Marj Sanour Biodiversity Preliminary Report

2010

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ABBREVIATIONS AND ACRONYMS

a.s.l.	**Above sea level**
ANERA	**American Near East Refugee Aid**
AOAD	**Arab Organization For Agricultural Development**
CCE	**Center for Continuing Education, Birzeit University**
DEM	**Digital Elevation Model**
DGCS	**Directorate General for International Cooperation, Ministry of Foreign Affairs, Italy**
DSS	**Decision Support System**
EC	**European Commission**
EMPOWERS	**"Euro – Med Participatory Water Resources Scenarios". An EC funded MEDA Water project in Jenin (EMPOWERS, 2003-2007)**
ET	**Evapotranspiration**
FAO	**Food and Agriculture Organization**
GDP	**Gross Domestic Product**
GIS	**Geographic Information System**
IUCN	**International Union for the Conservation of Nature**
IWRM	**Integrated Water Resources Management**
JSCWM	**Joint Services Council of Solid Waste Management**
KC	**Crop coefficients**
LCD	**Liter Per Capita per Day**
M&E	**Monitoring and Evaluation**
MCM	**Million Cubic Meters**
MDGs	**Millennium Development Goals**
MoA	**Ministry of Agriculture**
MoLG	**Ministry of Local Government**
NGO	**Non Governmental Organization**
PHG	**Palestine Hydrological Group**
PTD	**participatory technology development**

PWA	**Palestinian Water Authority**
RWC	**Regional Water Coordinator**
SAR	**Sodium Adsorption Ratio**
SUSMAQ	**Sustainable Management of the West Bank and Gaza Aquifers**
TDS	**Total Dissolved Salts**
UAWC	**Union of Agricultural Working Committees**
UNDP	**Nations Development Program**
USDA	**United States Department of Agriculture**
WANI	**Water and Nature Initiative**
WATSAN	**Water & Sanitation**
WEAP	**Water Evaluation And Planning**
WESCANA	**West/Central Asia and North Africa Region**
WHO	**World Health Organization**

Chapter1

Introduction and background

The document and the following water assessment study has been conducted in the framework of ongoing project "Conjunctive Ground/Surface Water Management to Secure Livelihood in Marj Sanour Watershed in Jenin district", which is implemented by Palestinian Hydrology Group(PHG)in partnership with (IUCN).

Where the IUCN Regional Office for West Asia (ROWA) has received grants from the Ministry of Foreign Affairs of Italy - Directorate General for Development Cooperation (DGCS) and the IUCN WANI programme , the overallobjective of the programme is to integrate the comprehensive development and conservation pursuits of the IUCN regional programme by assisting countries in the region to adopt a systemic approach to water management at policy, decision making and field levels, emphasizing the integration among green, blue and brown aspects of water resources management and that of social, economic and ecological processes in target catchments areas and aquifers.

The Palestinian project aims to improve standards of living of rural livelihoods in watershed areas and to increase agricultural development through systemic approaches applied to water management. The implementation of the project is being supported by two NGOs that have a relevant track record for the activities identified. These NGOs are the Palestine Hydrological Group (PHG) and the Union of Agricultural Work Committees (UAWC), building on their capacities and experiences gained in the former EMPOWERS Programme funded by the European Commission (2003-2007).

Marj Sanour is located in the southern part of Jenin Governorate which is suffering from water scarcity. The Marj area includes lands owned by seven surrounding villages which basically affect and are socially and economically affected by the basin; namely Maithaloun, Sanour, Jarba, Meselieh, Jdaideh, Siris and Sir. It is a hilly area, where hills surrounding relatively flat plains and gentle sloping water paths. Marj Sanour is a valley with good agricultural potential for annual crops. However it suffers every 3 to 5 years from important flooding from winter rains and snow. While harvesting of surface water might be an important option for drinking water supply and irrigation, currently, water supply for both drinking water and irrigation is almost entirely dependent on groundwater and groundwater table is being depleted.

It is hence evident that this double sided problem (scarcity and flooding) originates from the same root: bad land-use and water management in the watershed. The assumption is made that through a better management of surface water (run-off) it is possible to alleviate the above mentioned flooding problem, while also reducing the pressure on ground water.

In the framework of the current project, IUCN through it is project office in Palestine in cooperation with PA Ministry of Agriculture (MoA), UWAC and PHG seeks to contribute toward alleviating the negative impacts of the above mentioned factors on the local livelihoods, by exploring and demonstrating how better integrated management of specific watersheds can enhance agricultural development as well as improve drinking water supply for rural

communities, and thus contribute to the goal of poverty reduction, taking into consideration the importance of community participation starting from the planning stage of any foreseen interventions, which will require an in depth understanding of the socio-economical characteristics of the targeted communities. The current study has been conducted to fill this gap, and aimed at investigating the socio-economical conditions and attitudes of the farming communities in regards to the potential interventions the Marj area. The results of the study will furnish the background for any developmental planning and possible interventions in the Marj area.

Introduction

Jenin governorate has the largest botanical and animal biodiversity in West Bank. Many of the animals and plants which found there are not found in any other part of Palestine. There are 217852 donums of green areas, 207079 donums of them are natural and 10883 donums are planted. Marj Sanour is one of the representative areas for the biodiversity of the northern Palestine.

Marj Sanour includes one of the largest plain in the northern part of West Bank within Jenin governorate area. Seven community centers are in or at the boundaries of the plain which include Sanour, Meithaloun, Siris, Judeida, Sir, Misilya, and Jarba. The plain surrounded by mountains from the four directions. Of these mountain 2100 dunums are natural forests in Siris and Misilya, 930 dunums are planted forest in Siris, and 722 bare areas in Sanour and Judeida. The Biodiversity of Marj Sanour is not that differs from the North part of Palestine in general, but with some specificity with the presence of the water lake late April to May which enhance the immigrant birds to land on the area.

This report is divided into chapters related to the flora and fauna biodiversity taken into consideration three wild life inhabitant which include the field, shrub-land, forest and urban.

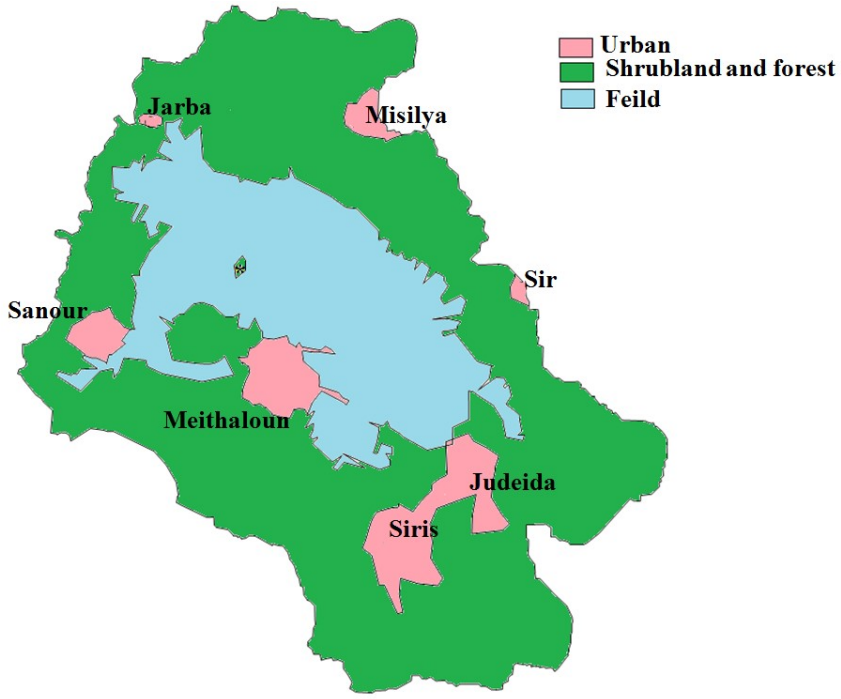

Fig 1. Distribution of Urban, Field, and shrub-land and forest in Marj Sanour.

Methodology

Majority of the data in this report were collected within the last three years from an ongoing study of the fauna biodiversity of the northern part of Palestine, started from 2006.

Within the last 6 weeks more data were collected by field visits and observations, for the flora biodiversity. An overall screening was done for the area for flora with condensed interviews with the local people for their observation. Most of the plants were documented by photographs and classified by (Al-Sheikh B et al. 2000) and the web site http://www.wildflowers.co.il. Samples were collected and dried for further studied and classifications.

Survey for flora and sampling were done in field work categorizing the finding into three groups, mountain, sub-mountain and plain. Within the 6 weeks, the amount of the plants was not representative for the total plants found in the area, but the questionnaire with the local people help to cover the other part.

Survey for fauna done in early morning and afternoon for the birds watching, noon time were for the butterflies and other insect and the evening and night were for the mammals. Safe trapping were done for rodent screening and for reptiles. Traps were prepared evening and collected in the early morning once a week for one year.

The overall data of this report were done in combination of the data collected within the 6 weeks work and the full data related to Marj Sanour from the north Palestine fauna biodiversity study.

Flora

Marj Sanour is located in the northern part of Palestine which is located on east side of the Mediterranean Sea and its variable in its plant communities, such as mountainous, desert, subtropical communities, this variability in part accounts to relatively high species richness.

As a part of the north part of Palestine Marj Sanour represent the flora of Palestine. It has most of the total number of plant species recorded in Palestine which exceeds (2500) species. These species represent 152 families and about 718 genera. Flowering plants are the dominated group of species that give the area its' seasonally feature in mountainous area and some time the plain. The flora of Palestine was studied in earlier works related to the area such as Flora Orientals, (Boissier, 1867-1883); Flora of Syria, Palestine & Sinai (Post, 1932-1933), Flora Palestina (Zohary & Feinbrun, 1966-1986).

Flowering Plants

Although, Palestine is a small country, its flora is rich and highly diverse compared to the total number of recorded vascular plant species. Of the 2500 species in Palestine

this means that this little country has 1/100 of the total world flora.

Natural forests that are composed of evergreen shrubs, pine and juniper forest as well as broadleaf forests. Natural forests located in Siris and Misilya, the most common trees are Oak, Pistacia and Lentisk, Some trees of Carob and Phillgrea was recorded in Siris area but not in Misilya.

Fig 2. Sub-mountainous planted area with olive next to Meithaloun

Fig 3. Woodpecker on almond tree

Olive trees are planted surrounding the plain in the mountainous and sub-mountainous area and in many areas spread through the plain as shown in fig 2. Almond take the second grade in the dominant of the planted trees around the plain, and this enhance the woodpecker to inhabit the area.

Bare forest lands, areas registered as forest land in the name of the government treasury but being presently bare of forest cover. They are characterized by rough topography, poor site conditions, soil erosion hazards, over grazing or over harvesting. In Marj Sanour, bare forest located in the Norh-West near to Sanour town and South East next to Judeida. This area is rocky area covered with seasonable flowering plants such as Cyclamen (Cyclamen persicaum), White Corcus (Corcus hyemalis), Arum, (Arum palaestinum) and Narcissus (Narcissus tazetta) which was unexpectedly has been recorded in the plain area with a distinguishable amount. (Fig 4.)

A wide variety of flowering plants spread in a condense manner under olive trees in the plain

area as shown in (fig 5.) Including Corn Marigold *(Chrysanthemum segetum*), Bulbous Dandelion (Leontodon tuberosus *L.*), Wood Mallow (*Malva sylvestris*), and amny other common flowring plants in Palestine.

Fig 4. Narcissus (Narcissus tazetta) in plain area

Fig 5. Anagallis arvensis in mountains area

Fig 6. Flowering plants under the olive trees

Fig 7. Colutea Istria in the sub-mountain

In the lowest part of the plain were the yearly largest pond formed, a small hill stand in the middle called by local (ALSAKHRAH) which means the rock (Fig 6.) Multi wild flowering plant on it since this part is not cultivated by the farmer. Another phenomena on the bond area is the gramineae family that cover wide area in the pond which attract many of the small birds. Silver Thistle *(Carduus argentatus*) cover another part of the middle area, and this provide a main source for the seeds for the finch family.

Fig 8. The Rock area in the middle of the main pond.

For more details of the plants recorded in the area table 1 in the appendix include the scientific names and the family beside the IUCN status for them.

Mushroom

Fig 9. *Morchella sp* from Marj Sanour

More than 7 species of mushroom are recorded in Marj Sanour. 3 edible species of mushroom form one of the local income to the farmers. Morel Mushrooms (*Morchella sp*) (Fig 7.) is rare in the mountainous area. Other types are uncommon and poisonous, one found in the plain and the other three in the mountainous area.

Fauna

Palestine is rich in biodiversity. Its location at the crossroads of climatic and botanic regions endows the country with a rich variety of animal life including 95 mammal species, more than 411 bird species, 93 reptile species and 5 amphibian species were recorded. The number of invertebrate species is difficult to estimate. The scarcity of wetlands is reflected in the dearth of amphibians as opposed to the wealth of reptiles. There are no specific studies for fauna biodiversity in the north part of Palestine; in this study we report the data from our observations and from the results of the interviews.

Mammals

Fig 10. Vulpes vulpes

Many large mammals used to live and to be popular in Marj Sanour and the other part of Jenin governorate, but now they are rarely to be seen within the area, due to the illegal hunt and the use of pesticides. Mountain Gazelle (*Gazella gazelle*) used to be in groups around the plain are as mentioned by the local farmers, but now a day's rarely to notice from time to time. Other mammals that is hunted in the area for its meat and still there are Indian Crested Porcupine (*Hystix indica*) and Eurasian Badger (*Meles meles*) which is seen many times in streets killed by traffic. Wild Boar (*Sus scrofa*) now aday dominate the mammalian population since no one hunt.

The most common carnivores in the resident area is Egyptian Mongoose (*Herpestes ichneumon*) which feed on the local poultry farms. Striped Hyena (*Hayena hayena*) not any more seen within the last decay in the area, other carnivores such as Red Fox (*Vulpes vulpes)* and Marbled Polecat (*Vormela peregusna*) are seen from time to time.

Cape Hare (*lepus capensis*) seen at night in the plain area, mainly in spring. Eastern European Hedgehog (*Erinaceus concolor*) inhabit the urban, and some time seen in the plain area. From our traps once we succeed to catch Lesser white-Toothed shrew (*Crocidura suaveolenes*) in Siris mountains.

Kuhl's Pipistrelle (*Pipistrellus kuhli*) is the only bat recorded in the area. It is seen at evening times flying over the urban areas collecting the insect gathered on the light sources.

Palestine Mole rat (Spalax ehrenbergi) is spread over the plain mainly the sub-mountainous part. Other rodents are distributed all over Marj Sanour, Buxton's Jird (*Meriones sacrament*) in plain dominant and Broad-Toothed Mouse (*Apodemus mystacinus*) dominant the mountains and the rocky areas. All other mammals recorded by field work or by the local people are listed in table 2 in appendix.

Birds

Fig 11. Nectarina osea

Marj Sanour has the largest bird biodiversity due to the immigrant birds that pass through it during spring resting and feeding on the poles formed in it. Many endanger resident birds species live in Marj Sanour such as Palestinian Sunbird (*Nectarina osea*), Sardinian Warbler (*Sylvia melanocephala*) Chukar (*Alectoris chukar*), Hoopoe (*Upupa epops*), Kestrel (*Falco tinnuculus*) Little Owl (*Athena noctua*) ,Barn Owl (*Tyto alba*), White-Throated Kingfisher (*Halcyon smyrnensis*) and Blackbird (*Turdus merula*).

One Bird which is not seen any more is the Goldfinch (*Carduelis carduelis*) due to illegal massive hunt for trading.

Other common resedent birds are distributed all over the area such as Eurasian Jay (*Garrulus glandarius*), Hooded Crow (*Corvus corone cornix*), laughing Dove (*Streptopelia sengalensis*), Collared Dove (*Streptopelia decaoto*), Graceful Prinia (*Prinia gracilis*), Crested Lark (*Galerida cristata*), Spur-Winged Lapwing (*Vanellus spinosus*), Great Tit (*Parus major*), Spectacled Bulbul (*pyconotus xanthopygos*) and House Sparrow (*passer domesticus*)

Migrating birds need more studies on the area, we could recorded many species such as White Stork (*Ciconia ciconia*), Glossy Ibis (*Plegadis falcinellus*), Redshank (Tringa tetanus), Common Snip (*Gallingo gallingo*), Black-Winged Stilt (*Himantopus himantopus*), Pied Wagtail (*Motacilla alba*), Chaffinch (*Fringilla coelebs*), Meadow Pipit (*Anthus pratensis*) and European Bee-Eater (*Merops apiaster*) many other birds pass the area need more research over the area.

Fig 12. Alectoris chukar

Fig 13. Gallingo gallingo

Fig 14. Luscinia svecica

Fig 15. Tringa glareola

Fig 16. Anas platyrhynchos Male and Female

Fig 17. Himantopus himantopus

Fig 18. Upupa epops

Reptiles and Amphibians

More than 40 species and 2 amphibians species were recorded in Jenin governorate. Two species of tortoise; Mediterranean Spur-Thighed tortoise (*Testuda graeca*) which is common in the mountains, and Caspian Turtle (*Mauremys caspica*) mentioned by the farmers which they can see in the ponds in spring and early summer times.

Fig 19. Laudakia stellio

The most common Lizard in the mountains are Roughtail Roch Agama (*Laudakia stellio*) and Lebanon Lizard (*Laceta Laevis*). Skink can be seen under rocks in the mountains, and the most common is Wadge snouted Skink (*Sphenops sepsoides*). Many types of Gekkonidae live arounf the urban and it need more research and studies for classifications. Chameleon (*Chamaeleo chamaeleo*) is seen usually around the urban resident areas. Legless glass lizard (*Ophisaurus apodus*) is found all over the mountain in Marj Sanour, people used to kill because they thought it is a poisonous snake.

More than 10 snake species in Marj Sanour was seen and mentioned by local farmers. Blind or Worm snakes (need classification), Asian Racer (*Coluber nummifer*), Red-headed Whip Snake (*Coluber rubriceps*), (*Dolichophis jugularis*), Lined Dwarf Snake (*Eirenis decemlineata*), Roth's Dwarf Racer (*Eirenis rothii*), Mueller's Snake *(Micrelaps muelleri)*, Water Snake *(Natrix tessellate*), Black-headed Snake (*Rhynchocalamus melanocephalus*), Moila Snake (*Malpolon monspessulanus*), and the only poisonous snake the Palestinian viper (*Vipera palaestinae*). All the snakes are distributed in the sub-mountains areas except Asian Racer and Fire Snake which can be found mostly in the plain.

Fig 20. Vipera palaestinae

Fig 21. Rhynchocalamus melanocephalus

Fig 22. Coluber rubriceps

European Green Toad (*Bufo viridis*) and Savigny's Treefrog (*Hyla savignyi*) are the two amphibian species that inhabit Marj Sanour. European Grean Toad are the dominant species and its tadpole in the pond attract birds to the area.

Invertebrate

The number of invertebrate species is difficult to estimate. The species variety and numbers are decline due to insecticides and other chemicals that used in the agriculture. Al species need a comprehensive study and classification. No study found in Palestine talking about the biodiversity of invertebrates. From put observations three types of butterflies and more than 20 types of moth were recorded. Other insects like beetles spread all over the area on the plants and under the stones. Spiders are with high diversity, beside the centipedes and millipede. Five snail species shells were collected from the plain and mountains, but until now we couldn't have the classification key for them.

Fig 23. Butterflies from Marj Sanour

Main threat for Biodiversity

There are many sources that threat the biodiversity in Marj Sanour.

The use of the insecticides, pesticides, and other chemicals like hormones for agricultural purposes.
Wooding and massive grassing in the mountains and natural areas
Introducing new plant species to the area.
The spread of the urban area over the natural inhabitant mainly in the last three decay.

Recommendations

Marj Sanour as seen in this study is one of the biodiversity representative of the overall Palestinian biodiversity. Protection of flora and fauna in this area will give a chance for general protection for many species. Bonds which formed in the winter and be for late spring form attractive inhabitant for many types of migratory birds and wild animals. The management of this water resource in water collection system will attract more birds and mammals mainly in the summer time. .

The main recommendations are to get better legal protection structure, to improve existing lows, and to promote more environmentally friendly practices in agriculture and when swarm buildings within the natural areas.

More intensive study is needed on habitat, effects of pesticide and population size. Raising public awareness of the diversity, importance and threats to wild life are needed in order to change their ecological importance.

Announcement of some parts of Marj Sanour such as the central pond and the forest around it as protected natural area will help in preservation of many species which are endanger.

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Appendix

Table 1: Plants recorded in Marj Sanour

Scientific Name	Common name	Family	IUCN Status
Adonis microcarpa	Small Pheasant's Eye	Ranunculaceae	Least Concern
Adonis palaestina	Aleppo Adonis	Ranunculaceae	Least Concern
Alcea setosa	Bristly Hollyhock	Malvaceae	Least Concern
Ammi majus	Toothpick	Apiaceae	Least Concern
Anagallis arvensis	Scarlet Pimpernel	Primulaceae	Least Concern
Anchusa azurea		Boraginaceae	Least Concern
Anemone coronaria	Crown Anemone	Ranunculaceae	Least Concern
Arum dioscoridis	Spotted arum	Araceae	Least Concern
Arum palaestinum	Arum	Araceae	Least Concern
Arundo donax	Giant Reed, Spanish Cane	Poaceae	Least Concern
Brassica napus	Rape	Brassicaceae	Least Concern
Carduus argentatus	Silver Thistle	Asteraceae	Least Concern
Carduus australis	Thistle	Asteraceae	Least Concern
Cephalaria joppensis	Jaffa Scabious	Dipsaceae	Least Concern
Chrysanthemum coronariu	Crown Daisy	Asteraceae	Least Concern
Chrysanthemum segetum	Corn Marigold	Asteraceae	Least Concern
Colutea istria	Bladder Senna	Fabaceae	Least Concern
Crocus hyemalis	Crocus	Iridaceae	Least Concern
Cyclamen persicum	Persian Cyclamen	Primulaceae	Least Concern
Gladiolus atroviolaceus	Corn Flag	Iridaceae	Least Concern
Iris haynei	Gilboa Iris	Iridaceae	Least Concern
Ixiolirion tataricum	Blue Desert Lily, Tartar Ixiolirion	Amaryllidaceae	Least Concern
Leontodon tuberosus L	Bulbous Dandelion	Asteraceae	Least Concern
Majorana syriaca	Wild Marjoram	Lamiaceae	Least Concern
Malva sylvestris	Wood Mallow	Malvaceae	Least Concern
Matricaria aurea	Golden Chamomile	Asteraceae	Least Concern
Matricaria recutita	Wild chamomile	Asteraceae	Least Concern
Narcissus tazetta	Narcissus	Amaryllidaceae	Least Concern
Neotinea maculata		Orchidaceae	Least Concern
Papaver subpiriforme	Corn Poppy	Papaveraceae	Least Concern
Paronychia argentea	Silver nailroot	Caryophyllaceae	Least Concern
Pistacia lentiscus	Mastic tree, Lentisk	Anacardiaceae	Least Concern
Prosopis farcta	Dwarf Mesquite	Mimosaceae	Least Concern
Quercus calliprinos	Kermes Oak	Fagaceae	Least Concern
Ridolfia segetum	Bishop's Weed	Apiaceae	Least Concern
Ruta chalepensis	African Rue	Rutaceae	Least Concern
Salvia fruticosa	Three-Lobed Sage	Lamiaceae	Least Concern
Salvia palaestina	sage	Lamiaceae	Least Concern
Salvia pinnata	sage	Lamiaceae	Least Concern
Sanguisorba minor	Salad bu	Rosaceae	Least Concern

Sarcopoterium spinos	Prickly Burnet	Rosaceae	Least Concern
Silene aeg	Egyptian Campion	Caryophyllaceae	Least Concern
Silybum marianum	Our Lady's Thistle, Holy Thistle	Asteraceae	Least Concern
Teucrium capitatum	Cat-thyme Germander	Lamiaceae	Least Concern
Teucrium divaricatu	Kamndra	Lamiaceae	Least Concern
Trifolium purpureum	Purple Clover	Fabaceae	Least Concern
Trifolium resupinatum	Reversed Trefoil	Fabaceae	Least Concern
Trifolium stellatum	Star Clover	Fabaceae	Least Concern
Umbilicus intermedius	Common Pennywort	Crassulaceae	Least Concern
Urospermum picroides	Prickly cupped Goat's Beard	Asteraceae	Least Concern
Urtica pilulifera	Roman Nettle	Urticaceae	Least Concern

Table 2: Mammals recorded in Marj Sanour

Scientific Name	**Common name**	**IUCN Status**
Acomys cahirinus	Cairo Spiny Mouse	Least Concern
Canis aureus	Jackal	Least Concern
Canis lupus	Gray Wolf	Least Concern
Crocidura suaveolens	Lesser White-toothed Shrew	Least Concern
Erinaceus concolor	Eastern European Hedgehog	Least Concern
Herpestes ichneumon	Egyptian Mongoose	Least Concern
Lepus capensis	Hare	Least Concern
Meles meles	Eurasian Badger	Least Concern
Spalax ehrenbergi	Palestine Mole Rat	Data Deficient
Pipistrellus kuhli	Kuhl's Pipistrelle	Least Concern
Procavia capensis	Rock Hyrax	Least Concern
Vormela peregusna	Marbled Polecat	Vulnerable
Hystix indica	Indian Crested Porcupine	Least Concern
Sus scrofa	Wild Boar	Least Concern
Vulpes vulpes	Red Fox	Least Concern
Meriones sacrament	Buxton's Jird	Least Concern
Apodemus mystacinus	Broad-Toothed Mouse	Least Concern

Table 3: Birds recorded in Marj Sanour

Scientific Name	Common name	IUCN Status
Actitis hypleucos	Common sandpiper	Least Concern
Alectoris chukar	Chukar	Least Concern
Anas platyrhynchos	Mallard	Least Concern
Athene noctua	Little Owl	Least Concern
Bubulcus ibis	Cattle Egret	Least Concern
Burhinus oedicnemus	Stone-curlew	Least Concern
Buteo rufinus	Long-legged buzzard	Least Concern
Carduelis cannabina	Linnet	Least Concern
Carduelis chloris	Greenfinch	Least Concern
Cercomela melamura	Blackstart	Least Concern
Ciconia ciconia	White Stork	Least Concern
Corvus corone cornix	Hooded Crow	Least Concern
Corvus monedula	Jackdaw	Least Concern
Dendrocopos syriacus	Syrian Woodpecker	Least Concern
Erithacus rubecula	European Robin	Least Concern
Falco tinnunculus	Common Kestrel	Least Concern
Fringilla coelebs	Common Chaffinch	Least Concern
Galerida cristata	Crested Lark	Least Concern
Halcyon smyrnensis	White-throated Kingfisher	Least Concern
Himantopus himantopus	Black-winged stilt	Least Concern
Hirundo Daurica	Red-rumped Swallow	Least Concern
Larus audouinii	Audouin's Gull	Least Concern
Luscinia svecica	Bluethroat	Least Concern
Miliaria calandra	Corn Bunting	Least Concern
Motacilla alba	White Wagtail	Least Concern
Motacilla feldegg	Yellow wagetail	Least Concern
Nectarinia osea	Palestine Sunbird	Least Concern
Parus major	Great Tit	Least Concern
Passer domesticus	House Sparrow	Least Concern
Phoenicurus ochruros	Black Redstart	Least Concern
Prinia gracilis	Graceful Prinia	Least Concern
Pycnonotus xanthophygos	Spectacled Bulbul	Least Concern
Pyrrhocorax graculus	Jay	Least Concern
Saxicola torquata	Common Stonechat	Least Concern
Streptopelia decaocto	Collared Dove	Least Concern
Streptopelia senegalensis	Laughing Dove	Least Concern
Sylvia atricapilla	Blackcap	Least Concern
Sylvia melanocephala	Sardinian Warbler	Least Concern
Tringa glareola	Wood Sandpiper	Least Concern
Tringa ochropus	Green Sandpiper	Least Concern
Turdus merula	Blackbird	Least Concern
Upupa epops	Hoopoe	Least Concern
Vanellus spinosus	Spur-winged Lapwing	Least Concern

Table 4: Reptiles recorded in Marj Sanour

Scientific Name	**Common name**	**IUCN Status**
Chamaeleo chamaeleon	Chameleon	Least Concern
Agama stellio	Agama, lizard	Least Concern
Lacerta laevis	green lizard	Least Concern
Testudo graeca terrestris	Wild tortoise	Least Concern
Hemidactylus turcicus	Gecko	Least Concern
Typhlops vermicularis	Blind or Worm snakes	Data Deficient
Coluber nummifer	Asian Racer	Least Concern
Coluber rubriceps	Red-headed Whip Snake	Least Concern
Dolichophis jugularis	Fire Snake	Least Concern
Eirenis coronella	Crowned Dwarf Racer	Least Concern
Eirenis decemlineata	Lined Dwarf Snake	Least Concern
Eirenis rothii	Roth's Dwarf Racer	Least Concern
Eryx jaculus	European Sand Boa	Least Concern
Natrix tessellata	Water Snake	Least Concern
Rhynchocalamus melanocephalus	Black-headed Snake	Least Concern
Malpolon monspessulanus	Moila Snake	Least Concern
Vipera palaestinae	Palestinian viper	Least Concern