

BIODIVERSITY MONITORING

WEST BEKAA & MOUNT LEBANON

Syrian serin (*Serinus syriacus*) © SPNL

MOUNT LEBANON IS ONE OF LEBANON'S EIGHT GOVERNORATES. IT STRETCHES FROM THE MEDITERRANEAN COAST TO THE MOUNTAINS.

The Shouf Mountain Landscape is located in the Shouf district. It comprises the southern half of Mount Lebanon and the adjacent West Bekaa foothills and includes the Shouf Biosphere Reserve (SBR) and 3 *hima*¹ sites namely, Kherbet Kanafar, Ain Zebdeh, and Aitanit.

The main traditional practices can be summarized as follows:

- **Grazing**, by which high mountain pastures are traditionally used for seasonal grazing during summer. Transhumance is part of the traditional grazing system to overcome seasonal environmental constraints. Its governance is regulated by *hima* and communal systems for long and short distance movements in the West Bekaa. High mountain pastures and forests host a significant number of endemic plants, more than 250 species of birds - being part of the Eastern Mediterranean Flyway - and breeding populations of Grey wolf (*Canis lupus*), Striped hyena (*Hyaena hyaena*), Jungle cat (*Felis chaus*) and Wild cat (*Felis silvestris*).
- **Dry stonewall terraces cultivation of olives**, vineyards and a variety of fruit trees, which is a very ancient tradition with more than 5,000 years of history in Mount Lebanon. Terra cultivation represents a cultural heritage and legacy in Mount Lebanon and West Bekaa
- **Harvesting of wild medicinal/edible plants**, by which more than 200 wild plant species of mountain flora have been traditionally used in medicine, cosmetics and cooking, many of which are still harvested by the local communities - mainly by women.

1 traditional communal governance system in West Bekaa to sustainably manage natural resources



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Nowadays, the cultural landscape and its associated traditional practices are impacted by various threats:

- (i) Forest loss, degradation and fragmentation due to intense logging, wood and fodder collection,
- (ii) Overgrazing caused by the decline of traditional transhumance systems including *hima*, and by land tenure changes;
- (iii) Uncontrolled harvesting of non-wood forest and pasture products, threatening the natural populations of some species;
- (iv) Environmental threats, which are exacerbated by climate change: land degradation caused by rural abandonment, forest fires caused by the burning of agriculture waste and the accumulation of dry biomass on abandoned land, urban sprawl caused by unregulated spatial planning;
- (v) Lack of economic incentives to reverse rural abandonment and unemployment, which mostly impact women and youth.

1. OBJECTIVES

- To monitor and assess biodiversity and soil in order to generate knowledge and understand the link between cultural practices, biodiversity, and human/ socio- economic wellbeing at cultural landscape level.
- To develop and implement an ecosystem services assessment that will evaluate the different services provided by the landscape and the ecosystem from a social, ecological, and economic point of view.
- To highlight the benefits of biodiversity-friendly cultural practices for the human wellbeing of communities in West Bekaa/Mount Lebanon pilot sites.

SELECTED INDICATORS

- Plants
- Birds
- Beneficial insects
- Soil
- Other indicators (mammals, reptiles...)

2. METHODS

2.1. METHODS PHASE 1

2.1.1. AVIFAUNA

METHODS FOR DATA COLLECTION

The data collection was conducted during the breeding season (spring) and migration period at proposed point counts or between point counts of the sites, and at control sites (Vantage Points), if needed. The gathering of data mainly relied on the breeding species because of their connection to the habitat.

Point-Count method

The 20-minute Point-Count method was used to monitor birds during the breeding seasons, whereby all species noted during this period are recorded at different places and different times in the study area. This method is semi-quantitative to quantitative as it depends on whether it is recording frequency of species or number of Individuals. It measures changes in abundance of a species that are estimated directly or by changes in the frequency of the species over a series of point counts. In autumn (migration season), it is preferred to use transect methods.

Transect method

Transects were also used between Point Counts during the spring season and they are referred to as the "survey area" or "monitoring area", comprising an approximate 250 m buffer area. The transects should be counted at a number of times during each season depending on the objectives set in the monitoring plan.

Sampling pressure

9 plots included in 3 sampling areas were used to collect bird data.



2.2. METHODS PHASE 2

Based on the results, the biodiversity monitoring protocols were updated and simplified.

Monitoring of **plants** consisted mainly of conducting transects and quadrats to assess the floral richness of the targeted *hima* sites. Visual estimation and photography were used to help in providing an accurate picture of the plant life in the area. Another method of data collection was estimating details on vegetation cover and frequency and calculating species richness, abundance, and diversity.

The data collection of **birds** was conducted through 20-minute Point-Count and transects methods to monitor birds during all the months of the year (weekly or biweekly visits, depending on the season). Resident and breeding birds are assessed during the breeding season (spring), while the raptor count is done during the autumn migration.

Monitoring of **mammals** was done through gathering information from interviews with locals; conducting transect surveys of the areas during daytime where direct and indirect signs of mammals is recorded along each transect; assessing bats diversity using passive and active bat detectors; installing camera traps and live traps for rodents during spring and autumn.

For **herpetofauna**, the data collection was performed through conducting transect surveys, but also searching potential reptile habitats with a flashlight at night (mainly for geckos), searching skins shed and gathering Information from interviews with locals.

3. CONTACT

Alliance for Mediterranean Nature and Culture

<https://www.mednatureculture.org/>

SPNL- Society for the Protection of Nature in Lebanon

<https://www.spnl.org/>

IUCN Centre for Mediterranean Cooperation

<https://www.iucn.org/our-work/region/mediterranean>

Tour du Valat

<https://tourduvalat.org/>

MAVA Foundation

<https://mava-foundation.org/oaps/promoting-sustainable-land-use-practices-2/>



Plain Tiger
(*Danaus Chrysippus*)
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