



**Jordan Birdwatch Association
Wadi Gharaba Special Conservation Area**



Management Plan

2024 - 2029

The original management plan was prepared in 2018 by Dr. Fares Khoury, Chairman and Ecology Consultant at Jordan Birdwatch Association along with Mr. Ziad AlMasa'eed and Mr. Tarek Abu Alhawa from GOPA, according to IUCN guidelines for the management of protected areas. This is an up-dated management plan for 2024-2029 and includes a recommended implementation plan for the coming two years.

Table of Content

General Information	4
Description of the Area:	4
Administrative Arrangements of the Area	4
Environmental Information	7
The Climate.....	7
Water	7
Soil	7
Geology and Geomorphology	7
Vegetation	8
Wild Mammals	9
Wild Birds	9
Other Fauna.....	9
Socio-Economic Information and Uses of The Site	10
Ruins and ancient use of the area	10
Population	10
Agricultural Use	10
Grazing.....	11
Tree cutting	11
Invasive Species.....	11
Hunting Wild Animals.....	12
Excavation.....	12
Military Use	12
Evaluation of the Area	13
Governance Frameworks	13
Natural Values	13
Cultural Values.....	14
Socio-economic Values.....	14
Values of Ecosystem Services.....	14
Logical Analysis of Area Management	15
General Problem of Wadi Gharaba	15
Main Goal of Area Management.....	16

Medium Term Results & outcomes - updated in 2024	16
Implementation of the management plan during 2019 - 2023	18
Lessons learned:	19
Site Zoning Plan	19
Recommended Implementation Plan 2025 – 2026.....	21
References.....	23
Annexes	24
Annex (1): List of registered plant species and their classification in Wadi Gharaba	24
Annex (2) List of species of most important birds registered in the area.....	27
Annex (3) Matrix of stakeholders in Wadi Gharaba SCA.....	29
Annex (4) Analysis of ecosystem services in Wadi Gharaba Area.....	33
Annex (5): Matrix of the zoning plan for Wadi Gharaba Area.....	35

General Information

Name of Area: Wadi Gharaba – Special Conservation Area as designated by the Ministry of Environment on 7 December 2017.

Authorized association of ecological management: Jordan Birdwatch Association

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Description of the Area:

The special conservation area (SCA) includes Wadi Gharaba which flows into the River Jordan. It is located in Al Balqa Governorate within the Southern Shuneh Brigade, 7 km north of the Dead Sea, 2 km south of the Baptism area, 35 km south-west of As-Salt city center and about 35 km west of Amman. The SCA covers a total area of 4.2 km², 1.19 km² of which is under the authority of the Jordanian Military (Border Force) due to its proximity to the political border along the River Jordan. The Ministry of Environment delegated JBW to manage the natural ecosystem along the Wadi Gharaba stream and banks only.

The eastern boundary of the region is where Wadi ArRamah converges with Wadi AlKafreen. The western border is the River Jordan. Wadi Gharaba is a shallow valley with a length of about 5.5 km in the Al-Ramah area and a width ranging from 50 to 180m. it is the natural extension of Wadi Hisban (Wadi Rama) and the valleys that flow into Kafreen dam. Small amounts of surface water flow through the year in this wadi but with a significant increase during the winter season. The valley is located at an altitude of 360m under sea level.

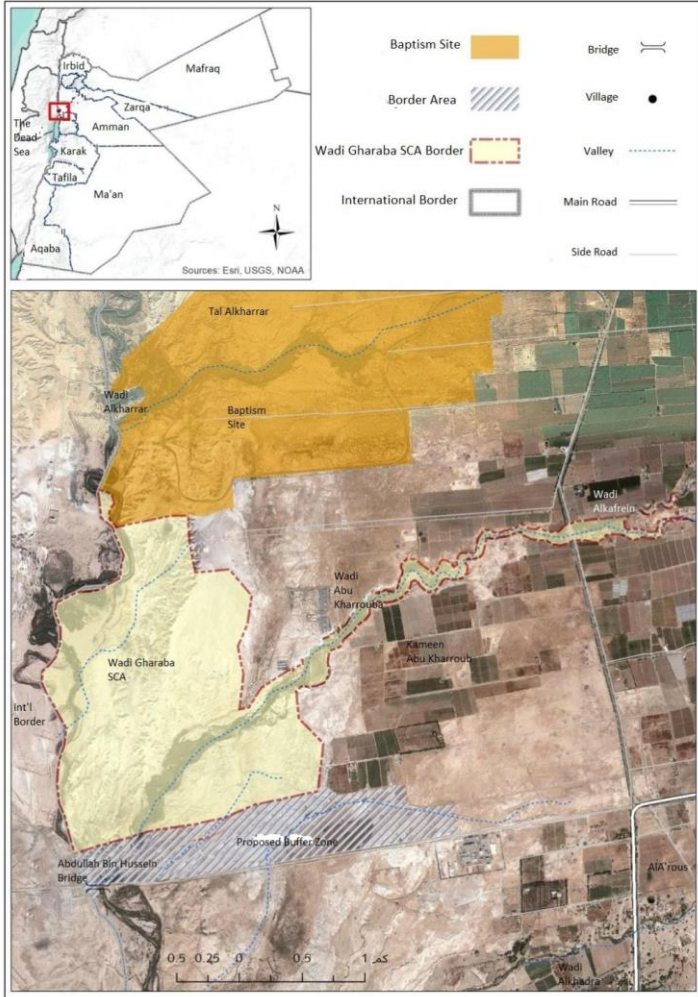
Administrative Arrangements of the Area

Wadi Gharaba area was designated as special conversation area on 7 December 2017 by Ministry of Environment following the approval of local and regional stakeholders and recommendations of the National Committee of Special Conversation Areas which was formed according to regulations related to “Protection and Management of Special Conversation Areas” for year 2013 issued on the basis of the provisions of the article (8) of Reserves and National Parks Law (29) of year 2005.

Jordan Birdwatch Association was then delegated by the Minister of Environment to prepare and implement a management plan in Wadi Gharaba area. The State Treasury owns the land but land use planning has been assigned to the Jordan Valley Authority (JVA). Jordan Birdwatch Association should abide to the land use plan of JVA that was attached to the area announcement, coordinate with Jordan Valley Authority during site management and, if necessary, cooperate with the Baptism Site management regarding the area directly bordering the Baptism Site. Jordan BirdWatch is to manage the native vegetation and ecosystem only along the small valley of Wadi Gharaba, i.e. the stream, its banks and edge of the wadi.

Commented [U1]: Part of it?

Site Map of Wadi Gharaba SCA



Environmental Information

The Climate

The following information was acquired from the Department of Meteorology, based on the closest climate reading station in Deir Alla for the period from 2005 to 2015. The area's climate is very dry and hot during summer with an average summer temperature of 31.5 °C decreasing to 14°C in winter. Humidity ranges from 64% in the colder periods of the year to less than 27% in the hot summer months. The long-term annual rainfall averages around 100-150 mm.

Water

Wadi Gharaba is located in the Jordan River basin which is shared by three countries: Jordan, Palestine and Syria. The basin has a total area of 18,500 km². Wadi Gharaba is one of the small side valleys feeding the Jordan River. It currently has low amounts of surface water throughout the year although there is some increase in surface water during the rainy season. The water in the valley is highly saline, exceeding 13 p.s.u. (practical salinity units = parts per thousand) during the dry season. Water also contains fertilizer residues and animal droppings that increase the nitrate and phosphate concentration, as measured and manifested by the growth of algae. Water scarcity and high salinity are a major challenge to the ecosystem and its various services in Wadi Gharaba area, as well as the natural habitats required by the animal species of the region.

Soil

A detailed map of the soil of the special conservation area is not available. In general, soil in the area is sedimentary, sandy - loamy and highly saline being close to the Dead Sea. Rainfalls cause the deposition of soil that runoff water carries from higher eastern areas, which suffer from advanced levels of erosion and degradation. Sedimentation in the valley plays a major role in the basic components of the physical environment of the region, especially the consequent and associated vital components.

Geology and Geomorphology

Wadi Gharaba SCA consists of flat plains interspersed by the valley's course, which is highly saline and ecologically classified under the wetland / marsh system. The geology is classified according to stratification from oldest to newest as follows:

1. Lesan Formation
2. Alluvial Fans
3. Sediments along wadis

Vegetation

The dominating plant pattern in the region is the halophyte community usually found around the Dead Sea, in addition to the *Ziziphus-Balanites* association of the southern Jordan Valley. Many plants belong to the sub-tropical Sudanese and Arabian-Saharan biogeographic regions.

Some of the most dominant plants are tolerant to high salinity such as *Tamarix* and *Nitraria retusa*. The location of Wadi Gharaba can be divided into three dominating plant communities, which are:

1. *Tamarix nilotica* & *Tamarix tetragyna*: This vegetation prevails on the banks of the perennial stream in the valley. Tree cover ranges from 25% in the eastern regions to 90% in the central and western part. Some other halophyte species, reed and sedge grow in moist places. The area covered by this community is approximately 0.8 km².
2. *Ziziphus – Balanites* community, with *Lycium* species and *Nitraria retusa*: This association prevails on the drier banks of the valley. This community is established in the drier areas where tree growth is limited to scattered *Ziziphus* and *Balanites* shrubs. The growth of these species is accompanied by a number of other small shrubs such as *Capparis sp.* *Fagonia sp.* and some Chenopod species. The area covered by this association is approximately 0.6 km².
3. *Prosopis fracta – Seidlitzia rosmarinus*: This plant association prevails in the flat areas outside the course of the valley on both sides, including abandoned fields. Native *Prosopis fracta* plants predominate in this community which also included other types of halophytes such as *Atriplex*, which are, however, greatly affected by grazing. Grazing promotes the dominance of unpalatable species like *Seidlitzia* and native *Prosopis fracta*. The area covered by this plant community is approximately 2.2 km².

Growing within this association (3) and close to the farms are some introduced and invasive trees such as *Acacia arabica*, *Parkinsonia* and the highly invasive, non-native *Prosopis juliflora* which is also spreading in disturbed areas along the valley and on its banks.

42 plant species of 36 genera and 18 plant families were recorded. The plant species include 7 tree or large shrub species, 12 species of dwarf shrubs, 8 species of perennial herbaceous plants and 15 species of annual plants. The number of plants used by the local population is 4 species, while 20 species are pastoral plants commonly eaten by livestock, 7 types of medicinal importance, 8 types of plants used as lumber while one plant species is occasionally eaten by some of the locals. The vegetation system in Wadi Gharaba is the basic ecological foundation where plant species represent nesting habitats, food and hiding locations for birds that live or visit the site seasonally. Annex 1 includes registered plant species and their classification.

Wild Mammals

A number of wild mammals, including porcupine, wild boar, striped hyena, jackal and red fox have been recorded and all are facing threats, including degradation of habitats and loss of prey. They are also under severe pressure due to illegal hunting or poisoning and the presence of dogs that kill many of the small mammals. The mammals of the area is not yet well studied.

Wild Birds

Birds represent the most important part of the area's vertebrate diversity. Wadi Gharaba is an important site for wild birds because there are a number of threatened species with limited geographical distribution. These species breed at the site, including two species of Bee-eaters and two species of Kingfishers, the Dead Sea Sparrow and Black Francolin. The number of birds nesting in Wadi Gharaba area is at least 31 species, which is a high number for such a small area. As for the total number of registered birds including migratory species, it exceeds 100 species, with more species recorded every year. Wadi Gharaba area is also located within the Important Bird Area (IBA) Sweimeh – Baptism Site, which was identified in 2000 by the Royal Society for the Conservation of Nature according to BirdLife Int. criteria. Annex (2) includes a list of important bird species registered in the area.

Other Fauna

Wadi Gharaba area contains suitable habitats for a number of wild species of invertebrates (especially arthropods), fish, amphibians and reptiles, including at least one clobrid and one viper snake. The area also has at least two species of lizards which are *Mesalina olivieri* and *Acanthodactylus boskianus*.

The diverse flora and fauna make this SCA an interesting site for education and scientific research.

Socio-Economic Information and Uses of The Site

Ruins and ancient use of the area

The historical significance of Wadi Gharaba site is generally important because of its location at the River Jordan close to the Dead Sea and being adjacent to the Baptism Site which is one of the UNESCO World Heritage Cultural Heritage since 2015.

Archeological studies of the Baptism site, which began in 1996 have shown the connection of Wadi Gharaba to the Baptism Site. It was called Wadi Ghorab then changed over time to Wadi Gharaba. The valley has been associated by some scholars with the story of Prophet Elias, to whom a crow used to bring food. Historians also pointed to the importance of the valley as it lies along the “path of the prophets”. Of special importance is an ancient Byzantine aqueduct that conveys water from Wadi Gharaba to the site of the Baptism site in addition to evidence of a station for Christian pilgrimage during the Byzantine period and a group of caves that were probably used for worship.

Population

Wadi Gharaba SCA is located in the Southern Shouneh Brigade in Al Balqa Governorate, comprising 8 residential areas which are South Shouneh, New Shouneh, Alkaramah, Alramah, Alkafrein, Alrawdah, Sweimeh and Jofet Alkafrein. The population of the brigade was estimated at 52,714 people in 2015. Wadi Gharaba SCA is relatively remote from the main population centers and is devoid of inhabitants. Part of the area is located within the border areas of Palestine, limiting housing activity and movement. However, the areas adjacent to the valley are exploited by semi-nomadic Bedouins as temporary winter houses and with two permanent camps for up to twenty families, the first of which is located at the Wadi al-Kafrin /Wadi ArRamah - the Efendi Tomb area - inhabited by 8 families from Azazma with one permanent family. The second is located in the south-west of Wadi Gharaba and subdivided into two small camps and inhabited by a total of 12 families, including 4 families with permanent presence. These belong to the Azazma and Amarin tribes. All households use the valley and its surroundings to graze their livestock and collect firewood for cooking and heating. They also rely on neighboring farmland as their main pasture at the end of the agricultural season. The presence of the population within the area in the present situation is considered to be a legal activity that does not contravene any provisions of the region's administration and use, except for camel grazing in the valley which may be considered illegal according to the forestry law, as camels can destroy shrubs and trees.

Agricultural Use

Most of the land on both southern and northern sides of the valley are used for farming; this use extends up to the military zone. Agriculture is seasonal for the production of vegetables, but there are a few private date and banana farms.

Irrigation depends on water pumped from artesian wells. Desalination occurs within these farms and the brine is often discarded in the wadi. A fish farm is present, but closed since several years, on the northwestern border of Wadi Gharaba. Most agricultural activity within and around the area is considered a legal activity that does not violate any of the provisions of the region's management and use. Some illegal farming in the valley itself (i.e. in land not planned to be agricultural) seems to be tolerated by the local administration and JVA.

Grazing

The area is used by a group of local herders, who use the entire SCA including the wadi as rangeland in the winter season or during the whole year. Their stay usually extends from September to May, and they depend on the wadi and neighboring farmland for grazing. The total number of livestock grazing within the SCA and adjacent areas was estimated at 3000 head of sheep, 600 goats and 130 camels during 2017, however, not all actually use the SCA itself as rangeland. In winter there are around 3000 heads of livestock, but some do not use the wadi itself as rangeland, but cross the wadi occasionally or at a daily basis. One thousand of the sheep and goats stay all year round at the SCA but numbers apparently vary according to year and season (e.g. most of the young male sheep are sold by the herders during the spring - summer months). The Tamarisks in the valley is important for grazing for a limited period during the rainfall which seem to wash away the salts accumulating on Tamarisks. Camels continue to graze for a longer period, feeding on Tamarisks which may not be suitable for other animals. Around 30 camels were recorded grazing almost daily in the wadi itself in previous years, causing considerable damage to the native shrubs and enhancing the spread of invasive *Prosopis juliflora*. The grazing activity within and around the area in the current situation is a legal activity that does not violate any of the provisions of the region's management and use, except for camel grazing which is illegal if proven to destroy shrubs and trees.

Tree cutting

Tree cutting is related mainly to winter housing and livestock farming, where the population depends on the wadi for collecting firewood for cooking, heating and other purposes. *Tamarix* trees are the main source of firewood, although their quality is low for this purpose. The cutting of live trees - is an illegal activity under the current Agriculture law. The wood of invasive *Prosopis juliflora* is increasingly being used due to its abundance.

Invasive Species

A variety of invasive alien species that are a major threat to biodiversity and ecosystem function are widespread in the Jordan Valley. *Prosopis juliflora*, is one of the greatest challenges to biodiversity within the Jordan Valley and the Kingdom in general. It is currently not possible to eradicate this invasive plant as it spreads rapidly through the droppings of livestock, preferring areas disturbed by overgrazing. In spite of the above, the presence of the invasive plants in Wadi Gharaba area is fairly limited and it can be disposed of and prevented from spreading at the local level. Previous projects in the

wadi have shown that the control of invasive species and means of harvesting invasive mesquite is realistic and economically feasible.

Hunting Wild Animals

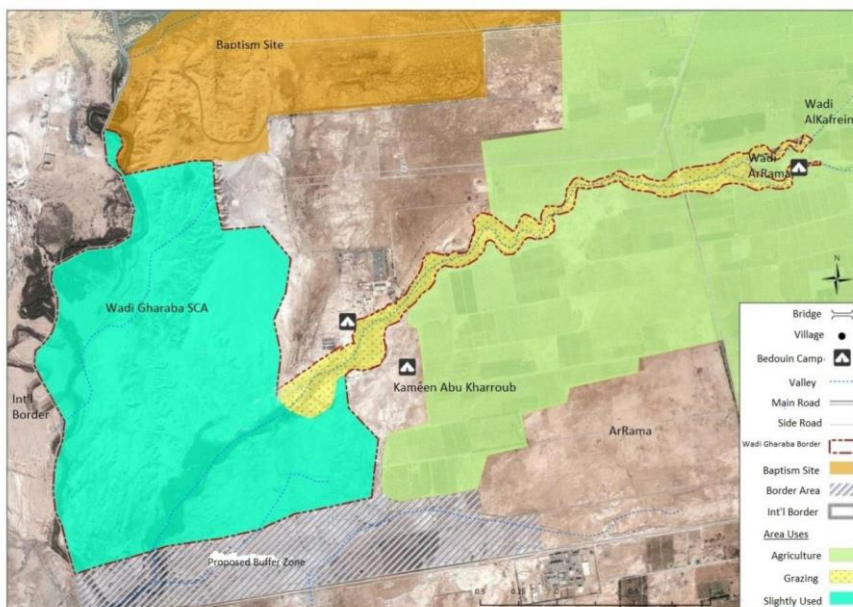
The area and its surroundings are used by hunters from various regions. Hunters visit the site especially at the weekends, where various doves and other birds are being targeted. The Jordan Valley is among the areas where hunting is permitted during certain periods of the year according to regulations. It should be noted that a number of hunters who come to the area are unlicensed and that the national hunting schedule did not exclude the special conversation areas from regulated hunting activity. The ministry of agriculture declared Wadi Gharaba SCA as a no-hunting zone in 2019 and the Royal Society for the Conservation of Nature was officially informed. The legality of hunting activity in and around the area still cannot be ascertained in the current situation due to the lack of adequate monitoring and follow-up by the responsible institutions.

Excavation

The valley is one of the areas adjacent to the Baptism site which was part of the archaeological studies, which began in 1996 and continue (intermittently) to the present time.

Military Use

The western parts of the area are under the jurisdiction of the military / border guards, where housing or other activities are strictly prohibited. There are some limited



violations of grazing activity. The military zone is found within the green area in the following map. .

Evaluation of the Area

Governance Frameworks

JBW must refer to the Reserves and National Parks Law (29) of year 2005, which represents the basis for the governance of special conversation areas. Wadi Gharaba SCA is a shared area of management where participatory approach and governance will be implemented.

JBW relies on a volunteer team from its board members and other members, who have diverse expertise, including academics, ecologists, tour guides and operators, environmental and administrative experts. The Association faces a number of challenges regarding the effective management of the SCA:

- The limited capacity of Jordan Birdwatch Association to provide the financial and human resources required to manage the area.
- Reservation of the management of the Baptism site towards the Declaration of the special conservation area by the Ministry of Environment.
- The security sensitivity of the area and the mechanisms available to deal with it.
- The possible response of the area's users, especially livestock farmers and hunters towards the regulatory procedures for the use of the area.

Annex (3) contains the matrix of stakeholders' analysis of the area which are targeted by the Jordan Birdwatch Association to participate in the planning and implementation of the area's plan.

Natural Values

The most important feature of Wadi Gharaba is its location within one of the important areas for birds (IBAs) in Jordan and being along a major bird migration route. The wadi its relatively dense *Tamarix* trees and reed are important habitats for the species of birds that are confined in Jordan to certain areas of the Jordan Valley. Residents and migratory birds, including bee-eaters and kingfishers and the Dead Sea Sparrow, also use the surrounding agricultural area, i.e. the surrounding fields and irrigation ponds to obtain their food.

The region represents a good example of halophyte and marshland vegetation within the Dead Sea area. It also reflects the set of challenges facing natural ecosystems; thus, the declaration and management as a special conservation area, is expected to have a positive impact on the surrounding area.

Cultural Values

Despite the limited current link of the local population to the area, archaeological studies have shown that it is very important historically because it relates to the stations of pilgrims near the Baptism site.

Socio-economic Values

The location of Wadi Gharaba on the political borders and its distance from the main residential communities has resulted in the absence of a strong cultural significance. However, current land use adversely affects the biodiversity. The wadi is used for grazing and wood collection by livestock owners. Livestock numbers clearly exceed the carrying capacity (Stocking rate). Livestock grazing contributes to the spread of invasive species such as *Prosopis juliflora*. Moreover, the use of the valley by farmers to dispose of solid and liquid wastes is also contaminating the area including the running water and affects the use of the area for ecotourism

Unregulated hunting poses a direct and serious threat to resident and migratory birds.

However, the location of the area near the Baptism site and its proximity to the cities of Amman, Salt and Madaba and the Dead Sea creates new opportunities for the people of the area for example through sustainable tourism developments in the Jordan Valley especially for the purpose of birdwatching in their natural habitats and adjacent agricultural areas.

Values of Ecosystem Services

Wadi Gharaba SCA represents an important case study regarding the services provided by ecosystems within the natural and human frameworks that are mixed in the Jordan Valley. Important parameters are location, physical environment, natural environment, land uses and associated governance framework. Generally, the region continues to provide an important array of ecosystem services: (a) supporting services, represented by the natural habitats of birds and wild plants, (b) supply services, such as the service of fresh water used for agriculture and livestock, and (c) cultural services represented as the historical and cultural importance of the region. Annex (4) includes the matrix of ecosystem services analysis, status, trends, associated change factors and associated stakeholders.

Logical Analysis of Area Management

General Problem of Wadi Gharaba

The general problem of Wadi Gharaba SCA is defined as follows:

Degraded natural habitats of resident and migratory birds and associated degradation of ecosystem services, threatening the survival of species and limiting opportunities for sustainable development.

The following table summarizes the causes, direct and root causes of the general problem of Wadi Gharaba SCA:

Direct Causes	Root Causes
Spread of invasive <i>Prosopis</i> trees and its impact on natural vegetation and bird habitats.	<ul style="list-style-type: none">- Limitation of forestry law for combatting introduced, invasive tree species.- Rapid growth and regeneration of this species.- The plant is palatable and spread by camels specifically.- Overgrazing
Unregulated grazing	<ul style="list-style-type: none">- Free availability of fodder under high market prices.- The economic situation of livestock owners- Absence of appropriate regulatory frameworks
Disposal of solid and liquid wastes	<ul style="list-style-type: none">- Absence of supervision and legal obligation- Absence of institutional coordination among institutions concerning solid and liquid waste- Lack of sense of responsibility and low awareness of the effects of waste on humans and the environment
Illegal Hunting	<ul style="list-style-type: none">- The large number of hunters coming to the area.- Lack of awareness about the importance of the area for birds.- Absence of legal supervision and implementation of the hunting law

Main Goal of Area Management

Based on the above analysis, Jordan Birdwatch Association team has concluded to adopt the next overall objective of area management over the coming three years, with a focus on the first year:

To protect the natural habitats of the resident and migratory birds within Wadi Gharaba SCA and contribute to the improvement of ecosystem services and harness them to serve sustainable local development.

Medium Term Results & outcomes - updated in 2024

To achieve the above overall objective, the following medium-term results and the following practical outputs were adopted for the program of work in Wadi Gharaba:

No.	Medium term objectives	Outcomes
1	Wadi Gharaba is managed within a participatory approach that ensures the integration of communities and stakeholders at all levels of decision-making.	<ul style="list-style-type: none">- Establish partnership with local cooperative well connected to the local community and authorities and establish an effective communication plan- Evaluate the effectiveness of participatory management
2	Wadi Gharaba SCA and its immediate surroundings are free of invasive species with control of direct causes.	<ul style="list-style-type: none">- Monitoring the distribution of invasive plants and birds (myna) in the area- control of alien <i>Prosopis</i> plants in cooperation with the local community and the Ministry of Agriculture.- Spread awareness through meetings, workshop and media
3	Grazing activity is regulated according to the carrying capacity (stocking rate) and plant cover improved	<ul style="list-style-type: none">- study the effects of grazing activity on biodiversity and ecosystem services- Control grazing in the wadi in cooperation with the forestry department- Encourage alternative initiatives for livestock grazing by providing alternative feeds and improving herd health- Habitat restoration measures
4	Wadi Gharaba SCA is free of solid agricultural waste and water quality is improved.	<ul style="list-style-type: none">- A series of local meetings with farmers and land owners regarding a solid waste management system in and around the region.- the disposal of solid waste from the region in cooperation with the municipality after being collected by the area management.- Hire a local guard

		<ul style="list-style-type: none"> - Periodic report on the status of solid and liquid waste in the SCA and submit it with recommendations to the concerned authorities
5	Wadi Gharaba is a national destination for nature (birdwatching)-based tourism with an educational and awareness approach	<ul style="list-style-type: none"> - Promote Wadi Gharaba and other surrounding areas as a bird-watching destination - Capacity building program for local significance and provision of tourism services. - Establish a point of reference and guidance of environmental tourism. - Equipment package for birdwatching activity. - publishing a set of guidance publications for the site and surrounding areas
6	Wadi Gharaba is an area free of hunting.	<ul style="list-style-type: none"> - A series of meetings with Environmental Police and stakeholders and agreement on a periodical rangers' visits in the area - Periodic reports on hunting activities in the area - maintain signs showing that the area is free of hunting - Hire a local guard to observe hunting activities
7	Jordan Birdwatch Association is able to manage the special conversation area as a national model.	<ul style="list-style-type: none"> - Purchase of basic equipment and tools to provide logistical support for the management of the area - Preparation and adoption of a system to monitor the performance of the work team and assess its efficiency in achieving the administrative effectiveness of the site. - Dissemination as printed material, website and in social media

Implementation of the management plan during 2019 - 2023

Three projects were implemented during 2019-2023 according to the management plan which was prepared in 2018 and slightly modified in 2019.

The following is a summary of these projects including outcomes

Project: Improvement of Green Infrastructure in Jordan through Labour-Intensive Measures: Ecosystem Rehabilitation of Wadi Gharaba Special Conservation Area. Supported by GIZ; duration: c. 15 months; 2019-2020; total budget: 44,200 JD

Outcomes:

- Improve management plan and prepare implementation plan
- Site analysis and collection of data (hydrology, rangeland, birds and invasive species)
- Community outreach and participation including cooperation with local cooperative and workshop with local authorities (governor, municipality, forestry, military and environmental police, RSCN representatives)
- Hiring local technical supervisors for project
- Job opportunities for refugees and Jordanians during the project, managed by project partner, DRC
- working together with the humanitarian organization (DRC)
- Following up legal issues
- Control spread of invasive *Prosopis juliflora* (Cut shrubs and branches, collect pods)
- Restoration of native vegetation (control camel grazing and open canals to spread surface water)
- promote area for educational and awareness activities

Project: Implementing the management plan for Wadi Gharaba Special Conservation Area. Supported by sGEF/UNDP; duration: 2 years; 2020-2021; budget: 15600 JD

Outcomes:

- Enhance community outreach and participation
- ecotourism plan, training local bird guiding skills, signs, interpretation boards, brochure.
- rangeland management: control camel grazing with forestry department
- Invasive species: monitoring; feasibility study for harvesting *Prosopis juliflora* wood
- clean-up campaign
- capacity building in administration for JBW staff and members

Project: Implementing measures to control invasive alien species in Wadi Gharaba Special Conservation Area. Supported by sGEF/UNDP, duration: 18 months, budget: 15674 JD.

- data collection (birds, invasive myna and mesquite)

- control invasive *Prosopis juliflora* by harvesting wood
- enhance native vegetation by establishing small canals
- using *Prosopis* pods as alternative fodder; activities included studies the feasibility and nutritional value of the pods, training and awareness workshop for local herders, representatives of local community and authorities

Results and lessons learned:

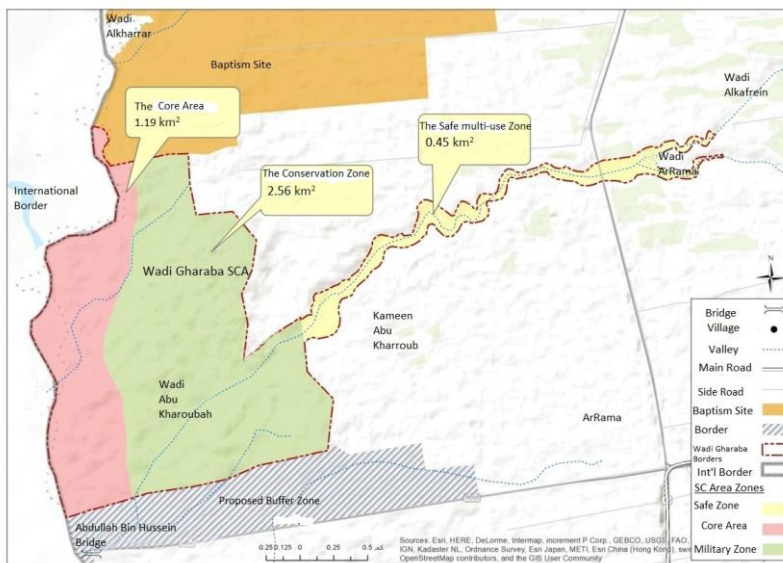
Certain outcomes could not be fully implemented, due to lack of follow up at the local level and lack of continuous support, awareness or interest of authorities and other stakeholders to protect the ecosystem. The lack of continuous funding also impedes the implementation of the management plan. The impact of the projects was very positive in terms of demonstrating means of protecting the ecosystem and use it in a sustainable way. The control of grazing and spread of invasive species was partly successful and are realistic objectives, but require constant follow-up, time and funding to sustain activities. The positive impact on the ground was temporary and occurred during the 2019-2020 as indicated by an improvement of native vegetation cover. However, there is currently an ongoing degradation of the native vegetation due to overgrazing by camels which led to the decline of number of nesting birds such as Dead Sea Sparrow in the previous three years. The original tourism plan cannot be fully implemented but the area can be promoted for bird-watching in a more effective way. A novel threat appeared recently, which is the disposal of waste water by tankers into the wadi bed. The waste water originates from the tourist projects of the Dead Sea area. The priority now is to work together with local groups of interest and hire guards in the area. This would lead to direct follow up and control of grazing and stop the pollution of the stream by waste water. Habitat restoration and signage can be continued constantly if resources are available.

Site Zoning Plan

The zoning plan is based on the proposed total area for the SCA, although the Ministry of Environment officially instructed JBW to manage the natural habitat along the wadi itself. Nevertheless, JBW proposes an extension to cover the entire area as shown in the following map. This may form an extensive, natural buffer zone for the Baptism site reserve, in addition to increasing remnant natural areas in the Jordan Valley and to increase ecological connectivity. The zoning plan is one of the most important management tools for the Wadi Gharaba SCA. It addresses the special conservation area from two perspectives: The first is to understand the distribution of the natural and cultural values, the second identifies the uses and their spatial occurrence, taking into account their level of influence on the major values. Based on the former, the region was divided into three areas of importance and uses as follows:

1. The Safe (multiuse) Zone (yellow in map) comprises the eastern parts of the SCA with a total area of 0.45 km². In this zone, most administrative interventions, grazing and protection activities, as well as environmental awareness and tourism activities can take place. Activities such as grazing and wood collection will be organized. It will also include initiatives to rehabilitate habitats, ecosystems and the disposal of invasive species (*Prosopis juliflora*).
2. The Conservation Zone (green in map) covers an area of 2.65 km². Its use is limited by the Armed Forces and some grazing activity occurs on its margins. The activities will include environmental monitoring and scientific studies, with consideration of using them for limited ecotourism according to The Armed Forces' conditions.
3. The Core Area (pink in map): area of 1.19 km². It is adjacent to the border with Palestine and River Jordan, where access is limited by The Armed Forces. Activities will be limited to field studies and scientific research.

The following map shows the zoning plan. Annex (5) includes the matrix of the zoning plan for Wadi Gharaba Area.



Recommended Implementation Plan 2025 – 2026

Objective (1): Wadi Gharaba SCA is managed within a participatory approach that ensures the integration of communities and stakeholders at all levels of decision-making									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1	Establish partnership (e.g. MoU) with local cooperative								
1.2	establish a communication plan for the local stakeholders								
1.3	Evaluation of the implementation of participatory management								
Objective(2): Wadi Gharaba is a national destination for nature (birdwatching)-based tourism with an educational and awareness approach									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.1	Promote the site using various media								
2.2	Implement capacity building program for at least two local guides								
2.3	Purchase Equipment for birdwatching activities.								
2.4	Prepare a guide for the birding sites around the Dead Sea								
Objective (3): The grazing activity is regulated within the carrying capacity and vegetation cover improved									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3.1	Assessment of the effects of grazing activity on biodiversity and ecosystem services								
3.2	Implement grazing control measures in partnership with the community and relevant official and civil institutions.								
3.3	Mainstream the results of previous projects: alternative initiatives for livestock grazing by providing alternative feeds such as mesquite pods								
3.4	Opening small canals and building weirs to control water flow and spread surface water								
3.5	Spread seeds of of native species								

Objective(4): Wadi Gharaba SCA and its surroundings are free of invasive species with control over their direct causes									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.1	Monitoring of invasive myna and mesquite and follow-up process								
4.2	Mainstream results of previous projects: encourage the harvesting mesquite for wood and encourage herders to use pods as supplementary fodder								
4.6	Pruning & cutting invasive <i>Prosopis</i> plants whenever possible and permitted								
Objective (5): Wadi Gharaba SCA free of solid agricultural waste and control in terms of the quality of the water wastes that reach it									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
5.1	A series of local meetings with farmers and land owners regarding a solid waste management system in and around the region.								
5.2	Agreements for disposal of solid waste from the region by the municipality after being collected by the area management.								
5.3	Cleaning the site from waste through clean-up campaigns								
5.4	Preparation of a system for monitoring the quality of water disposed in the area								
5.5	Periodic report on the status of solid and liquid waste in the SCA and submit it with recommendations to the concerned authorities								
Objective (6): Wadi Gharaba is an area free of hunting									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
6.1	A series of meetings with Environmental Police and stakeholders and agreement on a periodical rangers' visits in the area								
6.2	maintain signs showing that the area is free of hunting								

Objective (7): Jordan Birdwatch Association is able to manage the special conversation area as a national model within its national standards									
		Date of Implementation							
		2025				2026			
No	Activity	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7.1	Purchase of basic equipment and tools to provide logistical support for the management of the area								
7.2	Prepare a system to monitor the performance of the work team and local partnerships and assess its efficiency in achieving the management goals of the site.								
7.3	Dissemination as printed material, website and in social media								
7.4	Implement a series of training programs directed to the site management team according to needs								
7.5	Raise funds to implement activities in partnership with the local cooperative								

References

1. Eng. Hatem Taifour/ Evaluation of Plant Biodiversity Wadi Gharaba Area 2016 (report to JBW)
2. Dr. Fares Khoury/ Jordan Birdwatch Association, Wild Birds in Wadi Gharaba (report to JBW).
3. Technical reports of previous projects about ecology, hydrology, rangeland, economic feasibility of harvesting invasive mesquite in Wadi Gharaba SCA are available upon request.
4. Dr. Mohammad Waheeb/ Discovery of The Baptism Site (Dirasat, Human and Social Sciences, Volume 35, No. 1, 2008)
5. Socio-economic preliminary study for Wadi Gharaba Area 2016/ Sustainable Use of Environmental Services Project in Jordan. (report to JBW)
6. http://www.fao.org/nr/water/aquastat/basins/jordan/jordan-CP_eng.pdf

Annexes

Annex (1): List of registered plant species and their classification in Wadi Gharaba

No.	Family	Genus	Species	Arabic Name	Conservation Status (IUCN)
1	Malvaceae	<i>Abutilon</i>	<i>fruticosum</i>	أبو طيلون	Least Concern
2	Mimosaceae	<i>Acacia</i>	<i>arabica</i>	اكاسيا عربية	Introduced Plant
3	Aizoaceae	<i>Aizoon</i>	<i>canariense</i>	حدق	Least Concern
4	Papilionaceae	<i>Alhagi</i>	<i>graecorum</i>	عاقول	Least Concern
5	Chenopodiaceae	<i>Anabasis</i>	<i>setifera</i>	طخماء، شنان	Least Concern
6	Cruciferae	<i>Anastatica</i>	<i>hierochuntica</i>	كف مريم	Least Concern
7	Gramineae	<i>Arundo</i>	<i>Donax</i>	قصب	Least Concern
8	Chenopodiaceae	<i>Atriplex</i>	<i>halimus</i>	قطف	Least Concern
9	Chenopodiaceae	<i>Atriplex</i>	<i>leucoclada</i>	قطف	Least Concern
10	Asclepiadaceae	<i>Calotropis</i>	<i>procera</i>	عشير	Least Concern
11	Capparaceae	<i>Capparis</i>	<i>zoharyi</i>	قبار	Least Concern
12	Chenopodiaceae	<i>Chenopodium</i>	<i>Album</i>	ذنب الكلب	Least Concern
13	Gramineae	<i>Cutandia</i>	<i>memphitica</i>	الدراج	Least Concern
14	Gramineae	<i>Cynodon</i>	<i>dactylon</i>	نجيل	Least Concern
15	Geraniaceae	<i>Erodium</i>	<i>acaule</i>	إبرة العجوز	Least Concern
16	Euphorbiaceae	<i>Euphorbia</i>	<i>peplis</i>	حلبوب	Least Concern
17	Zygophyllaceae	<i>Fagonia</i>	<i>mollis</i>	الشكاعة	Least Concern

18	Boraginaceae	<i>Heliotropium</i>	<i>rotundifolium</i>	أبو غليون	Least Concern
19	Gramineae	<i>Hordeum</i>	<i>marinum</i>	شعير بري	Least Concern
20	Solanaceae	<i>Hyoscyamus</i>	<i>desertorum</i>	سكيران، بنج	Least Concern
21	Juncaceae	<i>Juncus</i>	<i>acutus</i>	الأسل	Least Concern
22	Gramineae	<i>Lamarckia</i>	<i>aurea</i>	سبيلة	Least Concern
23	Solanaceae	<i>Lycium</i>	<i>depressum</i>	عوسج	Least Concern
24	Solanaceae	<i>Lycium</i>	<i>shawii</i>	عوسج	Least Concern
25	Malvaceae	<i>Malva</i>	<i>neglecta</i>	خبيزه	Least Concern
26	Papilionaceae	<i>Medicago</i>	<i>polymorpha</i>	خبز الراعي	Least Concern
27	Papilionaceae	<i>Medicago</i>	<i>radiata</i>	خبز الراعي	Least Concern
28	Aizoaceae	<i>Mesembryanthemum</i>	<i>nodiflorum</i>	سمح	Least Concern
29	Apocynaceae	<i>Nerium</i>	<i>oleander</i>	دقلى	Least Concern
30	Zygophyllaceae	<i>Nitraria</i>	<i>retusa</i>	غرقد	Least Concern
31	Mimosaceae	<i>Parkinsonia</i>	<i>aculeata</i>	شوكة الفرس	Introduced Plant
32	Gramineae	<i>Phragmites</i>	<i>australis</i>	قصيب	Least Concern
33	Plantaginaceae	<i>Plantago</i>	<i>cylindrica</i>	لسان الحمل	Least Concern
34	Mimosaceae	<i>Prosopis</i>	<i>farcta</i>	ينبوت	Least Concern
35	Mimosaceae	<i>Prosopis</i>	<i>juliflora</i>	سلم	Introduced Plant
36	Chenopodiaceae	<i>Salsola</i>	<i>inermis</i>	حمض	Least Concern
37	Chenopodiaceae	<i>Seidlitzia</i>	<i>rosmarinus</i>	شنانه	Least Concern
38	Chenopodiaceae	<i>Suaeda</i>	<i>fruticosa</i>	السويداء	Least Concern

39	Tamaricaceae	<i>Tamarix</i>	<i>nilotica</i>	طرفة	Least Concern
40	Tamaricaceae	<i>Tamarix</i>	<i>tetragyna</i>	طرفة	Least Concern
41	Zygophyllaceae	<i>Zygophyllum</i>	<i>simplex</i>		Least Concern

Annex (2) List of species of most important birds registered in the area.

No.	Common Name	Latin Name	Species Status in Wadi Gharaba
1	Little Bittern	<i>Lxobrychus minutus</i>	Resident, breeding in wadi, disappeared recently from parts of the wadi due to habitat degradation
2	White Stork	<i>Ciconia ciconia</i>	Common passage migrant
3	Black Stork	<i>Ciconia nigra</i>	Fairly common passage migrant and scarce winter visitor
4	Black Francolin	<i>Francolinus francolinus</i>	Resident mainly in the western and adjacent northern area
5	Sand Partridge	<i>Ammoperdix heyi</i>	Localized resident in western part of area
6	White-throated Kingfisher	<i>Halcyon smyrensis</i>	Resident
7	Pied Kingfisher	<i>Ceryle rudis</i>	Resident
8	Little Owl	<i>Athene noctua</i>	Resident
9	Turtle Dove	<i>Streptopelia turtur</i>	Passage migrant and rare or former breeding summer visitor
10	Little Green Bee-eater	<i>Merops orientalis</i>	Resident
11	Blue-cheeked Bee-eater	<i>Merops superciliosus</i>	Summer visitor, breeding at the site
12	Rufous Bush Robin	<i>Erythropygia galactotes</i>	Summer visitor, breeding at the site
13	Nightingale	<i>Luscinia megarhynchos</i>	Passage migrant and rare summer visitor, possibly breeding at the site
14	Cetti's Warbler	<i>Cettia cetti</i>	Resident
15	Reed Warbler	<i>Acrocephalus scirpaceus</i>	Passage migrant and localised Summer breeder
16	Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>	Resident

17	Olivaceous Warbler	<i>Iduna pallida</i>	Summer visitor, breeding
18	Sardinian Warbler	<i>Sylvia melanocephala</i>	Localised resident
19	Arabian Babbler	<i>Turdoides squamiceps</i>	Resident
20	Great Grey Shrike	<i>Lanius meridionalis excubitor</i>	Resident
21	Dead Sea Sparrow	<i>Passer moabiticus</i>	Resident, recent decline

Annex (3) Matrix of stakeholders in Wadi Gharaba SCA

No.	Name	Type of Interest	Potential Impact	Development Opportunities	Priority	Type of Partnership	Level
1	Jordan Valley Authority	It has the authority over the valley	Facilitate the work and implementation of the laws	Draw a common vision to solve problems within the valley	High	Joint work and partnership	High
2	Armed Forces 3rd Border Patrol Battalion	Security	Conflicts between activities and security priorities.	To contribute to the administration of the site; reducing the burden on the security apparatus by preventing infringements in the land (security)	High	Joint work and partnership	High and continuous
3	Directorate of Agriculture of South Shouna	Conservation of woodland	Contradictions between views in	Joint cooperation to strengthen protection	High	Joint work	High

No.	Name	Type of Interest	Potential Impact	Development Opportunities	Priority	Type of Partnership	Level
			vegetation management.	and rehabilitation of vegetation cover.			
4	Administrative Governor	- Administrative power on the area - Development concerns. -Support	Facilitate work with relevant stakeholders	Governmental umbrella for all parties	High	Joint work and support	High
5	Baptism Site	-Interest in the site -Archaeological studies within the site	Refusing to cooperate and reservation on the declaration of the region	Draw a common vision that enhances the presence of the special conservation area as an opportunity for the Baptism site	High	Joint work	High
6	Rangers (Environment Police)	Implementation of environmental control	Site targeting within the control program	Joint protection plan for the area	High	Joint Work	High
7	Livestock owners	Free use of the site	Identify usage patterns and manage sources leading to conflict	Direct targeting of benefits	Medium	Management and control	High
8	Water Users Association	- Organizing the use of Rama and Kafrin water - Implementation of development	Exploitation of water for agriculture at the expense of the	- Exchange of information - A joint program of action in awareness raising and	High	Joint Work	High

No.	Name	Type of Interest	Potential Impact	Development Opportunities	Priority	Type of Partnership	Level
		projects for the two areas	natural watercourse of the valley	reduction of negative impacts on the valley			
9	Local Associations	Development interest	Interest in providing benefits to the community	Joint plans and shared programs	High	Partnership	Medium
10	Royal Society for the Conservation of Nature	<ul style="list-style-type: none"> - Nature protection and the establishment and management of nature reserves - Implementation of the protection program and the law of hunting 	Contribution to activating the protection program and regulating hunting in the area	Shared Protection Program	High	Partnership & support	High
11	Farmers	<ul style="list-style-type: none"> - Return the wastewater to the valley. - Disposal of agricultural waste in the valley 	The negative impact of agricultural wastes on biodiversity and ecosystem services	Direct targeting through awareness	High	Management & control	High
12	Hunters	Practice hunting as a sport / hobby	Identify usage patterns and	Prevention / Protection	High	Management & control	High

No.	Name	Type of Interest	Potential Impact	Development Opportunities	Priority	Type of Partnership	Level
			manage sources leading to collision.				

Annex (4) Analysis of ecosystem services in Wadi Gharaba Area

No.	Ecosystem Services	Location (Geographical Area)	Status -/-/+/>++ -	Direction		Factors Driving Change	Stakeholders
				Supply	Demand		
1	Natural habitats of plant species	The entire SCA	--	Decrease	Increase	<ul style="list-style-type: none"> - Unregulated grazing - The spread of invasive species - Low water flow rate in the valley - Solid and liquid agricultural products waste in the valley 	<ul style="list-style-type: none"> - Southern Shouna Agriculture Directorate - Cattlemen - Farmers - Rama Water Users Association
2	Natural habitats of animal species	The entire SCA	-	Decrease	Increase	<ul style="list-style-type: none"> - Illegal hunting - Bio invasions - Pollution of the water of the valley and high salinity - Grazing, especially camels that affect nesting of birds on the trees 	<ul style="list-style-type: none"> - Environmental police - Jordan Valley Authority - Armed forces - Royal Society for the Protection of Nature
3	Rangeland	Widespread except in military zone	++	Decrease	Increase	<ul style="list-style-type: none"> - Lack of natural pastures in the region - Free feed 	<ul style="list-style-type: none"> - Livestock owners - Southern Shouna Agriculture Directorate

						<ul style="list-style-type: none"> - Economic vulnerability of livestock owners - winter dwelling for livestock owners 	
4	Supply irrigation water for agriculture	Upstream of the valley	--	Decrease	Increase	<ul style="list-style-type: none"> - Water is not allocated by JVA for irrigation purposes. - Multiple desalination plants - Extreme drought conditions 	Rama Water Users Association Jordan Valley Authority Farmers
5	Protect soil from erosion	All area	--	Decrease	Increase	<ul style="list-style-type: none"> - Expansion of agricultural land at the expense of natural areas - Degradation of vegetation 	Southern Shouna Agriculture Directorate Jordan Valley Authority Local associations
6	Maintenance of watershed functions and flood protection	The course of the valley	--	Decrease	Increase	<ul style="list-style-type: none"> - Contaminating the course of the valley with solid and liquid materials - Limitation of vegetation cover 	Jordan Valley Authority
7	Social, cultural and historical values	All area	+	Decrease	Increase	<ul style="list-style-type: none"> - Natural areas for entertainment - The presence of ancient ruins 	Ministry of Tourism & Antiquities The Baptism Site

Annex (5): Matrix of the zoning plan for Wadi Gharaba Area

No.	Activity		الاستخدامات حسب تقسيم المناطق								
	Type of Use	Use	The Safe Zone			The Security Zone			The Core Area		
			Allowed	Prohibited	Allowed	Prohibited	Allowed	Prohibited	Allowed	Prohibited	Agreed upon
1	Grazing	Livestock (goats, sheep, donkeys, camels)			✓			✓		✓	
2	Use of plants and animals	Dry tree branches	✓			✓				✓	
		Lumbering of invasive species	✓			✓					
		Collection of medicinal plants			✓			✓		✓	
		Hunting wild animals		✓			✓			✓	
		Use of fertilizers and chemical pesticides			✓			✓		✓	

		Use of fertilizers and organic pesticides	✓			✓				✓	
		Introducing exotic plants		✓			✓			✓	
		Research and field studies	✓			✓					
3	Water Use	Exploitation of surface water			✓			✓			✓
		Exploitation of groundwater			✓			✓			✓
4	Tourist Activities	Indicative and semantic signs	✓			✓			✓		
		Points of views locations	✓			✓					
		Tourist use (tourist entry)			✓			✓			
		Camping in certain areas			✓			✓			