CREMISAN VALLEY SITE MANAGEMENT TO CONSERVE PEOPLE AND NATURE

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Abbreviations

ACs	Current Agricultural Cooperatives in the WHP
CCHP	Centre for Cultural Heritage Preservation
EIA	Environment Impact Assessment
EQA	Environmental Quality Authority
HIA	Heritage Impact Assessment
IUCN	International Union for Conservation of Nature
JSC	Joint Services Council
JSCTDB	Joint Service Council for Tourism Development of Bethlehem Governorate
MDLF	Municipal Development and Lending Fund
MoA	Ministry of Agriculture
MoC	Ministry of Culture
MoE	Ministry of Education
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
MOH	Ministry of Health
MoI	Ministry of Interior
MoL	Ministry of Labor
MoLG	Ministry of Local Government
MoM	Ministry of Media
MoTA	Ministry of Tourism and Antiquities

Executive summary

A study of the site ocf Cremisan monastery and valley (Wadi Ahmed) showed it to be a significant landscape, natural (faunal and floral biodiversity) and cultural heritage. The valley is an extension of (and should be considered part of) the adopted UNESCO world heritage site in the south Jerusalem area. The landscape was shaped by rock formations dated to late Cretaceous times (95 to 82 million years ago) with interesting fossils of marine fauna. The habitats include natural forests (oak dominated), garigue shrubland, and cultivated lands. The area is *rich* in biodiversity with over 208 species of vascular plans, 19 mushroom species, three species of amphibians, 12 reptiles, 69 birds, nearly 30 mammals, and hundreds of species of invertebrates (including 20 species of butterflies). Twenty-two plants are aromatic and medicinal and many are rare and/or endemic. Ornamental plants like *Iris vartanii*, *Ophrys irricolor*, *Ophrys sphegodes* and *Salvia indica* can be of significant attractions. Human history including the Cremisan monastery history and facilities provide very rich cxultural heritage. Both natural and cultural heritage in the valley are threatened by a number of issues ranging from geopolitical issues (like the expanded borders pof Jerusalem traht annexed part of the balley and monastery land) to Israeli colonial activities including residential Jewish-only settlements (Gilo and Har Gilo) and the segregation and annexation wall to human solid waste and urban expansion. A management plan is developed that includes these elements:

1) Setting up three zones: 'A' being area to protect diligently for conserving fauna and flora; 'B' Being a zone of partial degredation to minimize human interference, 'C' area of human activity. Further development of new orchards can be done in an area near C
2) Four paths for tourism and ecotourism would be set up with various degrees of control and management
3) Educational programs modeled after the three pilot educational programs done by PMNH/PIBS at the site for school children. These can be expanded to summer camps.
4) Botanic garden can be developed near the entrance of the monastery (but need to incorporate local species)
5) Agricultural activities can be expanded beyond the current systems relying on grape orchards, olives, and few other fruyiting trees to develop p[ermaculture systems and organic produce production.
6) A small restaurangt can be operated relying on some of the produce from the garden. This can be a good addition to existing facilities that are being rented out for events like gatherings, meetings, wedding photos etc.

1 Introduction

The area south of Jerusalem and bordering on Bethlehem is a biodiversity rich area. It is one of 13 Important Bird Areas in Palestine. It is rich in cultural and natural heritage and a large part of it was designated a UNESCO World Heritage Site (WHS). Our initial studies in the areas focusing on Wadi AlMakhrour was pivotal for protection and controlled (eco)tourism in the area (project funded by National Geographic Society and Darwin Initiative). Yet the system of valleys did include some areas not studied yet such as Cremsan (Wadi Ahmad) valley and Wadi Fukin. These areas are mostly included in area C of the West Bank (Israeli military and civilian control on Palestinian areas), and having marginalized villages, the local communities of humans and all living things have been threatened by both Israeli settlers' and locals' activities. The challenges to biodiversity include harmful agricultural practices, lack of awareness of local people, construction of settlemenst, urbanization, habitat loss, and land fragmentation. Poverty in the area is impacted by the occupation, abandonment of agriculture, and poor planning of productive and sustainable practices (such as ecotourism). The study of Wadi Al-Makhrour area provided a model for the work we did in Cremisan at the behest of the monastery. TRhe biodiversity strategy developed for Al-Makhrour (https://bit.ly/3awVv8s) was adopted and amended to the UNESCO WHS management plan (see https://bit.ly/3B7WCK9). Four marginalized communities (Al-Walaja, Battir, Husan, and Beit Jala) benefited in the targeted area of the earlier project via: a) working with 80 farmers in the four communities, which enhanced their (healthier) agricultural production while protecting the environment, b) developing women cooperatives in the communities and empowering them in areas ranging from production to marketing, and c) enhancing ecotourism in the area, which in-effect enhanced both biodiversity and the local economy. The project gave positive outcome to natural and human communities in a critical area.

This earlier project produced research reports and publications, developed databases relating to fauna, flora, habitats and threats, generating management plants (key biodiversity aspected amended to the WHS MP), training (capacity building) for locals and others, developed ecotourism trail band information (including brochure for ecotourists and signs in the valley path), designed more than 10 educational modules, implemented restoration scheme in selected three Donums of the area, and benefitted more than 400 households (farmers and women entrepreneurs).

The current project was an extension to the area of Cremisan val;ley which has its unique natural cultural attributes (e.g. monastery, different threats, different opportunities). The Overall Objective of this project was to devellp a plan to protect and promote the historic and natural heritage of Cremisan while benefitting both the local Palestinian population (primarily Al-Walaja and Beit Jala) as well as the religious community of the monsastery of Cremisan. The plan would include studies of the area including a SWOT analysis and this would lead to:

1) Building a partnership between key stakeholders towards conservation effort that are based on scientific studies

2) Promoting responsible visitation/tourism that respects nature as the religious community.

3) The plan also includes awareness and education among the local people via education about the site and environmental issues

2 Location

Cremisan valley, a valley that is four kilometers south of the old city pof Jerusalem and xx kilometer northwest of the old city of Bethlehem. It is a part of three valley system with the other two valleys recognized as a UNESCO world heritage site (Fig. 1)

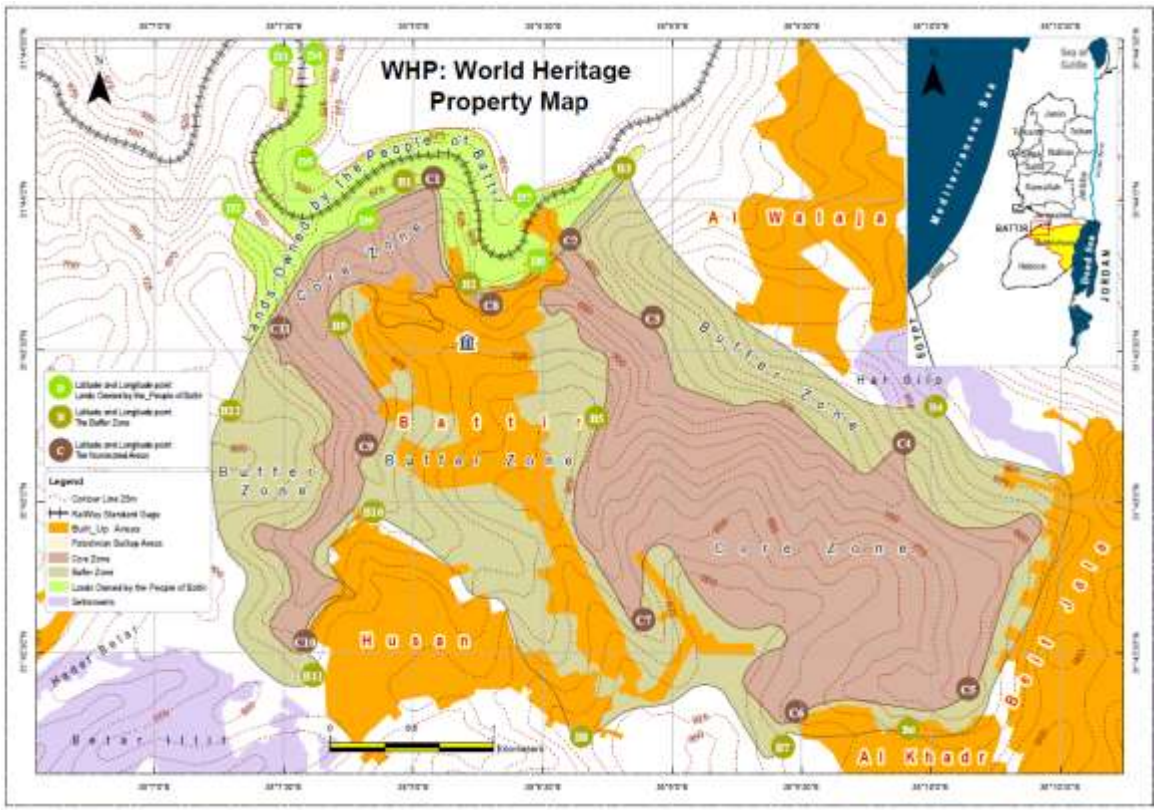

Figure 1: Map of World Heritage Site

Cremisan Valley is part of a valley system that drains the mountains south of Jerusalem. The system includes four valleys that have running water only during the winter months (wadis): Cremisan (Wadi Ahmed), Al-Makhrour, Wadi Husan (Wadi Al-3youn), and Wadi Fukin. All the valleys drain to the northwest. Cremisan valley is located between the two Israeli settlements Gilo Settlement to the east of the Valley and Har Gilo Settlement, to its southeast (Khalilieh 2020; Gianazza 2020; Saca 2020; Qumsiyeh 2020). Wadi Cremisan is thus affected by the colonial settlement expansion which impacts its biodiversity (see section 7 on threats).

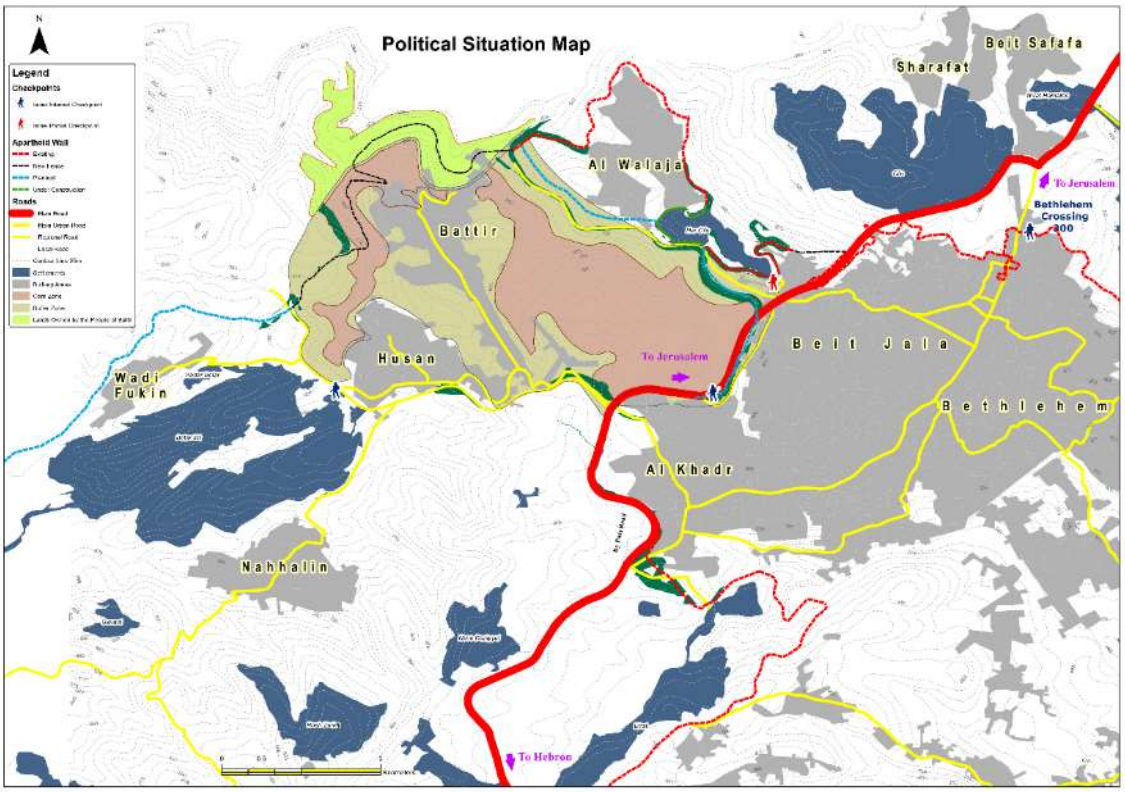

Fig. 2 Location of Cremisan (Wadi Ahmed) |Valley is between Al-Walaja and the colony of Gilo and just northwest of AlMakhrour area WHS.

Wadi Al-Makhrour already has ecotourism hiking trails and in partnership with the Environmental Quality Authority, our team marked one more trail for ecotourism (hiking) in Al-Makhrour valley and put some signs (Fig. 3). The target vally here is in the central highlands Palestine, which extends from Jenin in the north of Palestine to Hebron in the south (Juha 2020) and the 1967 border (Society of St.Yves 2015, 4). Since the mid-nineteenth century, the Cremisan Valley has been associated with the Salesians of Don Bosco, who constructed the Monastery and the Convent to serve the local community in the surroundings towns and villages nearby (Gianazza 2020). The Valley includes a series of agricultural terraces and farming lands extending along the south-western sloped of Wadi Ahmad, and extending from Bir Onah in Beit Jala towards the village of el-Walaja in the west (Juha 2020).

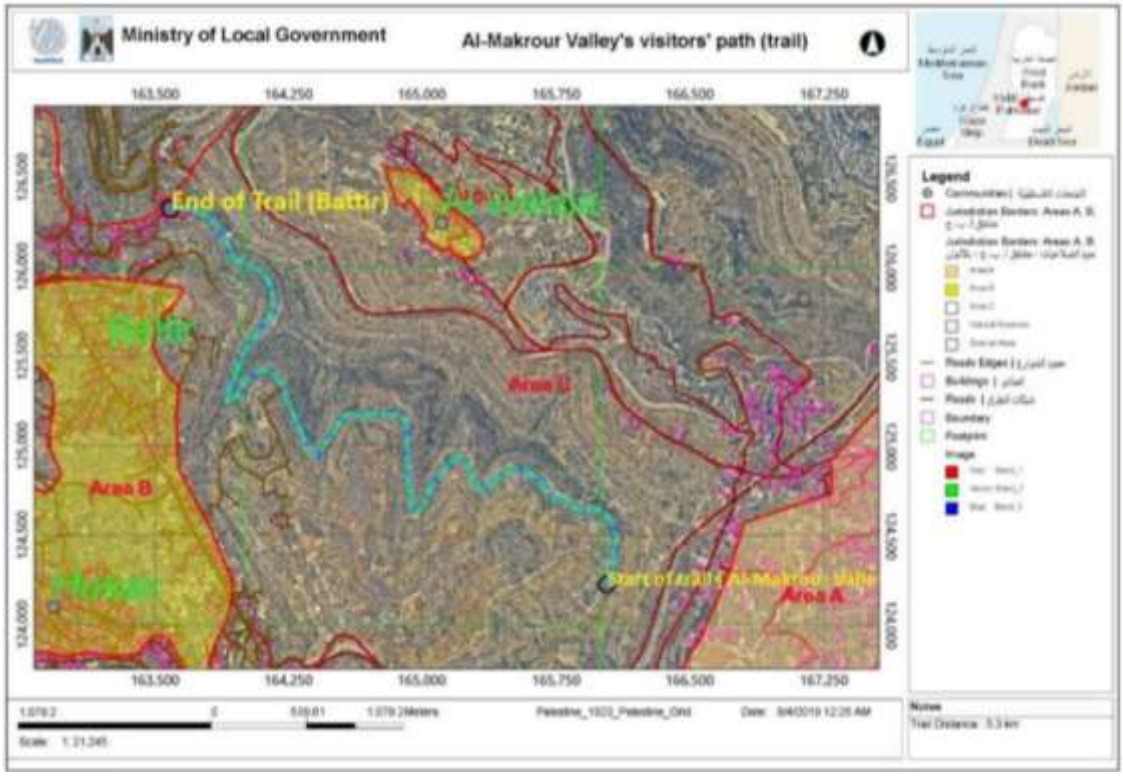

Figure 3: Map showing the location of Al Makhrour valley and the proposed tourism route

The land of Cremisan area itself is a land of terraced and natural hills surrounding the buildings of the monastery (Fig. 4)

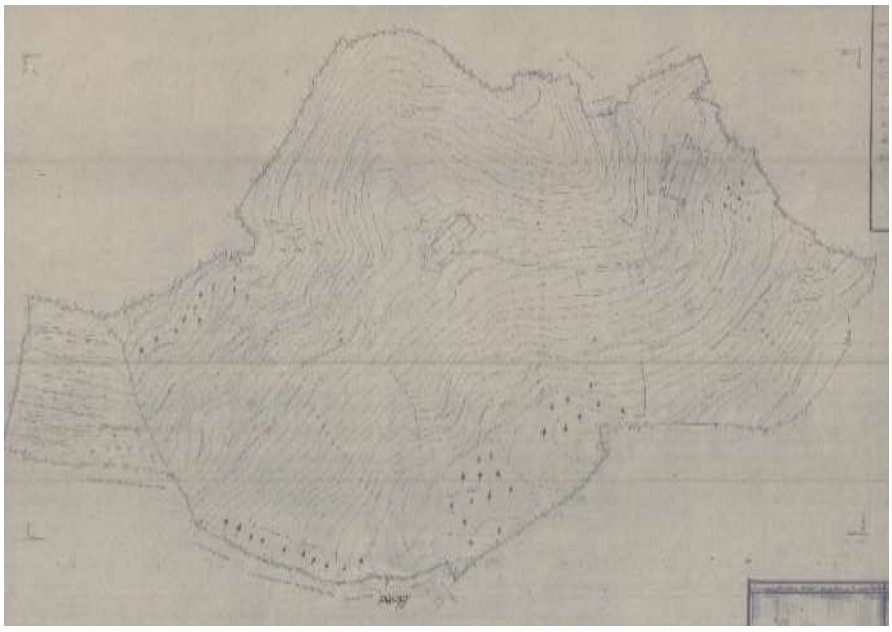
Fig 4. Cremisan area map above as provided showing property owners hip

The overall components of Cremisan Monastery and its surroundings are essential parts of the buffer zone. The buffer zone proposed surrounds Cremisan Valley from its four sides, except for a strip along its south-western side; where the buffer zone is interrupted by the Israeli settlement of Har Gilo; separating Cremisan Monastery from el-Walaja village and the agricultural area of Al-Makhrour Valley. The buffer zone includes the eastern slopes of Wadi Ahmad, a strip of agricultural lands that separates the northern part of Cremisan Valley in the Armistice line. It is worth noting that "a considerable part of the Annexation Wall is steady built, and its continuous construction will cut off these lands from Cremisan Valley, which, in turn, will have a hugely impact on the integrity of the site" (Khalilieh 2020).

Cremisan Valley is the property of the Salesians of Don Bosco (SDB) and the Salesian Sisters of Don Bosco, a religious Congregation of the Roman Catholic Church (Gianazza, 2020), owned by the Latin Patriarchate in Jerusalem. Furthermore, part of the Cremisan Valley belongs to the inhabitants of Beit Jala and the village of el-Walaja. The main routes and road network are public property, managed by Beit Jala Municipality; el-Walaja Village Council; each within its borders (Juha 2020). The main routes leading to Cremisan Monastery and the Convent and other related facilities are considered private property and are managed by the Salesian Brothers of Don Bosco (Gianazza 2020). The main road passing along Wadi Ahmad is declared military and is off-limits to most locals (Khalilieh 2020).

3 Geology and Paleontology

Palestinian geologic studies proliferated with the increased interests of Europeans in Palestine in the second half of the 19th century (see Benzinger1895; Blanckenhorn, 1896, 1925; Lartet 1873; Lynch, 1852; Russell 1888). Recent literature showed that the tectonic movements resulted in multiple openings and closing of the sea basins and uplifts that produced the rich fossil fauna of the Eastern Mediterranean region (Lewy 1990; Ben-Avraham et al. 2002). Of the various geologic eras studied in our region, the Mid Cretaceous (particularly Cenomanian 93-100 MYA) provided an interesting assemblage of geological and paleontological material (Braun and Hirsch 1994; Philip 1978). Most of the outcropping rocks in Bethlehem area were deposited under shallow warm sea conditions in the late Cretaceous times from the Late Cenomanian (95 million years ago) to Late Santonian (82 million years ago). The rock column starts with medium-thick fractured hard dolomitic limestone with thin marl interbreeds that grades upward to be of thick marls and chalks which dominate the whole geologic column with occasional occurrence of medium-hard, thin limestone beds. A major fault directs NE-SW lead to the sinking of the eastern part of the area relative to its western part. The outcropping of these soft and thick rock successions made them target for erosion factors leading to the formation of steep hillsides around the city of Bethlehem, especially in the eastern and northern side. As well-known in geology, these thick limy strata were also suitable sites for karst phenomena and the formation of many caverns and underground caves making the area good as shelter for first man and his cattle (Fig. xxx). The Geoology of Cremisan Valley was studied in detail by David Scarpa (1990). Om this area the valley was cut over millions of years exposing cretaceaous rocks especially on the eastern side

(below Al-Walaja). The western side is the more clultivated ands less steep side, terraced probably going back thousands of years for some agricultural terraces.

Fig. 5. Fossils are common in the valley and a small collection is in the monastery

Fig. 6. Examples of Cenomonian fossils: Pholadomya, Cardium, Hemiaster syriacus, Fasciolaria safrensis

4 Flora and habitat description

The plant biodiversity inventory for Cremisan Area was done based on field surveys, measurements and inspection by specialized expert through random walking in the area. The plant biodiversity inventory was done from February 2021 to April 2021. The classification of plants was based on the long experience of Mr. Banan Al-Sheikh in studying and classifying plants in Palestine, in addition to using some plant classification books and publications (Fragman et al.,1999; Al sheikh et al., 2000; Al sheikh, 2018; Al sheikh, 2019; Shmida et al., 2007; Zohary & Feinbrun-Dothan,1966, Zohary, 1972; Zohary & Feinbrun-Dothan, 1978, Zohary & Feinbrun-Dothan, 1986). Dissecting microscope was used to classify some plants inside the herbarium in the museum. Pictures of plants were taken in the field and some samples were collected and entered into the herbarium of the Palestine Museum of Natural History.

Below is a brief highlight of important plant and habitat findings. The valley included the following habitats:

1. Man-made forest mainly pine mixed with maquis: This habitat is found mainly in areas west to the monastery, with some patches to the east and south-east respectively. This habitat is composed mainly with planted Pinus halapensis mixed with other natural vegetation of Qercus calliprinos, Rhamnus palaestina, Pistacia palaestina, Cistus creticus, cistus salviifolius, Calicotome villosa and dwarf shrubs of Coridothymus capitatus , Fumana thymifolia and Thrinicia tuberosa.

2. Maquis[1] in fallow olive groves: This habitat is mainly found in areas to the southern and south-eastern sides of the Cremisan Monastery. It composed of scattered old Oak trees (Qercus calliprinos) in hedgerows (Hedgerow: is a line of closely spaced shrubs and tree species, planted and trained to form a barrier or to mark the boundary of an area. Hedges used to separate a road from adjoining fields or one field from another, and of sufficient age to incorporate larger trees, are known as hedgerows) of fallow olive grooves accompanied with different kinds of dwarf shrubs. Sarcopoterium spinosum, Teucrium divaricatum and smilax aspera

3. Fallow olive groves: This habitat is mainly located in the eastern part of Cremisan, where there are wide spread olive groves neglected and only visited for harvesting The plant associations in this habitat are Asparagus aphyllus, Andropogon distachyos, Calicotome villosa, Carlina curetum, Sarcopoterium spinosum and many grasses.

4. Garrigue in fallow olive groves: This ecotone is found mainly to the northern part of the Cremisan Monastery namely towards the village of Al-Walaja. This ecotone is composed of fallow olive groves with dense vegetation of Coridothymus capitatus, in addition to other dwarf shrubs such as Teucrium divaricatum, and Thymbra spicata.

5. Terraces of grapes and Apricot trees: This man-made ecotone is found in different patches along the Cremisan Cultural landscape area, and mainly in and around the Monastery. This ecotone is dominant with planted fruits such as Grape and Apricot, which is considered to be important local race.

6. Batha and Garrigue habitat: This habitat support the growth of shrub/subshrubs and herbaceous species. Of the main species are Phlomis viscoa, Cistus spp., sarcopoterium spinosum, coridothymus capitatus, Calicotome villosa, Bellis sylvestris, Teucrium creticum, and many others

A total 208 vascular plant species observed belong to 155 genera falls into 46 families (Annex 1) were recorded in the survey of Cremisan in spring only while the West Bank has 1614 Plant species (Al sheikh, 2019). The most dominant plant families are Compositae, Labiatae, Poaceae and Umbelliferae. This richness is due to diverse habitats, which forms a supporting environment for the growth of diverse plant species. The total number of trees, shrubs and vines species surveyed are 47 belonging to 21 families (Table 1).

The dominant trees are Pinus halapensis, Quercus calliprinos and Olea europaea in the east, while Cistus creticus, Cistus salviifolius and Coridothymus capitatus are the dominant shrubs.

[1] **Maquis:** dense scrub vegetation consisting of hardy evergreen shrubs and small trees

Table 1: Most dominant plant trees, shrubs and vine species in Cremisan area

species name	Common Name	family	status	IUCN	GF
Acacia saligna		leguminosae	C	N/A	T
Amygdalus communis	Wild Almond	Rosacaea	CC	N/A	T
Arbutus andrachne	Eastern strawberry Tree	Ericaceae	C	LC	T
Asparagus aphyllus	Prickly Asparagus	Asparagaceae(Liliaceae)	CC	N/A	V
Ballota saxitilis		Labiatae	C	N/A	S
Calycotome villosa	Spiny Brome	leguminosae	CC	N/A	S
Ceratonia siliqua	Carob	leguminosae	C	LC	T
Chiliadenus iphionoides	Goldy-Locks	Compositae	CC	N/A	S
Cistus creticus	Soft-Hairy Rockrose	Cistaceae	CC	N/A	S
Cistus salviifolius	Sage-Leaved Rockrose	Cistaceae	CC	N/A	S
Coridothymus capitatus	Headed Thyme	Labiatae	CC	LC	S
Crataeagus aronia	Spiny Hawthorn	Rosacaea	C	N/A	T
Cupressus arizonica		Cupressaceae	F	N/A	T
Cupressus sempervirens	Funeral Cypress	Cupressaceae	C	N/A	T
Cupressus sp.		Cupressaceae		N/A	T
Ephedra aphylla	Leafy shrubby Hosetail	Ephedraceae	CC	N/A	S
Eucalyptus camaludensis	River Red Gum	Myrtaceae	C	N/A	T
Ficus carica	Fig	Moraceae	CC	N/A	T
Fumana arabica	Arabian Cistus	Cistaceae	C	N/A	S
Fumana thymifolia	Clammy cistus	Cistaceae	CC	N/A	S
Inula viscosa	Clammy Inula	Compositae	CC	N/A	S
Kickxia aegyptiaca	Egyptian Toadflax	Scropholariaceae	C	N/A	S
Lonicera etrusca	Italian Honeysuckle	Caprifoliaceae	C	N/A	V
Micromeria nervosa		Labiatae	C	N/A	S
Osyris alba	Poet`s Cassia	Santalaceae	C	N/A	S
Phagnalon rupestre	African Fleabane	Compositae	CC	N/A	S
Pinus c.f brutea	Cyprus Pine	Pinaceae	F	N/A	T

Pinus canariensis	Canary Pine	Pinaceae	R	N/A	T
Pinus halapensis	Aleppo Pnie	Pinaceae	CC	N/A	T
Pistacia palaestina	Palestine Terebinth	Anacardiaceae	CC	N/A	T
Pistacia vera	Pistachio	Anacardiaceae	F	N/A	T
Prasium majus	Great Hedge-Nettle	Labiatae	CC	N/A	S
Pyrus syriaca	Syrian Pear	Rosaceae	F	LC	T
Quercus calliprinos	Kermes Oak	Fagaceae	CC	LC	T
Quercus ithaburensis	Mt. Tabor Oak	Fagaceae	R	LC	T
Rhamnus palaestinus	Palestine Buckthorn	Rhamnaceae	CC	N/A	S
Rhus coriaria	Sumach	Anacardiaceae	C	N/A	T
Ricinus communis	Castor-Oil Tree	Euphorbiaceae	C	N/A	T
Sarcopotrium spinosum	Prickly Burnet	Rosacaea	CC	N/A	S
Satureja thymbra	Savory of Crete	Labiatae	CC	N/A	S
Smilax aspera	Rough Bindweed	Smilacaceae	CC	N/A	V
Spartium junceum	Spanish Broom	leguminosae	R	N/A	S
Tamus communis	Common Black Bryony	Dioscoreaceae	CC	N/A	V
Teucrium capitatum	Cat Thyme	Labiatae	CC	N/A	S
Teucrium creticum	Cretan Germander	Labiatae	F	N/A	S
Teucrium divaricatum		Labiatae	C	N/A	S
Thymbra spicata	Spiked thymbra	Labiatae	F	N/A	S

Status: C= common, CC=very common, R= rare, F=frequent, GF=Growth Form: T=tree, S=shrub, V=vine, LC= Least Concern, N\A= Not applicable (not assessed)

Table 2: Rare species in Cremisan area

Species Name	Common Name	Family	Status	IUCN
Buglossoides incrassate		Boraginaceae	RR	N\A
Coronella cretica	Cretan Crown Vetch	Leguminosae	R	N\A
Erodium acaule	Roman strok`s Bill	Geraniaceae	R	N\A
Helianthemum syriacum	Lavender-Leaved Sun-Rose	Cistaceae	R	N\A
Iris vartanii	Vartan`s Iris	Iridaceae	O	LC
Limodorum abortivum	Violet Limodore	Orchidaceae	R	LC
Lomelosia argentea	Silvery Scabious	Dipsacaceae	RR	N\A

Medicago rugosa		Leguminosae	R	N\A
Ophrys iricolor	Iris Colored Bee Orchid	Orchidaceae	R	N\A
Ophrys sphegodes		Orchidaceae	R	LC
Oxalis pes-carpae	Nodding Wood-Sorrel	Oxalidaceae	R	N\A
Pinus canariensis	Canary Pine	Pinaceae	R	N\A
Quercus ithaburensis	Mt. Tabor Oak	Fagaceae	R	N\A
Salvia indica	Large-Flowered Sage	Labiatae	RR	N\A
Sedum hispanicum	Spanish stonecrop	Craculaceae	R	N\A
Spartium junceum	Spanish Broom	Leguminosae	R	N\A
Stellaria pallida		Caryophyllaceae	R	N\A
Thesium humile	Dwarf thesium	Santalaceae	R	N\A

Status: R= rare, RR=very rare, O= on the way to extinction
IUCN=International Union Conservation of Nature: LC= Least Concern, N\A= Not applicable(not assessed)

Iris vartanii, *Ophrys irricolor*, *Ophrys sphegodes* and *Salvia indica* are important as ornamental plants especially Salvia indica which is showy and big. While Cremisan has two young trees of Quercus ithaburensis which is rare in the West Bank. It has to be mentioned that up to now this species is not recorded in any place other than northern West Bank. Moreover, Arbutus andrachne is very rare in Cremisan and rare in the southern West Bank. It is concentrated and common in Ramallah area. 18 species are protected by law (table 3). The protection is due to many different reasons. Some species are rare like Salvia indica and orchids, others it takes long time to have new seedlings, while others are old like some trees so we have to protect them.

Table 3: Species protected by law

Species Name	Common Name	Family
Arbutus andrachne	Eastern strawberry Tree	Ericaceae
Crataeagus aronia	Spiny Hawthorn	Rosacaea
Limodorum abortivum	Violet Limodore	Orchidaceae
Lonicera etrusca	Italian Honeysuckle	Caprifoliaceae
Ophrys iricolor	Iris Coloured Bee Orchid	Orchidaceae
Ophrys lutea	Yellow Bee Orchid	Orchidaceae
Ophrys sphegodes		Orchidaceae
Orchis anatolica	Anatolian Orchid	Orchidaceae
Orchis galilaea	Galilee Orchid	Orchidaceae
Orchis papilionacea	Pink Butterfly Orchid	Orchidaceae
Orchis tridentata	Toothed Orchid	Orchidaceae
Pinus c.f brutea	Cyprus Pine	Pinaceae
Pinus canariensis	Canary Pine	Pinaceae
Pinus halapensis	Aleppo Pnie	Pinaceae
Pistacia vera	Pistachio	Anacardiaceae

Pyrus syriaca	Syrian Pear	Rosaceae
Quercus calliprinos	Kermes Oak	Fagaceae
Quercus ithaburensis	Mt. Tabor Oak	Fagaceae
Salvia indica	Large-Flowered Sage	Labiatae

28 plant species are on the way to be rare (Table 4)

Table 4: Plant species on the way to be rare

Species Name	Common Name	Family
Arum palaestinum	Palestine Arum	Araceae
Astragalus hamousus	Dwarf Yellow Milk-vetch	leguminosae
Bellevalia eigii	Eig`s Roman Squill	Liliaceae
Bromus alopecurius	Foxtail Brome	Poaceae
Cerastium dichotomum		Caryophyllaceae
Cupressus arizonica		Cupressaceae
Cynosurus echinatus	Rough Dog`s Tail	Poaceae
Helminthotheca echioides	Bristly Ox-Tongue	Compositae
Heptaptera anisoptera		Umbeliferae
Hypericum lanuginosum	Downy St.John`s-Wort	Hypericaceae
Lamium moschatum	Musk Deadnettle	Labiatae
Malcolmia chia		Cruciferae
Onopordum cynarocephalum	Artichoke Cotton Thistle	Compositae
Ophrys lutea	Yellow Bee Orchid	Orchidaceae
Orchis galilaea	Galilee Orchid	Orchidaceae
Parentucellia latifiolia	Broad-Leaved Eyebright	Scropholariaceae
Pinus c.f brutea	Cyprus Pine	Pinaceae
Pistacia vera	Pistachio	Anacardiaceae
Pterocephalus brevis		Dipsacaceae
Pyrus syriaca	Syrian Pear	Rosaceae
Reseda lutea	Yellow Mignonette	Resedaceae
Scorpiurus muricatus	Two-Flowered Caterpillar	leguminosae
Teucrium creticum	Cretan Germander	Labiatae
Thymbra spicata	Spiked thymbra	Labiatae
Trifolium cheleri	Hairy trefoil	leguminosae
Trifolium scabrum	Rough Trifol	leguminosae
Trigonella berthyea	Beirut Fenugreek	leguminosae
Umbilicus intermedius	Common Pennywort	Csrassulaceae

Status: F=frequent

22 plant species are aromatic and medicinal plants (Table 5). The area has many aromatic and medicinal plants like Thymbra spicata, which is rare in the site and should be planted in the garden with Satureja thynbra. They are good plants for honeybees and food in addition to Coridothymus capitatus. The honey from those plants is healthy and expensive.

Table 5: Aromatic and medicinal plants of Cremisan area

Species Name	Common Name	Family	Status
Ajuga chia	Chian Bugle	Labiatae	CC
Amygdalus communis	Wild Almond	Rosacaea	CC
Ceratonia siliqua	Carob	leguminosae	C
Chiliadenus iphionoides	Goldy-Locks	Compositae	CC
Cistus creticus	Soft-Hairy Rockrose	Cistaceae	CC
Cistus salviifolius	Sage-Leaved Rockrose	Cistaceae	CC
Coridothymus capitatus	Headed Thyme	Labiatae	CC
Crataeagus aronia	Spiny Hawthorn	Rosacaea	C
Ephedra aphylla	Leafy shrubby Hosetail	Ephedraceae	CC
Ficus carica	Fig	Moraceae	CC
Foeniculum vulgare	Common Fennel	Umbeliferae	CC
Inula viscosa	Clammy Inula	Compositae	CC
Lactuca serriola	Prickly lettuce	Compositae	CC
Parietaria judaica	Wall Pellitory	Urticaceae	CC
Phagnalon rupestre	African Fleabane	Compositae	CC
Rhus coriaria	Sumach	Anacardiaceae	C
Sarcopotrium spinosum	Prickly Burnet	Rosacaea	CC
Satureja thymbra	Savory of Crete	Labiatae	CC
Teucrium capitatum	Cat Thyme	Labiatae	CC
Teucrium creticum	Cretan Germander	Labiatae	F
Teucrium divaricatum		Labiatae	C
Thymbra spicata	Spiked thymbra	Labiatae	F

Status: C= common, CC=very common, F=frequent

Fig. 7 Typical mixed plant habitats of the area. Top rigt undisturbed natural forest next toterraced and developed areas

Fig. 8. Left Salvia indica, a very rare plant found in only two other locations in West Bank, right one of the many orchid species in the area

5 FAUNAL Studies

5.1 Methods

Fauna methods varied for each group of animals (Vertebrate and Invertebrate), so in this case we will describe the most important kind of methods that we used in the study to cover as much as we can of the variation in fauna specially the invertebrate groups.

Methodology for Mammals: Signs of mammals are looked for during day and night walks. This included things like footprints, feces, burrows, other potential hideouts (caves and crevices), other remains (like quills for porcupines) etc. Just before sunset (at this time around 7-8 PM), Sherman traps are set for small mammals and mist-nets were set for bats. Traps are collected before sunrise (at this time of year about 5-5:30 AM) and then a subsequent area sweep was done for morning animals. We will leave bait for large carnivores (sardines and raw meat but observed no activity around these except in one case by a feral dog). Bats are observed by looking for roosting sites and by echolocation calls registered between sunset/dusk and midnight. 'For bats roosting in caves, daytime collecting was undertaken by exploring caves by flashlight and specimens were collected by hand' (Qumsiyeh, Sami and Musa, Further Records of Bats From Jordan and a Synopsis 1998) . We use a simple recorder that allows frequency detection. However, by using a simple tape recorder, we can also study spacing of clicks for hunting echolocation signals. 'In this expanded study we will organize a more sophisticated recorder that can be left for hours'. (M. B. Qumsiyeh 1997) 'The arrangement and order of genera and species' (M. B. Qumsiyeh 1997)

Fig. 9. Mouse traps, camera trap setting, larger mammal traps, and echolocation devise use for bats

Methodology for Birds: The baseline conditions have been conducted according to the area map, in which we divided the area into three squares; intensive-trees (Forest) square, Native Trees (natural) square, and the terraces square. Each square has been studied according to the different habitats. Moreover, we used different tools in each square or area in order to adapt with the nature of the area, for example: we used the telescope and binocular in the native trees area and the terraces area, because those areas are open and there are no barriers or obstacles that might prevent the recording of the birds species.

However, we used the net in the intensive trees area where it is difficult to record the birds species inside the area, in which the birds were caught throughout the net and

recording their species then releasing them. Some of the birds species were recorded based on their voices, due to the difficulty into catching them by the net or seeing them by the telescope. In addition to the migrating birds that have been seen crossing the area, without landing in the area.

Criteria Used into the survey: We also used misnetting which helped record small singing birds (e.g. Warblers)

Methodology for Reptiles and Amphibians: Both during night walks and day walks, reptiles are observed and photographed. Any signs of reptiles were also observed (such as tracks on soft surfaces or eggs in crevices or under logs). Non-poisonous reptiles were simply captured by chasing or surrounding them and then by hand. Poisonous snakes are handled with a snake stick. Frogs are best observed at night via flash light and are captured by hand. We can also identify tadpoles directly taken from the water (scooping or small net).

Methodology for Mollusca: Snails are simply picked up where they occur (usually under rocks, in crevices, around trees or shrubs).

Methodology for Scorpions: Scorpions are collected via turning rocks and other objects they use to hide under during daytime or at night-time (usually 10 PM to midnight) by sweeping the area using a UV light (fig. xxx).

Fig. 10. UV loight identifies Scorpio maurus in Al-Makhrour

Methodology for other invertebrates: Butterflies and some other flying insects are captured with a butterfly net. For moth, a fluorescent light is used at night in some locations and with a white cloth under it. This attracts moths which then can be picked up into containers directly or transferred to containers via aspirator. Other arthropods are simply picked up. 'We will also include previous field observations during field trips conducted in different parts of Palestine during the last several years'. (Katbeh-Bader et al. 2003). Other methods used included using light trap at night to collect moths and

insects males from different orders. We also studied leaf litter micro-, meso- and macro-fauna. Animals collected from leaf litter were collected by use of Burlese funnel.

Fig. 11 Field work in various settings

5.2 Invertebrates

The invertebrates studied in the past few months (up to April 2021) already produced excellent indicators of the rich biodiversity of this area (see Annex 2). **Insects** of course where the most numerous in terms of species counts (see Table 5 for preliminary list of identified species). For example, there is over 20 species of butterflies and many other species of moths (difficult group taxonomically, being worked on, some new species). As for Moths there was found 11 families and over 21 species (many yet to be unidentified of the families Erebidae and Noctuidae).

Fig. 12. Some valley insects

We also got some species identification on some pseudoscorpions: Chithonius jonicus, Cardiolphum stupidium, and Ephippiochthonius sp. Also two species of camel spiders.

The difficult group was the regular spiders (Order Araneae). Which has two dozen species in at least 8 families and were collected in several trips and identified by Dr. Qumsiyeh.

Fig. 13 Androctonus scorpion.

5.3 Vertebrates

Three species of **amphibians** were reported: *Pseudepidalea variabilis*, *Pelophylax bedriagae*, and *Hyla savignyi* are found nearby in Battir. We saw the first two in Cremisan.

Table 2. List of Reptiles and Amphibians that found in Cremisan Valley.

Group	Family	Scientific Name	Common Name	IUCN Status
Reptiles				
	Testudinidae	Testudo graeca	Mediterranean Spur-Thighed Tortoise	VU
	Phyllodactylidae	Ptyodactylus guttatus	Sinai Fan-Fingered Gecko	LC
	Gekkonidae	Hemidactylus turcicus	Mediterranean House Gecko	LC
	Lacertidae	Phoenicolacerta laevis	Lebanon lizard	LC
		Ophisops elegans elegans	Snake-Eyed lizard	LC
		Chalcides ocellatus		
		Ablepharus kitaibelii		
	Agamidae	Stellagama stellio brachydactyla	Rough-Tail Rock Agama	LC
	Chamaeleonidae	Chamaeleo chamaeleon	Mediterranean Chameleon	LC

	Lamprophiidae	Malpolon monspessulanus	Montpellier Snake	LC
		Hemorrhois nummifer		
		Daboia palestinae		

Birds

Five areas were focused on for the bird study (Fig. xxx). Sixty nine species of birds were recorded in the short late spring season of study (annex 3). In the northeastern side of the valley near the entrance to the monastery you can see large numbers of migratory soaring birds like white storks. Common alpine swifts find nesting places in openings or crevices in the tiles of the first building of the monastery. Two key species noted in natural forested areas which can have associations of ecological importance are Subalpine Warbler and Eurasian chaffinch

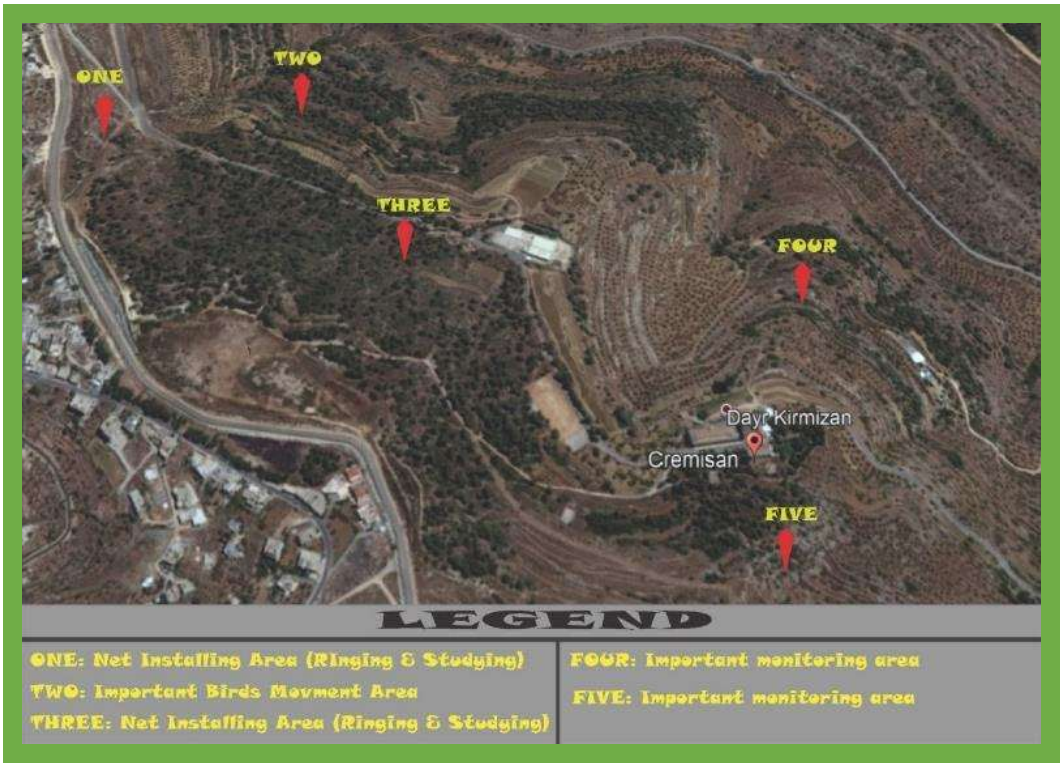

Fig. 14. Areas of bird study

Fig. 15. Scops owl caught in mistnet set up in area 3 (Zone A of Fig. 35)

Fig. 16. Bulbul and wren

Mammals: We recorded 30 species of mammals from the area (Table xx). Bats (recorded mostly via echolocation signals) and rodents were the largest orders of mammals in the area studied. Much deeper studies are planned for this summer. Two earlier studies done on in Bethlehem area related to Wadi Al Makhrour area with connection to mammals. In Qumsiyeh *et al*., (2014b) they shows the diversity of mammals that exist in Bethlehem district with 31 record of species from 16 family, which includes data from Al Makhrour. In the other hand a study done on the Eagle owl diet from Al Makhrour shows five species of mammals (*Erinaceus europeaus, Rattus rattus, Meriones tristrami, Microtus guentheri,* and *Rousettus aegyptiacus*) and a domesticated cat (Amr *et al*. 2016).

Table 3. List of Mammals that found in Al Makhrour Valley.

Family	Scientific Name	Common Name
Erinacidae	Erinaceus europaeus	European hedgehog
Soricidae	Crocidura leucodon	Bicolored White-toothed Shrew
Pteropodidae	Rousettus aegyptiacus	Egyptian fruit bat
Rhinopomatidae	Rhinopoma hardwicki	Lesser Mouse-tailed Bat
	Rhinopoma microphyllum	Greater Mouse-tailed Bat

Vespertilionidae	Pipistrellus kuhli	Kuhl's Pipistrelle
	Pipistrellus (Hypsugo) savi	Savi's Pipistrelle
	Pipistrellus pipistrellus	Common Pipistrelle
	Otonycteris hemprichi	Hemprich's long eared bat
	Plecotus christiei	Long-eared plecotine bat
Rhinolophidae	Rhinolophsus ferrumequinum	Greater Horseshoe Bat
	Rhinolophus hipposideros	Lesser Horseshoe Bat
Molossidae	Tadarida teniotis	European Free-tailed Bat
Emballonuridae	Taphozous perforatus	Egyptian Tomb Bat
Muridae	Apodemus mystacinus	Eastern Broad-toothed Field Mouse
	Acomys cahirinus	Spiny Mouse
	Rattus rattus	The Black Rat
	Mus musculus	House Mouse
Gerbillidae	*Gerbillus dasyurus*	Common gerbil
Spalacidae	Nannospalax ehrenbergi	Palestine Mole Rat
Hystricida	Hystrix indica	Porcupine
Bovidae	Gazella gazella	Mountain Gazelle
Suidae	Sus scrofa	Wild boar
Hyaenidae	Hyaena hyaena	The Striped Hyena
Felidae	Felis chaus	Wild Cat
Canidae	Canis aureus	Golden Jackal
	Vulpes vulpes	Red Fox
Musatellidae	Martes foina	Beech marten, Stone marten
Procavidae	Procavia capensis	Cape Hyrax, Coney

Fig. 17 Camera trap image of a pack of golden jackals in Al-Makhrour but the same pack was also observed in Cremisan


Fig. 18. Camera trap image of hyena seen in Zone B

5.4 Mushrooms/Fungi

19 species were definetly identified

Family *Polyporaceae* Fr. ex Corda (1839)

Lentinus arcularius (Batsch) Zmitr. (2010)
Saprobic, grows on decaying deciduous wood, often oak. Sometimes these mushrooms grow from buried wood and appear terrestrial (Emberger 2008b). Our samples appeared terrestrial and were found near live oak. This is a common species found in many parts of the world from India to the Americas but to our knowledge this is the first report from this region. *Lentinus arcularius* is thought to have medicinally relevant compounds (Petre et al. 2017).

Trametes hirsuta (Wulfen) Pilát (1939)
Grows on stumps and fallen hardwood (Kuo 2010). Our samples were found on fallen hardwood (likely almond) in an olive grove. This species is fairly common, and Puri, et al. (2006) found that it could be utilized as a novel source of aryl tetralin lignans, which are important compounds used for the synthesis of topoisomerase inhibitors. Habitats containing *Trametes hirsuta* are thus of notable biomedical importance


Fig. 19. ***Trametes hirsuta***

Family *Suillaceae* Besl & Bresinsky (1997)
Suillus collinitus (Fr.) Kuntze (1898)

Family *Boletaceae* Chevall. (1828)
Xerocomellus redeuilhii Simonini, Gelardi & Vizzini (2016) Mycorrhizal, associated with hardwoods, often oaks.

Family *Tapinellaceae* C. Hahn (1999)
Tapinella panuoides (Batsch) E.-J. Gilbert (1931): Saprotrophic, grows on conifers (Kuo 2015a). Our samples were found at the base of fallen pine. This species is fairly common, and an occasional subject of biomedical research. Schneider et al (2008) have isolated atromentin compounds, and their associated genes from this species. These compounds have been shown to have antibiotic and anti-cancer properties (Zheng et al. 2006, Kim & Lee 2009). Thus ecosystems containing *Tapinella panuoides* are of notable biomedical importance.

Fig. 20 ***Tapinella panuoides***

Family *Psathyrellaceae* Vilgalys, Moncalvo & Redhead (2001)
Psathyrella bipellis (Quél.) A.H.Sm. (1946): Saprotrophic; grows in groups on lawns or in decaying plant matter (Kuo 2011). Our samples were found in damp decaying leaves, mostly olive and oak. *Psathyrella bipellis* has been found throughout Europe and North America (Smith & Hessler 1946).

Coprinopsis friesii (Quél.) P. Karst. (1872)
Coprinellus micaceus (Bull.:Fr.) Vilgalys, Hopple & Jacq. Johnson (2001) Saprotrophic, grows in clusters on decaying wood. Its substrate is often buried, causing the mushrooms to appear terrestrial (Kuo 2008a). Our samples were found in grass at the base of an almond tree.

Fig. 21. ***Coprinellus micaceus***

Family *Pluteaceae* Kotl. & Pouzar (1972)
Volvopluteus gloiocephalus (DC.) Vizzini, Contu & Justo (2011) Saprotrophic, terrestrial, in grassy areas or composting organic matter. Our samples were found in thick grass.

Family *Marasmiaceae* Roze ex Kühner (1980)
Omphalotus olearius (DC.) Sing. (1948) Saprotrophic; grows on stumps, buried roots, or on the base of hardwoods, especially oaks and olive (Kuo, 2015b). This sample was found growing at the base of olive.

Fig. 22. ***Omphalotus olearius***

Family *Mycenaceae* Overeem (1926)
Sarcomyxa serotina (Pers.) P. Karst. (1891) Our samples were found at the base of live oak.

Family *Physalacriaceae* Corner (1970)
Cryptomarasmius corbariensis (Roum.) T.S. Jenkinson & Desjardin (2014) Saprotrophic, grows on rotting leaves of olive and other trees (Bozok et al 2017). Our samples were found growing on damp olive leaves.

Family *Amanitaceae* E.J. Gilbert (1940)

Amanita ovoidea (Bull.) Link (1833) Ectomycorrhizal; found under deciduous trees, notably oaks, sometimes olive, on lime or alkaline soil. Our samples were found in a recently plowed olive grove.

Family *Tricholomataceae* R. Heim ex Pouzar (1983)

Lepista sordida (Schumach.) Singer (1951) Our samples were found at the base of olive and oak.

Fig. 23. ***Lepista sordida***

Family *Agaricaceae* Chevall. (1826)

Lycoperdon perlatum Pers. (1797)

Coprinus comatus (O.F.Müll.) Pers. (1797)

Fig. 24 ***Coprinus comatus***

Family *Hygrophoraceae* Lotsy (1907)

Arrhenia rickenii (Hora) Watling (1989) Our samples were found on moss-covered limestone gravel. Originally described in Europe, the range of this species was first recorded in Turkey by Kaya (2009). This is the first record of this species in Palestine.

Fig. 25. ***Arrhenia rickenii***

Family *Pyronemataceae* Corda (1842)

Geopora arenosa (Fuckel) S. Ahmad (1978) Our samples were found closely associated with moss, on limestone soils.

Family *Helellevaceae* Fr. (1822)

Helvella lacunosa Afzel (1783) Our samples were found near live oak.

Fig. 26. ***Arrhenia rickenii***

6 Humans – Anthropolgical issues

The finding of Homo erectus and Homo sapience tools showed that our human family settled this area for millennia. In the historical period, archeological data showed that the area has been inhabited continuously from the dawn of civilization (Salesian Brothers and Sisters of Don Bosco 1991). The many ancient stone terraces and ancient forms of agriculture practiced over the past few thousand years is part of the reason for designating the valley of Al-Makhrour (part ofd same system as Cremisan) as a world heritage site. Canaanitic tombs dug in the rock are still visible in many places. The Jebusite Canaanites who build Jerusalem dwelt in those fertile hills. The area passed through various external rulers: Romans, Persian, Egyptian, Byzantine, and Islamic. Two Roman *columbaria* are still preserved in part as well (Salesian Brothers and Sisters of Don Bosco 1991). In a nearby area called "Khirbet Maamudyeh", remains of colored mosaic floor, cisterns and caves attest that a small Byzantine monastery was active until the VII century, serving as

a resting place for pilgrims on their way to Ein Karem (Salesian Brothers and Sisters of Don Bosco 1991).

6.1 Cremisan Monastery

[Note part of this section is taken from work by a student Louise Hayek]

Cremisan probably means "kerm zan" i.e the vineyard of *zani* grapes, a kind of local grapes which is still cultivated in the area between Bethlehem and Hebron (Gianazza 2020). According to the Ottoman documents, the name Cremisan is derived from the two words Kira and Mizan. Kira means 'dark colour', a colour associated to describe areas that are extensively planted with vegetables and trees, and Mizan refers to the terraced flat lands (Juha 2020). Constructed near a water spring that bears the name 'Kirmizan', Cremisan Monastery was called by this name accordingly (Salesian Brothers and Sisters of Don Bosco 1991, 129). Its founder is Don Antonio Belloni (1831 – 1903) – known as the father of the orphans in both the Holy Land and the Middle East (Salesian Brothers and Sisters of Don Bosco 1991, 30).

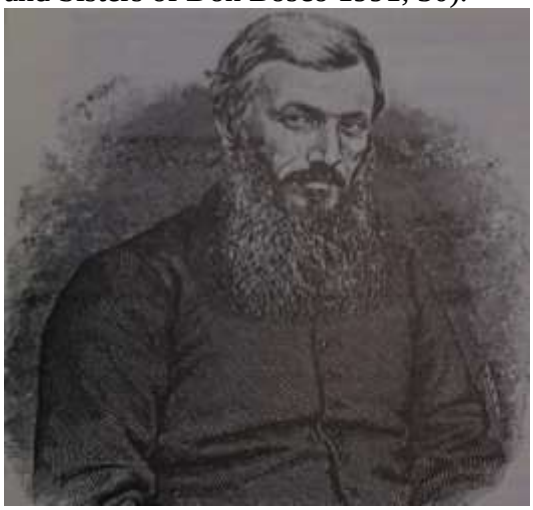

Fig 27. Don Antonio Belloni. (Salesian Brothers and Sisters of Don Bosco 1991, 30).

Cremisan Monastery was built by the Salesian Order in the 19th century on the ruins of a 7th century Byzantine monastery, to support the presence of Palestinian Christians in the region (Society of St.Yves 2015, 5). The Monastery used to be a retreat for Maronite monks when needed a calm place to recover from illness and disease. Also, it served as a retreat destination for retired army men during the Mamluk and Ottoman periods (Juha 2020). In 1957, the Monastery has become an International College of Theology. Nowadays, the College is open to Salesians, to members of other religious orders and members of diocese of various rites (Salesian Brothers and Sisters of Don Bosco 1991).

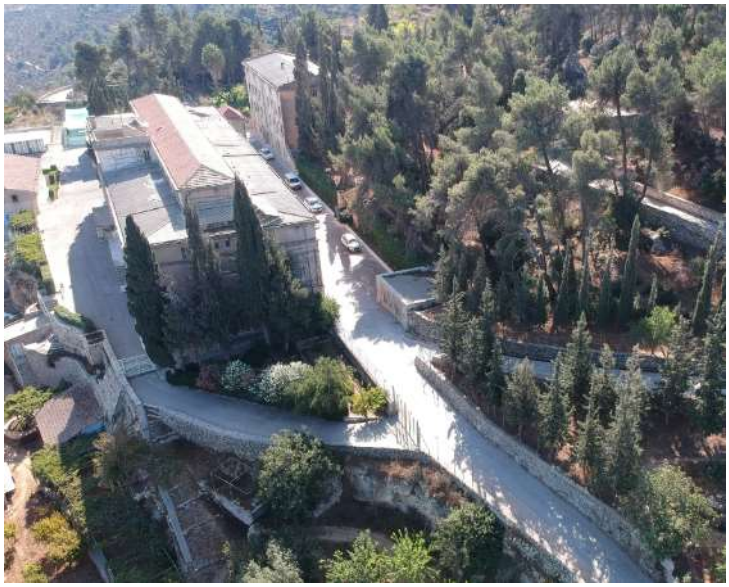

Fig. 28 Cremisan Monastry main buildings

Being an International College of Theology, the library of the Monastery has about 70,000 volumes and receives 120 scientific journals specializing in biblical and ecclesiastical disciplines and several anthropological sciences as well. A small youth centre for the boys of the area, and the retreat house "Siman Srugi House", named for the honored Siman Srugi of Nazareth (1877-1943) who did his novitiate in the Monastery, are also active (Gianazza 2020). Cremisan has become named *House of Hope*, because it was destined to cultivate the hopes of the Congregation in the Middle East (Salesian Brothers and Sisters of Don Bosco 1991, 129).

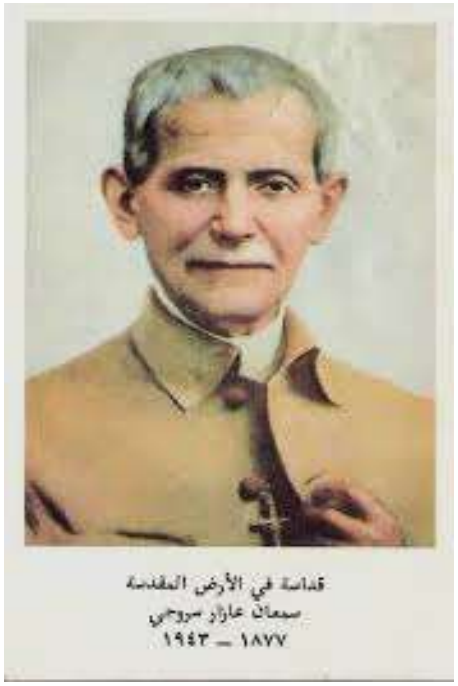

Fig 28. Siman Srugi of Nazareth. Photo courtesy of Cremisan Monastery.

The Salesian Sisters of Don Bosco run the Cremisan Convent, founded in 1872 (Gianazza 2020) near the Monastery. The Convent serves as a place for education and charity. Today, it includes a primary school, a kindergarten and a school that provides tutoring to children with learning difficulties. Extracurricular activities and summer camps for children are provided by the Convent every year as well (Society of St.Yves 2015, 5).

=Cremisan Monastery and its components are under the direct control of the Salesian Brothers/Latin Patriarchate of Jerusalem (Gianazza 2020). This management system ensures the protection of the inherited cultural and natural values of Cremisan area properties, for present and future generations. They aim at delivering wide benefits to the local community in particular, including job opportunities and steadfastness. A provincial council meets once every month, discuss and release decisions regarding the Monastery and its components democratically (Gianazza, 2020). The council constitute the following organization:

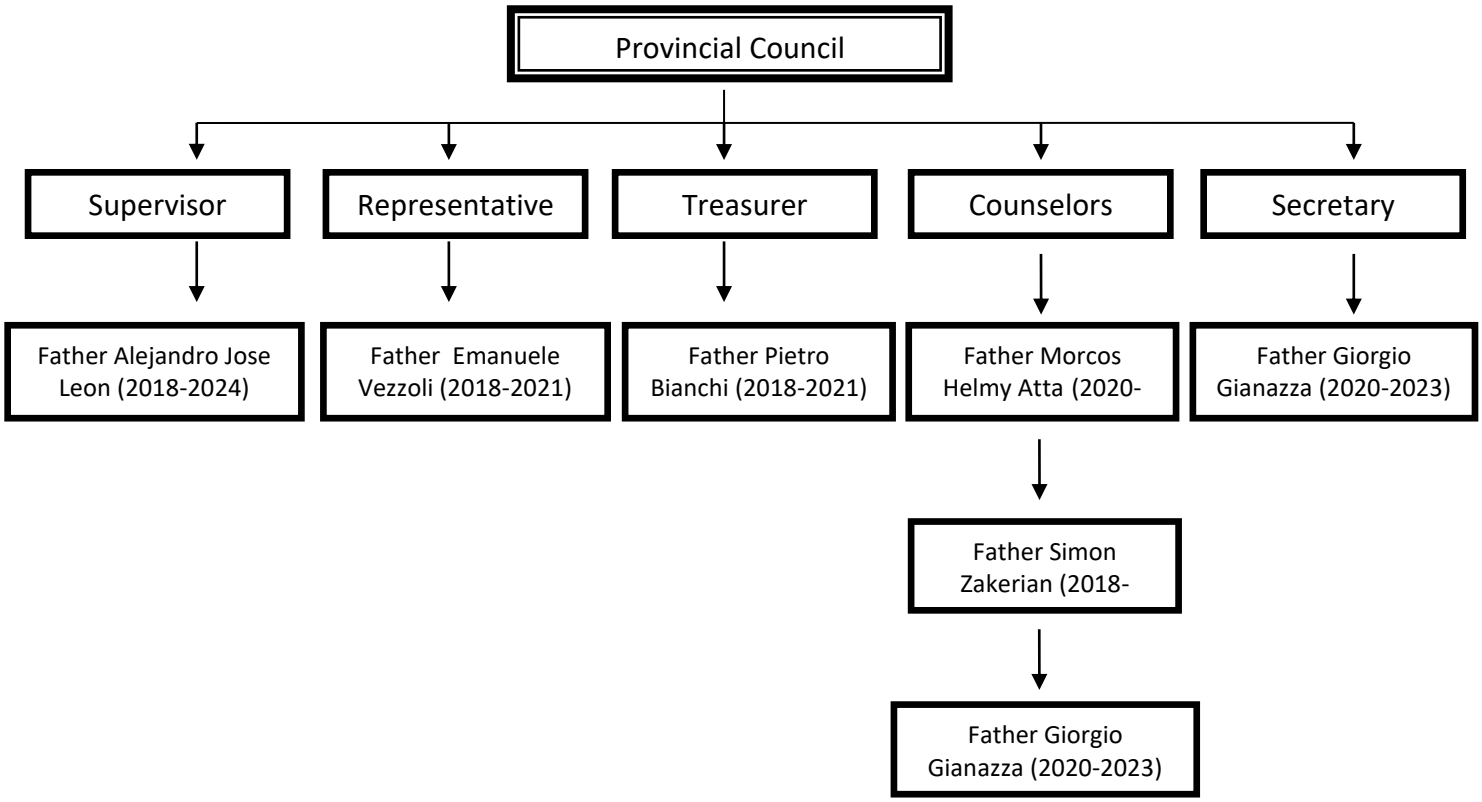

Fig. 29. Adinistrative structure of Cremisan (Gianazza 2020). The Director: Pier Emanuele Vezzoli, Vice director: Pier Pier Girogio Gianazza, Counselor: Pier Rusiecki Jan. Economist: Pier Bianchi Pietro

The Monastery is also widely known for its winery, one of the finest in Palestine. It started unpretentiously by Father Belloni and "Brothers of the Holy Family" at the beginning of the 1870s. The mission started with a double primary purpose: to help the Bethlehem Orphanage and to assure the financial autonomy of Cremisan in its "apostolic and pastoral mission" (Salesian Brothers and Sisters of Don Bosco 1991, 126). The Brothers had the definite intention, too, of giving employment to the local people in the

area. Work has begun in the Cremisan wine cellar in 1885, a natural cave located under the Monastery (Batarseh, 2020).

Presently, Cremisan vineyard covers a mountainous area and provide the grapes used, while the remainder is bought from farmers of the Bethlehem and Hebron region (Batarseh 2020). In the wine industry, equipped with modern installations and eno-technical machinery brought from Italy, 200 to 400 metric tons of grapes are processed annually, depending on the market. For over a hundred years, the Salesians have combined traditional Italian methods of wine-making with viticulture suitable to the Holy Land to produce a range of well-made, distinctive table wines at reasonable prices (Salesian Brothers and Sisters of Don Bosco 1991, 126). Most grapes come from the vineyards at Beit Gemal, 36 kilometres west of Jerusalem; some also come from the vineyards at Cremisan and from local farming lands (Batarseh, 2020; Gianazza 2020).

Fig 29. Upper terraces which fall closer to the Monastery planted mostly with vines. Photo L. Hayek

Built since 1885, the Salesian Brothers have preserved the integrity and the authenticity of Cremisan Monastery. Walking down the aisle and its corridors, a visitor can take notice of its well preserved shiny tiles "that have never been renovated ever since" (Gianazza, 2020). Furthermore, an annual tradition has been followed since its establishment. Every year, the Salesian Brothers hold an annual procession beginning from the Monastery and head towards the Church of Our Lady of Annunciation in Beit Jala, to celebrate the end of May Devotions to the Blessed Mary (Juha 2020).

Regarding Cremisan wine cellar, its high-arched ceiling full of casks of aging wine and brandy has been well preserved, "keeping an eye on its value" (Batarseh 2020).

Fig 30. The natural cave of Cremisan acting as a Wine Cellar. Photo courtesy of Cremisan Monastery.

The cultural landscape of Cremisan is a living example of the evolution and sustainability of its agricultural system, human settlement near sources of abundance water, and the adaption of its steep mountains slopes for agricultural activities as well as a spiritual and material connectiuon to land (Juha 2020).

6.2 The village of Al-Walaja

Al Walaja is a Palestinian village in Bethlehem Governorate located 5km (horizontal distance) west of Bethlehem City. Al Walaja is bordered by Beit Jala town to the east, the 1949 Armistice Line (the Green Line) to the north and west, and Battir and Husan villages to the south. Al Walaja is located at an altitude of 756m above sea level with a mean annual rainfall of 601mm. The average annual temperature is 16o C, and the average annual humidity is about 61 percent (ARIJ GIS, 2009). According to the Palestinian Central Bureau of Statistics (PCBS), the total population of Al Walaja in 2017 was 2,041; of whom 1,041 are males and 1,000 are females. There are 390 households living within 388 housing units.

Al Walaja means a place that passes into or through something, often by overcoming resistance. It also means a cave that protects inhabitants from rain. Since 1996, Al Walaja has been governed by a village council that responsible to provide a number of services to the residents of Al Walaja, including:

1. Infrastructure services such as water and electricity.

2. Solid waste collection, road construction and restoration, street cleaning, and social development services.

In the village there is one archaeological site: Al Badawi olive tree which is considered the oldest olive tree in the world as it’s older than 5000 years

6.3 The town of Beit Jala

Beit Jala is a Palestinian city in Bethlehem Governorate located at 1.8km west of Bethlehem City. The name of Beit Jala is originally an Aramaic name which comes from Beit (house of) and Jala which relates to a green or beautiful area. Attractions include ancient buildings, churches of various denominations, Khallet Hamameh and Bir Onah. http://vprofile.arij.org/bethlehem/pdfs/VP/Beit%20Jala_cp_en.pdf

According to the Palestinian Central Bureau of Statistics (PCBS), the total population of Beit Jala in 2017 was 13,845; of whom 6,859 are males and 6,986 are females. There are 3,093 households living in 3,917 housing units. Beit Jala lies on a total area of about 9,749 dunums of which 7,305 dunums are considered arable land, and 913 dunums are residential land

Potential partners for the project include

Beit Jala Municipality responsible to provide a number of services to the residents of Beit Jala, including: Infrastructure services such as water and electricity; Solid waste collection, road construction and restoration, street cleaning, and social development services; Public markets; Sewage network service. ; Organization of the construction and licensing process.; Implementation of projects and case studies for the city.

Environment Educational Center at Talitha Kumi Lutheran school: Founded in 1998 in Talitha Kumi secondary school, aiming at spreading environmental awareness among the society members in order to promote a positive relationship between humans and their environment.

7 Threats

Cremisan Monastery and its components are under threat from a variety of pressures, categorized into four groups: local threats and colonial-settler threats (Qumsiyeh 2020, 8). Local threats are a result of urban expansion at expense of both agricultural and natural areas, overgrazing, cutting trees, foraging for wild plants, burning, solid and liquid waste, use of pesticides, feral dogs and cats (Qumsiyeh 2020, 9). Some 3,500 dunams of farmland belonging to 58 Palestinians will fall on the Israeli side of the wall. (A dunam is .247 of an acre, or 1,000 square meters.) Palestinians claim the land is being confiscated for the expansion of the neighboring Israeli settlements of Gilo and Har Gilo. Much of the land consists of olive orchards where some trees are said to date back to the time of Christ
Tthreats include solid and liquid waste, uncontrolled visitor number in its Valley, habitat destruction, accidental bushfire, noise disturbance to animals, destruction of flora through the harvest of some species, i.e mushrooms, which in turn lead to in a decrease in their population, and egg-birds hunting (Handal 2020).

By far the biggest threat to the landscape and to the monastery and the natural habitats around it has been the illegal Israeli occupation practices. Soon after the 1967 occupation, Israel decided to expand the borders of occupied Jerusalem and annex it to tehstate of Israel. This is contrary to the fouth Geneva Convention. In the Cremisan valley itself the artificial new “border was drawn arbitrarily in a way that cut of the valley and the

monastery land into two zones one that was annexed to Jerusalem and a zone that remained subject to the artificial categorizations of areas of "disputed territory" (Fig. 31). Also Isral built two colonial settlements on lands on both sides of the vally (Gilo and Har Gilo). Again this is contrary to the fouth Geneva Convention.

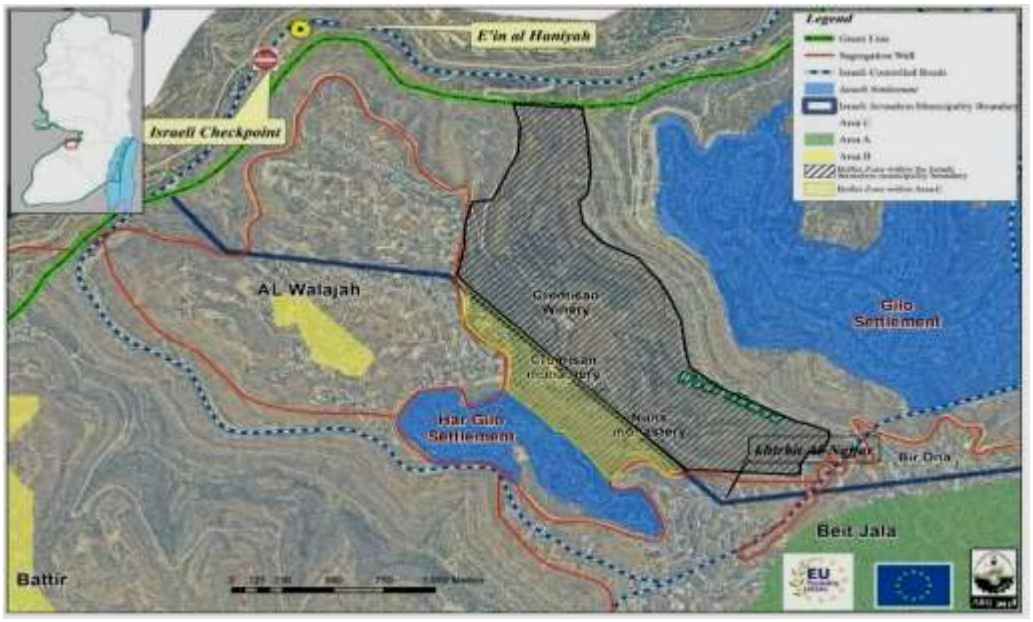

Fig. 31. The expanded and artificial and illegal border of "Greater Jerusalem" as annexed to Israel includes large swaths of the valley (map by ARIJ).

Colonial-settler threats include the Annexation Wall that has been constructed in Bir Onah/Cremisan, Gilo and Har Gilo settlements along with their infrastructure: military and bypass roads (Khalilieh 2020). This act is illegal under the international law, while affecting the integrity of the picturesque cultural landscape

Fig 32. Gilo Settlement. Photo L. Hayek

Fig. 33. Gate and part of the segregation wall installed by the occupation. Cremisan valley is to the left of the "Tunnel road" (settler road 60).

In February 2016, Israeli Antiquities Authority had an illegal archeological excavation on top of the Cremisan Valley, in Khirbet en-Najjar in particular. An initial investigation was conducted by the Palestinian Department of Archaeology and Cultural Heritage revealed that several artifacts and objects were found during the excavation, and were confiscated (Titi 2020), foregrounding an illegal act under International Law.

Other threats include environmental and climate change coupled with colonial activities. The aforementioned threat threatens the surrounding environment and its natural sources and its biodiversity in several ways. It results in violation, loss of habitats and ecosystem functions, poisoning wildlife due to pollution of resources, illegal natural resource use, loss of species/eco-services and waste disposal (Qumsiyeh 2020, 12-13).

A list of threats were observed in the valley and take under consecration and documented to be studied more and understand better for it consciousness by doing a SWOT analysis for the Management plan in the end of the project. Our researchers documented many threats to valley ecosystem (Table 5 and figures).

Table 5 Threats that researchers found in the valley.

#	Threats
1	Overgrazing
2	Cutting trees
3	Burning
4	Solid wastes
5	Plowing the land in destructive ways
6	Farming infrastructure (stone walls and farm roads)
7	Use of insecticides/pesticides
8	People digging for heritage stuff
9	Too mamny unregulated visitors to the area
10	Stray dogs
11	Invasive species
12	Occupation activities: walls around Al-Walaja and Khader
13	Occupation activities: residential Jewish settlements and their attendant infrastructure

Though the dangers facing the Palestinian environment were articulated nearly seven decades ago (Ives 1950), are few studies of threats effecting the biodiversity in the West Bank (e.g. Abdallah & Swaileh 2011; Hosh et al. 1992; Obeidi 2001; Weizman 2012' Qumsiyeh 2013; Qumsiyeh & Amr 2017). Solid waste issues (Abu Thaher, 2005; Al-Khatib et al. 2007; Dudeen 2012). It is difficult to manage our nature reserves when most of them are nder direct Israeli rule (ARIJ 2005; Garstecki et al. 2010). The biggest threat to human and biodiversity (fauna and flora) sustainability in Palestine is the issue of water (Tamimi 1996; Daibes & Daibes-Murad 2003; Gasteyer et al., 2012). There are many other threats including hunting (Helal & Khalilieh 2005; Yom-Tov 2003), climate change (Lautze and Kirshen 2009; Verner 2012), excessive use of pesticides (Sa'ed et al. 2010), colonial activities (Amr et al. 2016; Qumsiyeh et al. 2014, 2017), and pollution (Tal 2002).

8 Legal Protection

Governmental agencies: The Ottoman rule on this area lasted till 1917 and Ottoman law had little modern protection clauses for environment. But the Ottomans did respect sanctity f religious sites and damaged the environment only on rare occasions (for example logging to build the Hijaz Railroad). Between 1917-1948, the British ruled the area and worked to balance their lesser interest in native people with their political commitment to help the Zionist project (Balfour Declaration). In the 1920s the "Government of Palestine" adopted measures to safeguard forests and wildlife. Between 1948-1967 Cremisan and the rest of the area came under Jordanian rule which included laws like Antiquities Law number 51/1966 and the environmental law 1966. Unlike previous occupiers, the Israeli occupation of this area in 1967 was of the colonial type and Israel annexed parts of the Cremisan Valley (in its expanded border of "Greater Jerusalem". A mosaic of both Israeli law and occupier military orders governs life in the Palestinian occupied areas. However, International law is clear and the areas conquered in 1967 are subject the fourth Geneva Convention which carry obligations on the occupier and supposed to protect the native people and their lives and livelihoods. After the Oslo (interim) accords, a Palestinain authority was created and negotiatins commenced and were supposed to end in five years leading to statehood. While this did not happen, Palestinian authority proceed tro take on function sof state including protecting the environment for example with Environmental Law number 7 (1999), Tourism Law number 45/1965 and Building and Planning Law number 79/1966 (Juha 2020). See also (Saca 2020; Khalilieh 2020).

Biodiversity as a concept in biology evolved in the 20th century as we started to understand the threats faced by ecosystems (Wilson & Peter 1988). International treaties after WWII started to address the needs for ecosystem maintenance / biodiversity conservation. We in Palestine as a nascent state need to ensure not only that we have signed all the relevant treaties but that we actually implement them. An excellent review entitled "Legal implications of accession of the State of Palestine to international conventions on resources and protection of natural resources" was published (Jaradat and Awad Allah, 2015). Joining international agreements consolidates the legal, political and international personality of the newly formed Palestinian State. In addition, it promotes momentum of the international solidarity, the sovereignty of the Palestinian State over its natural resources and geographical boundaries. These conventions and treaties are excellent podiums to address the world the Israeli occupation violations on all aspects of Palestinian people rights. Here are some relevant agreements either signed or that Palestine tries to relate to on issues of the environment.

- Convention on Biological Diversity (CBD): This is an international legal instrument for the conservation and sustainable use of biological diversity that came into effect in December 1993. It has been an important instrument to set goals and priorities to preserve biodiversity.
- Basel Convention Controlling Trans-boundary Movement of Hazardous Wastes and their Disposal.

- Cartagena Protocol: The Cartagena Protocol is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another.
- United Nations Framework Convention on Climate Change (UNFCC): This treaty aims to address the threat to human life and life on earth caused by climate change.
- United Nations Convention to Combat Desertification: This legally binding international agreement links environment and development to sustainable land management in order to combat desertification.

Unsinged Agreements but have Active Role: Palestine accession to the above and other conventions is listed here http://www.birdlife.org/datazone/country/palestinian-authority-territories/policy. The State of Palestine, even not a signatory, is active in a number of other international treaties that are not directly concerned with conservation and biodiversity, but related to other environmental issue.

9 Other ways to conserve the valley

We can do some things to conserve nature in Palestine despite these persistent threats discussed above and thus also begin to comply with International treaties signed like those listed above (Qumsiyeh et al. 2017). For example, ethnical consumption can be encouraged (Dajani and Isma'il 2014). Another area of significant work already done in other parts of Palestine (not Al-Makhrour) is to use systems of enhancing socio-economic value for local people from conservation (see Slocombe 1993; Görlach et al. 2011). The current project will address this need in Al-Makhrour Valley. We also have some partners like the UNEP which already funded many conservation projects under its Small Grants Program of the Global Environment Facility (GEF 2012, 2013). For example, they funded one of our (PMNH/PIBS-BU) projects that dealt with a buffer Zone for the Wadi Qana protected area. Similar study is envisioned for the buffer zones of Wadi Al-Makhrour which is of significant ecological value (EQA 2017)

Palestinian national legislation is also needed to protect the traditional resource knowledge rights of local villagers and farmers as well as the rights of sovereignty over their cultural and genetic property. Thus, PGRs' collectors, cultivators and protectors, who work in this sector after their fathers and grand- fathers and are going to teach their skills to their children (especially those living under poverty line, without employment), and utilize the wild PGRs from generation to generation should have the priority to be protected and their knowledge since they are the closet to nature. The indigenous knowledge forms the main reference on which Palestinians mainly rural communities rely while implementing conservation and production activities (ARIJ 2011). There has been little in depth participatory research into plant and animal indigenous knowledge in the West Bank and Gaza strip; for instance those of the Palestinian Bedouins.

It is also necessary to strengthen taxonomic and systematic research, ecology, habitats and wildlife population studies, indigenous genetic resources, GIS and remote sensing, and popular knowledge assessments. Implementing field measurement and assessment surveys to get a grip on existing biodiversity and the identification of those under threat

or are presumed lost or extinct is a first step that should be taken. The results of the Palestinian research should also be used as an incentive to aware the public towards the secure measures while utilizing PGRs and emphasizing the importance of such resources and their methods of conservation. In addition, the Palestinian species lists and research findings should be documented and interlinked to the international databases, reports and/ or lists. There is a necessity to enhance the level of cooperation and coordination among academic and research institutions whether they are governmental or non-governmental organizations that work in the field of biodiversity and to set out participatory investment in relevant projects, plans, and actions at international and national levels to raise quality of Palestinian biological resources at its different components.

We share the vision of MOTA (2018) that includes a "well-managed, conserved and protected property [] it's Outstanding Universal Value and the conditions of authenticity and integrity of supporting attributes, socioeconomic status of the local community, presentation and interpretation are sustainably conserved, improved and enhanced enabling present and future generations to enjoy and appreciate it."

10 Management Plan

10.1 Introduction

The prpoposed management plan should take into account flora, fauna, landscapr, and cultural heritage preservation. It shuld also produce realistic visitor management plan with the mission of sustaining traditional practices and deflect inappropriate development.

This plan was prepared by team of the Palestine Institute for Biodiversity and Sustainability at Bethlehem University (http://palestinemature.org). The overall purpose of the plan is to enhance utility of the site (including ecosystem services bvaluation) while conserving the cultural and natural components of the site. Noting that the Ministry of Tourism have already developed management and action plans for the nearby WHS that includes biodiversity (by PIBS). This plan based on the data collected and summarized above require further discussion between all related authorities and stakeholders.

The following components are identified as priority habitat and landscape elements of particular importance for biodiversity conservation:

1. The anthropic structures along the valley and the springs connected to an irrigation system that supplies the contiguous terraces with water
2. The local agricultural system of olive fields, orchards, vineyards and irrigated terraces, including the elements of vernacular architecture and stone works, which form important habitat for reptiles and song birds.
3. The set of historical rock-cut tombs, monumental trees, shrines, and caves which forms key habitat for important flagship species of nocturnal wildlife
4. The native natural oak tress

The following are local practices identified to have impacts on biodiversity and require action to mitigate its impacts:

1. Collection of medicinal and palatable native wild plants
2. Active taking and shooting of wild animals
3. Use of agro-chemicals

This EMB is primarily concerned with nature conservation and the protection of biodiversity in Wadi Al Makhrour in specific, and the overall World Heritage Site of Battir (BWHS).

The selected conservation approach is through mainstreaming biodiversity conservation into the management frameworks of BWHS, introducing land use-based biodiversity protection measures to local municipalities and village councils, capacity building of related stakeholders, and the development of biodiversity-responsible and gender-responsive eco-tourism initiatives to improve local's livelihood and to generate income for sustaining conservation actions.

Also, this plan considers the one ecosystem approach as fundamental approach to nature conservation and to achieve the objectives set in the BWHS management and action plans. Therefore, all management actions should take all the necessary actions to conserve and protect the cultural and natural landscape of Wadi Al Makhrour in particular, and the overall he Battir cultural landscape which encompasses ancient terraces, archaeological sites, rock-cut tombs, agricultural towers, and most importantly an intact water system, represented by a collection pool, channels, etc. The integrity of this traditional water system is guaranteed by the families of Battir, who depend on it.

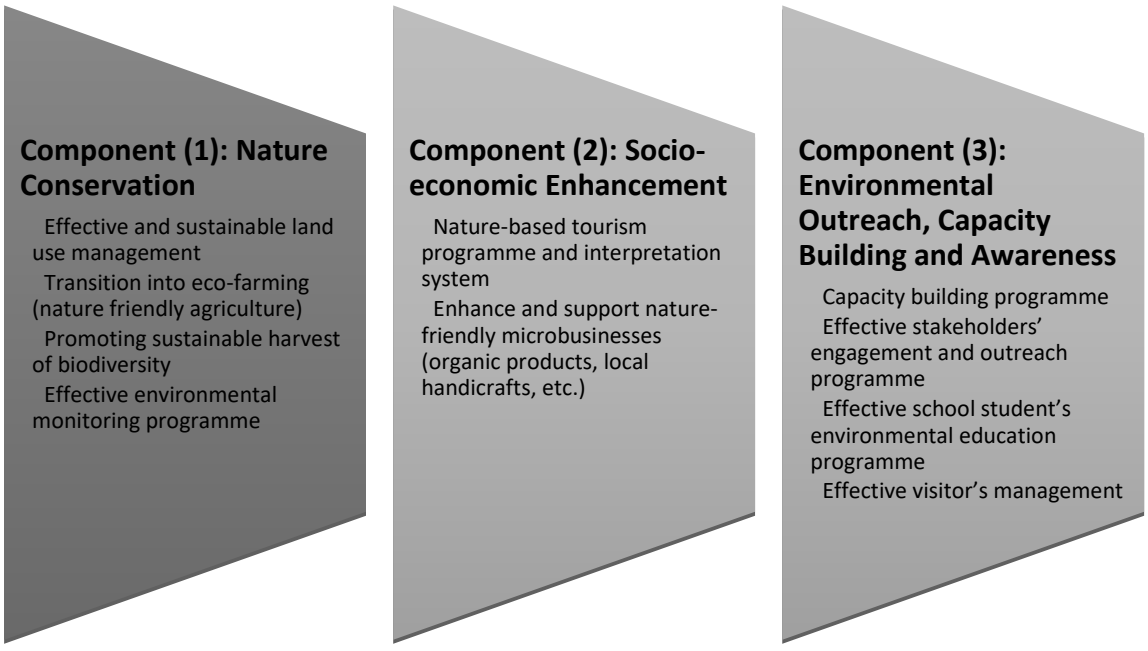

Fig. 34. Management plan primary components

10.2 Stakeholders and Involving community

Cremisan is a private/church property but the valley also includes private land owners as well as state land. Conservation of this ecosystem thus requires community participation including stakeholders mentioned above. across local communities**,** a new decision-making process has to be adopted by the provincial council of Cremisan Monastery, in order to bring all relevant stakeholders working in cultural heritage, archeology and environment, from private-sector institutions, non-governmental organizations, to locals, in ongoing discussions of operations and management direction. The council would act as a supervisory committee while private-sector institutions, non-governmental organizations, and relevant locals would be charged with co-managing Cremisan area from the tourism perspective, involved in running conservation or development projects in and around the area, and would be part of a supervisory committee. The provincial council has to arrange meetings so as to share information, and have agreed goals and objectives for the management plan, perceived needs and desired outputs expected from management as well. Relevant stakeholders have to engage in platforms to review and comment on the proposed plans should be outlined. The aforementioned committees have to interact in monthly workshops in presence of policy makers and local farmers; to participate fully in evaluating the site, listing and prioritizing pressures facing the area, analyzing the services provided on site, identifying subsequent next steps and priorities, as well as highlighting the importance of protecting the Valley's natural resources, in particular, its biological resources. Such workshops will be fruitful in terms of preparing a comprehensive conservation and management plans for the property. It will further identify conservation targets, develop conservation frameworks and management plans; highlighting the special measures needed to be taken to conserve the rich and sensitive habitats of Cremisan Valley. The monthly workshops will promote as well environmentally sound and sustainable development in areas adjacent to Cremisan valley, and restore selected degraded habitats along the valley (based on GIS/RS analysis for degraded areas and field verifications), while maintaining knowledge and practices of local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity.

Planning the admin and organizational structure and training of human resources

It is recommended that the proposed organizational structure for Cremisan area site management be adopted by the provincial council. It is structured as shown in Fig. 35. Human resources, local community in particular, have to be trained by acknowledging that the preservation of Cremisan Monastery and its components is a shared national responsibility that should be managed in a rational manner, with the aim of benefiting the community and being valued as an element of social and economic development. The aforementioned committees (supervisory committee in cooperation with the supportive committee) have to engage in public awareness, capacity development and training needs, research and conservation efforts as well as field trips. Both committees should be aware of the need for training local and indigenous peoples in the research, management and operation of sites, courses and workshops aimed explicitly at the conservation, preservation and interpretation of Cremisan area and its values. The outcome of aforementioned initiatives would be the capacity to conduct research on biodiversity and

environmental impact, sustainable use of biodiversity and knowledge of best practices for sustaining natural resources and developing Cremisan area in the field of biodiversity conservation and eco-service sustainability and the capacity to revive traditional farming and safeguard their cultural landscapes. Furthermore, they would become able to trackers, rangers, guides, heritage interpreters and in scientific research and monitoring.

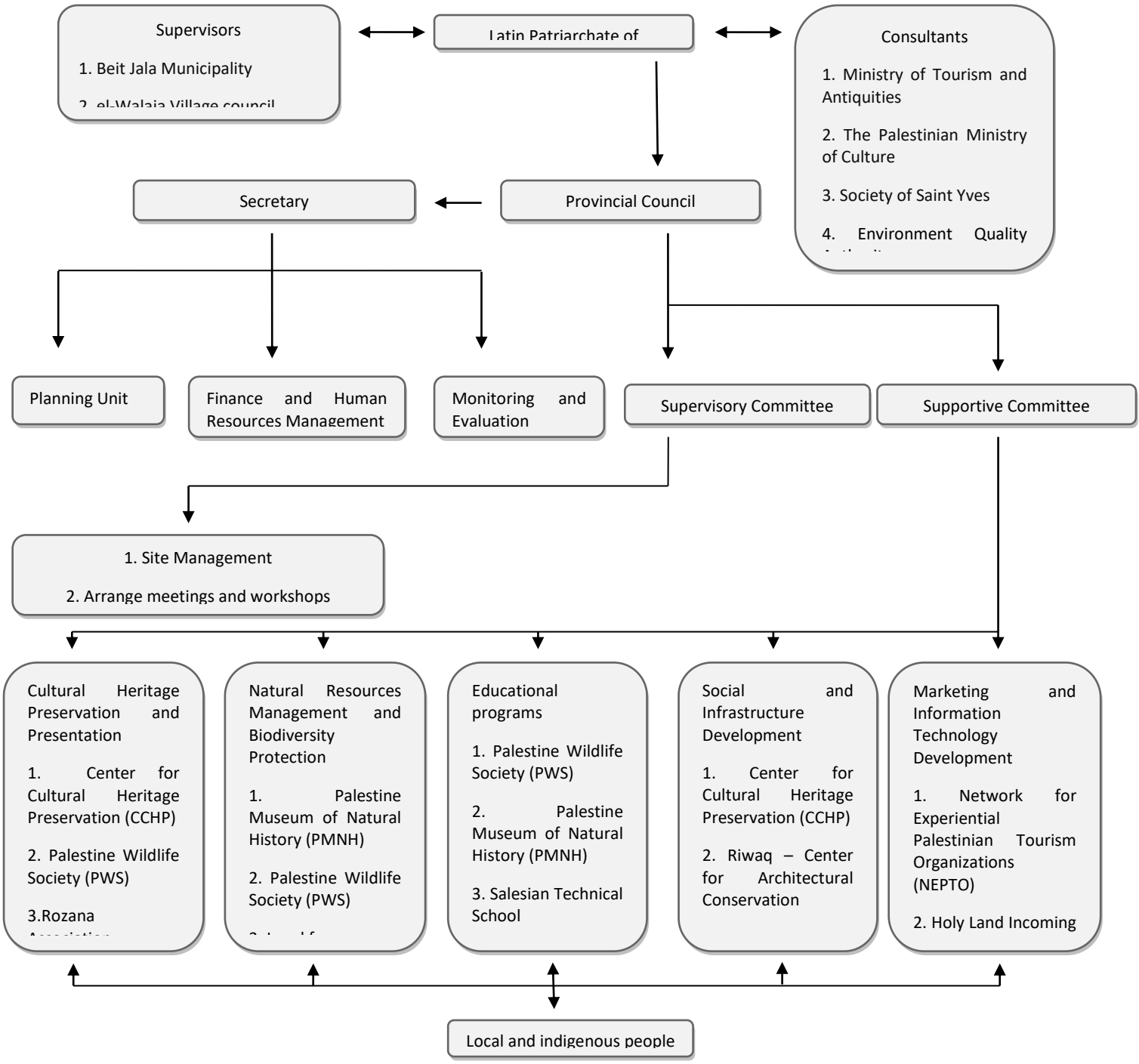

Fig. 35 Administrative structure

10.3 Designating zones and paths

To ensure the protection of the cultural landscape of Cremisan within the proposed buffer zone, a well-defined management strategy with a focus that addresses policies, regulations and management measures, is required. Furthermore, an adequate long-term legislative, regulatory, institutional and management is fundamental to ensure its safeguarding. Applying the aforementioned policies, regulations and management measures would place legal restrictions on its land use and give an added layer of protection. Legislation is an integral part in the site management process due to its added values, including the protection of the cultural landscape from the current land confiscation process in and around the site's boundaries. Urban planning laws have to be abide by its provisions so as local families, who live nearby, avoid the continuous degradation of Cremisan cultural landscape. Environmental laws (the Convention on Biological Diversity (1992), particularly its Programme of Work on Protected Areas (2004) have to be initiated in an inherited natural landscape. Cremisan Valley has to be treated as a protected area and so regulating agricultural practices, as well as managing the impacts of climate and environmental change. In light of the current colonial urban planning, annexation, land confiscation, imbalance between urban planning and protection of religious and cultural sites, the aforementioned legal framework have to implemented and enforced. It would guarantee a legal protection of Cremisan cultural landscape and its components, for the benefit of cultural heritage. Furthermore, it would assure its survival and protection against the various threats that negatively impact its integrity and authenticity, and impose restrictions at varying levels of intensity for the Cremisan properties within the boundaries of the proposed buffer zone.

The topography of Cremisan Valley offers a commanding breathtaking views of the surrounding villages and terraces of a unique irrigation system. It has the potential to expand on its area and act as a botanical garden. Traditional crops and its associated culture are in danger of being forgotten – the connection to a sense of cultural identity. Such botanical garden would serve as an 'open-air interpretation center' and preserve Cremisan's natural diversity under extinction, while it would protect the area from restrictive measures and military activities through the permanent presence of its locals.

The area can be divided into three zones (Fig. 35)

Zone A: This zone is very rich in rare, aesthetic, and unusual plants (e.g. Violet Limodore Limodorum abortivum that found in good numbers and only recorded from this area in the West Bank). Human visitation should not be allowed except in very rare and unusal circumstances (like research or service)

Zone B: This is an area near the bottom of the valley and is very rich in large mammals as well as some birds. Human visitation should be minimal

Zone C: This is a developed area that includes the monastery and the winery and spaces around them. Here human visitation and activities should be encouraged

Fig. 36. Proposed zones and paths (see text)

We also propose three hiking/sightseeng trails as shown on Fig. xxx:

Trail 1 Difficult down to the valley and then up hill (for athletics but also shown nice scenes and heavily forested areas where many wildlife can be seen)

Trail 2. Easies hike and one that families already enjoy basically along the road from Monastery to Loced gate

Trail 3. This is a seasonal path to open only from February to early April to see orchids and other flowers but also to see birds.

Trail 4. Medium path for exercise and also to reach top of hill for scenery

Each path should be well marked and visitors checked and instructed on sticking to paths. Paths can be measured and explanatory panels can be introduced along paths.

Fig. 37 Proposed area of green seasonal path (path 3) above grape vine orchards and from the side of the playground

10.4 Educational programs

Pilot school visits with an educational tilt were done and some lessons learned for future planning. The Palestine Institute for Biodiversity and Sustainability in collaboration with Cremisan have been holding a series of workshops revolving around conserving our nature. The workshops highlight how morals, cultures and religions encourage individuals to care for their environment. We introduce sayings and verses from prophets, the Quran and the Bible to make it easier for the kids to relate. We have held three workshops so far, and we foresee to hold another 6 workshops before the end of the year. Each workshop has 20-25 kids of mixed demographics. At the beginning of the workshop we play icebreaker games to give the children a chance to meet new friends. Then we hike a nature trail. This is where we discuss matters relating to religion and the environment. We usually find a spot under a tree to sit underneath to continue our educational conversations. Our expert enlightens the kids with interesting facts, and we leave some time for questions and open ended discussions. From here we gather around for a group breakfast and then we play an educational game (one of two games that the museum put together). After that we take a walk to the winery where we tour the factory which produces local wine, grape juice, olive oil and much more. Then we wrap up the day with a fun group game. So far, we have had 50 different students benefiting from our workshops. Each kid receives a T-shirt, a cap and a water bottle with the workshop motto on them: Together for a Better World. The kids have been enjoying their time, but at the same time have gotten to spend some time outdoors in nature as well as gained knowledge to care for and protect our environment.

On April 16, 2021, PIBS took 19 children (ages 6-12) to explore Cremisan Valley. The kids were provided with magnifying glasses in order to see the microorganisms and the

details of the biodiversity present in Cremisan. The kids spent 2 hours hiking the trail, exploring the fauna and flora, and learning about biodiversity. One challenge we faced that day is that the road that leads to Cremisan was blocked by Israeli soldiers. We almost cancelled the trip, but it wasn't until Prof. Mazin talked to the soldiers and requested special permission for us and the children to pass for educational purposes. photos: https://drive.google.com/drive/folders/11XUA3uCyLEbvAF61qQXMBKrhrsd7tF0C?usp=sharing

On June 23, 2021, we took another trip to Cremisan with 24 children as a part of the PIBS 2021 Summer Camp. We spent a whole day at cremisan (a total of 5 hrs). The kids learned about the importance of caring for nature, and how religion preaches about caring for nature. The kids also learned more about the biodiversity of plants and animals found at Cremisan. We also toured the winery at Cremisan and tried the grape juice produced in that same factory. Photos:

https://drive.google.com/drive/folders/1aYyUpAqiWw9e0S4stUd_2iJ1mvCDdQKp?usp=sharing

On 26 July, 2021 a third activity was held

Fig. 38 Last activity 26 July 2021

These activities showed significant lessons learned for planning future student activities and we encourage developing a systemic process of children education perhaps biweekly

Fig. 39. Elias Handal explaining to children about nature conservation issues

Cremisan Monastery offers a meeting hall for all kinds of its visitors, where sometimes, they would hold discussions, have a musical evening, and/or, have a meal (Gianazza 2020). The Monastery has the ability to tap into many potentials in the very same hall, including to offer a visitor information center, where films as an interpretation method would be presented. In this case, I offer a film suggestion that could be worked on by the Salesian Brothers and Sisters of Don Bosco, with cooperation of the local community surrounding as well.

It is recommended to share the history of the Salesian community in a chronological way, beginning from Father Belloni's mission in establishing Cremisan as an Orphanage until now. To put it simply, they can initiate 'from one generation to another' initiative, in which they would shed light on the role of the Don Bosco community in making history from a religious point of view, along with their traditions, practices and traditional knowledge that has been passed down orally for generations. Local knowledge can be expressed through stories, legends, folklore, rituals, songs - performed along with visual arts. The film would be displayed mainly for religious and cultural heritage visitors/tourists.

Fig. 40. Brochure for Cremisan: We recommend updating it to include paths, attractions, nature issues

10.5 Other attractions

Having its **winery** with its components: vineyards, wine presses and the natural cave where wine used to be stored in. The film would introduce the various vines used in Cremisan wine's production, Cremisan vineyard through history, agricultural tools used in harvesting, its wine's distinctive collections and their associations, and the many spiritual drinks produced by its vineyards including Arak, liqueurs and flavored brandies. Tourists would get knowledge of traditional forms of ancient agriculture in Cremisan Valley, and get to know the importance of wine production in the survival of the Salesian and the local community.

Fig 41. Cremisan wine's distinctive collections. Photo courtesy of Cremisan Wine Estate.


Fig 42. The Monastery's independent kitchen. Photo courtesy of L. Hayek.


Fig 43. A backyard nearby the wine cellars. Photo courtesy of Cremisan Wine Estate.

The presented backyard offers an incredible panoramic views of the agricultural terraces, an excellent spot for watching sunset. The provincial council can take part in "turning the backyard into a restaurant" (Batarseh 2020), taking into account the integrity of the yard along with its ancient wine barrels. In turn, the restaurant would provide sustainable sources of revenue for management and local communities, while the restaurant itself "would be supplemented by the Valley's crops, fruits and olive trees, olive oil, vinegar, wine, and in the near future, Cremisan Bee would be the new edition" (Batarseh 2020). Hence; fair tourism and fair trade would be the result (Batarseh 2020; Gianazza 2020).

Fig 44. Cremisan Monastery. Photo courtesy of the author.

10.6 Monitoring and Evaluation

The implementation of this EMB should be periodically monitored, preferably through quarterly review of progress and achievements, in addition to annual evaluation. And quarterly monitoring is suggested to be undertaken by MoTA, hence the annual evaluation is suggested to be carried out by the ministry with the support from external advisor to be hired for this purpose. The outcomes from the monitoring and evaluation process shall be used to keep respective decision makers informed about progress, achievements, constrains and limitations, overcoming strategies and actions, progress and efficiency of stakeholder's engagement, improvements in stakeholder's awareness and contribution to conservation efforts, socio-economic and environmental impacts (positive and negative), and other related considerations.

10.7 Potential Challenges

Implementation of similar management plans in Palestine is challenged by several factors, including:

1. Israeli occupation of Palestinian land and having the proposed tourism route/trail of Al Makhrour within 'B' category land under the peace treaty which limits the Palestinian people from taking benefit of their own natural and cultural

resources. To-date, the Israili occupation is still rejecting the development of infrastructure for tourism development in this area, and controls access to significant proportion by constructing the apartheid wall and enforcement of other forms of access restrictions.

2. Land tenure and ownership fragmentation
3. Lack of funding to cover the costs for the implementation of the BWHS management plan, and as will this plan. Fundraising is a top priority and should be arranged as soon as possible
4. Ambiguity and/or overlap of institutional responsibility which are discussed elsewhere in this plan. This forms a serious management challenge to the implementation of the management plans for the site and for nature conservation. Hence, improving collaboration and coordination between the Ministry of Tourism and all other stakeholders is very likely to successfully manage such a challenge.
5. Capacity limitations and current need for training of stakeholders, in particular with regard to the implementation of effective environmental, social, cultural and land use management measures. Relevant training needs to biodiversity conservation received particular attention in this management plan, and the implementation of these actions is likely to contribute to addressing such a limitation. Hence, long term programme is highly recommended to ensure continues improvement of stakeholders and partners skills and knowledge.
6. Vanishing traditional knowledge is a serious consideration, in particular with regard to traditional uses of the production landscape, traditional farming practices, traditional agro-industries, use of biological resources in sustainable way (e.g. harvest of herbal and medicinal plants), etc. It is highly recommended to carry out comprehensive study to document traditional knowledge in the area.

Table 6. Proposed budget

Activities	Budget (including indirect costs)
1. Marking paths and installing signs.	$ 12000
2. Annual maintenance.	$ 6000/annual
3. PR/Media work digital and video including 'from one generation to another' film initiative and history of Cremisan wine estate.	$ 8000
4. Update to botanical garden.	$5000

5. PR/Media work: Brochures	$ 4000
6. Workshops, meetings and field missions, including transportation and material to be used e.i laptops, digital cameras, papers, pens etc.	$ 5000/annual
7. Human resources capacity building	$ 4000
8. Bird watching station (tools & annual expense)	$ 5000
9. School programs	$ 5000 /annual

11 References

Abdallah, T. & Swaileh, K. 2011. Effects Of The Israeli Segregation Wall On Biodiversity And Environmental Sustainable Development In The West Bank, Palestine. International Journal Of Environmental Studies, 68, 543-555

Abu Hammad, A., 2016. Identification of important landscape areas in Palestine: the case of Battir area.

Abusarhan, M., Amr, Z.S., Ghattas, M., Handal, E.N. and Qumsiyeh, M.B., 2017. Grasshoppers and locusts (Orthoptera: Caelifera) from the Palestinian territories at the Palestine Museum of Natural History. Zoology and Ecology, 27(2), pp.143-155.

Abusarhan, M.A., Handal, E.N., Ghattas, M.M., Amr, Z.S. and Qumsiyeh, M.B., 2016. Some records of butterflies (Lepidoptera) from the Palestinian Territories. Jordan Journal of Biological Sciences, 9(1), pp.11-23.

Al sheikh,B.(2018) Conserving Wild Plant s in Palestine. 15,32-33,73-77. In Valderrabano,M.,G,T., Heywood,V., and Montmollin,B.(eds) Conserving Wild plants in the south and east Mediterrnean region. Gland, Switzerland and Malaga. Spain: IUCN. Xiii+146 pp

Al-Sheikh, B. and M. B. Qumsiyeh (accepted). New Records to the Flora of the West Bank, Occupied Palestinian Territories. Jordan Journal of Natural History

Al-Sheikh, B. and M. B. Qumsiyeh. 2021 in press. Imperiled ecosystems in Palestine: Rare plants as Indicators. In Dominic DiPaolo & John Villella Imperiled: The Encyclopedia of Conservation" Elsevier

Amr, Z. S., Mohamad H. Najajreh, Mubarak Zawahreh, Eike Neubert, Elias N. Handal, Mohamad A. Abu Baker and Mazin B. Qumsiyeh. 2018. Diversity and Ecology of the land snails of the Occupied Palestinian Territories. Zoology and Ecology. 28(1): 25-35.

Amr, Z.S., Handal, E.N., Bibi, F., Najajrah, M.H. and Qumsiyeh, M.B., 2016. Change in diet of the Eurasian eagle owl (Bubo bubo) suggests decline in biodiversity in Wadi Al Makhrour, Bethlehem Governorate, Palestinian Territories. Slovak Raptor Journal, 10(1), pp.75-79.

Anabtawi, R. 2016. Is Development Under Occupation Sustainable? : Agriculture As A Model (Permaculture). Master Thesis, Micad, Bethlehem University

Angioni G. 1986 Il sapere della mano, Palermo: Sellerio,

Anigoni, Giulio(curatore), Il lavoro e le sue rappresentazioni, volume monografico de <La Ricerca folklorica>, n.9, 1984; in particolare, i saggi dello stesso Angioni e di Cirese

Appleton, J. 1975 The experience of landscape. Wiley: Chichester

ARIJ 2006 Environmental impact assessment of the Israeli Segregation Plan on Battir village. Bethlehem: Applied Research Institute – Jerusalem

ARIJ 2007 Geopolitical Status of Bethlehem Governorate, Bethlehem: Applied Research Institute – Jerusalem

ARIJ 2015. Status Of Environment In Opt 2015 (But Actually Published In 2016) Http://Www.Arij.Org/Latest-News/779-The-Status-Of-Env-2015-2016.Html

ARIJ, 2010. Locality Profiles and Needs Assessments in the Bethlehem Governorate. Azahar Programme/Spanish Cooperation. The Applied Research Institute- Jerusalem (ARIJ).

ARIJ, 2010a. Battir Village Profile. The Apllied Research Insitute- Jersualem. Palestine

ARIJ, 2010b. Al WalajaVillage Profile. The Apllied Research Insitute- Jersualem. Palestine

ARIJ, 2010d. Beit Jala Village Profile. The Apllied Research Insitute- Jersualem. Palestine

ARIJ, 2011. Status of the Environment in the oPT: Human Rights Based Approach. The Applied Research Institute Jerusalem. Palestine.

Assunto, R. 1973 Il paesaggio e l'estetica. Napoli: Giannini

Avni, Zvi. Interview by Louisa Hayek. Update on Cremisan Valley Legal Case, Society of St.Yves, December 31, 2020.

Awad, S.I., Farhoud, M.H., Saada, R.K.A. and Busse, P., 2017. Long-term bird ringing in Palestine. The Ring, 39(1), pp.83-102.

Azim, M. A. & Gismann, A. 1956. Bilharziasis Survey In South-Western Asia: Covering Iraq, Israel, Jordan, Lebanon, Sa'udi Arabia, And Syria: 1950-51. Bulletin Of The World Health Organization, 14, 403.

Backleh, S. and Atrash, I., 2007. Lesser Kestrel Falco naumanni in habitat around Mar Saba Monastery, Jerusalem wilderness, Palestine. SANDGROUSE, 29(2), p.219.

Baldeschi, P. (ed.) 2000 Il Chianti fiorentino. Un progetto per la tutela del paesaggio. Bari: Laterza

Balfet H. 1981 Tecnologia, in Cresswell R., (curatore) Il laboratorio dell'etnologo, Il Mulino Bologna, vol. II, pp. 63-111;

Barque, A. 1995 Les raisons du paysage. Paris : Hazan

Barrel, J. 1980 The dark side of landscape. Cambridge: Cambridge University PressBar, A. & Haimovitch, G. 2011. A Field Guide To Reptiles And Amphibians Of Israel, Pazbar Limited.

Bar-Yosef, O., 1998. The Natufian culture in the Levant. Evolutionary Anthropology, 6(5), pp.167-168.

Bar-Yosef, O., Bar-Matthews, M. and Ayalon, A., 2017. ,xx000–11,700 cal BP The Collapse of Foraging and Origins of Cultivation in Western Asia. Megadrought and Collapse: From Early Agriculture to Angkor.

Bassous, R., 1997. Biodiversity in Palestine. The Status of the Environment in the West Bank. Chapter 16. The Applied Research Institute-Jerusalem. Palestine.

Bdir, S. & Adwan, G. 2011. Larval Stages Of Digenetic Trematodes In Melanopsis Praemorsa Snails From Freshwater Bodies In Palestine. Asian Pacific Journal Of Tropical Biomedicine, 1, 200-204.

Bdir, S. & Adwan, G. 2012. Three New Species Of Cercariae From Melanopsis Praemorsa (L. 1758, Buccinum) Snails In Al-Bathan Fresh Water Body, Palestine. Asian Pacific Journal Of Tropical Biomedicine, 2, S1064-S1069.

Beaufoy G, Baldock D, Clark J. 1994. The nature of farming: low-intensity farming systems in nine European countries. London: Institute for European Environmental Policy

Beaufoy G. 2001. The environmental impact of olive oil production in the European Union: practical options for improving the environmental impact. European Forum on Nature Conservation and Pastoralism / Peterborough, UK: Asociación para el Análisis y Reforma de la Política Agro-rural

Becker, N. and Farja, Y., 2018. Estimating the marginal cost of nature conservation: evidence from Israel. International Journal of Sustainable Development & World Ecology, 25(4), pp.340-350.

Ben-Avraham, Z., Ginzburg, A., Makris, J. and Eppelbaum, L., 2002. Crustal structure of the Levant Basin, eastern Mediterranean. Tectonophysics, 346(1-2), pp.23-43.

Benda, P., Lucan, R., Obuch, J., Reiter, A., Andreas, M., Backor, P., Bohnenstengel, T., Eid, E. K., Sevcik, M. & Vallo, P. 2010. Bats(Mammalia: Chiroptera) Of The Eastern Mediterranean And Middle East. Part 8. Bats Of Jordan: Fauna, Ecology, Echolocation, Ectoparasites. Acta Societatis Zoologicae Bohemicae, 74, 185-353.

Benedettucci, F.M. 1999 La campagna di prospezioni geofisiche e scavi archeologici della Fondazione Ing. M. Lercici a Samaria-Sebaste (1964)

Benelli, Hamdan and Piccirillo 2007 Sabastyia. Storia, conservazione e comunità locale. Ar Ram, Jerusalm: Edkadek Modern Press

Benvenisti, E. 2002 Sharing trans-boundary resources: International Law and optimal resource use. Cambridge: Cambridge University Press

Benvenisti, M. 2000 Sacred landscape. The buried history of holy land since 1948. Berkley, Los Angeles and London: University of California Press

Benyamini, D., 1983. Distribution list of the butterflies of Israel west of the Jordan River. Israel Journal of Entomology, 17, pp.23-36.

Benyamini, D., 1997. A field guide to the butterflies of Israel including butterflies of Mt. Hermon and Sinai. Keter Publishing House Ltd. Pp.234.

Benzinger, J., 1895. Bericht über neue Erscheinungen auf dem Gebiet der Palästinaliteratur 1894. Zeitschrift des Deutschen Palästina-Vereins (1878-1945), pp.189-236.

Biagiola, S. ed., 1978. Ricerca e catalogazione della cultura popolare. Museo Nazionale delle Arti e tradicioni popolari, Istituto Centrale per il catalogo e la documentazione.
Bierwert, C., 1999. Brushed by cedar, living by the river: coast salish figures of power. The University of Arizona Press, Tucson
Biodiversity Indicator Development Framework, 2011 Biodiversity Indicators Partnership, found at https://www.bipindicators.net/national-indicator-development/bidf
BirdLife International 2018a. Country profile: Palestinian Authority Territories. Available from http://www.birdlife.org/datazone/country/palestinian-authority-territories
BirdLife International 2018b. The World Database of Key Biodiversity Areas. Developed by the Key Biodiversity Areas Partnership: BirdLife International, IUCN, Amphibian Survival Alliance, Conservation International, Critical Ecosystem Partnership Fund, Global Environment Facility, Global Wildlife Conservation, NatureServe, Royal Society for the Protection of Birds, World Wildlife Fund and Wildlife Conservation Society. Available from http://www.keybiodiversityareas.org/site/results?reg=8&cty=240&snm=
Blanckenhorn, M., 1896. Entstehung und Geschichte des Todten Meeres. Ein Beitrag zur Geologie Palästinas. Zeitschrift des Deutschen Palästina-Vereins (1878-1945), pp.1-59.
Blanckenhorn, M., 1925. Die Seeigelfauna der Kreide Palästinas. Palaeontographica (1846-1933), 67, pp.83-114.
Bodenheimer, F. S. 1935. Animal Life In Palestine. Jerusalem
Boettger, O. 1878. Reptilien Und Amphibien Aus Syrien. Bericht Über Die Senckenbergische Naturforschende Gesellschaft In Frankfurt Am Main, 1879, 57-84.
Botmeh, J., 2006. Civil resistance in Palestine: the village of Battir in 1948. Master of Arts, Coventry University.www.preparingforpeace.org/pdfpapers/s2-JawadBotmeh.pdf
Boulos L. 1997. Endemic flora of the Middle East and North Africa. p. 229-260. In H.N. Barakat and A.K. Hegazy (eds.): Reviews in Ecology-Desert Conservation and Development. A festschrift for Prof. M. Kassas on occasion of his 75th birthday, Metropole, Cairo
Bourdieu, P. 1977. Outline of a theory of practice. Cambridge Univ. Press, Cambridge.
Bourdieu, Pierre, and Loïc Wacquant. 1992. An Invitation to Reflexive Sociology. University of Chicago Press.
Boyko, H., 1947. On the role of plants as quantitative climate indicators and the geo-ecological law of distribution. The Journal of Ecology, pp.138-157.
Brancucci, G. Ghersi, A. Ruggiero, E. 2000 Paesaggi liguri a terrazze. Riflessioni per una metodologia di studio. Firenze: Alinea Editrice
Brandt J, Vejre H (Eds), 2004 Multifunctional Landscapes Vol. I: Theory, Values and History. Southampton : WIT Press
Braun, M. and Hirsch, F., 1994. Mid Cretaceous (Albian-Cenomanian) carbonate platforms in Israel. Cuadernos de Geología Ibérica, ' 18, 59-81.
Breghiet A., Qanam K. 1998. Implementation of Modern Technology in the Development of Forest Resource. Ministry of Agriculture. Department of Forestry. West Bank.
Brett, J. 1988. Birds Of Prey In Palestine. Proc. Of The 1st Palestinian Ecology Conf., Department Of Life Sciences, Bethlehem University, Pp, 109-112.
Bricker, K. S., Black, R. & Cottrell, S. 2012. Sustainable Tourism And The Millennium Development Goals, Jones & Bartlett Publishers
Bucholtz Mary. "The Politics of Transcription." Journal of Pragmatics. 2000;32:1439–1465.
Canaan, T. 1924 Water and the water of life. Journal of Palestinian Oriental Society vol. IV
Canaan, T., 1928. Plant-lore in Palestinian superstition. Palestinian Oriental soc
Cardinale, B.J., Duffy, J.E., Gonzalez, A., Hooper, D.U., Perrings, C., Venail, P., Narwani, A., Mace, G.M., Tilman, D., Wardle, D.A. and Kinzig, A.P., 2012. Biodiversity loss and its impact on humanity. Nature, 486(7401), p.59.

Cirino, P. 2001 A perspection for the analysis of Proverbs about olive oil and plant, in Science and Technology for the safeguard of Cultural Heritage in the Mediterranean Basin. Alcalà: Universidad de Alcalà
Cirino, P. 2002 Indagini antropologiche in ambito ambientale nel rapporto tra paesaggio e cultura, in "Atti del Convegno CNR-ISAFOM", Portici (Napoli), 23-24 Settembre 2002, pp. 40-44, Napoli: Istituto per i Sistemi Agricoli e Forestali del Mediterraneo
Cirino, P. 2004 L'olivo e il paesaggio umbro: definizione di un concetto crocevia. pp 10-12 in " Olivi secolari della provincia di Perugia, vol. I, Il Bacino del Lago Trasimeno", Perugia: APROL
Cirino, P. 2006 Tradizioni popolari connesse all'olivicoltura. In " Dell'arte di cavar l'olio in Umbria. Tradizione e Innovazione", Perugia: APROL
Cirino, P. 2007. Valorizzazione territoriale, paesaggio, identità, sviluppo locale: appunti per un ecomuseo. In "Percorsi Umbri" Rivista di Informazione Antropologica della Provincia di Perugia, Università degli studi di Perugia, n. 1: 62-64
Clement, G. 1999 Le jardin planétaire. Réconcilier l'homme e la nature. Paris: Albin Michel
Clementi, A. 2002 Interpretazioni di paesaggio. Roma: Meltemi
CMP (The Conservation Measures Partnerships), Version3, April 2013. Open Standards for the Practice of Conservation of the Conservation Measures Partnership
COI 2000 World catalogue of olive varieties. Madrid: International Olive Oil Council
Cosgrove and Daniels 1989 The iconography of landscape. Cambridge: Cambridge University Press
Council of Europe 2000 European Landscape Convention I. Florence
Crowfoot and Baldensperger 1932 From cedar to hyssop: a study in the folklore of plants in Palestine. London: Sheldon Press
Crowfoot, G.M. 1952 Folktales of Artas. Palestine Exploration Quarterly LXXXIII / LXXXIV
Crowfoot, G.M.H., Baldensperger, L. 1932. From Cedar to Hyssop: A Study in the Folklore of Plants in Palestine, Sheldon Press, London.
Crowfoot, J.W. 1931 Work of the joint expedition to Samaria-Sabastyia, April and May 1931. PEFQS: 139-142, pls. I-II
Crowfoot, J.W. 1932 The expedition to Samaria-Sabastyia: the forum threshing floor area. PEFQS: 132, pl. I
Dafni A, Yaniv Z, Palewitch D. 1984. Ethnobotanical survey of medicinal plants in northern Israel. J Ethnopharmacol 10: 295–310
Dagan, Y., 2010. "Nahal Rephaim, Final report," Journal 122, Hadashot Archeoligiyot: Excavations and Surveys in Israel. Available at: http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1625
Daibes, F., & Daibes-Murad, F.2003. Water in Palestine: problems, politics, prospects. PASSIA, Palestinian Academic Society for the Study of International Affairs
Dajani, M. and L. Isma'il. 2014. Conscious Choices: A Guide To Ethical Consumerism In Palestine. Heinrich-Böll-Stiftung. Http://Ps.Boell.Org/En/2015/05/12/Conscious-Choices-Guide-Ethical-Consumerism-Palestine Http://Dm.Pcd.Ps/Sites/Default/Files/Land%20degradation%20in%20palestine.Pdf
Damhoureyeh, S. A., Qarqaz, M. A., Baker, M., Himdan, N., Eid, E. & Amr, Z. 2009. Reptiles And Amphibians In Dibbeen Nature Reserve, Jordan. Vertebrate Zoology, 59, 169-177.
D'Andrade, R.G., 1981. The cultural part of cognition. Cognitive Science, 5, 179-195.
Danin, A. 1988. Flora and vegetation of Israel and adjacent areas. p. 129- 157. The Zoogeography of Israel. Junk, Dordrecht.
Danin, A. 1992. Flora and vegetation of Israel and adjacent areas. Pp 129-159 in Y. Yom Tov and E. Tchernolv (eds) The Zoogeography of Israel. Dr. W. Junk Publishers, Dordrecht.
Danin, A. 2004. Distribution Atlas of Plants in the Flora Palaestina Area. The Israel Academy of Sciences and Humanities.
Danin, A. and Feinbrun-Dothan N., 1991. Analytical Flora of Eretz-Israel. CANA Publishing House Ltd, Jerusalem.

Dayan, T. Z. Ben-Avraham, R. Nathan, et al. 2011. Biodiversity Research and Higher Education at the Research Universities of Israel. YAHALOM — Academy Unit for Scientific Counsel and Evaluation, The Israel Academy of Sciences and Humanities, Jerusalem. http://www.academy.ac.il/SystemFiles/21705.pdf

DELTA and IMED 2007 Methodological guide for the development of territorial cultural systems. Roma: Edigraf

Disi, A. 1985. Environmental Factors Affecting Snake Distribution In Jordan. Proceedings Of The Symposium On The Fauna And Zoogeography Of The Middle East, Mainz. 296-310.

Disi, A. 2001. Amphibians And Reptiles Of The Hashemite Kingdom Of Jordan: An Atlas And Field Guide, Ed. Chimaira.

Disi, A. M. & Amr, Z. S. 2010. Morphometrics, Distribution And Ecology Of The Amphibians In Jordan. Vertebr Zool, 60, 147-162.

Dolev, A., Perevolotsky, A. and Lachman, E., 2004. Vertebrates in Israel: the red book. Israel Nature and Parks Authority.

Donadieu, P. 1998 Les Campagnes urbaine. Versailles: Actes Sud / ENPS

Dondina, O., Saura, S., Bani, L. and Mateo-Sánchez, M.C., 2018. Enhancing connectivity in agroecosystems: focus on the best existing corridors or on new pathways?. Landscape Ecology, 33(10), pp.1741-1756.

Dudeen, B. A. 2001 "The soil of Palestine. Current Status and future perspectives." In: P. Zdruli, P. Steduto, C. Lacirignola, L. Montanarella (eds.): Soil Resources of Southern and Eastern Mediterranean Countries. Options Méditerranéennes. no. 34. Bari : CIHEAM-IAMB

Dudeen, B.A.. 2012. Land Degradation In Palestine: Main Factors, Present Status And Trends, Recommended Actions. Land Research Center, Soil And Environment Department, Jerusalem

Eaton, M.M., 1997. The beauty that requires health. In: Nassauer, J. ed. Placing nature: culture and landscape ecology. Island Press, Washington, 85-106.

Edited by Tress, B., Tress, G. Fry, G. and Opdam, P. Springer edition

Ehlich, Konrad. 1993. "HIAT: A Transcription System for Discourse Data." Pp. 123–148. Talking Data: Transcription and Coding in Discourse Research. Jane Edwards and Martin Lampert, editors. Lawrence Erlbaum Associates.

El Zein R., 2017. Developing a Palestinian Resistance Economy through Agriculture Labor. Palestine Studies Organization.

Ellen, R. and Harris, H., 2000. Introduction. In: Ellen, R. and Parkes, P. eds. Indigenous environmental knowledge and its transformations: critical anthropological perspectives. Harwood Academic Publishers, Amsterdam, 1- 33.

EQA (Environmental Quality Authority) 2010. Isrategiayat Albi'a Alqita'iya (Environmental Sector Strategy). Environmental Quality Authority.

EQA 2015. Fifth National Report To The Convention On Biological Diversity. Https://Www.Cbd.Int/Doc/World/Ps/Ps-Nr-05-En.Pdf [Accessed May 13, 2016]. .

EQA, 2017. Battir as an Environmental Significant Eco-System, Ramallah: Environment Quality Authority

Erwin, T.L. 1982. Tropical forests: their richness in Coleoptera and other arthropod species. Coleopt. Bull. 36: 74-82.

Eshed, V., Gopher, A., Gage, T.B. and Hershkovitz, I., 2004. Has the transition to agriculture reshaped the demographic structure of prehistoric populations? New evidence from the Levant. American Journal of Physical Anthropology, 124(4), pp.315-329.

Evernden, N., 1992. The social creation of nature. Johns Hopkins University Press, Baltimore.

Fabbri, P. 1984 Introduzione al paesaggio come categoria quantificabile. Torino: Celid

Fabbri, P. 1997 Natura e cultura del paesaggio agrario. Indirizzi per la tutela e la progettazione. Milano: CittàStudiEdizioni

Fairclough, Norman. 1993. Discourse and Social Change. Polity Press.

FAO. 2018. The State of Agricultural Commodity Markets 2018. Agricultural trade, climate change and food security. Rome.

Feinbrun-Dothan N. 1986. Flora Palaestina. Vol. 4. The Israel Academy of Sciences and Humanities. Jerusalem.
Feinbrun-Dothan, N. (I 978). Flora Palaestina, Vols. 3 and 4, Israel Academy of Science and Humanities, Jerusalem.
Ferraro, G. "Mappe e sentieri. Un'introduzione alle teorie della pianificazione" CRU- Critica della Razionalità Urbanistica n. 6
Festa, E. 1894. Viaggio Del Dr. E. Festa In Palestina, Nel Libano E Regioni Vicine. Parte Narrativa. Bollettino Dei Musei Di Zoologia Ed Anatomia Comparata Della R. Università Di Torino, 172, 1-38.
Fishelson, L., 1985. Orthoptera Acridoidea. Israel Academy of Sciences and Humanities.
Fleskens, L., 2007 Conservation scenarios for olive farming on sloping land in the Mediterranean Doctoral Thesis, Wageningen University
Fontana Antonelli, G. 2007 Preserving cultural landscapes in Palestine: safeguarding historical and environmental resources toward a sustainable development. In: Proceedings of the International Conference: Conservation and management of landscapes in conflict regions. Birzeit: Birzeit University
Foucault, M. [1972] 1982 The Archaeology of Knowledge (Alan Sheridan, Trans.). Pantheon Books.
Foucault, M.[1979] 1995. Discipline and Punish: The Birth of the Prison (Alan Sheridan, Trans.). Vintage.
Fragman, O. U Pitman, U. Heller, and A. Schmida. 1999. Checklist and Ecological Database of the Flora of Israel and its surroundings. Jerusalem: Israel Nature & National Parks Protection Authority.
Franklin, N. 2004 Samaria: from the bedrock to the Omride Palace. Levant 36
Gambi, L. 1973 Una geografia per la storia. Torino: Einaudi
Gardner, Rod. 2001. When Listeners Talk: Response Tokens and Listener Stance. John Benjamins Publishing Company.
Garstecki, T., Al-Rabi, T., Mahassneh, M. & Mezyed, B. 2010. Assessment Of Some Palestinian Nature Reserves. International Union For Conservation of Nature.
Gastayer, S.P. 1999 Manathir Rabiyya: perceptions of landscape and landscape change in the Southern West Bank. In: Proceedings of the International Conference: Conservation and management of landscapes in conflict regions. Birzeit: Birzeit University
Gasteyer, S., Isaac, J., Hillal, J. & Hodali, K. 2012. Water Grabbing In Colonial Perspective: Land And Water In Israel/Palestine. Water Alternatives, 5, 450.
GEF (Global Environment Facility). 2012. GEF-SGP PAL Country Programme Strategy: Fifth Operational Phase (March 2011- Feb. 2014). UNDP and Palestinian Authority
GEF. 2013. The Experience Of The Global Environment Facility's Small Grants Program In Egypt And The Occupied Palestinian Territory" . Report.
Germain, L. & De Kerville, H. G. 1922. Mollusques Terrestres Et Fluviatiles De Syrie: Pélécypodes, Index Et 23 Planches. 1922, J.-B. Baillière Et Fils.
Ghattas R., 2008. Plant Biodiversity in the Palestinian Territory. This Week in Palestine. 118, 22-26.
Ghattas R., Hrimat N. and Isaac J., 2005. Forests in Palestine. Chapter 9. In: Valuing Mediterranean Forests: Towards total economic value. Editors: Merlo M. and Croitoru L. CABI Publishing, UK
Ghattas R., Sahouri N., Breghiet A., Mahassneh M., AlKhouri S., 2018. Management Plan for Wadi Janata/ Wadi Ein Al Zarqa Protected Area. Pioneer Consutlacy Center for sustainable Development submitted to Agriculture Development Association (PARC).
Ghattas/Bassous, R., Hrimat, N., Hisayneh, H., Khouri, S. 2007. Inventory of Forests in Palestine: Wadi Al Quf and Al Qarin forests. Applied Research Institute-Jerusalem (ARIJ). In Arabic
Ghrouf I. S. 2010. Proposed mechanisms for the development of Eco-Tourism in the Jordan Valley and the promotion of its expected role in achieving sustainable development. Master Thesis in Sustainable Rural Development, AlQuds University
Gianazza, Giorgio. 2020. Interview by Louisa Hayek. History of Cremisan Monastery and its Components. Cremisan Monastery, December 9, 2020
Gibson, J.J., 1979. The ecological approach to visual perception. Houghton Mifflin, Dallas.

Gilbert, H. and Mandaville, J.P., 2013. Bedouin Ethnohotany: Plant Concepts and Uses in a Desert Pastoral World. Tucson: University of Arizona Press

Goddard, M.A., Dougill, A.J. and Benton, T.G., 2010. Scaling up from gardens: biodiversity conservation in urban environments. Trends in ecology & evolution, 25(2), pp.90-98.

Gola, A., Perugini, N. and Samir, H., 2010. The recovery of historical paths for tourism as tool for social and territorial development: the palestinian case of Battir. Almatourism-Journal of Tourism, Culture and Territorial Development, 1(1), pp.60-66.

Görlach, B., Möller-Gulland, J., Bar-On, H. & Atrash, I. 2011. Analysis For European Neighbourhood Policy (Enp) Countries And The Russian Federation Of Social And Economic Benefits Of Enhanced Environmental Protection–Occupied Palestinian Territory Country Report. Occupied Palestinian Territory Country Report.

Greider, T. and Garkovich, L., 1994. Landscapes: the social construction and the environment. Rural Sociology, 59 (1), 1-24

Grossman, D. 1983 Settlements patterns in Judea and Samaria. Geo Journal 7

Guerin, J. 1852. Journee du Palestine, Vol 1-5, Paris.

Haber, W. 1990 Basic concepts of landscape ecology and their application in land management. In: Ecology for tomorrow. Phys. Ecol. 5° pan.

Haggerty Kevin. "Review essay: Ruminations on reflexivity." Current Sociology. 2003;51(2):153–162.

Halperin, J. & Sauter, W. 1991. An Annotated List With New Records Of Lepidoptera Associated With Forest And Ornamental Trees And Shrubs In Israel. Israel Journal Of Entomology, 25, 105-147.

Hamadni, M.S.S. 1998 'Asira el Shamalyia. Traditions and hope. Nablus: El Maktabe el Watanye, National Library Department

Hamdan, O. 2005 Problematiche generali di conservazione e gestione del patrimonio culturale della Palestina. In Maniscalco, F. ed. Tutela, conservazione e valorizzazione del patrimonio culturale della Palestina. Mediterraneum Vol 5, 13/24

Hamdan, S. J., El Massri, A. I. 1992 How to take care of olive trees. Hebron: Hebron University (in Arabic)

Handal, E. N. ,Aysha M. Al Wahsh , Zuhair S. Amr , Roberto Battiston, Mazin B. Qumsiyeh. Mantids (Dictyoptera: Mantodea) from the Palestinian Territories with an updated list. Articulata, in Press.

Handal, E.H. and Z. S. Amr. Additional localities for the Flower chafers (Coleoptera: Scarabaeidae: Cetoniinae) from the Palestinian Territories (West Bank). Jordan Journal of Biological Sciences, In Press.

Handal, E.H., Z. Amr, M.B. Qumsiyeh. 2015. Some records of Freshwater Snail from the Occupied Palestinian Territories. Jordan Journal of Natural History, 2: 23-29.

Handal, E.N., Z. S. Amr, M. B. Qumsiyeh. 2016. Some Records of Reptiles from the Palestinian Territories. Russian Journal of Herpetology, 23(4): 261-270.

Handal, Elias. 2018. Systematic Study, Ecology and Geographic Distribution of Land Snails (Mollusca) From the Occupied Palestinian Territories (West Bank). Master thesis, Birzeit University.

Harrison, D. L. & Bates, P. J. J. 1991. The Mammals Of Arabia, Harrison Zoological Museum Sevenoaks.

Harvell, C. D., Mitchell, C. E., Ward, J. R., Altizer, S., Dobson, A. P., Ostfeld, R. S. & Samuel, M. D. 2002. Climate Warming And Disease Risks For Terrestrial And Marine Biota. Science, 296, 2158-2162.

Hayek, Lisa. 2020. Site management: case study of cremisan monastery and its components. Unpublished course research.

Helal, H., & Khalilieh, A., 2005. National Report On Hunting. Palestine Wildlife Society (PWLS). Unpublished Report to the EU.

Heller, J. & Arad, Z. 2009. Land Snails Of The Land Of Israel: Natural History And A Field Guide, Pensoft.

Heller, J., Mordan, P., Ben-Ami, F. & Sivan, N. 2005. Conchometrics, Systematics And Distribution Of Melanopsis (Mollusca: Gastropoda) In The Levant. Zoological Journal Of The Linnean Society, 144, 229-260.

Hepper, Nigel, 1992. Illustrated Encyclopedia of Bible Plants. Text and illustrations. United Kingdom.

Heywood and Watson, 1995. Regional Overview of the Resource Situation and the Status of Utilization of Medicinal, Culinary and aromatic plants in the Near East. University of Reading.

Hjelle, K.L., Kaland, S., Kvamme, M., Lødøen, T.K. and Natlandsmyr, B., 2012. Ecology and long-term land-use, Palaeoecology and archaeology–the usefulness of interdisciplinary studies for knowledge-based conservation and management of cultural landscapes. International Journal of Biodiversity Science, Ecosystem Services & Management, 8(4), pp.321-337

Hosh, L., Miller, E. and Isaac, J., 1992. The Palestinian Environment: Between the Anvil of Sociopolitical Change and the Hammer of Occupation. Applied Research Institute of Jerusalem (ARIJ)

Hrimat, N. et-al., 2002. Palestinian Oral Plant History. Applied Research Institute-Jerusalem. Bethlehem.

http://www.environnement.ens.fr/IMG/pdf/nature11148.pdf

Hubbard, G.D. 1951 Agriculture in Palestine American Journal of Sociology Vol. 10 n. 3

Hull, E. and Fund, P.E., 1888. The Survey of Western Palestine.[5]. Memoir on the geology and geography of Arabia Petraea, Palestine, and adjoining districts: with special reference to the mode of formation of the Jordan-Arabah depression and the dead sea. Palestine Exploration Fund.

Hutchby, Ian, and Robin Wooffitt. 1998. Conversation Analysis: Principles, Practices and Applications. Polity

Hütteroth, W.D. and Abdulfattah, K., 1977. Historical geography of Palestine, Transjordan and Southern Syria in the late 16th [sixteenth] century (Vol. 5). Fränkische Geographische Ges..

Iacona, G.D., Sutherland, W.J., Mappin, B., Adams, V.M., Armsworth, P.R., Coleshaw, T., Cook, C., Craigie, I., Dicks, L.V., Fitzsimons, J.A. and McGowan, J., 2018. Standardized reporting of the costs of management interventions for biodiversity conservation. Conservation biology, 32(5), pp.979-988.

Important bird areas http://datazone.birdlife.org/site/results?cty=240&fam=0&gen=0 and http://datazone.birdlife.org/country/palestinian-authority-territories

Ingold, T. and Kurttila, T., 2000. Perceiving the environment in Finnish Lapland. Body and Society, 6 (3/4), 183-196.

Isaac, J, Gasteyer, S. (1995). The case of Biodiversity in Palestine. ICARDA, Syria.

Isaac, J. 2000. The Environmental Impact Of The Israeli Occupation. Information Brief, 27.. Available On: Http://Www.Thejerusalemfund.Org/Ht/Display/.

Isaac, J., 2002. An atlas of Palestine:(the West Bank and Gaza). Applied Res. Inst.

Isaac, J., Gasteyer, S. 1995 The case of biodiversity in Palestine. Syria: ICARDA

Isaac, Jad, Walid Halayqa, Jane Hilal, Anwar Qubaja Manal El-Butmah & Nael Jubran . 2005. The Environmental Impacts Assessment of The Israeli Segregation Plan nn Battir Village. Arij Reports https://www.arij.org/publications/papers/99-2005-papers/338-the-environmental-impacts-assessment-of-the-israeli-segregation-plan-on-battir-village.html https://bit.ly/2EOucLq

Isaac, R. K. 2010a. Alternative Tourism: New Forms Of Tourism In Bethlehem For The Palestinian Tourism Industry. Current Issues In Tourism, 13, 21-36.

Isaac, R. K. 2010b. Moving From Pilgrimage To Responsible Tourism: The Case Of Palestine. Current Issues In Tourism, 13, 579-590.

Isaac, R., C M Hall, F. Higgins-Desbiolles (Editors). 2016. The Politics and Power Of Tourism In Palestine. Routledge, New York.

Ishtayia, M. et al. 1995. The Protection of Palestinian Environment. The National Computer Center. Nablus. (In Arabic)

Ishtayia, M., Yaghmour R, Faidi Y, Salem K, Al-Nuri M (1998) Antimicrobial activity of 20 plants used in folkloric medicine in the Palestinian area. J Ethnopharmacol 60: 265-271.

Issa, Mahmoud. 2007. Oral History, Memory and the Palestinian Peasantry. Al-Majdal (published by Badil) 32:5-8

Issac, J. et al. (1983). Plants of Palestine and Ways of Classification. 8th Edition. Series of Environmental Awareness Studies. ARIJ. In Arabic

Issac, J. et al. (1985). Wild Flowers of Palestine. 9th Edition. Series of Environmental Awareness Studies. ARIJ. In Arabic

Ittelson, W.H., 1973. Environmental perception and contemporary perceptual theory. In: Ittelson, W.H. ed. Environment and cognition. Seminar Press, New York, 1-19.
Ives, R. L. 1950. The Palestinian Environment. American Scientist, 38, 85-104.
Jaradat, T. & Awad Allah, O. 2015. Legal Implications Of Accession Of The State Of Palestine To International Conventions On Resources And Protection Of Natural Resources [In Arabic]. . Http://Dspace.Up.Edu.Ps/Xmlui/Handle/123456789/139.
Jolly, D.A. and Reynolds, K.A., 2005. Consumer demand for agricultural and on-farm nature tourism. Small Farm Center, University of California-Davis
Juneidi 1994. Wild plants of Palestine and their medicinal values. International Engineering and Printing Company (IEC). Amman.
Juneidi, 1973. Natural Plants of Jordan and their ecological distribution. Amarzyan Publishing Co. Amman
Juneidi, F. 1994 Wild plants of Palestine and their medicinal values. Amman: International Engineering and Printing Company (IEC)
Kanaana, S. 2005 Struggling for survival. Essays on Palestinian Folklore and folklife. Al-Bireh: Society of In'ash el-Usra
Kaplan, R. and Kaplan, S., 1989. The experience of nature: a psychological perspective. Cambridge University Press, Cambridge.
Kaplan, R. and Talbot, J.F., 1988. Ethnicity and preference for natural settings: a review and recent findings. Landscape and Urban Planning, 15 (1/2), 107- 117.
Kaplan, S. and Kaplan, R., 1982. Cognition and environment: functioning in an
Kaplan, S., 1992. Environmental preference in a knowledge-seeking, knowledge- using organism. In: Barkow, J.H. ed. The adapted mind: evolutionary psychology and the generation of culture. Oxford University Press, New York, 581-598.
Karmon, Y., 1971. Israel: a regional geography. John Wiley & Sons.
Katbeh-Bader, A. & Amr, Z. S. Isma'el (1998 [2003]): The Butterflies Of Jordan. Journal Of Research On The Lepidoptera, 37, 11-26.
Katbeh-Bader, A., Amr, Z. & Schneider, W. 2002. Odonata Of Jordan. Fragmenta Entomologica, Roma, 34, 147-170.
Katsnelson, J., 1964. The variability of annual precipitation in Palestine. Archiv für Meteorologie, Geophysik und Bioklimatologie, Serie B, 13(2), pp.163-172.
Kellert, S., 1993. The biological basis for human values of nature. In: Kellert, S.R. and Wilson, E.O. eds. The biophilia hypothesis. Island Press, Washington, DC, 42-69.
Khalidi, W. 1992 All that remains. Washington D.C.: Institute for Palestine Studies
Khalilieh, A. 2016. Avifaunal baseline assessment of Wadi Al-Quff Protected Area and its Vicinity, Hebron, Palestine. Jordan Journal of Natural History, 3:58-69.
Khalilieh, A. Checklist of Birds of Palestinian Occupied Areas. Submitted.
Kharoob, S. 1992. The Common Birds Of Palestine. Educational Programme For Public Awareness And Participation, Applied Research Institute
Khlaif, N and MB Qumsiyeh. 2016. Genotoxicity of recycling electronic waste in Idhna, Hebron District, Palestine. International Journal of Environmental Studies
Kingery, W.D., Vandiver, P.B. and Prickett, M.., 1988. The Beginnings of Pyrotechnology, Part II: Production and Use of Lime and Gypsum Plaster in the Pre-pottery Neolithic Near East,. Journal of Field Archaeology, Volume Vol. 15, pp. 219-244
Kumar, A.N., Nambi, V.A., Rani, M.G., King, E.I.O., Chaudhury, S.S. and Mishra, S., 2015. Community agro biodiversity conservation continuum: an integrated approach to achieve food and nutrition security. Current Science, 109(3), p.474.
Lanternari, V. 2003 Eco-antropologia. Dall'ingerenza ecologica alla svolta etico-culturale. Bari: Dedalo
Lapadat J. and Lindsay, A. "Transcription in Research and Practice: From Standardization of Technique to Interpretive Positioning." Qualitative Inquiry. 1999;5:64–86.

Lartet, L. (1873). Essai sur la Geologie de la Palestine et des contrees avoisinantes telles que l'Egypte et l'Arabie. Deuxieme Partie. Paleontologie (p. 98) (G. Masson).
Lautze, J. and Kirshen, P., 2009. Water allocation, climate change, and sustainable water use in Israel/Palestine: the Palestinian position. Water International, 34(2), pp.189-203.
Lavergne, S., Mouquet, N., Thuiller, W. & Ronce, O. 2010. Biodiversity And Climate Change: Integrating Evolutionary And Ecological Responses Of Species And Communities. Annual Review Of Ecology, Evolution, And Systematics, 41, 321-350.
Lepczyk, C.A., Aronson, M.F., Evans, K.L., Goddard, M.A., Lerman, S.B. and MacIvor, J.S., 2017. Biodiversity in the city: fundamental questions for understanding the ecology of urban green spaces for biodiversity conservation. BioScience, 67(9), pp.799-807.
Leroi-Gourhan A. 1973 Mileu et techniques, Paris: Albin Michel,
Lev E. 2006. Healing with animals in Levant from the 10th to the 18th century. J Ethnobiol Ethnomed.; 2:11. doi:10.1186/1746-4269-2-11
Levin, N. & Shmida, A. 2007. Determining Conservation Hotspots Across Biogeographic Regions Using Rainfall Belts: Israel As A Case Study. Israel Journal Of Ecology & Evolution, 53, 33-58
Levin, N., 2006. The Palestine exploration fund map (1871–1877) of the holy land as a tool for analysing landscape changes: the coastal dunes of Israel as a case study. The Cartographic Journal, 43(1), pp.45-67
Levy, G. & Amitai, P. 1980a. Fauna Palaestina. Arachnida I: Scorpiones, Israel Academy Of Sciences And Humanities.
Levy, G. & Amitai, P. Scorpiones. 1980b. Israel Academy Of Sciences And Humanities.
Levy, G. 1985. Fauna Palestina, Arachnida Ii: Araneae: Thomisidae. Israel Academy Of Sciences And Humanities.
Levy, G. 1998. Arachnida Iii: Araneae: Theridiidae. The Israel Academy Of Sciences And Humanities, Jerusalem.
Lewis, J., 2000. Ancient values/new technology: emerging methods for integrating cultural values in forest management. University of British Columbia. Masters Thesis, Faculty of Forestry
Lewis, J.L. 2005 Challenges of interdisciplinarity for forest management and landscape perception research. In: From Landscape Research to Landscape Planning - Aspects of Integration, Education and Application
Lewis, N. 1953 "Lebanon. The mountain and its terraces". Geographical Review vol 43 n. 1. New York: American Geographical Society
Longo O. and Scarpi P. ed. 1989 Homo Edens, Regimi, Miti e Pratiche dell'alimentazione, nella civiltà del Mediterraneo, Verona: Diapress Documenti
Lynch, P. W., Official Report of the United States Expedition to the Dead Sea and the River Jordan," Baltimore, 1852; 4to. pp. 1–236, pl. 17
Magnaghi, A. (Ed) 1998 Il territorio degli abitanti. Milano: Dunod
Magnaghi, A. 2000 Il progetto locale. Torino: Bollati Boringhieri
Margalit, H. 1963 Some aspects of the cultural landscape of Palestine during the first half of XIX century. Israel Exploration Journal 13.
Martin, G.J., 2004. Ethnobotany: a methods manual. Earthscan.& WWF International, Taylor and Francis, Oxon
Matar, N.I. 1999 Renaissance cartography and the question of Palestine. In: Abu-Lughod, I., Heacock, R. Neshef, K. editors, Landscape of Palestine: equivocal poetry. Birzet: Birzeit Uiversity Publications
Mauro S., Santarossa L., Pigliacelli P., 2014. Mediterranean Experience of Ecotourism; A Survey of Ecotourism Best Practices in the World. Reviewed by Abu-Izzeddin F.. Federparchi-Europarc Italy / Al Shouf Cedar Society.
McCorriston, J. and Hole, F., 1991. The ecology of seasonal stress and the origins of agriculture in the Near East. American Anthropologist, 93(1), pp.46-69

Meining, D. 1979 The interpretation of ordinary landscape. Oxford-New York: Oxford University Press Meinig, D.W. 1979b The beholding eye: ten versions of the same scene. In: Meinig, D.W. ed. The interpretation of ordinary landscapes. Oxford University Press, New York, 33-48.

Mendelssohn, H., and Yom-Tov, Y. 1999. Fauna Palaestina. Mammalia of Israel. Israel Academy of Sciences and Humanities.

Merleau-Ponty M. 1962. Phenomenology of perception. Humanities Press, New York.

Mishler, Elliot. 1984. The Discourse of Medicine: Dialectics of Medical Interviews. Ablex.

Mitchell, N., Rossler, M. and Tricaud, P.M., 2009. World Heritage paper№ 26. World Heritage Cultural Landscapes. A hand book for conservation and management. 4/2/UNESCO/Cult/09/E

MNE (Ministry of National Economy; with Paltrade and International Trade Center) 2013. The State of Palestine National Export Strategy: Tourism Sector Export Strategy 2014-2018. https://www.paltrade.org/upload/multimedia/admin/2014/10/5448e728e1bd3.pdf

MoA (Ministry of Agriculture), 2016. National Agriculture Sector Strategy (2017-2022): Resilience and Sustainable Development. The State of Palestine. Ministry of Agriculture.

MOPAD (Ministry of Planning and Administrative Development) 2014. State of Palestine National Development Plan 2014-2016. http://www.mopad.pna.ps/en/images/PDFs/Palestine%20State_final.pdf

MoTA (Ministry of Tourism and Antiquities), 2013. Palestine, Land of Olives and Vines Cultural Landscape of Southern Jerusalem, Battir. World Heritage Site Nomination Document. Palestinian Ministry of Tourism and Antiquities. Department of Antiquities and Cultural Heritage Palestine.

MoTA (Ministry of Tourism and Antiquities), 2018. Ministry of Tourism and Antiquities Palestine, Land of Olives and Vines Cultural Landscape of Southern Jerusalem, Battir . Management and Conservation Plan. In cooperation with UNESCO

Muhawi, F.Y. 2007 A landscape of surveillance and control. In: Proceedings of the International Conference: Conservation and management of landscapes in conflict regions. Birzeit: Birzeit Unversity

Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A. B. & Kent, J. 2000. Biodiversity Hotspots For Conservation Priorities. Nature, 403, 853-858.

Nabulsi, Karma. 2007. The Role of Participatory Methods for Mobilizing Change. Al-Majdal (published by Badil) 32:14-16

Najajrah, M., Swaileh, K., & Qumsiyeh, M. (2019). Systematic list, geographic distribution and ecological significance of lady beetles (Coleoptera: Coccinellidae) from the West Bank (Central Palestine).

Nassauer, J.I. 1995 Messy ecosystems, orderly frames. Landscape Journal, 14 (2), 161-170

Nazarea, V. 1998. Cultural memory and biodiversity. University of Arizona Press, Tucson.

Nazer, Geelmyden, Jorgensen and Abu Hammad, 2007 Perception of landscape change in Artas Valley, West Bank, Palesitne. In: Proceedings of the International Conference: Conservation and management of landscapes in conflict regions. Birzeit: Birzeit Unversity

Neto, F., 2003. A New Approach To Sustainable Tourism Development: Moving Beyond Environmental Protection. In Natural Resources Forum (Vol. 27, No. 3, Pp. 212-222). Blackwell Publishing Ltd

Norberg-Schultz, C. 1979. Genius Loci. Milano: Electa

Obeidi, F., 2001. The Impact Of The Palestinian-Israeli Conflict On The Environment and The Role Of The Palestinian Environmental NGOs In Protecting The Environment. Peace Research Institute In The Middle East Talitha Kumi, Po Box, 7. Http://Vispo.Com/Prime/Enviro.Htm

Ochs, Elinor. 1979. “Transcription as Theory.” Pp. 43–72. Developmental Pragmatics. Elinor Ochs and Bambi Schieffelin, editors. Academic Press.

Orams, M. B. 1995. Towards A More Desirable Form Of Ecotourism. Tourism Management, 16, 3-8.

Orians, G. and Heerwagen J. 1992. Evolved responses to landscapes. In: Barkow, J.H. ed. The adapted mind: evolutionary psychology and the generation of culture. Oxford University Press, New York, 555-579.

PALES (Palestinian Institute for Arid Land and Environmental Studies, Hebron) 1996 Palestine: country record to the FAO international technical conference on plant genetic resources. Leipzig: FAO

Palestine Museum of Natural History (PMNH). 2018. Actions for environmental sustainability in Wadi Al-Zarqa Al-Ulwi. Bethlehem University.
Palestinian Authority, Ministry of Tourism and Antiquities 2003 Inventory of cultural and natural heritage sites of potential outstanding universal value in Palestine. Ramallah: MOTA
Palestinian Authority, Ministry of Tourism and Antiquities 2006. Cultural landscape in Palestine: Battir Region as a case study. Unpublished Technical Report
Palevits, D. & Yaniv, Z. 2000. Medicinal Plants Of The Holy Land.
Papa, C. 2007 Riflessioni sulla Convenzione europea del paesaggio. Umbria Contemporanea n. 8 June 2008
PCBS (Palestinian Central Bureau of Statistics), 2000-2015. (http://pcbs.gov.ps/Portals/_Rainbow/Documents/employment-2015-01a.htm)
PCBS (Palestinian Central Bureau of Statistics), 2000-2016. Labor Force Survey: Final Results. Ramallah. Palestine.
PCBS (Palestinian Central Bureau of Statistics), 2017. Preliminary results of the general of population, housing and establishments census. Palestine.
PCBS, (Palestinian Central Bureau of Statistics), 1997, 2001, 2011. Agriculture Census. Palestine.
Pearce, F. 2001 Terraces: the other wonders of the world. Eurozine Articles: http://www.eurozine.com/authors/pearce.html
PECDAR (Palestinian Economic Council for Development And Reconstruction). 1999. Tourism Development Strategy. Palestinian Economic Council For Development And Reconstruction.
Philip, J. 1978. Stratigraphie et pal_eo_ecologie des formations _a rudistes du Cenomanien; l'exemple de la Province. G_eologie M_edit_erran_eene, 5(1), 155e168
Pimenov, M.G. and Leonov, M.V., 2004. The Asian Umbelliferae biodiversity database (ASIUM) with particular reference to South-West Asian taxa. Turkish Journal of Botany, 28(1-2), pp.139-145.
Pitmann U., Heyen C., Danin A., and Shmida A. 1982. Pictorial Flora of Israel. The Hebrew University, Jerusalem.
Poland, Blake 2002. “Transcription quality.” Pp. 629–650. Handbook of interview research. Jaber Gubrium and James Holstein, editors. Sage.
Por, F. D. 1975. An Outline of the Zoogeography of the Levant. Zoologica Scripta, 4:5–20
Portnov, B. A. & Paz, S. 2008. Climate Change And Urbanization In Arid Regions. Annals Of Arid Zone, 47, 457.
Post, G.E. 1933 . Flora of Syria, Palestine and Sinai. Publications of the Faculty of Arts and Sciences, American University of Beirut, Beirut, Lebanon.
Press
Prime Minister’s Office/National Population Committee and UNFPA, 2016. Palestine 2030, Population Growth in Palestine and its Impact on socio-economic sectors.
Qumsiyeh MB. & Amr ZS. 2017. Environmental Conservation and Protected Areas in Palestine: Challenges and Opportunities. Hanns Seidel Foundation and Palestine Museum of Natural History.
Qumsiyeh, M, A. Khalilieh, I. M. Albaradeiya, and B. Al-Shaikh 2016. Biodiversity Of Wadi Al-Quf Area, Occupied Palestinian Territories: Challenges and Opportunities. Jordan Journal of Natural History, Volume 3, In Press
Qumsiyeh, M. B. 1985. The Bats Of Egypt, Texas Tech Press.
Qumsiyeh, M. B. 1996 Mammals Of The Holy Land, Texas Tech University Press.
Qumsiyeh, M. B. 2004. Sharing The Land Of Canaan: Human Rights And The Israeli-Palestinian Struggle, Pluto Pr.
Qumsiyeh, M. B., Amr, Z. S. & Al-Oran, R. M. 1998. Further Records Of Bats From Jordan And A Synopsis. Turkish Journal Of Zoology, 22, 277-284.
Qumsiyeh, M. B., Amr, Z. S., Srour, K. T. A. & Al-Fawaghra, N. 2014a. Karyotype For Nebo Hierichonticus (Simon 1872) From The Palestinian Territories (Scorpiones: Scorpionidae). Cytologia, 79, 277-280.

Qumsiyeh, M. B., Salman, I. N., Salsaa', M. & Amr, Z. S. 2013. Records Of Scorpions From The Palestinian Territories, With The First Chromosomal Data (Arachnida: Scorpiones). Zoology In The Middle East, 59, 70-76.

Qumsiyeh, M. B., Zavala, S. S. & Amr, Z. S. 2014b. Decline In Vertebrate Biodiversity In Bethlehem, Palestine. Jordan Journal Of Biological Sciences, 7, 101-107.

Qumsiyeh, M., Amr, Z. & Budari, A. 1996. Status And Conservation Of Artiodactyla (Mammalia) In Jordan. Mammalia, 60, 417-430.

Qumsiyeh, M.B. 2016. Fauna of Wadi Al-Quf: Amphibians, Reptiles and Mammals. Jordan Journal of Natural History, 3: 72-90.

Qumsiyeh, M.B. and Isaaq. J. 2012. Research and Development in the Occupied Palestinian Territories: Challenges and Opportunities. Arab Studies Quarterly, 34(3): 158-172.

Qumsiyeh, M.B., Handal, E., Chang, J., Abualia, K., Najajreh, M. and Abusarhan, M. 2017. Role of museums and botanical gardens in ecosystem services in developing countries: Case study and outlook. International Journal of Environmental Studies, 74(2): 340-350.

Qumsiyeh, MB 2013. The coming Environmental Nakba. Pp 57-59 in The Third Palestinian Environmental Awareness and Education, Conference. EEC, Bethlehem

Qumsiyeh, MB. 2018. Ethnoecology of Palestine: Preserving Culture Heritage of Palestine's Natural History. Conference Proceeeding. In press as a book. 4th Hyperheritage International Seminar (International Conference): Smart Heritage. http://europia.fr/HIS4

Quttaineh, I. 2015. Ecotourism Destinations Evaluation Based on Developmental Indicators: Computational Model. Master Thesis in Sustainable Rural Development, Al Quds University

Rapoport, M., 2006. "Buried treasures that's kept in the dark: An 'Archaeological Heart of Darkness' is how Dr. Rafi Greenberg has described Israel's behavior in the territories since 1967,". Haaretz, 17 December

Reisner, G.A. 1910 The Harvard Expedition to Samaria excavation of 1909. The Harvard Theological Review vol III, Cambridge, Mass.

Riesner, Fisher and Lyon 1924 The Harvard excavation at Samaria of 1908-1910. Cambridge, Mass: Harvard University Press

Rinawati, F., Stein, K. & Lindner, A. 2013. Climate Change Impacts On Biodiversity—The Setting Of A Lingering Global Crisis. Diversity, 5, 114-123.

Ritter, C., 1866. The comparative geography of Palestine and the Sinaitic Peninsula (Vol. 1). T. & T. Clark.

Robinson, E., 1856. Biblical Researches in Palestine and the Adjacent Regions: A Journal of Travels in the Years 1838 & 1852: in Three Volumes (Vol. 2). Murray, London

Robinson, E., and Smith, E., 1841. Biblical Researches in Palestine, Mount Sinai, Arabia and Petra, a Journal of Travels in the Year 1839. Vol. 1. Murray, London

RSCN. 2005. The Royal Society for the Conservation of Nature: Field Research Manual.

Rueff, H., Parizot, C., Israel, A.B. and Schwartz, M., 2008. Dryland afforestation and poverty alleviation: Bedouin and Palestinian non-timber forest product collectors in contrasting economic environments. Human Ecology, 36(6), 923-930

Russell, I.C., 1888. I. The Jordan-Arabah Depression and the Dead Sea. Geological Magazine, 5(8), pp.337-344.

Sa'ed, H.Z., Sawalha, A.F., Sweileh, W.M., Awang, R., Al-Khalil, S.I., Al-Jabi, S.W. and Bsharat, N.M., 2010. Knowledge and practices of pesticide use among farm workers in the West Bank, Palestine: safety implications. Environmental health and preventive medicine, 15(4), 252-261.

Said, E. 1993 Al-Hayat Newspaper, December 10, 1993

Said, E. 1999 Palestine: memory, invention and space. In: Abu-Lughod, I., Heacock, R. Neshef, K. editors, Landscape of Palestine: equivocal poetry. Birzet: Birzeit Uiversity Publications

Said, O., Khalil, K., Fulder, S. & Azaizeh, H. 2002. Ethnopharmacological Survey Of Medicinal Herbs In Israel, The Golan Heights And The West Bank Region. Journal Of Ethnopharmacology, 83, 251-265.

Salesian Brothers and Sisters of Don Bosco. Don Bosco in the Holy Land. Latin

Patriarchate of Jerusalem: 1991
Salman, I., Salsaa, M. and Qumsiyeh, M.B., 2014. Distribution and cytogenetics of amphibians from the occupied Palestinian territories (West Bank of Jordan). Jordan Journal of Natural History, 1, pp.116-130.
Sarhan, N., 1989. Palestinian Folklore Encyclopedia, Amman: Department of Culture, Palestine Liberation Organization
Sayej, G. J. 1999. The origin of terraces in the Central Hills of Palestine. In: Proceedings of the International Conference: Conservation and management of landscapes in conflict regions. Birzeit: Birzeit Unversity
Sbeah, Y. 2002 The guide program for the olive cultivation sector in Palestine. Olives in the Palestinian Territories. oPt: Arabic Organisation for Agricultural Development (in Arabic)
Scarpa David 1990. The Geology of the Cremisan Valley, Beit Jala. Bethlehem University Journal, Vol. 9, pp. 7-31.
Scarpa, D. The Geology of Cremisan Valley, Beit Jala. Bethlehem University Journal 9:7-31.
Scazzosi, L. (ed.) 2003 Landscape policies and cultures. New comparisons. Roma: Gangemi
Scazzosi, L. (ed.) 1999 Politiche e culture del paesaggio. Esperienze internazionali a confronto. Roma: Gangemi
Schama, S. 1995 Landscape and memory. New York: Knopf
Schegloff Emanuel. "Whose Text? Whose Context?" Discourse & Society. 1997;8:165–187.
Scherr, S.J. and McNeely, J.A., 2008. Biodiversity conservation and agricultural sustainability: towards a new paradigm of 'ecoagriculture'landscapes. Philosophical Transactions of the Royal Society of London B: Biological Sciences, 363(1491), pp.477-494.
Schroeder, D. & Lucas, J. C. 2014. Benefit Sharing. Encyclopedia Of Applied Ethics, 237-245.
Sciacca, F. 1998 L'olio d'oliva in Palestina: valutazione delle tecnologie tradizionali ed innovative, della rilevanza economica e del ruolo sociale. Dissertation thesis A.A. 1997-1998, tutor: Luigi Montanari. Perugia: Università degli Studi di Perugia, Facolta di Agraria.
Seger, K. (ed.) 1981 Portrait of a Palestinian village. London: Third World Centre for Research and Publishing
Settele, J., Hammen, V., Hulme, P., Karlson, U., Klotz, S., Kotarac, M., Kunin, W., Marion, G., O'connor, M. & Petanidou, T. 2005. Alarm: Assessing Large-Scale Environmental Risks For Biodiversity
Shirihai, H., Dovrat, E., Christie, D. A. & Harris, A. 1996. The Birds Of Israel, Academic Press London.
Shmida A., and Darom, D. 1990. Handbook of Wild Flowers of Israel. 3 vols., Keter Publishing House Ltd., Jerusalem.
Shokeh, K., 2012. The History of Battir, Bethlehem: CCHP
Slocombe, D. S. 1993. Environmental Planning, Ecosystem Science, And Ecosystem Approaches For Integrating Environment And Development. Environmental Management, 17, 289-303.
Society of Saint Yves, The Last Nail in Bethlehem's Coffin: The Annexation Wall in Cremisan. Jerusalem: The Catholic Centre for Human Rights: 2015
Solinas P.G ed. 1989 Gli oggetti esemplari. I documenti di cultura materiale in antropologia, Montepulciano-Siena: Editori del Grifo
Soto-Berelov, M., Fall, P.L. & Falconer, S.E , 2012. A revised map of plant geographical regions of the Southern Levant. Proceedings of the Geospatial Science Research Symposium GSR2. Melbourne.
Soto-Berelov, M., Fall, P.L., Falconer, S.E. and Ridder, E., 2015. Modeling vegetation dynamics in the Southern Levant through the Bronze Age. Journal of Archaeological Science, 53, pp.94-109.
Spiel, H. 1941 Magic Geography. Social Research 8
Stager, L.E. 1990 Shemen's estate. BASOR 277/278
Steiner, 1991 The living landscape. An ecological approach to landscape planning. New York: Mac Graw-Hill
Sternberg, M., Gabay, O., Angel, D., Barneah, O., Gafny, S., Gasith, A., Grünzweig, J. M., Hershkovitz, Y., Israel, A. & Milstein, D. 2015. Impacts Of Climate Change On Biodiversity In Israel: An Expert Assessment Approach. Regional Environmental Change, 15, 895-906.
Stork, N.E., 2018. How many species of insects and other terrestrial arthropods are there on Earth?. Annual review of entomology, 63, pp.31-45.

Strahorn, A.T. 1929 “Agriculture and soils in Palestine”. Geographical Review October 1929. New York: American Geographical Society
Sunderlin, W. D., Angelsen, A., Belcher, B., Burgers, P., Nasi, R., Santoso, L. & Wunder, S. 2005. Livelihoods, Forests, And Conservation In Developing Countries: An Overview. World Development, 33, 1383-1402
Szepesi, S. 2012. Walking Palestine: 25 Journeys Into The West Bank, Interlink Publishing.
Tal, A. 2002. Pollution In A Promised Land: An Environmental History Of Israel. University Of California Press.
Tamimi, A. R. 1996. A Technical Framework For Final Status Negotiations Over Water. Palestine–Israel Journal Of Politics, Economics And Culture, 3, 70-2.
Tchernov, E. & Yom-Tov, Y. 1988. Zoogeography Of Israel. The Zoogeography Of Israel, The Distribution And Abundance At A Zoogeographical Crossroad, Dr W. Junk Publishers, Dordrecht, Netherlands, 1-6.
Tengberg, A., Fredholm, S., Eliasson, I., Knez, I., Saltzman, K. and Wetterberg, O., 2012. Cultural ecosystem services provided by landscapes: assessment of heritage values and identity. Ecosystem Services, 2, pp.14-26.
Tristman, C. 1892. The Natural History of Palestine. Palestine Exploration Fund.
Tristram, H. 1866. Report On The Mammals Of Palestine. Proceedings Of The Zoological Society Of London, 84-93.
Tristram, H.B., 1884. The survey of Western Palestine: the fauna and flora of Palestine. Committee of the Palestine Exploration Fund.
Tsykalova, L., 2015. Culture in international relations: human security and sovereignty building in the Palestinian territories. Political Science Almanac, (16), pp.29-45.
Tuan, Y. 1979 “Thought and landscape. The eye and the mind’s eye”. In Meining: The interpretation of ordinary landscape. Oxford - New York: Oxford University Press
Tubaile A., Alkowni R. 2001 “Palestine”. In: Myrta A., Di Terlizzi B., Savino V. (eds.) Production and exchange of virus-free plant propagating material in the Mediterranean region. Options Méditerranéennes : Série B. Etudes et Recherches ; n. 35. Bari : CIHEAM-IAMB
Turri, E. 1974 Antropologia del paesaggio. Milano: Comunità
uncertain world. Praeger, New York
UNEP 2003 Desk study on the environment in the occupied Palestinian territories. Switzerland
UNEP 2003. Desk Study On The Environment In The Occupied Palestinian Territories. Http://Www.Unep.Org/Download_File.Multilingual.Asp?Fileid=105.
UNESCO (2001), First Proclamation of Masterpieces of the Oral and Intangible Heritage of Humanity, in www.unesco.org/culture/heritage.
UNESCO World Heritage Center, 2016. Operational Guidelines for the Implementation of the World Heritage Convention. Paris
Ussiskin, D., 1986- 1987.. Betar: The Last Stronghold of Bar Kochba., Haifa: Bulletin of the Anglo-Israel
Vachon, M. 1953. The Biology Of Scorpions. Endeavour, 12, 80-89.
Vachon, M. 1966. [List Of Scorpions Known In Egypt, Arabia, Israel, Libya, Syria, Jordan, Turkey, Iraq, Iran]. Toxicon: Official Journal Of The International Society On Toxinology, 4, 209-218.
Van Dijk Teun. “Critical Discourse Analysis and Conversation Analysis.” Discourse & Society. 1999;10:459–460.
Verner, Dorte (Editor). 2012. Adaptation to a Changing Climate in the Arab Countries: A Case for Adaptation Governance and Leadership in Building Climate Resiliance. The World Bank, Washington, DC
Visconti, P., et al. (2016). Projecting global biodiversity indicators under future development scenarios. Conservation Letters, 9(1), 5-13. https://onlinelibrary.wiley.com/doi/full/10.1111/conl.12159
Wagner, M.M. and Gobster, P.H. 2007 Interpreting landscape change: measured biophysical change and surrounding social context.]

Wagstaff, M. 1999 The mountain and the plain: some themes of continuity and change in Palestinian landscapes. In: Abu-Lughod, I., Heacock, R. Neshef, K. editors, Landscape of Palestine: equivocal poetry. Birzet: Birzeit Uiversity Publications
Weizman, E., 2012. Hollow land: Israel's architecture of occupation. Verso Books.
Werner, Y. L. 1988. Herpetofaunal Survey Of Israel (1950-85), With Comments On Sinai And Jordan And On Zoogeographical Heterogeneity. Monographiae Biologicae, 62, 355-388.
Wezel, A., Casagrande, M., Celette, F., Vian, J.F., Ferrer, A. And Peigné, J., 2014. Agroecological Practices For Sustainable Agriculture. A Review. Agronomy For Sustainable Development, 34(1), Pp.1-20
Whitaker Jr, J., Shalmon, B. & Kunz, T. 1994. Food And Feeding Habits Of Insectivorous Bats From Israel. Zeitschrift Fur Saugetierkunde, 59, 74-81.
Whyte, R.O., 1950. The phytogeographical zones of Palestine. Geographical Review, 40(4), pp.600-614.
Wikum, D.A. and Shanholtzer, G.F., 1978. Application of the Braun-Blanquet cover-abundance scale for vegetation analysis in land development studies. Environmental management, 2(4), pp.323-329.
Wilson, E. O. & Peter, F. M. 1988. Biodiversity. Washington, D.C: National Academy Press
Wright, J.K. 1977 Map makers are human: comments on the subjective in maps. Cartographica 19
Yom-Tov, Y. 2003. Poaching Of Israeli Wildlife by Guest Workers. Biological Conservation, 110: 11-20
Zohary, M. 1966. Flora Palaestina. Vol. 1. The Israel Academy of Sciences and Humanities. Jerusalem.
Zohary, M. 1972. Flora Palaestina. Vol. 2. The Israel Academy of Sciences and Humanities. Jerusalem.
Zohary, M. 1973. Geobotanical Foundations Of The Middle East. CRC Press.
Zohary, M. 1978. Flora Palaestina. Vol.3. The Israel Academy of Sciences and Humanities. Jerusalem.
Zohary, M., 1947. A vegetation map of Western Palestine. The Journal of Ecology, pp.1-19.
Zohary, M., and Feinbrun-Dothan, N. 1986. Flora Palaestina. Vol.4. The Israel Academy of Sciences and Humanities. Jerusalem.
Zohary, M., and Feinbrun-Dothan, N. 1986. Flora Palaestina. Vol.4. The Israel Academy of Sciences and Humanities. Jerusalem.
Zonstein, S. & Marusik, Y. M. 2013. Checklist Of The Spiders (Araneae) Of Israel. Zootaxa, 3671, 1-127.
Zube, E. and Pitt, D., 1981. Cross-cultural perception of scenic and heritage landscapes. Landscape Planning, 8, 69-87.
Zvi, Y.D. Ron 1968 Battir, the village and the system of irrigated terraces. 10, Teva va Arets 112/121 (in Hebrew)
Zvi, Y.D. Ron 1985 Development and management of irrigation system in mountainous regions of the holy land Trans. Inst. Br. Geogr. NS 149-69

List of Relevant Websites

http://www.iucnredlist.org/
http://www.keybiodiversityareas.org/
http://visitpalestine.ps/wadi-makhrour-just-sunset/
http://datazone.birdlife.org/country/palestinian-authority-territories
http://datazone.birdlife.org/site/results?cty=240&fam=0&gen=0
http://whc.unesco.org/en/list/1492
https://gc21.giz.de/ibt/var/app/wp342P/1844/index.php/al-makhrour-valley-the-house-of-birds-and-apricot-in-palestine/
http://www.travelpalestine.ps/en/article/41/Battir
http://thisweekinpalestine.com/wp-content/uploads/2015/05/MUSEUM-REVIEW.pdf
http://www.environment.pna.ps/ar/files/Third_national_Report_On_Biodiversity.pdf (page 57)
https://www.unrwa.org/userfiles/2011081763638.pdf (more about the political situation of Al Walaja but also good one)
http://www.bic.com.ps/bcc/images/BaNF%20Final.pdf

Table 1: Management Objectives and Actions Proposed

No.	Component / Objective	No.	Action
Component (1): Nature Conservation			
1.1	Effective and sustainable land use management to protect the productivity of the cultural landscape and to conserve its biodiversity	1.1.1	Establishment of a Management Advisory Committee to include representatives from Cremisan management and the local communities.
		1.1.2	Development and implementation of effective capacity building program for key stakeholders
		1.1.3	Development and enforcement of biodiversity responsible land use plan including environmentalyl sensitivity mapping and to prepare geodatabase of all biodiversity information thus to aid informed land use planning.
		1.1.4	Develop ecozones and pathways in ways to conserve biodiversity
		1.1.5	Development and implementation of pilot biodiversity conservation measures and/or projects such as propagating wild species and planting native trees
Component (2): Socio-economic Enhancement			
2.1	Stimulate and support the transition of agricultural practices into eco-farming (nature friendly agriculture)	2.1.1	Expand study of current agricultural practices and their impact on the environment.
		2.1.2	Develop awareness raising and training programme for employees of Cremisan
		2.1.3	Plant medicinal plants and herbs around vineyards
2.2	Promoting local and international tourism	2.2.1	Develop plans and facilities for a) agricultural tourism, b) cultural tourism, c) ecotourism.
		2.2.2	Develop training programme/capacity building
		2.2.3	Develop awareness raising and publicity. This includes a brochure explaining available attractions
Component (3): Environmental Outreach, Capacity Building and Awareness			
3.1	Implementation of capacity building programme on biodiversity conservation and protection of capitalization of productive cultural landscapes targeting project partners and key stakeholders	3.1.1	Undertake training needs assessment for all project partners and key stakeholders, and develop capacity building programme
		3.1.2	Implement the capacity building programme and provide mechanism for on-job training and mentoring for the organizations responsible for the implementation of the management plan.
3.2	Develop, implement and monitor the implementation of effective stakeholders' engagement and outreach	3.2.1	Develop and maintain information sharing and awareness website for Cremisan with emphasis on the value of productive landscape and the need to conserve it and to protect biodiversity

	programme focusing on nature conservation within BWHS	3.2.2	Development and maintenance of effective information sharing mechanism between the different stakeholders
		3.2.3	Community-level awareness programme on the value of productive cultural landscape, and the need to protect its identity and resources, to conserve its biodiversity and heritage, and to capitalize on natural resources to improve the livelihood of the locals
		3.2.4	Development and implementation of awareness programme targeting government authorities and NGOs on measures to conserve traditional uses of productive landscape and its biodiversity
		3.2.5	
3.3	Develop, implement and monitor the implementation of effective school student's environmental education programme	3.3.1	Development and implementation of environmental education programme targeting school students in schools. This may include educational events, publications and electronic awareness materials, outdoor activities for nature conservation clubs (e.g. waste collection campaigns, tree planting campaigns, other voluntary works, etc.)
		3.3.2	Establish and organize annual (or seasonal) nature celebration hike and markets (one at the start point of the hike and one at the end point) to increase the number of visitors through promotion and marketing of the trail to locals, expats and tourists. This market will allow local producers to market and sell their products directly to the visitors. These events should be well prepared for in collaboration with the Ministry of Tourism, Wallaja and Beit Jala officials, and other directly related stakeholders.
3.4	Develop, implement and monitor the implementation of effective visitors management	3.4.1	Site carrying capacity study can be evaluated via initial visits (currently suggested 50-100 maximum at one time in site. Prior reservations would be needed and the plan should identify options for effective environmental management of the visitors and their impacts on the productive landscape and biodiversity
		3.4.2	Prepare, based on the findings from the carrying capacity study, comprehensive visitor's management plan and system
		3.4.3	Develop, implement and maintain effective waste management system for the tourism trail based on reduce/segregate principals. This include installation and maintenance of adequate waste bins, environment-friendly waste collection and transport methods, reuse/recycle of segregated waste and final disposal of residual waste at sanitary landfill
		3.4.4	Development of small-scale composting initiative of organic waste from agriculture and tourism operations to be used as fertilizers in agriculture

The Palestine Institute for Biodiversity and Sustainability (PIBS) and its offspring, the Palestine Museum of Natural History (PMNH) and ecological botanical gardens at Bethlehem University were started in 2014. PMNH opened to the public in 2017 and its modest cultural heritage exhibit (first of its kind in quality in our region) opened April 2019. The vision is sustainable human and natural communities/ecosystems. Our mission focuses on work to research, education about, and conservation of our natural world, culture and heritage and use knowledge to promote responsible human interactions with our environment. Our motto is RESPECT – first for ourselves, then for others, then for the environment. We published 15 research papers in 2018 in peer reviewed journals as well as many reports and book chapters. We successfully implemented over 12 large projects (and many smaller ones). We are currently engaged in several funded research projects (over $1.2 million in 2019 & 2020 via Darwin Initiative, National Geographic Society, Ministry of Education, Rotary Club Global grant, and British Council). By having visitors at the museum who interact with staff and exhibits and having beneficiaries for our projects of sustainable development, society is transformed. We already helped thousands of school and university students as well as thousands of visitors over the past two years via our environmental and agricultural awareness programs. For example agricultural engineers from Gaza came here to learn how to do aquaponic systems (growing fish and vegetables with limited resources) and farmers in marginalized villages learned permaculture. Students developed environmental clubs at school and are now working hard with us to reduce our carbon footprint. Our work on climate change has been exemplary. The 2018 annual report is here describing activities and accomplishments: https://www.palestinenature.org/wp-content/uploads/2019/01/Annual-Report-2018.pdf

Annex 1: Full List of Cremisan Flora

species name	Common Name	family	status	IUCN
Acacia saligna		leguminosae	C	N/A
Adonis cupiana	Small Pheasant`s Eye	Ranunculaceae	CC	N/A
Aegilops kotschyi	Desert Goatgrass	Poaceae	C	N/A
Agilops peregrina		Poaceae	CC	N/A
Ajuga chia	Chian Bugle	Labiatae	CC	N/A
Alkanna strigosa	Strigose Alkanet	Boraginaceae	C	N/A
Allium neopolitanum	Naple`s Garlic	Liliaceae	C	N/A
Allium sp.		Liliaceae		N/A
Allium trifoliata	Hirsute Garlic	Liliaceae	C	DD
Amygdalus communis	Wild Almond	Rosacaea	CC	N/A
Anagallis arvensis	Scarlet Pimpernel	Primulaceae	CC	N/A
Anchusa strigosa	Prickly Alkanet	Boraginaceae	CC	N/A
Anemone coronaria	Crown Anemone	Ranunculaceae	CC	N/A
Anthemis pseudocotula	Common Chamomile	Compositae	CC	N/A
Arbutus andrachne	Eastern strawberry Tree	Ericaceae	C	LC
Arum palaestinum	Palestine Arum	Araceae	F	LC
Asparagus aphyllus	Prickly Asparagus	Asparagaceae(Liliaceae)	CC	N/A
Asteriscus spinosus	Starwort	Compositae	C	N/A
Astragalus hamousus	Dwarf Yellow Milk- vetch	leguminosae	F	N/A
Atractylis comosa	Beautiful Distaff Thistle	Compositae	C	N/A
Avena barbata	Slender Oat	Poaceae	CC	N/A
Avena sterilis	Wild Oat	Poaceae	CC	N/A
Ballota saxitilis		Labiatae	C	N/A
Bellevalia eigii	Eig`s Roman Squill	Liliaceae	F	N/A

Bellevalia flexsousa	Common roman Squill	Liliaceae	CC	N/A
Biscutella didyma	Buckler Mustard	Cruciferae	CC	N/A
Brachypodium distachyon	Purple False-brome	Poaceae	CC	N/A
Bromus alopecurius	Foxtail Brome	Poaceae	F	N/A
Bromus madretensis	Madrid Brome	Poaceae	C	N/A
Bromus scoparius	Brown Brome	Poaceae	C	N/A
Bromus sterilis	Barren Brome	Poaceae	C	N/A
Buglossoides incrassata		Boraginaceae	RR	N/A
Calycotome villosa	Spiny Brome	leguminosae	CC	N/A
Campanula rapanculus	Rampion Bellflower	Campanulaceae	C	N/A
Campanula strigosa		Campanulaceae	C	N/A
Capsella bursa-pastoris	Shephards`s Purse	Cruciferae	CC	N/A
Carduus argentatus	Silvery Thistle	Compositae	CC	N/A
Carlina curetum	Involcurate Carline Thistle	Compositae	CC	N/A
Carthamus tenuis	Slender Saffron	Compositae	CC	N/A
Centaurea sp.		Compositae		N/A
Cerastium dichotomum		Caryophyllaceae	F	N/A
Ceratonia siliqua	Carob	leguminosae	C	LC
Chiliadenus iphionoides	Goldy-Locks	Compositae	CC	N/A
Cistus creticus	Soft-Hairy Rockrose	Cistaceae	CC	N/A
Cistus salviifolius	Sage-Leaved Rockrose	Cistaceae	CC	N/A
Conyza bonariansis	Horse Weed	Compositae	CC	N/A
Coridothymus capitatus	Headed Thyme	Labiatae	CC	LC
Coronella cretica	Cretan Crown Vetch	leguminosae	R	N/A
Crataeagus aronia	Spiny Hawthorn	Rosacaea	C	N/A
Crepis hierosolymitana	Jerusalem Hawk`s Beard	Compositae	C	N/A
Crepis sancta		Compositae	CC	N/A
Crupina crupinastrum	False Saw-Wort	Compositae	CC	N/A
Cupressus arizonica		Cupressaceae	F	N/A
Cupressus sempervirens	Funeral Cypress	Cupressaceae	C	N/A
Cupressus sp.		Cupressaceae		N/A
Cyclamen persicum	Persian cyclamen	Primulaceae	CC	N/A
Cynosurus echinatus	Rough Dog`s Tail	Poaceae	F	N/A
Dactylis glomerata	Rough Cock`s Foot	Poaceae	CC	N/A
Daucus carrota	Wild Carrot	Umbeliferae	CC	N/A
Echinops adenocaulis	Common Globe Thistle	Compositae	CC	N/A
Echium angustifolium	Hispid Viper`s Bugloss	Boraginaceae	CC	N/A
Ephedra aphylla	Leafy shrubby Hosetail	Ephedraceae	CC	N/A
Erodium acaule	Roman strok`s Bill	Geraniaceae	R	N/A
Erodium cicutaurium	Common Strok`s Bill	Geraniaceae	CC	N/A
Erodium gruinum	Crane Stork`s-Bill	Geraniaceae	CC	N/A
Erodium malacoides	Mallow Strok`s Bill	Geraniaceae	CC	N/A
Eryngium creticum	Field Eryngo	Umbeliferae	CC	N/A
Eryngium glomeratum		Umbeliferae	CC	N/A
Eucalyptus camaludensis	River Red Gum	Myrtaceae	C	N/A
Euphorbia peplus	Petty Spurge	Euphorbiaceae	CC	N/A
Ferula sp.	Giant Fennel	Umbeliferae	C	N/A
Ficus carica	Fig	Moraceae	CC	N/A

Filago contracta	Cotton Rose	Compositae	C	N/A
Filago pyramidata	Cotton Rose	Compositae	CC	N/A
Foeniculum vulgare	Common Fennel	Umbeliferae	CC	N/A
Fumana arabica	Arabian Cistus	Cistaceae	C	N/A
Fumana thymifolia	Clammy cistus	Cistaceae	CC	N/A
Fumaria densiflora	Dense-Flowered fumitery	Fumeraceae	CC	N/A
Geranium molle	Dov`s Foot Crane`s-Bill	Geraniaceae	CC	N/A
Geranium robertianum	Purple crane`s-Bill	Geraniaceae	C	N/A
Geropogon hybridus	Goat`s Beard	Compositae	C	N/A
Gynandriris sisyrinchium	Barbary Nut	Iridaceae	CC	N/A
Helianthemum salisifolium	Willow-Leaved Sun-Rose	Cistaceae	CC	N/A
Helianthemum syriacum	Lavender-Leaved Sun-Rose	Cistaceae	R	N/A
Helichrysum sanguineum	Red Everlasting	Compositae	C	N/A
Heptaptera anisoptera		Umbeliferae	F	N/A
Helminthotheca echioides	Bristly Ox-Tongue	Compositae	F	N/A
Hirschfeldia incana	Hoary mustard	Cruciferae	CC	N/A
Hordeum marinum	Sea Barley	Poaceae	CC	N/A
Hordeum spontaneum	Wild Barly	Poaceae	CC	N/A
Hymenocarpos circinnatus	Desk Trefoil	leguminosae	C	N/A
Hypericum lanuginosum	Downy St.John`s-Wort	Hypericaceae	F	N/A
Inula viscosa	Clammy Inula	Compositae	CC	N/A
Iris vartanii	Vartan`s Iris	Iridaceae	O	LC
Kickxia aegyptiaca	Egyptian Toadflax	Scropholariaceae	C	N/A
Lactuca serriola	Prickly lettuce	Compositae	CC	N/A
Lactuca tuberosa	Wild Lettuce	Compositae	C	N/A
Lamium amplexicaule	Henbit Deadnettle	Labiatae	CC	N/A
Lamium moschatum	Musk Deadnettle	Labiatae	F	N/A
Lathyrus aphaca	Yellow Vetchling	leguminosae	C	N/A
Lavatera cretica	Creetan Tree Mallow	Malvaceae	CC	N/A
Limodorum abortivum	Violet Limodore	Orchidaceae	R	LC
Lolium rigidum	Rigid Rye-Grass	Poaceae	CC	N/A
Lomelosia argentea	Silvery Scabious	Dipsacaceae	RR	N/A
Lonicera etrusca	Italian Honeysuckle	Caprifoliaceae	C	N/A
Lotus collinus	Bird`s Foot Trifol	leguminosae	C	N/A
Lotus peregrina	Flat-Podded Bird`s Foot Trefoil	leguminosae	CC	N/A
Malcolmia chia		Cruciferae	F	N/A
Malva nicaeensis		Malvaceae	CC	N/A
Medicago coronata	Crown Medick	leguminosae	C	LC
Medicago orbicularis	Flat-Podded Medick	leguminosae	C	LC
Medicago polymorpha	Bur Clover	leguminosae	CC	LC
Medicago rugosa		leguminosae	R	LC
Melilotus sulcatus	Grooved Melilot	leguminosae	C	N/A
Micromeria nervosa		Labiatae	C	N/A
Minaurtia hybrida	Fine-Leaved Sandwort	Caryophyllaceae	CC	N/A
Nonea obtusifolia		Boraginaceae	CC	N/A
Onobrychis squarrosa		leguminosae	CC	N/A
Ononis mitissima	Cluster-Flowered Rest-Harrow	leguminosae	O	N/A

Ononis spinosa	Tall Spiny Rest-Harrow	leguminosae	CC	N/A
Ononis viscosa	Clammy Red-Harrow	leguminosae	C	N/A
Onopordum cynarocephalum	Artichoke Cotton Thistle	Compositae	F	N/A
Onosma orientalis	Syrian Golden-Drop	Boraginaceae	CC	N/A
Ophrys iricolor	Iris Coloured Bee Orchid	Orchidaceae	RP	N/A
Ophrys lutea	Yellow Bee Orchid	Orchidaceae	F	LC
Ophrys sphegodes		Orchidaceae	R	LC
Orchis anatolica	Anatolian Orchid	Orchidaceae	C	LC
Orchis galilaea	Galilee Orchid	Orchidaceae	F	LC
Orchis papilionacea	Pink Butterfly Orchid	Orchidaceae	CC	LC
Orchis tridentata	Toothed Orchid	Orchidaceae	CC	LC
Ornithogalum eigii		Liliaceae	C	N/A
Ornithogalum narbonense	Narbonne Star-of-Bethlehem	Liliaceae	CC	N/A
Osyris alba	Poet`s Cassia	Santalaceae	C	N/A
Oxalis pes-carpae	Nodding Wood-Sorrel	Oxalidaceae	R	N/A
Parentucellia latifiolia	Broad-Leaved Eyebright	Scropholariaceae	F	N/A
Parietaria judaica	Wall Pellitory	Urticaceae	CC	N/A
Phagnalon rupestre	African Fleabane	Compositae	CC	N/A
Phlomis viscosa	Shrubby Phlomis	Labiatae	C	N/A
Picnomon acarna	Yellow bloom Thistle	Compositae	C	N/A
Pinus c.f brutea	Cyprus Pine	Pinaceae	F	N/A
Pinus canariensis	Canary Pine	Pinaceae	R	N/A
Pinus halapensis	Aleppo Pnie	Pinaceae	CC	N/A
Piptatherum miliaceum	Many Flowered Mellit Gress	Poaceae	CC	N/A
Pistacia palaestina	Palestine Terebinth	Anacardiaceae	CC	N/A
Pistacia vera	Pistachio	Anacardiaceae	F	N/A
Pisum fulvum	Yellow Wild Pea	leguminosae	C	N/A
Plantago afra	Clammy Plantain	Plantaginaceae	CC	N/A
Polygonum aquesitiforme	Horsetail Knotweed	Polygonaceae	CC	N/A
Prasium majus	Great Hedge-Nettle	Labiatae	CC	N/A
Pterocephalus brevis		Dipsacaceae	F	N/A
Pyrus syriaca	Syrian Pear	Rosaceae	F	LC
Quercus calliprinos	Kermes Oak	Fagaceae	CC	LC
Quercus ithaburensis	Mt. Tabor Oak	Fagaceae	R	LC
Ranunculus asiaticus	Turban Buttercub	Ranunculaceae	CC	N/A
Reseda lutea	Yellow Mignonette	Resedaceae	F	N/A
Rhamnus palaestinus	Palestine Buckthorn	Rhamnaceae	CC	N/A
Rhus coriaria	Sumach	Anacardiaceae	C	N/A
Ricinus communis	Castor-Oil Tree	Euphorbiaceae	C	N/A
Rostraria cristata	Crested Hair-Grass	Poaceae	CC	N/A
Rubia tenuifolia	Narrow-Leaved Madder	Rubiaceae	C	N/A
Salvia indica	Large-Flowered Sage	Labiatae	RR	N/A
Salvia judaica		Labiatae	C	N/A
Sarcopotrium spinosum	Prickly Burnet	Rosacaea	CC	N/A
Satureja thymbra	Savory of Crete	Labiatae	CC	N/A
Scandix pecten-venera	Shepherd`s Nedle	Umbeliferae	CC	N/A
Scorpiurus muricatus	Two-Flowered Caterpillar	leguminosae	F	N/A

Scropholaria xanthoglossum	Yellow-Scaled Figwort	Scropholariaceae	C	N/A
Scutellaria rubicunda	Violet Skullcap	Labiatae	C	N/A
Sedum hispanicum	Spanish stonecrop	Craculaceae	R	N/A
Sedum sediforme	Tall Stonecrop	Craculaceae	C	N/A
Senecio vernalis	Spring groundsel	Compositae	CC	N/A
Silene aegyptiaca	Egyptian Campion	Caryophyllaceae	CC	N/A
Silybum marianum	Holy Thistle	Compositae	CC	N/A
Sinapis alba	White mustard	Cruciferae	CC	N/A
Smilax aspera	Rough Bindweed	Smilacaceae	CC	N/A
Sonchus oleraceus	Common sow-Thistle	Compositae	CC	N/A
Spartium junceum	Spanish Broom	leguminosae	R	N/A
Stellaria pallida		Caryophyllaceae	R	N/A
Stipa bromoides	Sharp-Awned Feather-Grass	Poaceae	C	N/A
Stipa capensis	Twisted-Awned Spear Grass	Poaceae	CC	N/A
Tamus communis	Common Black Bryony	Dioscoreaceae	CC	N/A
Telmissa microcarpa		Crassulaceae	CC	N/A
Teucrium capitatum	Cat Thyme	Labiatae	CC	N/A
Teucrium creticum	Cretan Germander	Labiatae	F	N/A
Teucrium divaricatum		Labiatae	C	N/A
Theligonum cyanocrambe	Dog`s Cabbage	Theligonaceae	CC	N/A
Thesium humile	Dwarf thesium	Santalaceae	R	N/A
Thlaspi perfoliata	Perfoliate Penny-Cress	Cruciferae	CC	N/A
Thrinicia tuberosa	Bulbous Dandelion	Compositae	CC	N/A
Thymbra spicata	Spiked thymbra	Labiatae	F	N/A
Tolpis varigata	Rush Hawkweed	Compositae	CC	N/A
Torilis tenella	Many-Rayed Bur Parsley	Umbeliferae	CC	N/A
Trfifolium stellatum	Star clover	leguminosae	CC	N/A
Trifolium campestre	Hop Clover	leguminosae	CC	N/A
Trifolium cheleri	Hairy trefoil	leguminosae	F	N/A
Trifolium clypeatum	Helmet clover	leguminosae	C	N/A
Trifolium rusipenatum	Reversed Trefoil	leguminosae	CC	N/A
Trifolium scabrum	Rough Trifol	leguminosae	F	N/A
Trifolium stellatum	Star Trefoil	leguminosae	CC	N/A
Trifolium tomentosum	Wooly Clover	leguminosae	CC	N/A
Trigonella berthyea	Beirut Fenugreek	leguminosae	F	N/A
Umbilicus intermedius	Common Pennywort	Csrassulaceae	F	N/A
Urospermum picroides	Prickly Cupped Goat`s Beard	Compositae	CC	N/A
Valantia hispida	Bristly Crosswort	Rubiaceae	CC	N/A
Valerianella vesicaria	Bladder-fruited Corn Salad	Valerianaceae	C	N/A
Veronica cymbalaria	Cymbalaria speedwell	Scropholariaceae	CC	N/A
Vicia palaestina	Palestine Vetch	leguminosae	CC	N/A
Vicia sativa	Common Vetch	leguminosae	CC	N/A

Status: C= common, CC=very common, R= rare, RR=very rare, F=frequent, LC= Least Concern, N\A= Not applicable (not assessed)

Annex 2. Some invertebrates iun Cremisan

Insecta	Lepidoptera	*Papilio machaon*	Swallow Tail Butterfly
		Pieris brassica	Large White
		Artogeia rapae	Little White
		Madais fausta	Large salmon Arab
		Pontia daplidice	the Bath white
		Anaphaeis aurota	the pioneer
		Lasiommata megera	Large Wall Brown
		Gonepteryx cleopatra	The Cleopatra
		Polyommatus icarus	Common blue
		Colias croceus	clouded yellow
		Anthocharis cardamines	Orange Tip Butterfly
		Vanessa atalanta	the red admiral
		Vanessa cardui	the painted lady
		Melanargia titea	the Levantine marbled white
		Carcharodus alceae	the mallow skipper
		Spialia orbifer	the orbed red-underwing skipper
	Hymenoptera	*Apis mellifera*	Honey Bee
		Bombus terrestris	Bumble Bee
		Vespa orientalis	wasp
	Diptera	*Eoseristalis sp.*	
	Heteroptera	Spilostethus pandurus	
		Phyllomorpha laciniata	
		Graphosoma semipunctatum	
		Stenozygum coloratum	
		Eurydema ornata	
	Hemiptera	*Leptoglossus occidentalis*	see Handal and Qumsiyeh 2019
	Mantodea	*Ameles syriensis*	
		Empusa fasciata	
		Rivetina byblica	
Mollusca		*Buliminus labrosus*	
		Paramastus episomus	
		Pene bulimoides	
		Euchondrus septemdentatus	
		Levantina hierosolyma	
		Monacha syriaca	
Other Inv.			
	Scorpions	*4 species: Mt. Nebo scorpion Nebo hierichonticus, Scorpio maurus, Androctonus, Leiurus quinquestriatus*	

	Psudoscorpions	*Many species*
	Mites	*Many species*
	Millipids	*4 species (Archispirostreptus syriacus most common)*
	Centipedes	*3 species*

Annex 3. Checklist of Recorded Birds

#	English Name	Scientific Name	Arabic Name	Family name	Habitat*	Distribution	IUCN**	Number	Status**
1	Short-toed Snake -eagle	Circaetus gallicus	عقاب الثعابين	Accipitridae	MF	Resident common summer visitor	L C	2	R
2	Long-legged Buzzard	Buteo rufinus	حوام طويل الساق	Accipitridae	MF	Uncommon resident and winter visitor	L C	1	R
3	Common Kestrel	Falco tinnunculus	العوسق	Falconidae	MF	very common resident	L C	4	R
4	Eurasian sparrowhawk	Accipiter nisus	باشق اوراسي	Accipitridae	MF	Uncommon resident winter visitor	L C	3	W
5	Chukar	Alectoris	حجل الجبل الفلسطيني	Alectoris	MF NF	common resident	L C	11	R
6	Eurasian stone curlew	Burhinus oedicnemus	كروان اوراسي	Burhinidae	NF	common resident	L C	2	R
7	Rock Pigeon	Columba livia	حمام صخري حمام بري	Columbidae	MF AP	widespread	L C	25	R
8	Eurasian Collared-dove	Streptopelia decaocta	يمام مطوق اوراسي	Columbidae	MF AP	widespread	L C	18	R
9	Laughing Dove	Stigmatopelia senegalensis	يمام النخيل	Columbidae	AP	widespread	L C	20	R
10	Alpine Swift	Tachymarptis melba	سمامة الصرود	Apodidae	Soaring Birds	common migrant summer visitor	L C	10	S
11	Common Swift	Apus apus	السمامة الشائعة	Apodidae	Soaring Birds	common visitor and breeding	L C	15	S
12	Pallid Swift	Apus pallidus	السمامة فاتحة	Apodidae	Soaring Birds	common migrant breeding dead sea area	L C	2	S
13	Syrian Woodpecker	Dendrocopos syriacus	نقار الخشب السوري	Picidae	NF AP	common resident	L C	2	R
14	Eurasian Wryneck	Jynx torquilla	لواء اوراسي	Picidae	M F	fairly common migrant rare in winter	L C	1	S
15	Rose-ringed parakeet	Psittacula krameri	باراكيت اخضر / درة هندية	Pstittacidae	MF AP	Introduced, widespread, invasive	L C	4	I
16	Barn Swallow	Hirundo rustica	سنونو المخازن	Hirundinidae	Soaring Birds	very common winter and summer visitor	L C	3	S
17	Eurasian hoopoe	Upupa epops	الهدهد	Upupidae	OS NF	common resident	L C	4	S
18	Great spotted cuckoo	Clamator glandarius	وقواق مرقط كبير	Cuculidae	MF NF	common summer visitor	L C	1	S
19	Little owl	Athene noctua	البوم الصغير	Strigidae	OS	common resident	L C	1	S
20	European robin	Erithacus rubecula	ابو الحناء الاوروبي	Turdidae	MF AP	common winter visitor	L C	1	S
21	Common nightingale	Luscinia megarhynchos	العندليب	Turdidae	NF AP	common migrant	L C	1	S
22	Bluethroat	Luscinia svecica	هزاز ازرق الزور	Turdidae	NF AP MF	common migrant winter visitor	L C	1	W

23 Common redstart	Phoenicurus phoenicurus	حميراء شائعة Turdidae	NF AP MF	common in migrant	L C	2	W
24 Black redstart	Phoenicurus ochruros	حميراء دبساء Turdidae	NF Mf	common winter visitor	L C	1	W
25 Common stonechat	Saxicola torquatus	قليعي شائع Turdidae	NF MF	common winter visitor	L C	3	W
26 Black-eared Wheatear	Oenanthe hispanica	ابلق اسود الاذن Turdidae	OS	common in migrant	L C	1	W
27 Blue Rock-thrush	Monticola solitarius	سمنة الصخور الزرقاء Turdidae	OS	uncommon migrant winter visitor	L C	1	W
28 Eurasian Blackbird	Turdus merula	شحرور Turdidae	NF AP	common resident	L C	5	W
29 Song Thrush	Turdus philomelos	السمنة المغردة Turdidae	MF	common winter visitor	L C	2	W
30 Blackcap	Sylvia atricapilla	ابو قلنسوة Sylviidae	NF AP	very common migrant	L C	7	W
31 Garden Warbler	Sylvia borin	دخلة الحدائق Sylviidae	NF Ao	uncommon migrant	L C	1	W
32 Common Whitethroat	Sylvia communis	دخلة بيضاء الحنجرة Sylviidae	NF AP	common migrant	L C	2	S
33 Lesser Whitethroat	Sylvia curruca	دخلة بيضاء الحنجرة صغرى Sylviidae	NF AP	very Common migrant	LC	3	S
34 Sardinian Warbler	Sylvia melanocephala	دخلة سردينية Sylviidae	NF AP	very common resident common winter visitor	LC	9	R
35 Rueppell's Warbler	Sylvia rueppelli	دخلة روبلية Sylviidae	NF AP	uncommon migrant in march	LC	1	W
36 Graceful Prinia	Prinia gracilis	هازجة رشيقة Sylviidae	NF AP	very common resident widespread	LC	3	S
37 Common Chiffchaff	Phylloscopus collybita	دخلة شائعة Sylviidae	NF AP	very common migrant winter visitor	L C	4	W
38 Great Tit	Parus major	قرقف كبير Paridae	NF AP	common resident widespread	L C	11	R
39 Red-backed Shrike	Lanius collurio	صرد احمر الظهر Laniidae	MF	common migrant	L C	1	S
40 Woodchat Shrike	Lanius senator	صرد احمر القنة Laniidae	MF	common migrant	L C	1	S
41 Masked Shrike	Lanius nubicus	صرد مقنع Laniidae	MF	common migrant	L C	2	S
42 Palestaine Sunbird	Nectarinia osea	عصفور الشمس الفلسطيني Nectariniidae	NF AP	very common resident widespread	L C	15	R
43 Eurasian Jay	Garrulus glandarius	القبق الاوراسي Corvidae	MF	common resident	L C	7	R
44 Hooded Crow	Corvus cornix	الغراب المقنع Corvidae	MF AP NF	very common resident widespread	L C	4	R
45 Common Myna	Acridotheres tristis	المينا الشائع Sturnidae	MF AP NF	introduced widespread	L C	3	I
46 House Sparrow	Passer domesticus	الدوري المنزلي Passeridae	AP	very common resident widespread	L C	22	R
47 Eurasian linnet	Carduelis cannabina	حسون تفاحي Fringillidae	NF O S	uncommon resident,common winter visitor	L C	5	R
48 European greenfinch	Carduelis chloris	الحسون الخضري Fringillidae	MF AP	common resident widespread	L C	2	R

49	Eurasian chaffinch	Fringilla coelebs	الحسون الظالم ركشي	Fringillidae	NF O S	common migrant winter visitor	L C	3	W
50	Eurasian stone curlew	Burhinus oedicnemus	كروان اوراسي	Burhinidae	AF O S	common resident	L C	2	R
51	Common Scops-owl	Otus scops	ثبج اوروبي	Tytonidae	MF NF	common summer visitor in S	L C	1	S
52	White Wagtail	Motacilla alba	ذعرة بيضاء	Motacillidae	MF NF	very common winter visitor	L C	5	W
53	Steppe Buzzard	Buteo vulpinus	حوام السهول	Accipitridae	MF	common migrant	L C	2	S
54	Black Kite	Milvus migrans	حدأة سوداء	Accipitridae	Soaring Birds	very common migrant winter visitor	L C	7	W
55	Ortolan Bunting	Emberiza hortulana	درسة الشعير	Emberizidae	MF NF	common in migrant	L C	2	S
56	Crested lark	Galerida cristata	قبرة متوجة	Alaudidae	O S	common resident	L C	2	R
57	Collared flycatcher	Ficedula albicollis	صائد الذباب المطوق خطاف الذباب	Muscicapidae	MF NF	common in migrant	L C	1	S
58	Spotted flycatcher	Muscicapa striata	صائد الذباب المرقط خطاف الذباب	Muscicapidae	MF NF	common in migrant	L C	2	S
59	Common Crane	Grus grus	طائر الرهو او الكركي	Gruidea	Soaring Birds	common in migrant	LC	22	S
60	Tree pipit	Anthus trivialis	جشنة الشجر	Motacillidae	MF NF	common winter visitor	L C	3	W
61	European Bee- eater	Merops apiaster	الورور الاوروبي	Meropidae	Soaring Birds	common migration	L C	11	S
62	Spectacled Bulbul	pycnonotus xanthopygos	بلبل شائع	Pycnonotidae	NF AP	common resident	L C	35	R
63	winter Wren	Troglodytes troglodyyes	صعوة اوراسية	Troglodytidae	AP	resident bird and winter visitor	L C	1	R
64	Western jackdaw	Corvus monedula	غراب الزرع	Corvidae	OS	resident bird and winter visitor	L C	7	R
65	Wood warbler	phylloscopus sibilatrix	نقشارة الغاب	Sylviidae	MF NF	uncommon migrant	LC	1	S
66	European Goldfinch	phylloscopus orientalis	الحسون الذهبي - عروس التركمان	Fringillidae	MF NF	rare and declining resident	L C	3	S
67	white breasted Kingfisher	Halcyon smyrnensis	السماك ابيض الصدر	Alcedinidae	Mf Nf AP	common resident	L C	1	R
68	Lesser spotted eagle	Aquila pomarina	عقاب ارقط صغير	Accipitridae	Soaring Birds	good number in migration	L C	11	S
69	Subalpine Warbler	Sylvia cantillans	هازجة مغردة	Sylviidae	MF NF	uncommon migrant	L C	1	S

Habitat*: (MF) man-made forest; (NF) Natural Forest; (AP) Agriculture areas planted with different kind of orchards; and (OS) Natural open area of rocky habitats with catered trees and rather low vegetation.

IUCN: (LC) Least Concern**

Status*: (R) Resident Bird – 23 Species of Birds; (W) Winter Visitor - 17 Species of Birds; (S) Spring Visitor - 27 Species of Birds, (I) Invasive Birds - 2 Species of Birds**