restricts the collection period and recommends good practices for harvesting sustainably (Ministry of Environment 2001). Plant collection should be prohibited in the micro-reserve except for scientific purposes. However, clearing of the trails is necessary to allow passage for visitors. No plant species of known economical interest occur in the area of the micro-reserve except *Salvia* and *Origanum* species which are quite spread in other regions. The species targeted for conservation are not even known by locals as they are discreet plants and are spread scarcely. The round-leaved sundew (*Drosera rotundifolia*) or the royal fern (*Osmunda regalis*) are completely ignored by locals. The Rhododendron can be easily noticed and could be torn collected for garden decoration, however gardeners show little interest in native species.

Although we focus on plant species and micro-habitats, we wanted to prohibit hunting in the micro-reserve to have a more comprehensively protected area but the few locals that we spoke with want to keep their rights to hunt in the area. In any event, hunting is already forbidden in Lebanon as mentioned above and its restriction will not be an innovation.

The micro-reserve will not limit access to the site for people. A trail will be created with few signs and explanatory boards about targeted species and their natural habitats. A symbolic fence may also be constructed at the entrance of the natural reserve but it should not be locked. This last point will be further developed and defined after the meeting with the owner and the local association.

B.2 Selected plots

Thirteen different plots should constitute the future micro-reserve (green on the map below), and around fifteen other should be in the direct neighbourhood. The total area of the thirteen plots is around 12,7 ha. The owners of the plots included within the border of the planned micro-reserve were identified with difficulty and still, not all of them have been identified. However, we are now

sure that none of the plots included in these borders belong to the municipality, thus we will have to deal only with private owners for this PMR. Even having found the number the concerned plots, we could not identify all the owners due to the lack of transparency of the property system and the lack of cooperation of the municipality of Baskinta which affirmed not having this information.

We were first planning to integrate both sides of the valley into the PMR, which is a logical approach in conservation planning. Due to lack of time, and the opacity of the land tenure system, we had to give up trying to identify land owners of the other side of the river as the plots belong to another municipality, Bqaatouta. Moreover the vegetation of the other side is very different, quite poor and with are large area of planted stone pines.

Among the thirteen plots, we intentionally selected only the plots that constitute the valley and the cliffs beside it. Nevertheless, other neighbouring plots should also be included to ensure the durability of the protected area. It may be difficult because most of them are being exploited currently, mainly for apple trees plantations and for a basin for irrigation. The recent creation of the basin, estimated between 2013 and 2014 as it suddenly appeared on the maps available on [mapsgoogle.com](https://www.google.com/maps), clearly shows that a part of the water that flows into the valley is being retained. It should be relevant to include these landowners into the negotiations even if the damages have already been done.

We may also have other land issues as the plots 5329 and 5330, which are quite large, have already been partly exploited on the plateau. Dividing up these plots to protect only the inferior part, which consists of the vegetated cliff, could be complicated administratively.



Table showing information about the concerned plots in Beqaata En Nahr Valley, on the Baskinta side

Plot number	Owner	Area [m2]	Perimeter [m]	Protected_Area
1350	Karam	1592	278	pmr
1358	Karam	4623	698	pmr
1351	Karam	179	60	pmr
1355	Karam	1266	202	pmr
1360	Karam	17472	606	pmr
1359	Ayoub	30355	1067	pmr
5329		50222	1051	pmr
5330		16647	579	pmr
5323		84199	1309	
5328		21053	610	
1361		11401	608	
1353		1024	177	
1352		1180	138	
1356		1482	176	pmr
1349		1269	223	pmr
1348		1950	217	pmr
1347		54	29	pmr
1346		73	40	pmr
1345		602	136	
1357		9860	539	
1354		306	104	
1362		37215	854	
5324		226	74	
5325		1951	228	
5331		790	201	
5341		18022	632	
5330		15343	587	
5339		312	95	
5338		562	157	
5332		2107	254	
5342		58649	1142	

B.3 Stakeholders, participation and decision-making

By discussing with the different municipality and some land owners, we realized that most of the stakeholders were afraid of putting their lands under a kind of designation that would not allow them to build or exploit them in the future. We did not get on with each other about the notion of protected areas. Apparently some locals think that they can manage a sort of temporary protected area and that they would be able to remove the designation whenever they change their mind. Another argument that was put forward by the municipality of Ehmej (another projected PMR) is that the level of protection for a natural reserve was too restrictive and that they would have to go

through a lot of complicated administrative procedures if they needed to make construction nearby the reserve. Again we had to consider these arguments even if we knew that they see the designation of protected areas as a painful sacrifice for the sake of Nature.

We then decided to choose the “natural site” designation for all three PMRs. There was a turnaround all of a sudden in October 2014, during which stakeholders from our three future PMRs would admit to us that they refuse any kind of protected areas that would involve the government. They consider it as an expropriation and they see the government as a threat that has been exploiting them since decades and that has never done anything for them. Every community in Lebanon is not comfortable depending of the government due to political instability, unforeseen development in the government and confessional partition.

In Baskinta, our first contact with the owners was finally realised in September 2014. Only two families were identified, the Karam and Ayoub families. Although we had the names, we were first contacted by them by chance. A land owner of few plots of the site, Joseph Karam, president of the EOCDIT society, and one of the founders of the Lebanon Mountain Trail Association (LMT) (<http://www.lebanontrail.org/>) , contacted us as he heard about our attempts to make a PMR in Baskinta. Luckily, he was very interested by nature conservation and by the promotion of natural and historical patrimony Lebanon. Joseph Karam and other few inhabitants of Baskinta have recently created, through the LMT association, the poetry trail of Baskinta, which is a trail that commemorates Lebanese poets who originate from Baskinta.

Moreover, Joseph Karam introduced us to another land owner, Michel Ayoub, who owns him and his brother the plot on which the population of round-leaved sundew grows. Michel Ayoub is in the sixties and as also a great interest into the preservation of the nature richness of his village. He holds an exceptional restaurant on the downstream section of the same river. His restaurant is completely dependent on the river and the water quality as he uses it for a system of fish farming to produce trout, the main dish of the menu.

Both Joseph Karam and Michel Ayoub were not aware of the biological diversity of the site, nor about the presence of the round-leaved sundew, which is a quite discreet species indeed. They were convinced by the importance of preserving the site. However, after two meetings and one site visit in October 2014, they clearly told us that they refuse the idea of designating their lands as protected areas. They want to protect their lands in their actual state but they do not want to deal with the government, neither to sign any kind of approval in which the government would be a stakeholder.



Meeting in Michel's restaurant on the 10th October 2014, with from left to right Joseph Karam, Michel Ayoub and Magda Bou Dagher



From left to right: Magda Bou Dagher, Michel Ayoub and Joseph Karam in the site of Beqaata En Nahr the 24th September 2014

Lastly, we got on each other on the fact that we could make a Memorandum of Understanding (MoU), which is a tripartite agreement involving the landowners, the University Saint-Joseph (USJ) and the LMT. The landowners will ensure that they will preserve the site in their actual state and prevent grazing, construction, pollution or any kind of damage to the environment. The USJ will provide scientific support and manage the creation of a proper trail and explanatory boards showing the uniqueness of this natural habitat, its rarity and its fragility. The LMT will connect the trail to other LMT's trails of the region and promote its visibility in order to turn it into one of the main natural patrimony of the village.

For the next meeting that should be organised in early January 2015, we will finalise this agreement and its different components. The MoU is the last recourse that we found to protect this piece of Nature. It is less restrictive and secure than a "natural site" designation. Besides any of the three stakeholders is free to quit his engagements whenever he wants. Another issue is the sharing of Michel's plot with his brother. We still need to be sure that his brother also shares the same vision and that he agrees to renounce his right to exploit the plot.

B.4 Public communication

So far (December 2014), we did not communicate publicly our intention to all the villagers of Baskinta, but only to the members of the municipality, few neighbors of the site and the land owners we met.

In a first time, we were not planning to organize a meeting that would gather all of them in the same time. We opted for approaching the landowners individually to present them the project and survey their opinion. If this first approach reaches a positive majority, then all the land owners that answered positively to our project will be gathered to put heads together about ideas for the micro-reserve and see if some of them would like to be involved durably in the project.

In a second time, we wanted to approach all inhabitants of Baskinta to take their opinion and ideas on the micro-reserve. After one year of work, we understood that it is not worth implicating the inhabitants that are not neighbors of the site. However, raising awareness is a must as it is necessary that all the villagers understand the importance of conserving nature and rare species and get aware about the fascinating Nature of their region. The people of the local community that are interested should also be designated to survey the micro-reserve and ensure of the good state of preservation of the habitats. In practice, we did not schedule any type of regular meetings with the local community to speak about the micro-reserve. Dates of events will be decided as we go along with the project.

One of the most important issues that needed to be clarified matters was the legal framework that should be set up to protect the species of the micro-reserve. In the case of designating a "natural site", the laws which we wanted to apply in the future micro-reserve would have been discussed with the landowners and with all the local community to get their approval. The last events that occurred and the general reject of the landowners to involve the government prevent us from setting up this legal framework.

C. Criteria for eligibility of affected persons

No group were identified as eligible for any kind of assistance as no one is benefiting legally of the site, except the landowners, which did not exploit their land so far.

The local hunters won't be affected by the agreement, although we would have liked to restrict their access to the site because they don't hunt for livelihood. They use very harmful and illegal hunting methods, do not respect breeding, nesting and resting period, and even shoot at rare species and raptor species. Indeed, they are a real threat for bird diversity regionally and globally.

Concerning the shepherds, they have no right to make their herds graze on these lands and Michel Ayoub already identified them and warned them from getting back to the site.

D. Measures to assist the affected persons

The people that could be affected by the creation of the PMR are the landowners. Thus the only way to assist them is to be sure that they will get advantages of the protection of the site. As explained before, it is impossible to protect the valley without their consent. Therefore, if the tripartite agreement is set up, it will signify that they share our vision and that we will have received their entire approval and involvement into the project. By participating with us for the protection of the site, they commit their selves to protecting their own village and its natural patrimony. Of course, they may have given a part of their land for nature conservation but they are not credulous fools and they know that they are going to benefit directly from this project. The promotion of this new trail for nature lovers and hikers would allow the LMT to get more renown and value as the organization is in search for ecotourism and wants to combine hiking, nature contemplation and guided historical tours in their trails. Many customers from all Lebanon, and beyond, are about to come to Michel Ayoub's trout restaurant which is only known locally. Moreover he would get more renown around the fish farming system that he developed to provide customers with fresh trouts in amazing scenery with a riparian ambiance. Finally, all departures to the site would go from the parking of Michel's restaurant. We are also planning to transform the restaurant into an information center for the site, with explanations about plants and animals diversity of the region. The awareness-raising should also focus on children. For example, educational games should be developed and given to the customers of the restaurant. Some local guides formed to scientific nature explanations could also be chosen to escort groups for tours at precise time.

E. Conflict resolution and complaint mechanism

Any form of conflict between the landowners and some people of the local community should be resolved the quicker as possible. As the tripartite agreement is amicable and do not involve government, nor municipality, all problems should be solved internally. So far, the only major projected conflict that could occur would be between different landowners in the valley of Beqaata En Nahr. For example, we fear that the landowner who owns the land just above Michel Ayoub's plot and the sundew cliff, (plot number 5323) would exploit his land in a way that could be harmful to the water alimentation of the cliff, or that could pollute the valley. The creation of a quarry or the construction of houses would be the most threatening project and would condemn our efforts to protect this valley. Another conflict may come from the other side of the river for which no contact has been initiated yet.

In case a conflict arises as a consequence of the project, and could not be resolved locally, stakeholders would be informed that they can fill an official complaint, first to the Executive director of CEPF, or, should the problem not be solved, to the World Bank. All procedures included internet website to use to fill complaints, would be provided to stakeholders by the project team.



From left to right: **Nizar Haddad** and **Youssef Abou Hamad**, the discoverers of *Drosera rotundifolia* in the site of Beqaata En Nahr on the 28th November 2013

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