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 -
Ehmej Plant Micro-Reserve - District of Jbeil

Ed Dichar, June 2014

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A - Project background

A.1 Environmental context

Country

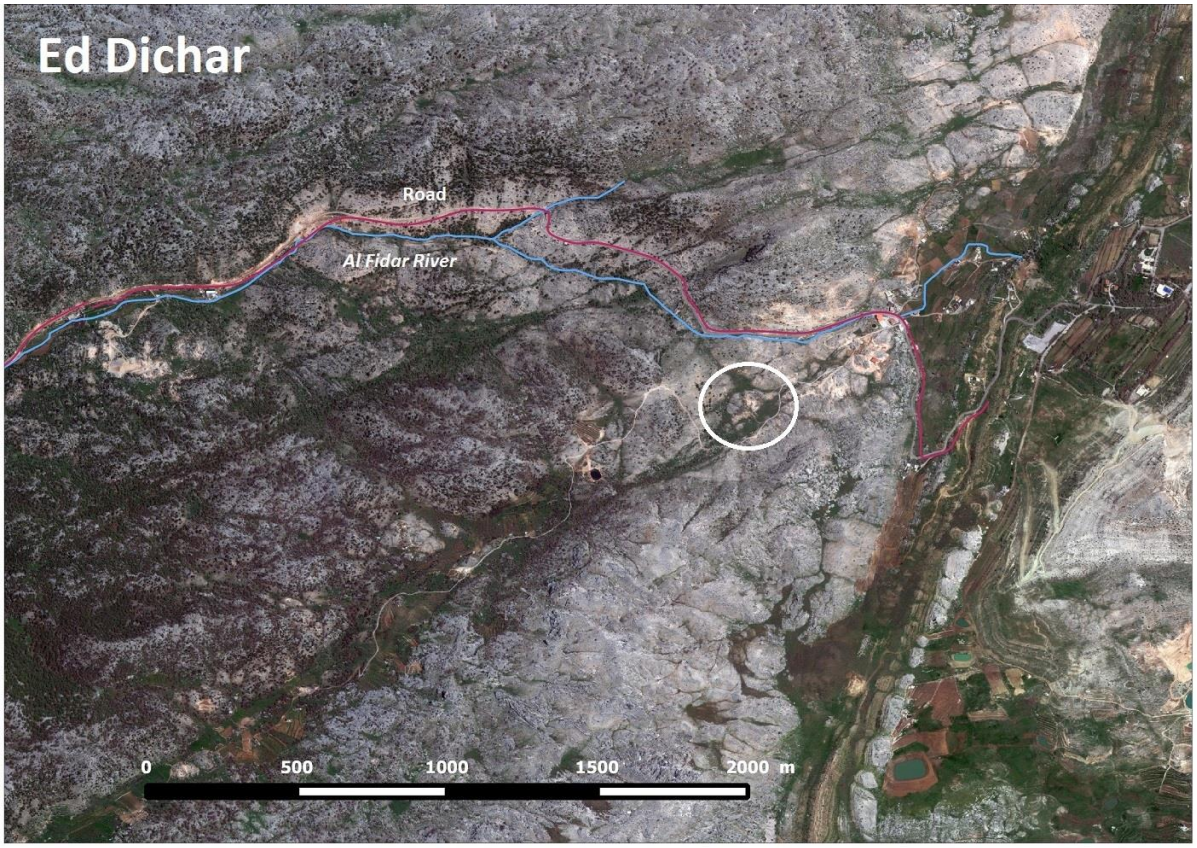
Lebanon embodies perfectly the Mediterranean priorities in biodiversity conservation. This small territory with complex topography and hydrography shelters a large diversity of habitats and species that are threatened by climate change and human activities. Around 70% of the country consist of mountainous 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 any existing natural 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 Plant Micro-Reserve of Ed Dichar

The selected natural site of the Jbeil District is located up in the mountains of Mount-Lebanon, in the municipality of Ehmej. It consists mainly of rocky steep slopes with a few grasslands at an altitude that goes from 1550 to 1900 meters above sea level. The surrounding summits are the highest positions of the municipality of Ehmej. This is the altitudinal limit for most of the tree species. The site is located in the Fidar Valley from which the Fidar River flows before reaching the sea to the south of the town of Jbeil (Byblos). The precise name for the site locality is Ed Dichar (georeferenced in decimal degree: 34.12884, 35.838861). The surroundings consist mainly of sparsely vegetated rocky slopes. Further around westwards (Wadi Naznazi) stands a fascinating forest of Iron oak (*Quercus cerris*), a locally rare tree species that reaches its edge of range in Lebanon. South-westwards, a large valley is all planted with apple trees (Wardiyet), one of the major agricultural features of Ehmej and of the region. North-eastwards, the upstream section of the Fidar river flows through a wide plateau largely cultivated (Al Mokhada to Chawi). Eastwards, the famous ski resort of Laqlouq dominates the landscape.

Although the presence of a very used road that leads to Laqlouq and Tannourine, both very popular mountain villages, the site of Ed-Dichar is set back behind the slopes and is visited mainly by locals. The reason that motivated the selection of this site to create a Plant Micro-Reserve is the presence of one of the ten left known locations for the populations of *Iris sofarana*, an iris species endemic to Mount-Lebanon.

The site shelters an incredible biodiversity with many rare and endemic species to Lebanon and to the Northeastern Mediterranean region. Different types of natural habitats are present in the same area. The biological diversity varies depending to slope steepness, slope orientation, and soil depth. The bedrock constitutes of calcarenite, a limestone composed of sand-size grains which is easily eroded and forms a sandy soil on the bottom of the slopes. Besides, many rare animals that need a typical mountainous habitat are found there, including birds, reptiles and mammals.



Site selected for the PMR

***Iris sofarana* at Ed Dichar in June 2014**

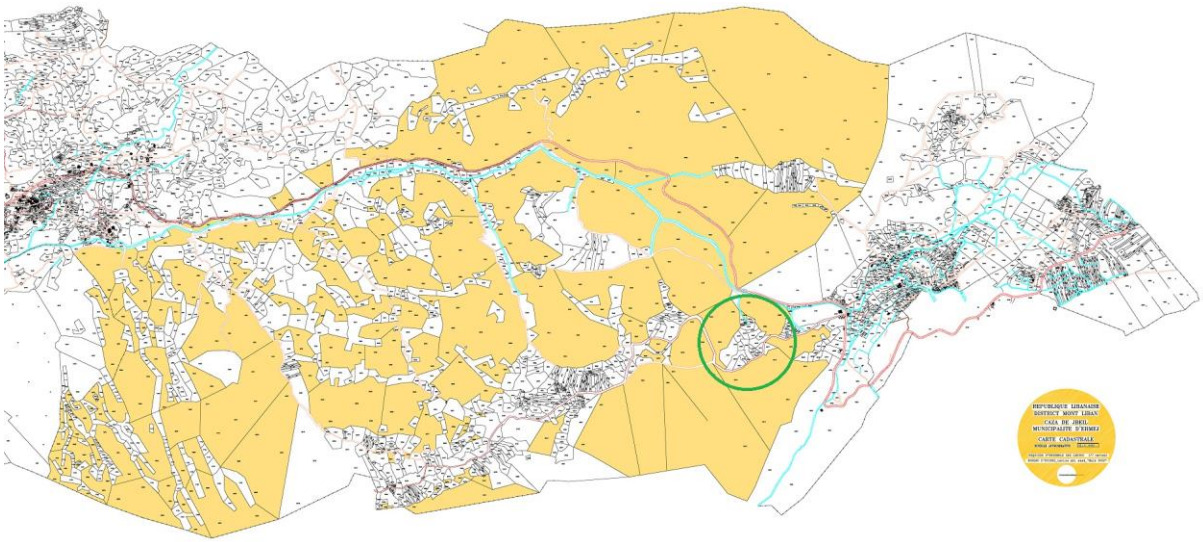
A.2 Economical context and Natural resources

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.
Ehmej is an outstanding municipality in the monotonous administrative Lebanese landscape. Since few years, the municipality of Ehmej is adopting a nature friendly attitude, trying to showcase its exceptional, and still very well preserved, natural patrimony. The interest for Nature and its promotion is quite rare among the municipalities of Lebanon. It was also one on the main factor that motivated the selection of this site to create the PMR.

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 (Ladki 2013).
The pattern of property in Ehmej looks simple at first glance: almost all the western and eastern parts of the municipality concentrate the village (uncoloured on the map below), its habitations and the private lands, whereas the middle part concentrates mainly public lands (colored in yellow on the map below). The public lands are for the most part forests and slopes with an uneven topography. More closely considered, we can notice a tangle of private lands within the public lands. These private lands are located in the thalwegs where grazing and plantation of apple trees are possible. Unfortunately, the populations of iris grow on grasslands in thalwegs and are therefore mostly located on private lands.



Cadastral map of the municipality of Ehmej, Ed Dichar circled in green

Water resources

The river of Al Fidar is quite narrow comparing to other river in Lebanon. During dry summers it can be very reduced due to very important pumping, especially to irrigate orchards and other surrounding fields. Many black rubber hoses emerge from the river in its upstream section around Ed-Dichar, on the very side of the road. The geological nature of the major part of Lebanon mountain ranges does not allow water to accumulate on surface, neither the soil to retain it. Therefore rainfall infiltrates directly and summer droughts affect intensively plants and crops.

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. Concerning Al Fidar River, it is widely used by locals as a dump for every kind of cumbersome waste and it is common during day time to see locals coming by car next to the river and throwing rubbish (tires, televisions, mattresses, demolition debris ...).

Al Fidar River, November 2014, next to Ed Dichar

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 at altitude inferior to 1300 meters 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 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 ever 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).

No cultivation occurs in the site of Ed Dichar, however the main crop in the municipality of Ehmej is apple tree. Few other types of crops are cultivated in the plateau of Al Mokhada, namely potatoes, white beans and flowers for flower shops (*Achillea tanacetifolia*).

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. Nevertheless grazing is an important agricultural activity in Ehmej and its neighbourhood. Many shepherds lead their herds on the surroundings slopes, on the *jurd* of Laqlouq and even intensively in the forest of Iron oak.

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).

In Ehmej, forests are one of the two major natural habitats; the second habitat being sparsely vegetated rocky slopes. Two kinds of natural forests are present: an evergreen forest dominated by Palestinian oak (*Quercus calliprinos*) that develops naturally between 0 and 1300 meters of altitude, and the deciduous forest of Iron oak (*Quercus cerris*) which is quite rare in Lebanon and which occurs between 1300 and 1600 meters of altitude in fresh and foggy valleys. Artificial forests of pine stone (*Pinus pinea*) are also present below an altitude of 1400 m. Although less common in this region, pine stone is planted for pine nuts.

Transition between evergreen Palestinian oak forest (bottom) and deciduous iron oak forest (top), Ehmej, December 2014

In the region of Ehmej, locals cut trees only for firewood and to make charcoal, although most of the population commonly uses heating oil, locally named as "mazout". The Palestinian oak (locally called "*sindien*") is the preferred wood to make charcoal and large areas were turned into scrublands due to intense exploitation. 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. Although quite common in deciduous forests, mushrooms are not exploited, probably due to a lack of knowledge. Pine nuts are also included in these products but most of the pine stone forests are planted. Reforestation campaign efforts have been recently increasing, however they must be relativised in terms of biological quality as only profitable economically species are planted. Often the newly planted areas do not correspond to the rehabilitation of natural forest habitats because the 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

Twelve hiking trails were opened to public during a promotion campaign for ecotourism. The trails were used since centuries by locals but nowadays mostly by shepherds. Thanks to a funding of USAID, a website (http://www.ehmej.org/en/hike-ehmej-trails/), an information centre for eco-tourism and a guest house (*Arz Ehmej*) were created and the trails were mapped and published in a

booklet. One of the trails (number 2, to Jabal Hafroun) is passing through Ed Dichar and there is even a picture of *Iris sofarana* in the booklet. However, the species is not mentioned. More recently, in June 2014, the trail network of Ehmej was connected to the trails of the Lebanese Mountain Trail (LMT).
We consider these hiking activities as a benefit for the region and for the natural patrimony. The more people will get to know this site and its natural diversity and rarities, the more the awareness and respect for nature conservation will be raised.

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 globally endangered bird species without being worried. 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 selected region is not spared from hunting activities and many hunters come from different regions of Lebanon to hunt in the area. The most targeted species in this woody region are wild boar (*Sus scrofa*), porcupine (*Hystrix indica*), woodcock (*Scolopax rusitcola*), and partridge (*Alocteris chukar*). A few members of the police of Ehmej were designated as a kind of forest wardens to ensure that only locals would come to hunt in the area.

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 that may be included into the micro-reserve are subjected to local laws and decrees that have been enacted by the municipality of Ehmej. These local laws regulate hunting, illegal waste dumping, wood cutting and construction and will inspire us while writing the legal framework with the members of the municipality.

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 should 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. 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.
On our very site we witnessed the construction of a house since the beginning of the year 2014. We were not warned by the municipality about this construction and we discovered it on the field. In December 2014, the house was almost finished. The problem of this construction is that it has destroyed a little part of the irises and that it is the first house in the area. Once a house is built in a remote area, there is a strong probability that other houses will follow. First people tend to imitate each other. Secondly, once road, water and electricity are brought to an area, it facilitates other settlements. At less than 100 meters eastwards of the site, about twenty chalets were also built for ski tourism. It is indeed the perfect spot as it is located just below the ski resort of Laqlouq.

Another major threat is quarries, especially on regions where the bedrock is sandstone or calcarenite, which is the case in our site. Quarries are very common in Lebanon and totally lack spatial planning. They can be observed anywhere and they totally destroy natural habitats and disfigure the mountainous landscape.

House under construction at Ed Dichar, May 2014

The construction of basins that retain spring water or rainfall for agricultural uses is very trendy in the region of Ehmej and above (Laqlouq and Aaqoura). During the last three years, two basins were dug in Ehmej, and there is a projected one for 2015. The creation of one of them, located of a private land in Ed Dichar, threatened an iris population. A transfer operation was carried out by Magda Bou Dagher and her students and managed to save more than one hundred rhizomes of *Iris sofarana* from destruction. The rhizomes were replanted on a land belonging to the municipality fifty meters further. The threat did not disappear yet: because of poor spatial planning, the municipality of Ehmej just realised that the plot on which the rhizomes were transferred was planned for the digging of another basin in 2015. The rhizomes should be then moved for a second time.

Grazing could be considered as a threat, however shepherds don't lead their herds in the site and from what we observed so far, cattle are not lovers of iris leaves.

The use of pesticide, especially on apple trees, is threat to the pollinators of *Iris sofarana* and therefore to the longevity of the species. The plant is mainly dependent of few insects for its pollination, particularly on a species of wild bee. This subject should be broached with the farmers to have them reducing the use of pesticide or using less harmful substances.

During the flowering period, people harvest the flower to decorate their houses. They mostly remove the flowers which don't last longer than three days. We also observed people harvesting the rhizome last spring, and they told us they would plant it back into their garden. Even local horticulturists are a threat as they are looking for new and rare geophytes species for their business. The problem is that they harvest in a non sustainable way and that they lack knowledge about species requirements. One of the objectives of the project is to find an efficient way to multiply *Iris sofarana* for ex-situ conservation and reinforcement of existing populations.

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 not threatened so far.

Finally a reforestation project lead by the NGO *Jouzour Lobnan* was carried out on the site of Ed Dichar, and many cedars were planted on the same spot as the largest iris population. Like other conifers, cedars form wood with a poor understorey flora due to their needles that acidify the soil and reduce sun light. The development of these trees into a mature wood could be fatal for the irises and we are currently trying to find out a solution that could combine reforestation and the preservation of the endemic species.

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 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 agricultural activity takes place there. The site is also not involved in any wood exploitation as slopes are mostly covered with few trees and are even subject to reforestation. The micro-reserve will not limit access to the site for people as a trail already exists and won't prevent people from having access to water as the river doesn't flow through Ed Dichar.

Regulations have already been issued by the Ministry of Agriculture to regulate collection of medicinal and aromatic plants. 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.
No plant species of known economical interest occur in the area of the micro-reserve except *Salvia* and *Origanum* species. The species targeted for conservation is well-known by locals but they don't use it for commercial interest, neither livelihood. Further to the eco-friendly policy of the municipality, many villagers became conscious of the patrimony value of this species and should be less tempted to harvest it.

The only potential impact would be the restriction of construction on the site. As mentioned above, landowners want to benefit of their lands and it is quite likely that shortly some of them will plan to build personal houses or chalets for tourists. Nevertheless, we are not anymore planning to integrate private lands to the PMR as explained in detail below.

Concerning hunting, local laws already exist to regulate it. In any event, hunting is already forbidden in Lebanon as mentioned above. Moreover, our main spokesperson, the mayor of Ehmej, Nazih Abi Semaan, is also the director of Josons, an important firearm shop.

B.2 Stakeholders, participation and decision-making

After one year of negotiations with the different stakeholders of the three PMRs, we realised that they were afraid of putting their lands under a kind of designation that would not allow them to build or exploit them in the future. Moreover, getting on with each other about the notion of protected areas is difficult as some locals consider the designation of the protected areas as temporary and think that they would be able to remove the designation whenever they change their mind.

In October 2014, when we decided to adopt the designation of “natural site” for the three PMRs, there was a sudden turnaround: all the stakeholders from the different PMRs admitted that they refused 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.

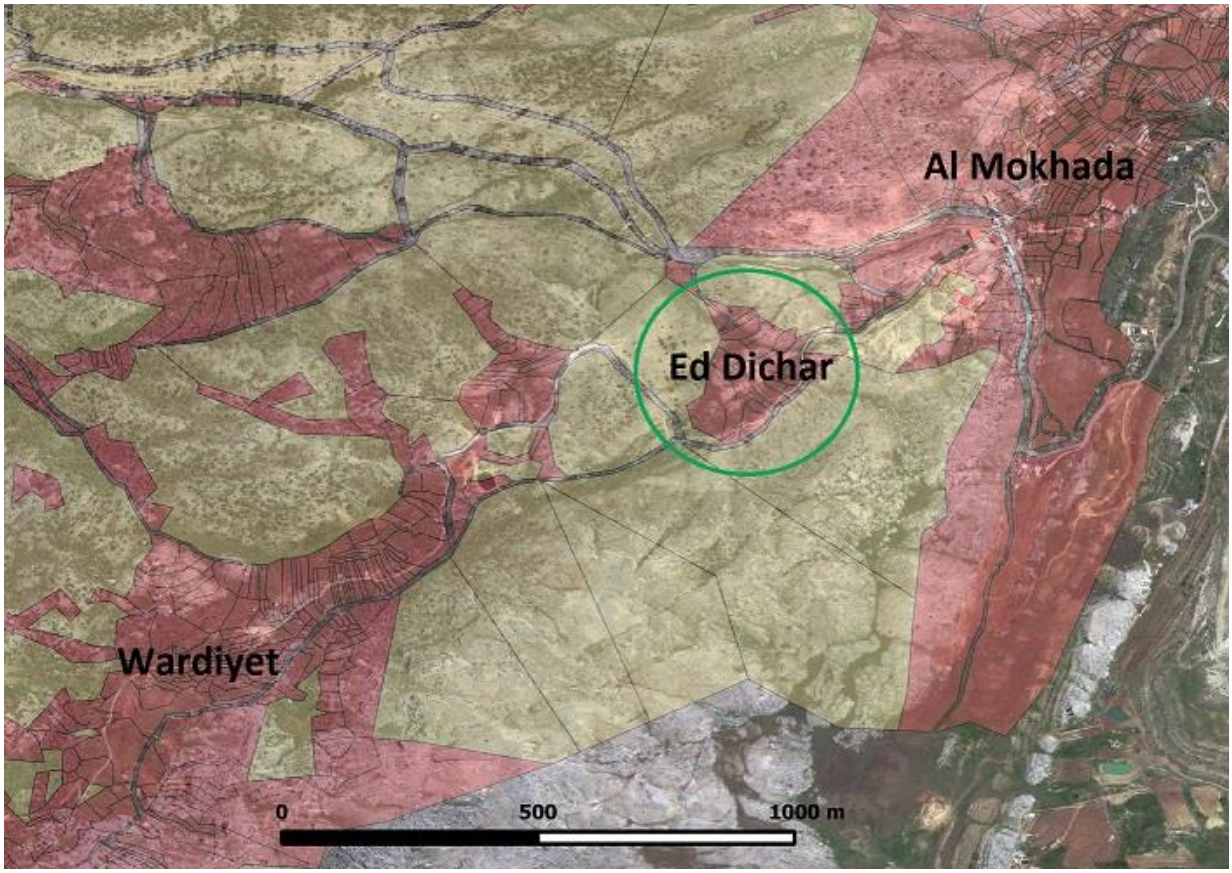
For the PMR of Ehmej, all our interactions with local community were made through the members of the municipality. We were put in contact directly with some of the landowners of the plots on which the iris populations grow. It happened that these landowners also worked in the municipality or participated actively the events in which villagers are consulted.

-The mayor of Ehmej, ***Nazih Abi Semaan***, was the first person we dealt with. Since the beginning he tried to conceal the protection of nature with the ecological development of his village, creating opportunities for the locals.
-***Imane Khalife*** is in charge of environmental programs at the municipality. She is an important spokesperson who helped us out by providing much information about the local community and many more data, as maps.
-***Joseph Khalife***, Imane’s brother, is a major landowner. He has a great knowledge of the field as he works as a farmer in Al Mokhada.
-***Charles Khalife*** is the manager of the main eco-touristic centre of Ehmej, called "*Arz Ehmej*" (Ehmej Cedars), which is a place that gathers a guest house, an ecological information centre and a restaurant.

All the persons listed above are convinced by the necessity of preserving the natural patrimony of Ehmej, and *Iris sofarana*. Some members of the Khalife family own lands on which irises grow, for instance a part of the land in Ed Dichar and Al Mokhada.

Further to few meetings with the previously mentioned people, we discussed about the possibilities to create this PMR to protect the iris populations. A few ideas emerged but they kept on changing since then. Our consultation process with the municipality of Ehmej could be divided into ***four major steps***. The table below summarises the evolution of the situation and of our negotiations:

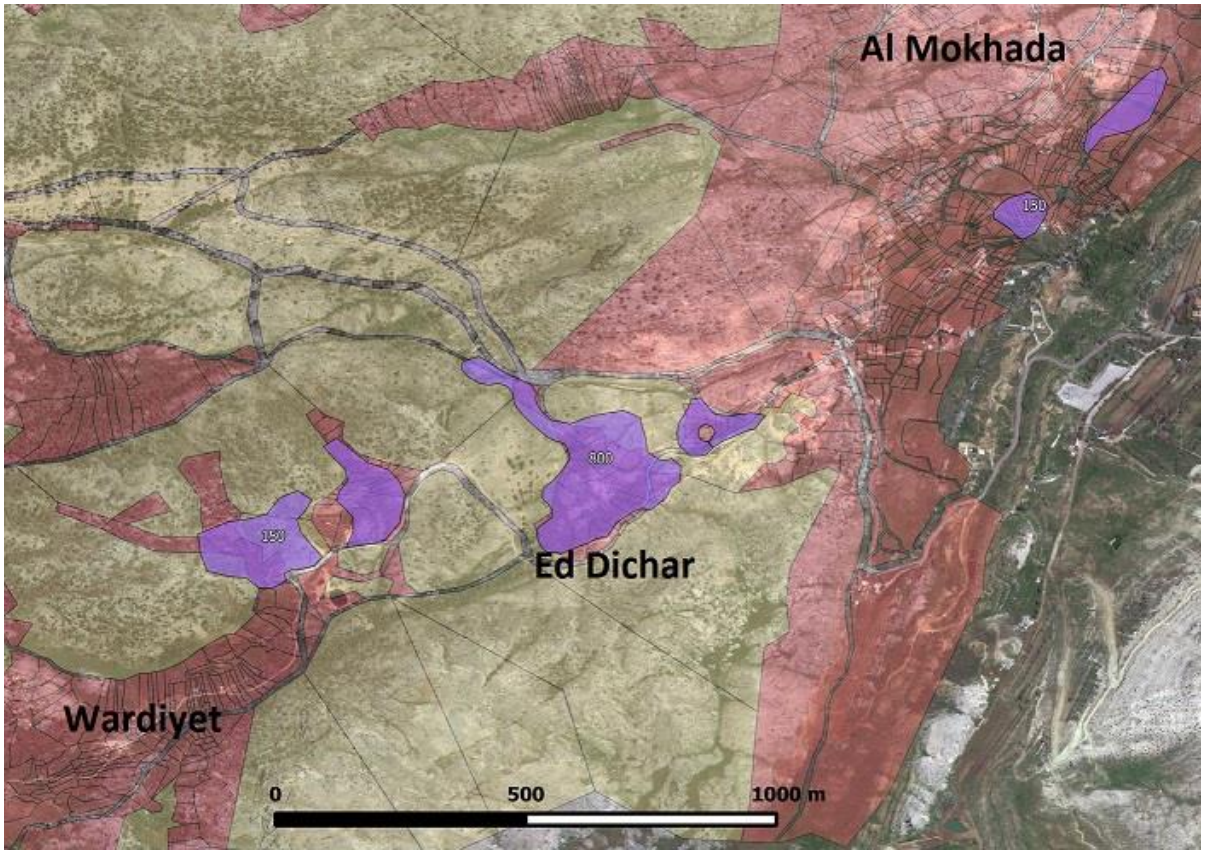
Type of designation for the protected area	Stakeholders involved	Date	Outcome	Reasons
1 - ***Natural Site*** designation of the plots where *Iris sofarana* occurs	-Mayor -Imane Khalife	December 2013	abandoned	Deprivation of the landowners from their freedom to decide for their own lands (ref to the map)
2 - Creation of a complete ***Nature Reserve*** including the majority of Ehmej's public lands	-Mayor	January 2014	abandoned	The buffer zone of nature reserve will create problems to the adjacent landowners.
3 - Creation of ***Natural Site*** on four large public plots (# 3606 - 3607 -3608 - 3645)	-Town council -Lara Samaha (MoE)	July 2014	adopted	Protection of a large rocky slope with diversified natural habitats. The main drawback was that our targeted iris population was outside the plots chosen unilaterally by the town council. Thanks to further negotiations, an additional plot (# 3682) with irises could be added.
4 - **Special labeling** of private lands on which *Iris sofarana* is present	-Mayor -Imane Khalife -Charles Khalife -Eight landowners who own lands on which irises grow: Iskandar al Khoury, Michel Gebrael, Michel Nassif Abi Ramia, Farhat Barakat, Kamal Matta, Nader Daher, Jamil Khoury, Ziad Daher	October 2014	adopted	The landowners will warn us whenever they will plan to exploit their lands, so that we will manage a way to save the irises present on their plots.



The interweaving of private and public lands complicates the creation of a protected area:
Public lands in yellow, private lands in red.

1 – Natural site on private lands

In December 2013, our first meeting with the mayor and Imane Khalife ended in the possibility of simply designating all private lands on which *Iris sofarana* occurs as a "natural site". The legal framework that has to be designed was still left unknown and no one wanted to deprive the landowners of their rights to exploit their lands. One of the present spokespersons, Imane Khalife, was also concerned as she is a landowner. We gave a draft of legal framework that could be implemented, taking our inspiration from the legal framework of other already designated natural sites in Lebanon. Our spokespersons were supposed to study and discuss with the town council and then get back to us during our next meeting in January.

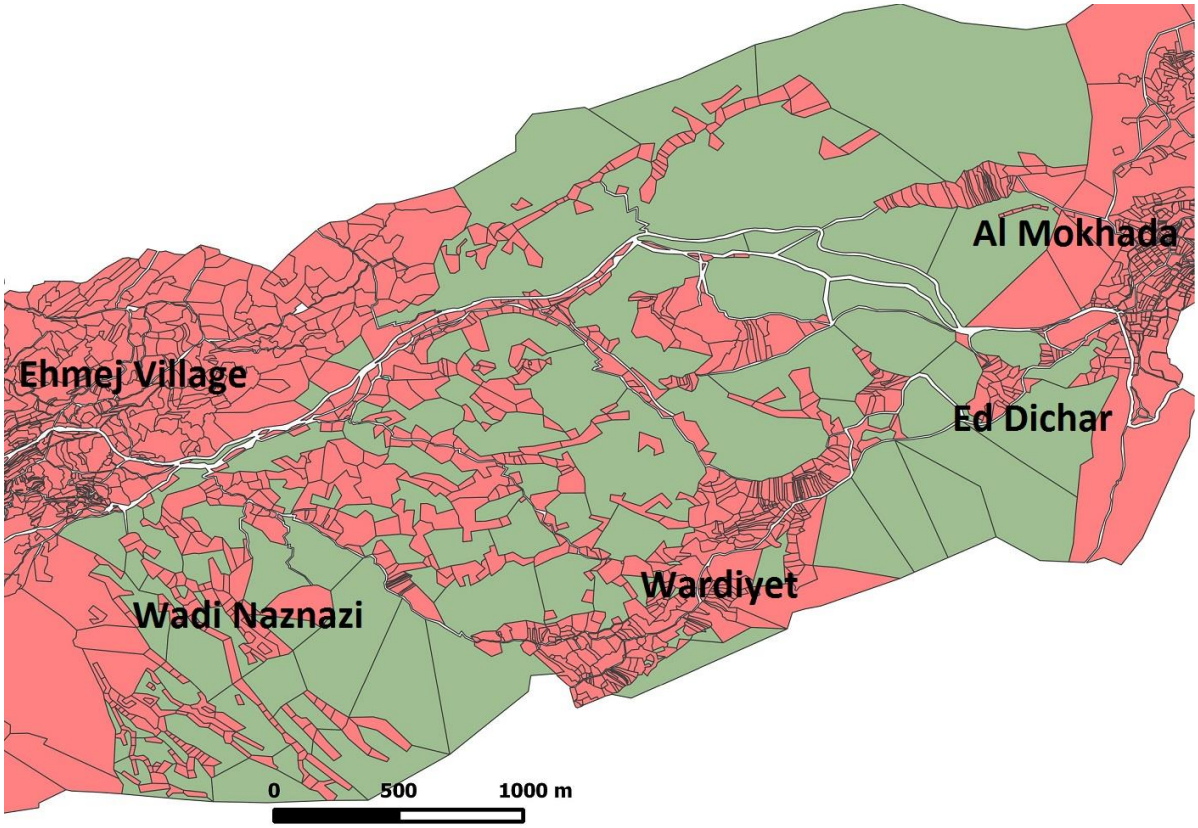


Populations of *Iris sofarana* (colored in purple) and number of rhizomes, mostly located of private lands

2 - Nature reserve

In January 2014, we were then proposed to integrate the totality of the public lands to create a large protected area that would be designated as “natural reserve”. With a total area of about 600 ha, it would have been one of the largest natural reserve of Lebanon. This wide area would have included the Iron oak forest and its very important biodiversity. There are no protected areas that include this kind of forest in Lebanon despite the biological richness and rarity that it shelters.

We were very excited by this proposition, however we were still brainstorming with our spokespersons to see how we could deal with the presence of many private lands between the public lands. The interweaving of private and public lands hindered this possibility. The most plausible solution was to design two legal frameworks, one quite restrictive for the public lands, and another more flexible for the private lands. Most of the private lands are stuck within large patches of public lands, between steep rocky slopes and are remote from the roads. Except for the ones located in Wardiyet which are planted with apple trees, these private lands are unexploited. A few shepherds benefit of this situation because they use these isolated grasslands in thalwegs as pastures. The legal framework for these private lands would have been to forbid any kind of construction and to allow only agricultural activities. It would have similar to the system of “Parc Naturel Régional” in France, but with a more restrictive legal framework.



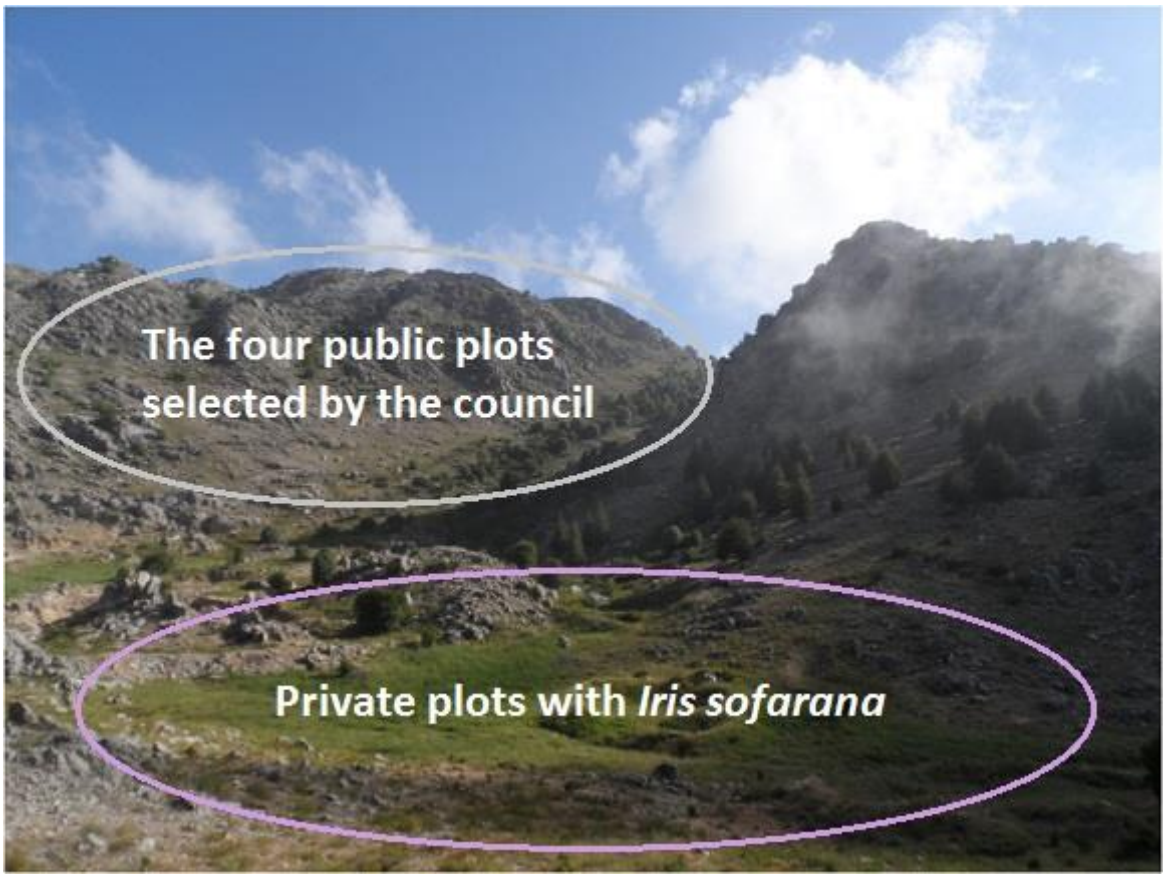
The hypothetical Nature Reserve of Ehmej (colored in green) with an total area of almost 600 ha

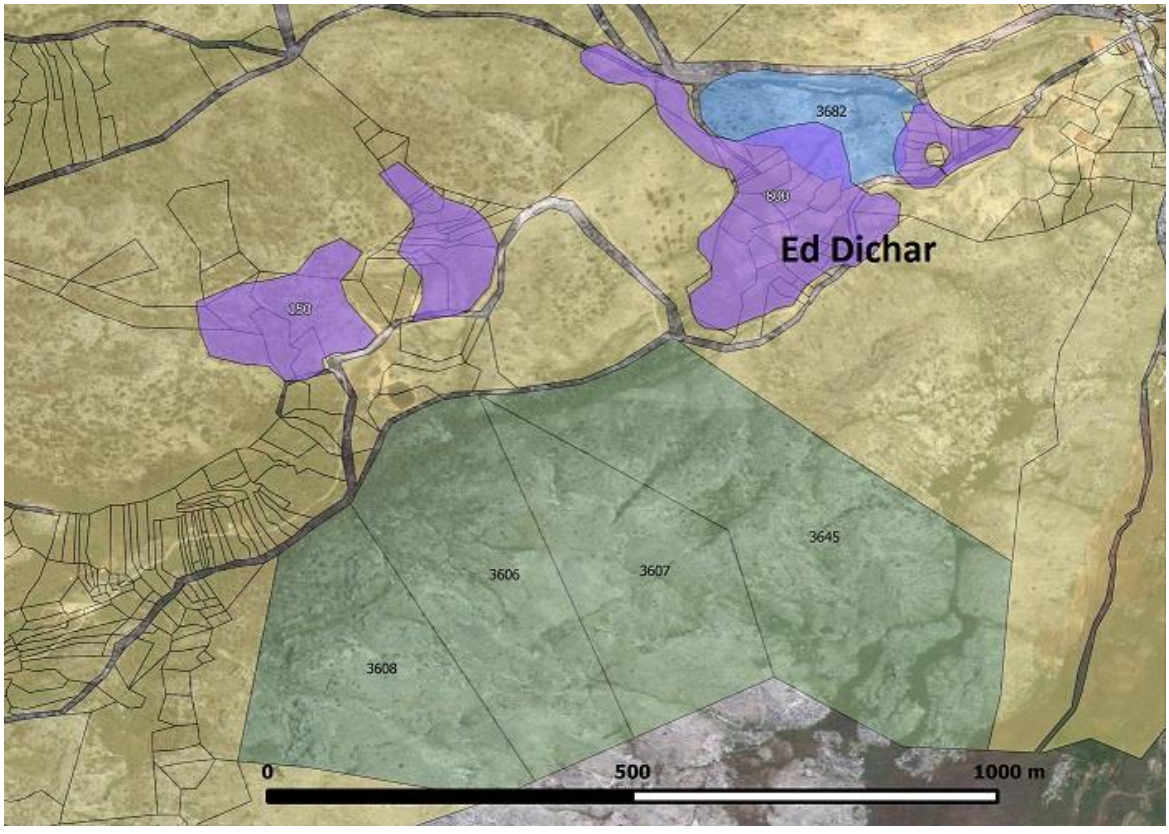
3 - Natural site on public lands

In July 2014, we organised a meeting with the members of the town council and the head of Department of Ecosystems at the Ministry of Environment (MoE), Lara Samaha. The aim of this meeting, which lasts few hours, was to discuss with the municipality of Ehmej the kind of designation for protected areas that would suit the best. Apparently, the members of the town council got scared by the restrictive legal framework and drew back about all their previous propositions.

We were informed few weeks later in September that the town council did not want anymore to create a natural reserve in Ehmej. They would agree to allocate four public plots to make a micro-reserve for the iris. The most disappointing thing was that no iris was present on these four plots. At this moment, we really felt a misunderstanding with the members of the town council and we had a feeling of having wasted a lot of time. More than 70% of the floristic inventories during the spring and summer 2014 were carried out in the forest and on other slopes, which means outside of these four plots.

Finally, with some other negotiations over the phone, we managed to get another fifth plot for the PMR on which a large part of the iris is present. Therefore, our conservation efforts are going to concentrate on the iris population of Ed Dichar. We were told that other public lands supposed to be designated as "natural reserve" would be designated as "*hima*", so that the municipality would manage the legal framework itself without having the MoE involved.





The four plots that were chosen by the town council to create the micro-reserve (colored in green), the fifth plot added later on (blue) and the iris populations (purple)

Table showing information about the selected plots Ed Dichar

Plot Number	Area [m2]	Perimeter [m]
3682	40510.8	889.73
3607	109104.4	1416.579
3606	115506	1552.042
3645	199389	2181.355
3607	99608.51	1481.182
Total	**564118.71**	

4 - Special labelling for private plots on which** Iris sofarana **occurs

Although we could manage to protect one of the three iris populations of Ehmej, we are still worried by the fate of the other populations. Another solution would be to ask every landowner who owns lands on which irises grow to warn us when they will plan to exploit their plots. Therefore we organised in October 2014, with the help of the mayor, a meeting that would gather all concerned landowners. Many landowners accepted the idea and nine of them came to the meeting. The deal is that their lands would be subjected to municipality control whenever they will be asking a permit to the municipality or when any change in the land use is planned, for example if they plan to plough their field.

An Environment Impact Assessment (EIA) should be prepared and some time will be given to Saint-Joseph University and the municipality to do whatever possible to save the irises. The most plausible solution would be to replant the rhizomes in other public lands.

Meeting with the landowners in the municipality of town hall of Ehmej, December 2014

5 - Current situation

The five public plots should constitute the future micro-reserve. The four plots selected by hte town council are located on the same rocky slope and have a total area of 52,36 ha. With the fifth plot, the total area is about 56,41 ha but separated into two patches. The application file for the designation of these plots as "natural site" is in preparation for its introduction to the MoE in January 2015. It constitutes of several documents, including maps, approval of the municipality, the legal framework of the PMR and a scientific report highlighting the reasons of the designation.

B.3 Public communication

So far (December 2014), we did not communicate publicly our intention to all the villagers of Ehmej. Nevertheless many of them are already informed of our intentions and of the project. The municipality plays a great role in communication and we will collaborate with them for any further communication concerning the micro-reserve.

Most of the trails are already marked out by the municipality, including the one that goes through Ed Dichar. The signalization on site will be set up with an explanatory board displaying the reason for the creation of the PMR and the biological features of *Iris sofarana*.

C. Criteria for eligibility of affected persons

No group were identified as eligible for any kind of assistance as no one is benefiting of the site. The municipality of Ehmej is the only landowner of the five selected plots. The local hunters won't be worried by the PMR and the municipality is already managing hunting.

D. Measures to assist the affected persons

As no one is affected by the creation of this micro-reserve, no system of assistance was set up. The municipality of Ehmej will directly benefit of the micro-reserve for its policy of ecotourism, showing its efforts to preserve the natural patrimony of the region.

E. Conflict resolution and complaint mechanism

The most threatening projected conflict could be that all the landowners in the surroundings of the PMR decide to build houses. This would greatly affect the environmental quality of the PMR. We are powerless concerning the decisions of private owners and even the municipality is not competent to go against the will of the villagers.

However, some solutions are worth considering to avoid this kind of issues and to ensure a larger protected area. Indeed during our last meeting with the landowners, one of the landowner who owns plots in the iron oak forest (about 40 000 m²) offered to exchange his lands for public lands that are located next to roads and on which they could build easily. This option is under study by the

lawyers of the municipality. If the municipality carries on with this eco-friendly policy, many lands sheltering forests and other natural habitats could be saved from destruction.

In case a conflict arouse 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.

View on the village of Ehmej, December 2014

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