

Protected Areas in the Kingdom of Saudi Arabia: Safeguarding Biodiversity and Ensuring Resource Sustainability

Development Finance

Culture

Environment

Report Themes

The background image is a landscape photograph. In the foreground, there is a body of water with a sandy shore. Several birds, possibly seagulls or terns, are visible on the shore and in the water. In the middle ground, there are rolling sand dunes. In the background, there are more dunes and a few small structures or towers. The sky is filled with large, white clouds. The overall color palette is dominated by blues, greens, and earthy tones.



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Introduction to Protected Areas in Saudi Arabia

Protected areas are among the most vital tools for preserving the environment and maintaining biodiversity worldwide. They refer to designated zones aimed at safeguarding living organisms and ecosystems from harmful human activities. In Saudi Arabia, protected areas hold particular importance due to the Kingdom's diverse geographical and climatic features, which host rare environmental treasures stretching from coastal shores to deserts and mountains.

Saudi Arabia's official efforts to protect the environment began in the early 1980s with the establishment of the National Commission for Wildlife Conservation and Development in 1986 — now known as the National Center for Wildlife (NCW). Since then, **the Kingdom has expanded its network of protected areas, reaching over 80 sites across terrestrial and marine environments.**

These efforts align with Saudi Vision 2030, which emphasizes environmental sustainability, the expansion of green spaces, and increasing the proportion of protected areas to 30% of the Kingdom's total land area.

The importance of protected areas goes beyond the conservation of rare plants and animals — they also play a vital role in enhancing quality of life, developing eco-tourism, advancing scientific research, and reducing the impacts of climate change. Moreover, protected areas serve as a cornerstone for achieving balance between development and environmental preservation. They are managed through scientifically designed plans that promote the sustainable use of natural resources and are overseen by specialized authorities adhering to international conservation standards, such as those set by the International Union for Conservation of Nature (IUCN).





Types of Protected Areas in Saudi Arabia

The protected areas in the Kingdom of Saudi Arabia are as diverse as its geographical and climatic landscapes — spanning from coral-rich coastlines to towering mountains and vast deserts. The National Center for Wildlife (NCW) classifies the Kingdom's protected areas into three main categories: terrestrial, mountain, and marine reserves. Each category plays a distinct role in conserving biodiversity and maintaining ecological balance.



Terrestrial Protected Areas

Terrestrial protected areas cover the largest portion of land in the Kingdom. They are primarily dedicated to preserving wildlife in desert and semi-desert environments, with a key focus on protecting endangered species and restoring their natural habitats.

Examples of Terrestrial Protected Areas:

1. Mahazat As-Sayd Protected Area (Makkah Region):

Established in 1988, covering approximately 2,190 km², this fully fenced reserve is one of the Kingdom's most successful sites for the reintroduction of Arabian oryx and gazelles.



Mahazat As-Sayd Protected Area

2. Uruq Bani Ma'arid Protected Area (Rub' al Khali Desert):

Among the largest desert reserves in Saudi Arabia, spanning over 12,000 km², it is characterized by massive sand dunes and is home to various species such as the Arabian wolf and the sand cat.



Uruq Bani Ma'arid Protected Area

3. Al Khunfah Protected Area (Northern Saudi Arabia):

A natural habitat for Arabian oryx and ibex, Al Khunfah is also one of the Kingdom's most important breeding grounds for migratory birds.



Al Khunfah Protected Area

Significance of Terrestrial Protected Areas

- **Conservation of Endangered Species:** These areas provide safe habitats for species such as the Arabian oryx, goitered gazelle, and red-necked ostrich, many of which have disappeared from most desert regions outside protected zones.
- **Protection of Vegetation from Overgrazing:** Terrestrial reserves help restore native plant cover, which in turn combats desertification and maintains soil fertility.
- **Stabilization of Desert Ecosystems:** By maintaining a balanced relationship between predators and prey, protected areas help prevent disruptions to the desert food chain.
- **Promotion of Desert Eco-Tourism:** Activities such as safari trips and wildlife observation in their natural habitats support green economy initiatives and encourage public appreciation of desert biodiversity.

Environmental Characteristics of Terrestrial Protected Areas

- Feature a continental climate, extremely hot during the day and cold at night.
- Host seasonal vegetation adapted to arid conditions, such as Rimth (Haloxylon) and Arfaj (Rhanterium).
- Serve as critical habitats for endangered species that require vast spaces for breeding and survival.



Mahazat As-Sayd Protected Area





Mountain Protected Areas

Mountain reserves are mainly located in the southwestern regions of Saudi Arabia, including Asir, Al-Baha, and Jazan, where the climate is moderate and the vegetation is rich and diverse. These reserves protect species that cannot survive in desert environments, such as baboons, the nearly extinct Arabian leopard, and various mountain birds.

Examples of Mountain Protected Areas:

1. Rida (Raydah) Protected Area – Asir:

A mountainous reserve characterized by dense forests and ancient trees such as Juniper and Acacia. It is considered one of the last potential habitats of the Arabian leopard.



Rida (Raydah) Protected Area

2. Jabal Shada al-A'la Protected Area – Al-Baha:

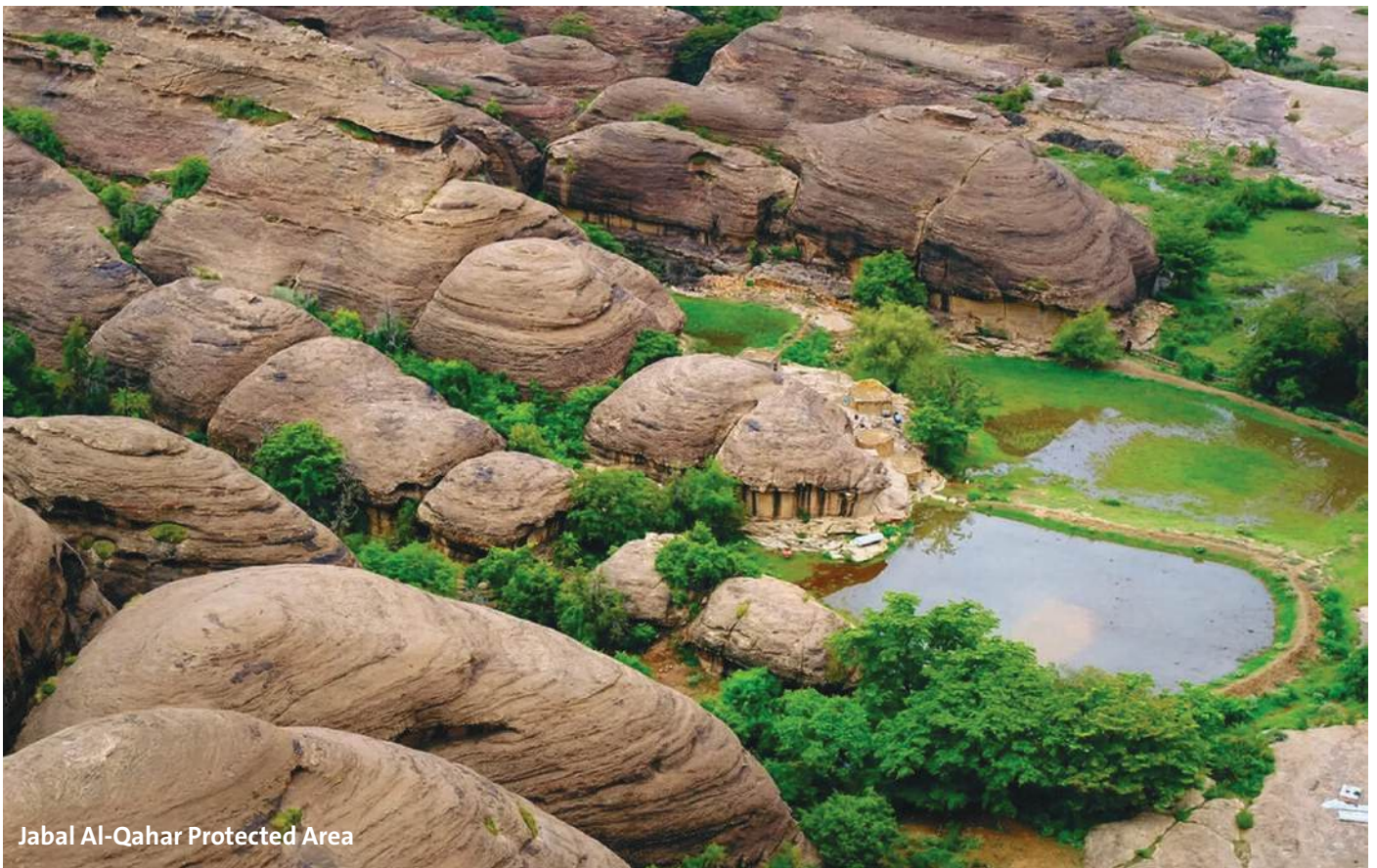
Noted for its exceptional plant diversity, with more than 500 species, including 63 rare species found exclusively in this region.



Jabal Shada al-A'la Protected Area

3. Jabal Al-Qahar Protected Area – Jazan:

Encompasses valleys and towering rocky peaks, serving as a refuge for raptors and rare plant species.



Jabal Al-Qahar Protected Area

Significance of Mountain Protected Areas

- **Preservation of Forests and Groundwater:** The dense mountain forests, particularly Juniper and Acacia trees, help absorb rainfall, reduce soil erosion, and protect groundwater resources.
- **Conservation of Rare and Endangered Species:** Mountain reserves provide sanctuary for species such as the Arabian leopard—a national symbol of Saudi wildlife—as well as numerous resident and migratory bird species.
- **Influence on Local Climate:** The dense vegetation cover in mountainous regions helps lower surrounding temperatures and increase humidity, creating a natural climatic balance that supports biodiversity and sustains local ecosystems.
- **Development of Eco-Tourism in the South:** Mountain destinations in Asir, Al-Baha, and Jazan have become leading attractions for domestic tourists, promoting eco-tourism and contributing to the growth of the southern tourism economy.

Environmental Characteristics of Mountain Protected Areas

- Feature a mild to cool climate throughout the year.
- Contain deep-rooted perennial vegetation, such as Juniper trees.
- Are rich in both resident and migratory bird species, creating diverse ecological habitats across mountain landscapes.



Al-Qahr Mountains Protected Area



Shada Mountain Protected Area



Marine Protected Areas

Marine protected areas represent some of the most sensitive ecosystems in Saudi Arabia. They cover extensive regions of the Red Sea and the Arabian Gulf, safeguarding coral reef systems, mangrove forests, and breeding grounds for fish and sea turtles.

Examples of Marine Protected Areas:

1. Jubail Marine Wildlife Sanctuary (Arabian Gulf Coast):

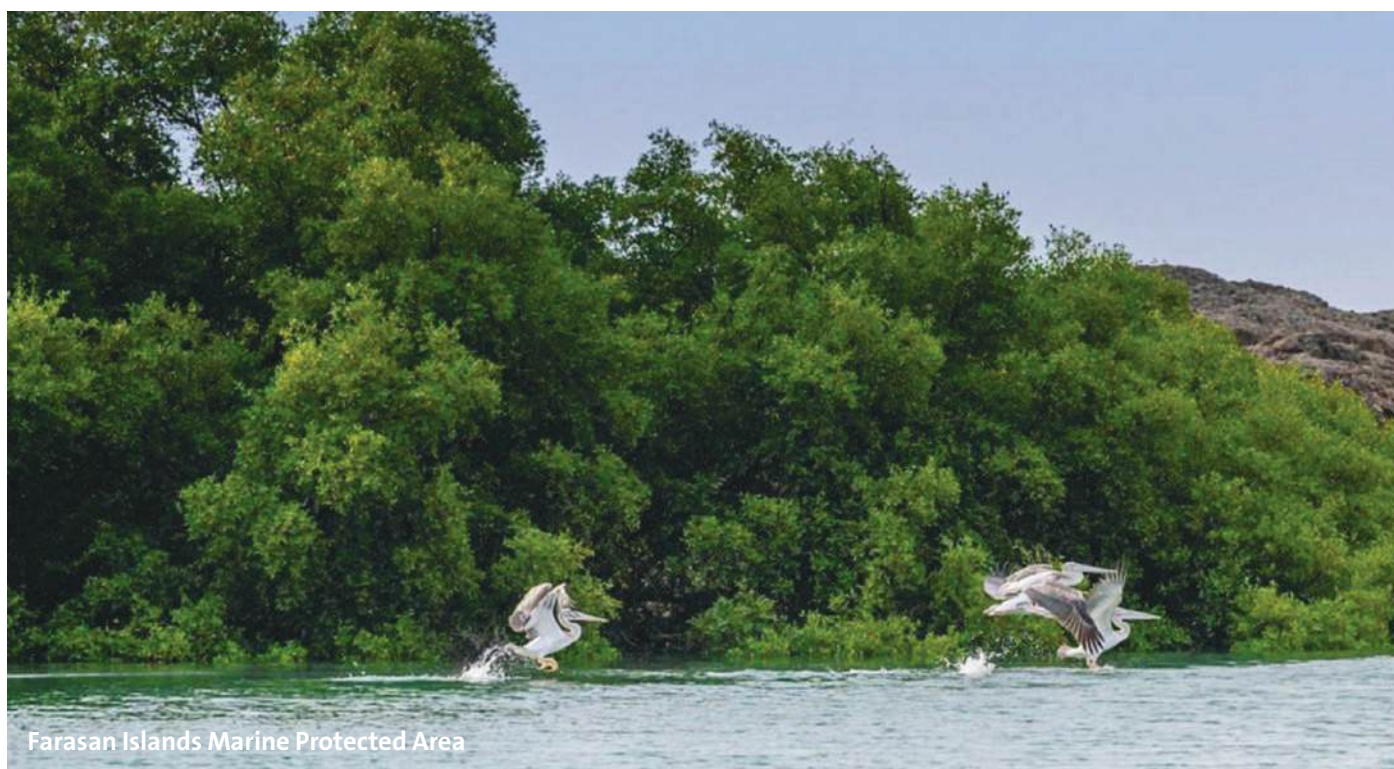
The first marine reserve established in the Kingdom, aimed at protecting coastal ecosystems, salt-tolerant vegetation, and marine bird populations.



Jubail Marine Wildlife Sanctuary

2. Farasan Islands Protected Area (Jazan):

Comprising more than 200 small islands, this site is one of Saudi Arabia's richest marine ecosystems, home to green sea turtles, dolphins, and diverse coral reefs.



Farasan Islands Marine Protected Area

3. Ras Sheikh Hameed Protected Area (Northern Red Sea):

Distinguished by its pristine coral reefs and rare marine species, including clownfish and the giant squid.



Ras Alsheikh Hamid Protected Area

Significance of Marine Protected Areas

- **Protection of Coral Reefs from Pollution and Destruction:** The coral reefs of the Red Sea and Arabian Gulf are among the most stunning marine ecosystems in the world, providing habitats for thousands of marine species.
- **Preservation of Marine Food Chains:** As key breeding and nursery zones for fish and sea turtles, marine reserves ensure the sustainability of commercial fisheries and support the balance of marine life.
- **Climate Change Mitigation:** Mangrove forests act as the “lungs of the sea”, absorbing significant amounts of carbon dioxide, thereby helping to reduce the effects of global warming.
- **Promotion of Coastal Eco-Tourism:** Activities such as diving, snorkeling, and marine wildlife observation foster environmental awareness and contribute to the diversification of the national economy through sustainable tourism.

Environmental Characteristics of Marine Protected Areas

- Maintain healthy marine food chains by controlling pollution and overfishing.
- Contribute to local climate stability and carbon absorption through mangrove ecosystems.
- Serve as key sites for scientific research and eco-tourism in Saudi Arabia.





Farasan Islands Marine Protected Area

Major Protected Areas in the Kingdom of Saudi Arabia

Saudi Arabia is one of the most environmentally diverse countries in the Arab world, encompassing a wide range of terrestrial, mountain, and marine ecosystems. To preserve this natural richness, the Kingdom has established numerous royal and national protected areas aimed at safeguarding endangered species, restoring vegetation cover, and promoting eco-tourism—all in line with the goals of Saudi Vision 2030.

King Salman bin Abdulaziz Royal Reserve

The largest protected area in the Middle East, spanning over 130,700 km², and extending across the regions of Al-Jouf, Tabuk, the Northern Borders, and Hail. The reserve is distinguished by its diverse terrain, which includes mountains, plateaus, and sandy plains, providing a natural habitat for more than 550 plant species and 300 animal species.

Environmental Significance:

- Serves as a major migratory route for birds traveling between Africa and Asia.
- Contains over 30 rare plant species.
- Plays a vital role in regulating the local climate and reducing desertification.



King Salman Royal Reserve

Prince Mohammed bin Salman Royal Reserve

Located in northwestern Saudi Arabia, between the regions of Tabuk and Madinah, this reserve spans approximately 24,500 km². It combines mountain and marine ecosystems, extending all the way to the Red Sea coast. Established in 2018.

Environmental Significance:

- Home to more than 1,300 plant species and 200 bird species.
- Hosts over half of Saudi Arabia's documented terrestrial and marine species.
- Implements species reintroduction programs, notably for gazelles and the Arabian oryx, to restore ecological balance.



Prince Mohammed bin Salman Royal Reserve

Imam Turki bin Abdullah Royal Reserve

Covering approximately 91,500 km², this vast reserve is in northeastern Saudi Arabia and borders five administrative regions: Al-Jouf, Qassim, Hail, the Northern Borders, and the Eastern Region. It is one of the largest reserves in the Kingdom, characterized by its expansive desert landscapes and rich biodiversity.

Environmental Significance:

- A vital habitat for rare and endangered wildlife, including the Arabian ibex, Arabian wolf, and gazelles, with ongoing species reintroduction programs.
- Home to over 100 species of wild plants, including medicinal herbs and natural pastures, contributing to vegetation restoration and ecological stability.
- Contains geological and historical landmarks and forms part of Saudi Vision 2030's objectives to promote rural and environmental development across the Kingdom.



Imam Turki bin Abdullah Royal Reserve

King Abdulaziz Royal Reserve

Located between the Riyadh and Eastern Regions, the reserve covers an area of approximately 28,000 km². It is considered one of the most effective protected areas in Saudi Arabia for the reintroduction of endangered species, featuring a mix of desert and mountainous ecosystems.

Environmental Significance:

- Its strategic geographic location serves as a meeting point for plant species native to both desert and steppe environments.
- One of the first protected areas in the Kingdom to be listed on the IUCN Green List for best conservation practices.
- Plays a key role in reintroducing ibex and gazelles within a safe and monitored natural habitat.



King Abdulaziz Royal Reserve

Farasan Islands Marine Protected Area:

Located in the Jazan Region along the Red Sea coast, the Farasan Islands Marine Protected Area consists of more than 200 small islands spanning over 5,400 km² of marine territory. It is renowned for its rich biodiversity, featuring vibrant coral reefs, mangrove forests, and rare marine species.

Environmental Significance:

- One of Saudi Arabia's most biodiverse marine reserves, known for its exceptional coral and fish diversity.
- Serves as a sanctuary for green sea turtles, dolphins, and migratory seabirds.
- Contains archaeological and historical sites dating back to ancient civilizations, adding cultural value to its environmental significance.



Farasan Islands Marine Protected Area



Uruq Bani Ma'arid Reserve

Uruq Bani Ma'arid Protected Area

Situated on the edge of the Empty Quarter (Rub' al Khali) in southeastern Saudi Arabia, this reserve spans approximately 12,790 km² and features the largest sand dunes in the Arabian Peninsula. It provides a unique desert ecosystem supporting wildlife species that have adapted to extreme heat and arid conditions.

Environmental Significance:

- The first reserve in Saudi where the Arabian oryx was reintroduced after its extinction in the wild.
- Serves as a natural refuge for rare species such as the sand cat and goitered gazelle.
- Plays a crucial role in maintaining ecological balance within one of the Kingdom's most harsh and fragile desert environments.

Raydah Mountain Protected Area

Located in the Asir Region within the Sarawat Mountains, Raydah covers a relatively small area of about 9 km², yet it stands out as one of the most biologically diverse protected areas in Saudi Arabia. The reserve is characterized by dense vegetation cover and a mild climate throughout the year, making it a vital refuge for numerous plant and animal species.

Environmental Significance:

- Considered one of the last remaining potential habitats of the Arabian leopard.
- Home to rare bird species such as the Bonelli's eagle and the black kite.
- Serves as an important research site for scientists studying mountain forest ecosystems in the Arabian Peninsula.



Raydah Mountain Protected Area



Jubail Marine Wildlife Sanctuary

Jubail Marine Wildlife Sanctuary

Established in 1995, this reserve lies along the Arabian Gulf coast, north of Jubail Industrial City. It is one of the Kingdom's most significant marine protected areas, created to safeguard coastal ecosystems from industrial pollution.

Environmental Significance:

- Protects mangrove forests (*Avicennia marina*) and coastal habitats from environmental degradation.
- Serves as a major breeding ground for seabirds, including gulls and herons.
- Plays a key role in reducing oil pollution caused by industrial and maritime activities in the region.



130,700 km²



King Salman Royal Reserve

Largest protected area in the Middle East;
major migratory corridor for birds



24,500 km²



Tabuk / Madinah

Prince Mohammed bin Salman Royal Reserve

Habitat for over half of Saudi documented species.



91,500 km²



Hail / Qassim / Al Jouf

Northern Borders / Eastern Region

Imam Turki bin Abdullah Royal Reserve

Preserves biodiversity and native vegetation.



28,000 km²



Riyadh / Eastern Region

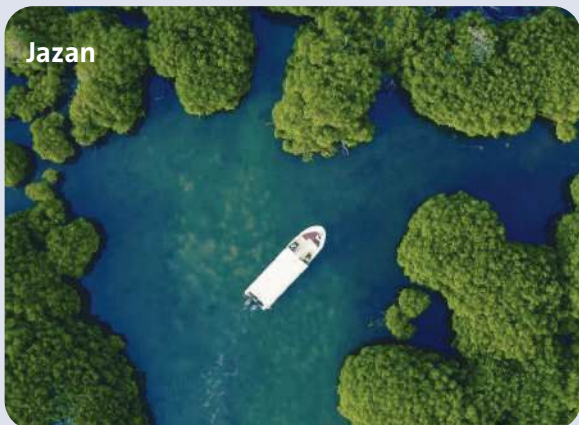
King Abdulaziz Royal Reserve

Listed on the IUCN Green List for effective
conservation management.



5,400 km²

Jazan



Farasan Islands Marine Protected Area

Richest marine biodiversity in Saudi Arabia.



9 km²

Asir



Raydah Mountain Protected Area

Home to the Arabian leopard and rare plant species.



12,790 km²

Rub' al Khali (Empty Quarter)



Uruq Bani Ma'arid Protected Area

Habitat for Arabian oryx and sand cats.



2,000 km²

Eastern Region



Jubail Marine Wildlife Sanctuary

Protects mangroves and coastal areas from pollution.

Challenges Facing Protected Areas in Saudi Arabia

While Saudi Arabia has made remarkable progress in wildlife conservation, the path toward environmental sustainability remains filled with challenges. Protected areas face not only the harshness of the climate and limited natural resources, but also the pressures of human activity and continuous urban expansion.



Industrial and Marine Pollution:

Pollution remains one of the most serious threats to marine protected areas. Oil spills and industrial waste can severely damage coral reefs and mangrove forests, which serve as natural nurseries for fish and coastal birds. To address this issue, the government established the Jubail Marine Wildlife Sanctuary specifically to mitigate industrial pollution. The Royal Commission for Jubail and Yanbu has also implemented advanced environmental monitoring systems to measure water and air quality, ensuring ongoing protection of marine ecosystems.



Overgrazing and Pressure on Vegetation Cover:

Overgrazing is one of the most significant challenges. When vegetation is continuously grazed without recovery periods, it loses its ability to regenerate naturally, leading to soil erosion and increased desertification. Studies conducted by the National Center for Vegetation Cover Development and Combating Desertification have shown that halting grazing for just three years in certain sites resulted in a remarkable recovery of vegetation and the return of nearly extinct plant species. This degradation affects not only plant life but also animal species such as the Arabian oryx, goitered gazelle, and sand gazelle disrupting the ecological balance of desert environments.



Plastic Waste and Land Pollution

The widespread presence of plastic waste poses an escalating threat to both terrestrial and coastal ecosystems. Small animals and marine organisms often ingest plastic debris, mistaking it for food, which frequently leads to injury or death. In response, Saudi Arabia has joined the United Nations initiative to reduce plastic pollution in oceans and has launched several national cleanup projects targeting beaches and terrestrial protected areas to preserve ecosystem health and biodiversity.





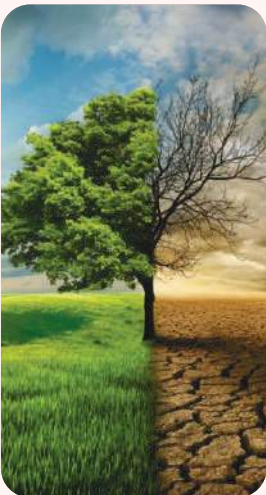
Poaching and Illegal Wildlife Trade:

Despite strict laws, illegal poaching still occurs in some remote regions. Poachers often target rare and endangered species, posing a serious threat to the wildlife reintroduction programs implemented by the government. According to the National Center for Wildlife (NCW), recent enforcement campaigns have resulted in dozens of recorded violations, and new measures are being considered to tighten penalties, including imprisonment and heavy fines reaching hundreds of thousands of riyals. The NCW has also launched a national awareness campaign titled “Don’t Hunt It Let It Live”, aimed at promoting public awareness and responsible environmental behavior.



Management and Field Protection Challenges

The agencies responsible for protected areas face significant logistical challenges, primarily due to the vast size of Saudi Arabia’s more than 80 protected areas, compared with the limited number of on-ground monitoring teams. To overcome these challenges, the National Center for Wildlife (NCW) has begun utilizing advanced technologies, including unmanned aerial drones and smart satellite surveillance systems, to track wildlife movements, monitor environmental conditions, and prevent illegal activities or encroachments within reserves.



Climate Change and Environmental Stress:

Rising temperatures, declining rainfall rates, and prolonged drought periods have led to the shrinking of vegetation cover and an increase in sandstorm frequency across vast regions. In the Red Sea, coral bleaching events have been observed due to marine heatwaves, a phenomenon that weakens coral health and can lead to mass coral mortality if high temperatures persist. According to the United Nations Environment Programme (UNEP), the Red Sea is among the most climate affected marine regions in the Arab world though it still demonstrates a relatively strong capacity for natural recovery compared to other global reef systems.



Urban Expansion and Land-Use Change:

With the Kingdom's rapid population growth and accelerated development, cities, roads, and industrial projects have expanded significantly — directly impacting the natural habitats of plants and animals. Many protected areas, especially those located near urban regions such as the King Abdulaziz Royal Reserve, have experienced shrinking boundaries due to infrastructure projects, mining activities, and modern agricultural practices. According to the Ministry of Environment, Water and Agriculture's 2023 Environmental Report, unplanned urban expansion leads to "habitat fragmentation" — a condition where species become isolated in smaller patches of land, reducing their ability to breed, adapt, and survive over time.



Limited Environmental Awareness and Human Behavior

Environmental awareness among some visitors and local communities remains limited in certain regions, leading to harmful practices such as lighting fires in forested areas, littering, and driving vehicles through ecologically sensitive zones within protected areas. To address these issues, the Ministry of Environment, Water and Agriculture, in collaboration with the Saudi Tourism Authority, launched public awareness programs such as "Travel with Awareness" and "Leave No Trace Journey" to educate visitors on responsible environmental behavior and promote the principles of eco-friendly tourism.

The challenges facing Saudi Arabia's protected areas arise from the interconnected impact of human, climatic, and economic factors; however, the Kingdom addresses them through an integrated approach that combines strict regulations, advanced monitoring technologies, international cooperation, and community awareness, transforming these challenges into opportunities for progress that place the Kingdom on a global path toward advanced and sustainable environmental management.

Government Efforts to Preserve Protected Areas in Saudi Arabia

The Kingdom of Saudi Arabia's commitment to conserving its protected areas is reflected in a comprehensive set of policies and initiatives aimed at enhancing environmental sustainability, modernizing management systems, and strengthening field protection efficiency. In recent years, the government has adopted a holistic approach that balances natural resource protection with local community development in regions surrounding the reserves.

The government is advancing protected area management through the adoption of modern scientific methods that rely on digital technologies, environmental analysis, and continuous monitoring of vegetation and wildlife. These efforts include establishing specialized management centers to evaluate reserve performance using clear indicators that measure ecosystem recovery rates, resource-use efficiency, and ecosystem responsiveness to climate change.

Saudi Arabia also places strong emphasis on building national expertise in environmental management through specialized training programs focused on wildlife conservation and biodiversity monitoring. These skilled professionals serve as key pillars in implementing field operations—particularly within sensitive environments such as deserts, mountain regions, and marine ecosystems.

In pursuit of enhanced protection efficiency, environmental authorities in Saudi Arabia are developing real-time monitoring systems using unmanned aerial drones and remote-sensing technologies, alongside the creation of integrated databases that document all activities within protected areas — including wildlife movement, humidity levels, and vegetation growth



Umm al-Qamari Islands Reserve

rates. These technologies have significantly improved the accuracy of field decisions and reduced violations and unregulated grazing.

Another key aspect of the Kingdom's approach is the promotion of partnerships with the private sector and local communities through national initiatives that encourage volunteer participation in afforestation campaigns and environmental monitoring, as well as responsible investment in eco-tourism. This marks a transformative shift in the concept of environmental protection, positioning it as a shared responsibility among the government, citizens, and investors.

Moreover, Saudi Arabia is working to integrate environmental goals into national economic and social development plans, ensuring that the conservation of protected areas becomes an essential component of major national projects in agriculture, water, and energy. This integration of environment and development strengthens comprehensive sustainability and helps mitigate the environmental impacts of urban and industrial expansion.

These efforts are grounded in a national vision that views protected areas not as closed zones, but as living natural laboratories for biodiversity conservation, scientific research, and environmental education.

Accordingly, relevant authorities actively encourage universities and research centers to conduct field studies within protected areas, contributing to the development of a robust knowledge base that supports evidence-based policymaking and the advancement of environmental protection and rehabilitation strategies across the Kingdom.

These efforts underscore that the protection of protected areas has become an integral part of Saudi Arabia's environmental policy, as the Kingdom strives to manage its natural resources responsibly for future generations—through innovation, education, technology, and sustainable community participation.



Uruq Bani Ma'arid Reserve

International Cooperation in the Protection of Protected Areas in Saudi Arabia

In line with its commitment to strengthening global environmental cooperation, the Kingdom of Saudi Arabia has pursued strategic partnerships with international organizations specializing in protected area management. The environment is no longer viewed merely as an aesthetic element, but as a national priority that directly impacts public health, the future economy, and the Kingdom's global reputation. Building on this vision, Saudi Arabia has developed an integrated environmental framework in which laws, institutions, initiatives, and modern technologies work in harmony to ensure that the protection of natural reserves becomes a systematic and long-term national effort, rather than a collection of isolated actions.

The Kingdom officially collaborates with the International Union for Conservation of Nature (IUCN) to implement global standards for protected area management and biodiversity monitoring. This partnership has contributed to the inclusion of several Saudi reserves on the IUCN Green List, an international recognition granted to sites that meet the highest standards of environmental governance and sustainable management. Such international acknowledgment reflects Saudi Arabia's commitment to adopting modern ecological practices and integrating them with advanced digital monitoring technologies, reinforcing its leadership in sustainable environmental management.

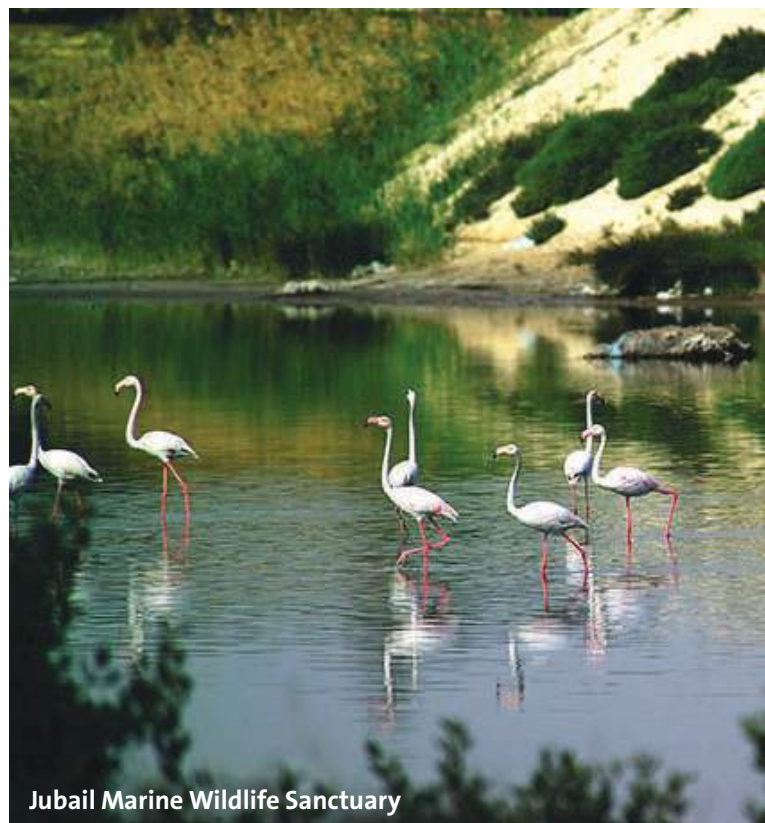
Saudi Arabia also plays an active role in the United Nations Convention on Biological Diversity (CBD), submitting regular national reports that outline its



Ibex Reserve Protected Area

strategies for protecting endangered species and its ongoing reintroduction programs. This commitment has strengthened the Kingdom's global standing in the fields of environmental conservation and sustainable development. In addition, Saudi Arabia is a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which aims to regulate the trade of wildlife species and prevent illegal trafficking. Through this convention, the Kingdom has enhanced its capacity to monitor environmental borders and prevent the entry of invasive species that could threaten local biodiversity.

In the marine sector, Saudi Arabia has contributed to joint programs with the United Nations Environment Programme (UNEP) and the Regional Organization for the Protection of the Marine Environment (ROPME) to monitor oil pollution in the Arabian Gulf and the Red Sea. This collaboration has led to the development of early warning systems for oil spills and the precise identification of high-risk environmental zones,



Jubail Marine Wildlife Sanctuary

thereby strengthening the protection of coastal reserves such as Jubail and Farasan Islands.

Today, Saudi Arabia plays a leading regional role through the Middle East Green Initiative, which aims to unify the efforts of regional countries to combat desertification and reduce carbon emissions. This initiative extends beyond afforestation it also includes the creation of transboundary ecological corridors connecting protected areas across several Gulf states, facilitating migratory bird movement and supporting regional ecological balance. Another key area of international collaboration is scientific research, where the Kingdom actively participates in joint projects with universities and research centers in Europe and Asia to study the impacts of climate change on arid ecosystems. These studies have significantly contributed to the development of adaptive environmental management plans within Saudi protected areas, particularly in regions such as the Empty Quarter (Rub' al Khali) and the Sarawat mountain range.



Sarawat Mountains

Environmental Awareness and Education in Saudi Arabia

Environmental awareness is one of the key pillars of Saudi Arabia's efforts to protect its protected areas, as environmental sustainability cannot be achieved without active community participation. From this perspective, government entities and environmental authorities have focused on fostering a culture of environmental responsibility by promoting knowledge, strengthening positive values toward nature, and encouraging behaviors that contribute to the preservation of natural resources.

The Ministry of Environment, Water and Agriculture has adopted a National Environmental Awareness Strategy that includes educational and media programs targeting all segments of society — from school students to visitors, travelers, and nature enthusiasts. This strategy is founded on the principle that prevention begins with knowledge: when individuals understand the impact of their behavior on the environment, they naturally become partners in its protection.

As part of its educational efforts, Saudi Arabia has integrated environmental concepts into school curricula in collaboration with the Ministry of Education, ensuring that students learn from an early age about the importance of biodiversity and the role of protected areas in maintaining ecological balance. Moreover, Saudi universities have organized volunteer campaigns and field research projects within protected areas, allowing students to participate in biodiversity monitoring and scientific data collection. These initiatives help transform theoretical knowledge into practical experience, fostering a hands-on environmental consciousness among the younger generation.



King Salman Royal Reserve



At the community level, the Kingdom has launched several public awareness campaigns aimed at promoting environmentally responsible behavior. Among the most notable initiatives are “Our Environment, Our Responsibility,” “Don’t Hunt It—Let It Live,” and “Travel with Awareness,” developed in partnership between the Ministry of Environment, Water and Agriculture and the Saudi Tourism Authority. These campaigns focus on encouraging behavioral change during outdoor activities and travel—such as reducing waste, avoiding harm to wildlife, and promoting responsible eco-tourism—thereby fostering a culture of environmental stewardship across society. Media and social networks have also played a major role in promoting environmental awareness. Many government entities and volunteer organizations have adopted interactive approaches, such as short visual content and environmental challenges, to inspire public participation. This digital outreach strategy has significantly expanded the reach of environmental messages, particularly among young people, who represent the largest segment of the Saudi population, making them a vital force in advancing the Kingdom’s environmental goals.

The role of environmental awareness extends beyond government institutions to include active participation from the private sector and non-profit organizations, which organize environmental programs and initiatives in schools and communities near protected areas. Several companies have also embraced the concept of corporate environmental responsibility, funding protected area cleanup campaigns and supporting ecological rehabilitation projects. These efforts align with the Kingdom’s broader vision of achieving sustainable development and fostering collective environmental stewardship across all sectors of society. The success of conservation efforts ultimately depends on the public’s awareness of the environment’s importance in daily life. When society recognizes that protecting protected areas is not solely a governmental duty, but rather a collective responsibility rooted in religious and national values, sustainability becomes a tangible reality. Thus, environmental awareness in Saudi Arabia today stands as one of the core pillars of modern environmental action—an approach that harmoniously combines knowledge, behavior, and community participation to ensure a sustainable future for generations to come.

Outlook and Emerging Directions for the Protection of Protected Areas in Saudi Arabia



The Kingdom is entering a new phase of environmental advancement driven by innovation, sustainability, and the integration of humanity with nature.

Today, the protection of protected areas is part of a broader national vision that seeks to build a green economy rooted in knowledge and technology, positioning the environment as a driver of growth rather than merely a sector of protection.

In the coming phase, Saudi Arabia aims to expand the scope of its protected areas to include new ecosystems representing the Kingdom's diverse natural landscapes such as the southern mountain regions and the northern coasts of the Red Sea. This expansion seeks to increase the proportion of protected areas to around 30% of the Kingdom's total land area by 2030, making Saudi Arabia one of the regional leaders in environmental conservation. Future efforts are also directed toward achieving a full digital transformation in the management of protected areas through the adoption of smart monitoring systems powered by artificial intelligence. These

systems enable real-time analysis of environmental data and the prediction of potential changes in climate conditions or the behavior of endangered species. This technological shift is expected to bring a major breakthrough in the Kingdom's ability to respond swiftly to environmental risks and human encroachments, marking a new era of proactive and data-driven conservation management.

The Kingdom is also working to strengthen the connection between protected areas and sustainable eco-tourism, transforming select reserves into educational and responsible tourism destinations where visitors can experience nature without harming it. This approach supports a balanced integration between environmental protection and local economic growth by creating new job opportunities and empowering communities surrounding protected areas, thereby making conservation both economically viable and socially inclusive.

Another prominent direction is the investment



in environmental scientific research, as relevant authorities plan to establish specialized research centers focused on studying desert and coastal ecosystems and developing long-term climate monitoring programs. This investment aims to support environmental decision-making through accurate data and practical scientific models that can be applied directly in the field, ensuring that future conservation policies are both evidence-based and results-oriented. At the level of future international cooperation, the Kingdom aims to expand its regional and global partnerships in the fields of environmental innovation, including the development of clean energy solutions, the rehabilitation of degraded ecosystems, and the establishment of regional networks that connect protected areas through ecological corridors for migratory birds and transboundary wildlife. This ongoing collaboration will further strengthen Saudi Arabia's position as a leading environmental force in the region, reinforcing its role in shaping a sustainable

and interconnected ecological future.

The modern direction for protected area management in Saudi Arabia also includes integrating social and cultural dimensions, by engaging local communities in decision-making and natural resource protection, and by incorporating traditional knowledge in environmental monitoring and adapting to seasonal changes. Several reserves have already begun adopting this collaborative approach, which combines local expertise with modern science to ensure more effective and inclusive conservation practices.

The future of protected areas in the Kingdom is being built on strong scientific and technological foundations, where knowledge and field practice work hand in hand. Through this integrated vision, protected areas are evolving from simply being preserved zones into productive ecological systems that enhance quality of life, support the national economy, and advance Saudi Arabia's global commitments on climate action and sustainability.

The protected areas of Saudi Arabia are not merely restricted zones or sanctuaries for wildlife—they now represent a comprehensive model of sustainable environmental development that the Kingdom seeks to embed within its Vision 2030 framework. Through ongoing government initiatives, active international cooperation, and community awareness programs, environmental protection has become an integral part of national policy and a shared value among both citizens and residents.

Field experience has proven that investing in the environment does not conflict with development—it is, in fact, one of its core pillars. Saudi protected areas serve as living laboratories for implementing modern concepts of environmental management, technological innovation, and scientific research, positioning the Kingdom as a regional and Arab leader in sustainable conservation.

As the Kingdom continues to adopt advanced technologies, strengthen research partnerships, and expand the scope of its protected areas, the future appears promising—toward a more balanced environment and a thriving, resilient ecosystem. These collective efforts reflect not only a national commitment, but also a global belief that protecting the planet is a shared responsibility among all nations for the sake of future generations.



Majami' al-Hadb Reserve



References



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