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Geographic Assessment of the Perception of Nature Reserves and National Parks in Kuwait

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Geographic Assessment of the Perception of Nature Reserves
and National Parks in
Kuwait

Geographic Assessment of the Perception of Nature Reserves
and National Parks in
Kuwait

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Art in Geography

by

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Abstract:

The Arabian Gulf countries have passed strict laws to preserve their environment. Kuwait has a strong history with preserving natural areas. The ecological value and richness of Kuwait's ecosystems have increased since the nature reserves were built. This research has evaluated the perceptions that Kuwaitis have of the design, creation, and development of nature reserves in Kuwait. It involved the use of survey instruments (questionnaires) and interviews with respondents of both urban and rural communities. Data from these surveys and interviews analyzed regarding perceptions of nature reserves' needs, sizes, functions, and future plans.

The results of examinations (surveys) demonstrate that the public believes that nature reserves in Kuwait are necessary for the protection and health of the environment (82%). Moreover, these results indicate that the public understands the importance of preserving nature reserves in Kuwait and that the government should pay more attention to this issue (82.8%). The Kuwaiti government has shown reluctance towards establishing new nature reserves, despite the public's understanding that protecting Kuwaiti environment requires establishing new nature reserves. There is a relationship between the public's perception of nature reserves and the government's protection of green spaces. The public perceived that the natural areas' protection laws as insufficient for truly protecting the environment and there should be policies and regulations enacted to protect nature reserves and the wildlife in Kuwait (82.4%).

This research can be a stepping stone in understanding the opinions of the people of Kuwait of the planning, management, and future plans for the nature reserves. Also, it can be used as a basis for developing best practices in nature reserve and national park management in Kuwait.

Keywords: Perceptions, Kuwait, Nature reserves, National parks.

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Chapter One: Introduction

Environmental protection is of pressing importance for all life and it is a goal for every religion, nation, and country to preserve our environment. The

Quran says:

"It is he who produces gardens with trellises and without, and dates and tilth with produce of all kinds, and olives and pomegranates similar (in kind) and different (in variety). Eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. And waste not by excess: for Allah (God) loves not the wasters." {Surah 6:141} (Huda, 2013).

According to Quranic verse, Islam teaches that Muslims have a responsibility to reserve and to protect the environment. Furthermore, most countries are finally showing an interest in protecting their environment, including the Arabian Gulf and Middle Eastern countries. The Arabian Gulf countries have passed strict laws to preserve their environment (Krupa, 1997). When talking about the environment and protecting it in the Arabian Gulf, the Kuwaiti government has a good history with preserving nature. Its government continues to work to restore its ecosystems and to preserve them in their natural state. Kuwait is located at the corner of the Arabian Gulf and it is a small state (17,818 square kilometers) which creates a very specific landscape and policy for park creation and maintenance (GEO-ECO, 2010). As the location of the state of Kuwait suggests, we can imagine that it is hot and dry, so it has a desert climate (GEO-ECO, 2010).

Most of Kuwait's landscape is desert because of its climate and its ecosystem, which is that of a desert biome. Furthermore, much of Kuwait's land remains destroyed by Iraq's invasion and subsequent war in the 1990s and the actions that the Iraqi army took during Iraq's invasion of Kuwait (Zain, CNN. 2012). However, the environmental experts and Kuwaiti scientists agree that Kuwait's ecology should be restored and be reserved by the Kuwait government and its ecologists, so they determined to build many nature reserves in various areas in Kuwait, especially in the uninhabited areas (KUNA, 2009).



Figure (1.1): This Photograph shows the fire of wells during Iraqi invasion in 1990 (<http://diwania.alazraq.com>)

A nature reserve is an area that is set off to save and to protect the natural life in that ecosystem (Kuwait's Ministry of Interior, 2013). A few years ago in Kuwait, nature reserves were once used to conserve animals, but now the reserves are for both animals, plants, and all natural life. In addition, the reserves protect the marine life such as is found north of Kuwait's Bay and around and on Bubiyan Island (KUNA, 2009). Because of the nature reserves, environmentalists have verified that the ecosystem is being restored to its natural state. The thrust of this research was to evaluate the perceptions that Kuwaitis have of the design, creation, and development of nature reserves in Kuwait. I examined the perceptions of the citizens of Kuwait for the need for nature reserves and their development and maintenance from its early acquisition (land set aside), through its development, to its contemporary use in the urban and rural areas of Kuwait. I also investigated the methods used by the governments of various cities, states, and nations that are involved with the creation, maintenance, and function of nature reserves and national parks- all in the hope of creation a better understanding as to why such reserves and parks are vital to Kuwait's future.

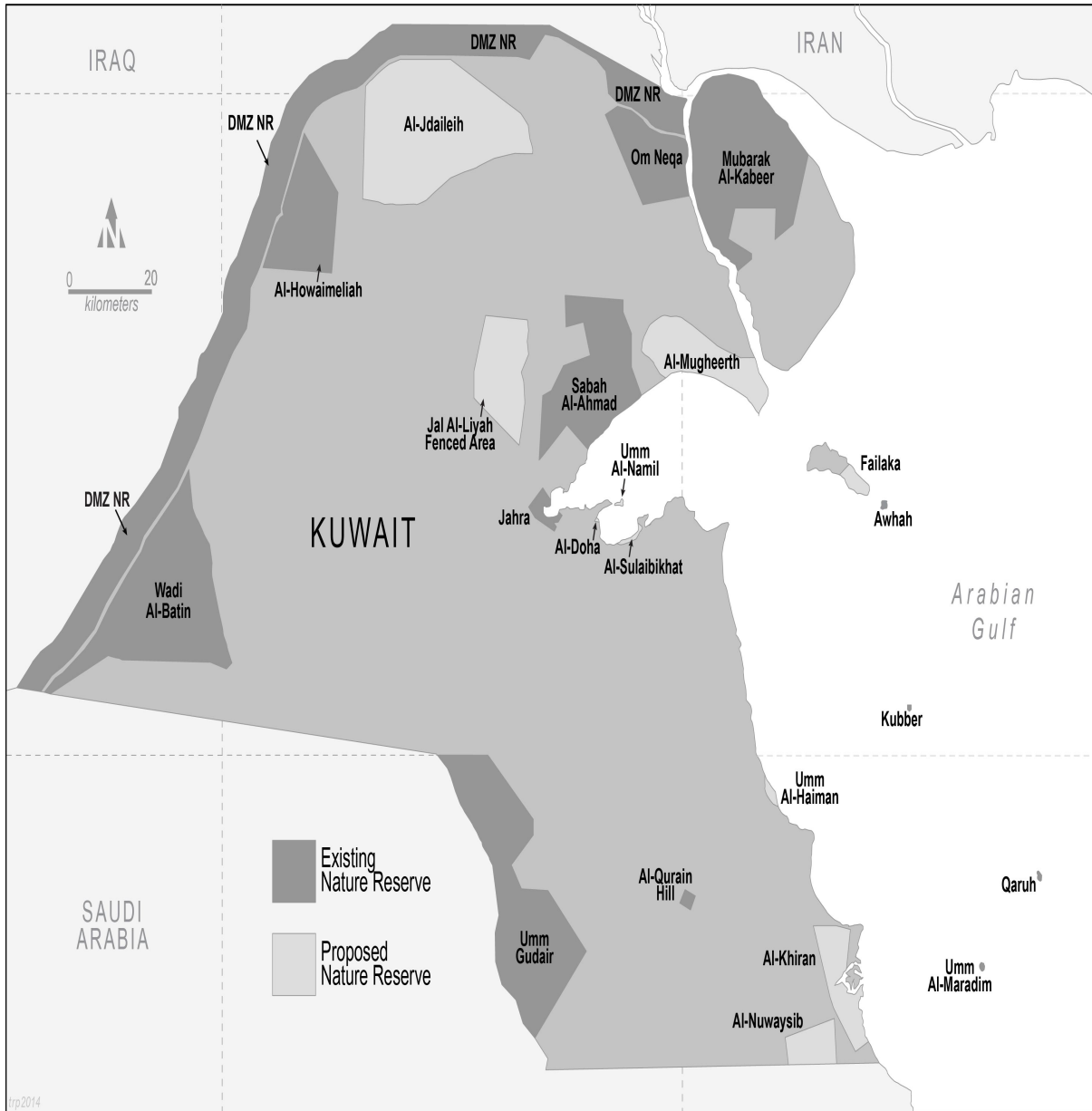


Figure (1.2): This map represents the Kuwait's Nature reserves and National parks: Details in Appendix (Meshari Alenezi, 2014)

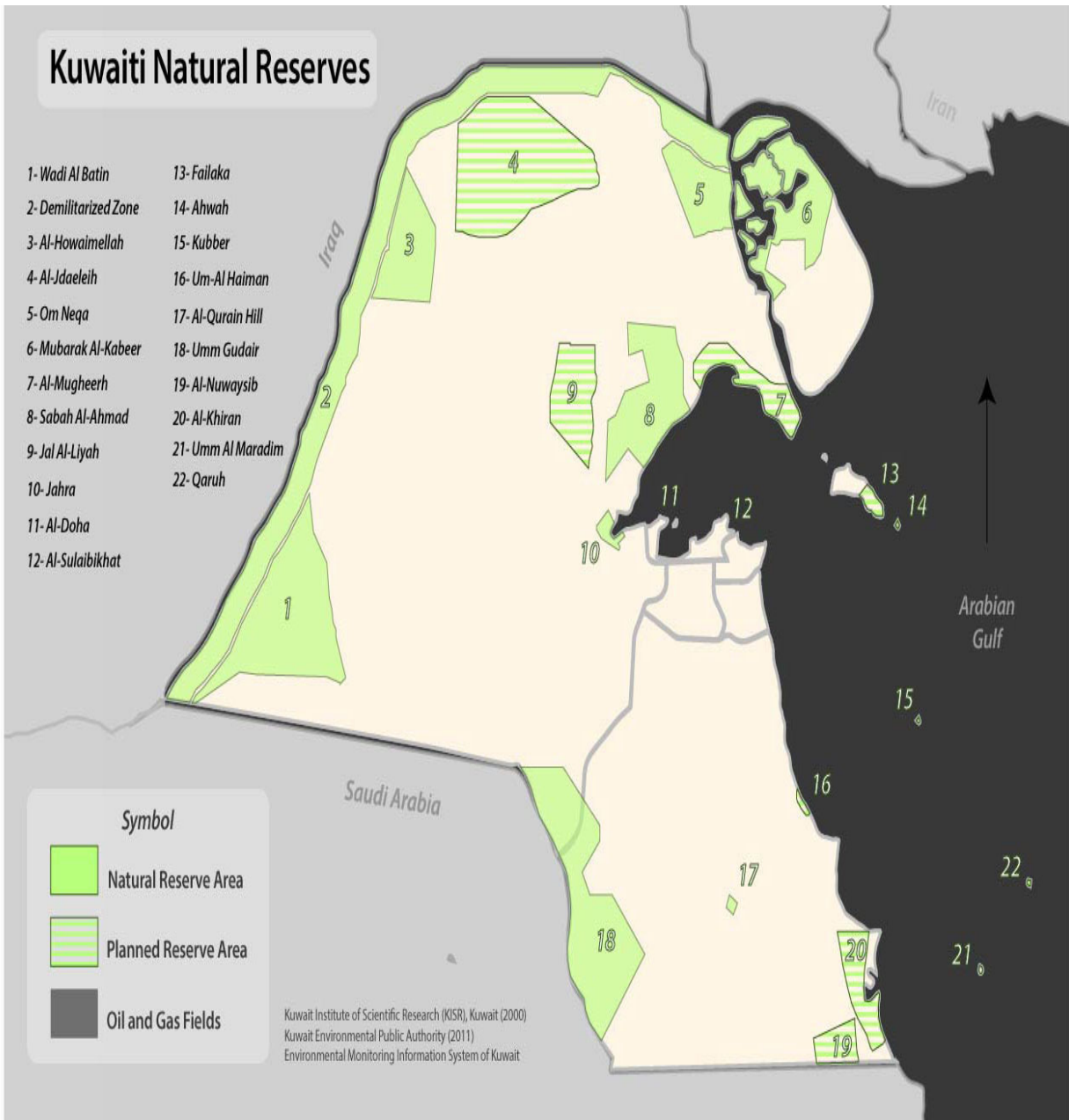


Figure (1.3): Map represents the Kuwait's Nature reserves and National parks

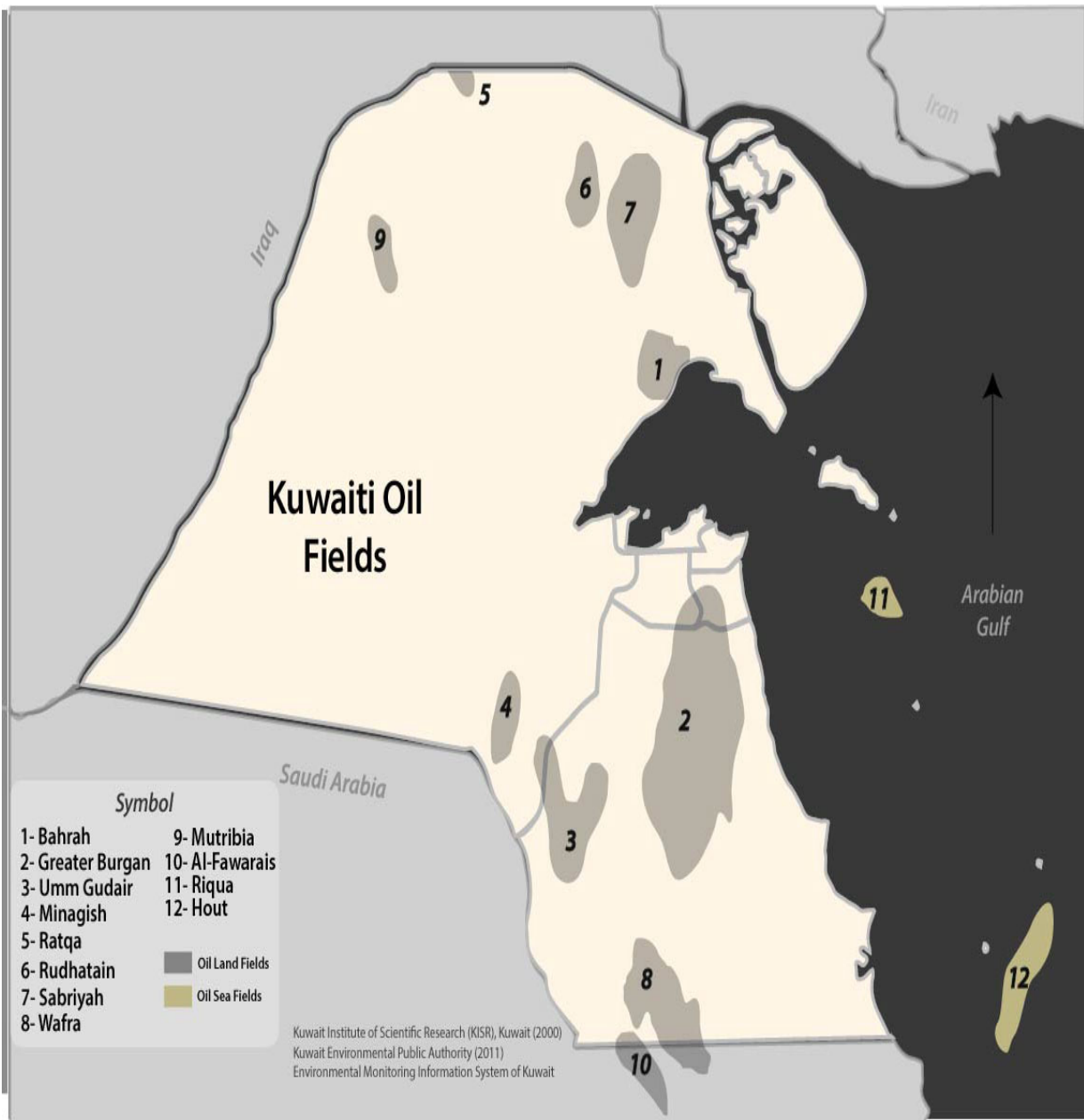


Figure (1.4): Map represents the Kuwait's Oil fields

Chapter Two: Study Site

2.1 Kuwait's Physical landscape

The state of Kuwait is located in desert region, so it has arid climate. Rainfall varies from 75 to 150 millimeters a year across the country (Kuwait's Ministry of Interior, 2013). There are many threats to Kuwait's environment, such as sand dune encroachment, the death of plants, and lack of water. Most scientists and environmental experts agree that Kuwait's ecology could be destroyed by those impacts. Furthermore, Kuwait's climate also has become hotter and drier because of damage to the ecosystems of Kuwait 30 years ago (Krupa, 1997). Many events caused these changes, such as the two Gulf Wars. Moreover, many species of plants and animals have gone extinct in the last thirty years. This is especially true for migratory birds that no longer have an appropriate habitat when they come annually. Birds come to Kuwait two times every year because of Kuwait's location on the Arabian Gulf (GEO-ECO, 2010). On the other hand, the Kuwaiti state is an oil country, which has a lot of industrial companies and oil factories. These industries are threatening Kuwait's ecology (GEO-ECO, 2010). They cause air pollution from smokestacks and oil field burn-off. They also will cause alterations in the ecosystem and the climate. Furthermore, their wastes continue to be massive and dangerous. Without planning, companies dispose of this waste into the sea and into the desert. Industrial development is increasing in Kuwait now, so the environment is endangered now and will become more so in the future (Krupa, 1997).

Industrialists, scientists, and politicians must be more careful and find solutions for our environment. The nature reserve is an idea, which evolved from the national parks and places for public recreation. Now, nature reserves are protecting animals that were becoming extinct due to the landowners who hunted them. Kuwait has many nature reserves, but two of them are most important for Kuwait's environment.

The largest environmental nature reserve is Bubiyan Island, which is a habitat for many kinds of birds and other animals. Some birds and animals are exclusive to this island. The northern division is made up of swampland and many small rivers, making it a place of feeding and breeding for birds and marine organisms, such as fish, crustaceans, and mollusks (KUNA, 2009).

The entrance to the island is limited and controlled by the Ministry of the Environment and Ministry of the Interior. Both of these agencies have been engaged in the restoration and conservation of the Bubiyan Nature Reserve since the Gulf War in the 1990s. Then, the second largest protected area is the Sabah Al-Ahmad Nature Reserve. It is becoming a place where animals and plants are preserved from hunting and human incursion. It also has become a place, which shows the diversity and scope of Kuwait's indigenous wildlife. Sabah Al-Ahmad Nature Reserve is divided into two parts; one is for desert wildlife and the second one starts on the beach and extends into the Gulf for marine life (Kuwait's Ministry of Interior, 2013).



Figure (2.1): Talhah Trees (*Acacia sayel*) In Kuwait's environment
(www.kuna.net.kw)



Figure (2.2): This Photograph shows nature reserve that in marine side
(www.farm1.static.flickr.com)



Figure (2.3): Famous bird, which called Houbara
(<https://farm7.staticflickr.com>)



Figure (2.4): Camels standing in Sabah Al-Ahmed nature reserve.
(<http://media.al-sharq.com>)

Furthermore, this nature reserve is characterized by Talhah trees (*Acacia seyal*), which are relatively rare. These trees live in the hot regions of Middle East, so they are widely distributed there. Also, the Kuwaiti government has strict restrictions and punishments for anyone trying to enter Sabah Al-Ahmed Nature Reserve without official permission (Kuwait's Ministry of Interior, 2013).

Undoubtedly, the nature reserves are important now and they are producing positive results. If tourists wanted to see Kuwait's wildlife, they would visit Kuwait's Nature Reserves. I am one of many Kuwaitis who are proud about this project, which is restoring Kuwait's environment. Because of Kuwait's efforts to restore its ecosystem, there have been significant positive environmental developments (KUNA, 2009). Nature reserves have become more controlled and managed by governmental institutions. As a result, most of Kuwait's wild plants have returned to its lands.

The protected areas are of extreme importance for a variety of organisms (GEO Environmental Consulting Office, 2010). The ecological value and richness of Kuwait's ecosystems have increased since the nature reserves were built. In addition, the migratory birds once again find an appropriate habitat on their annual return because the ecosystem has been restored and preserved by Kuwait. On the other hand, the government's attempts to concentrate natural plant life in the two reserves have resulted in the loss of the dunes due to wind erosion, and that is still threatening to the environment, specifically to the indigenous animals (GEO-ECO, 2010).

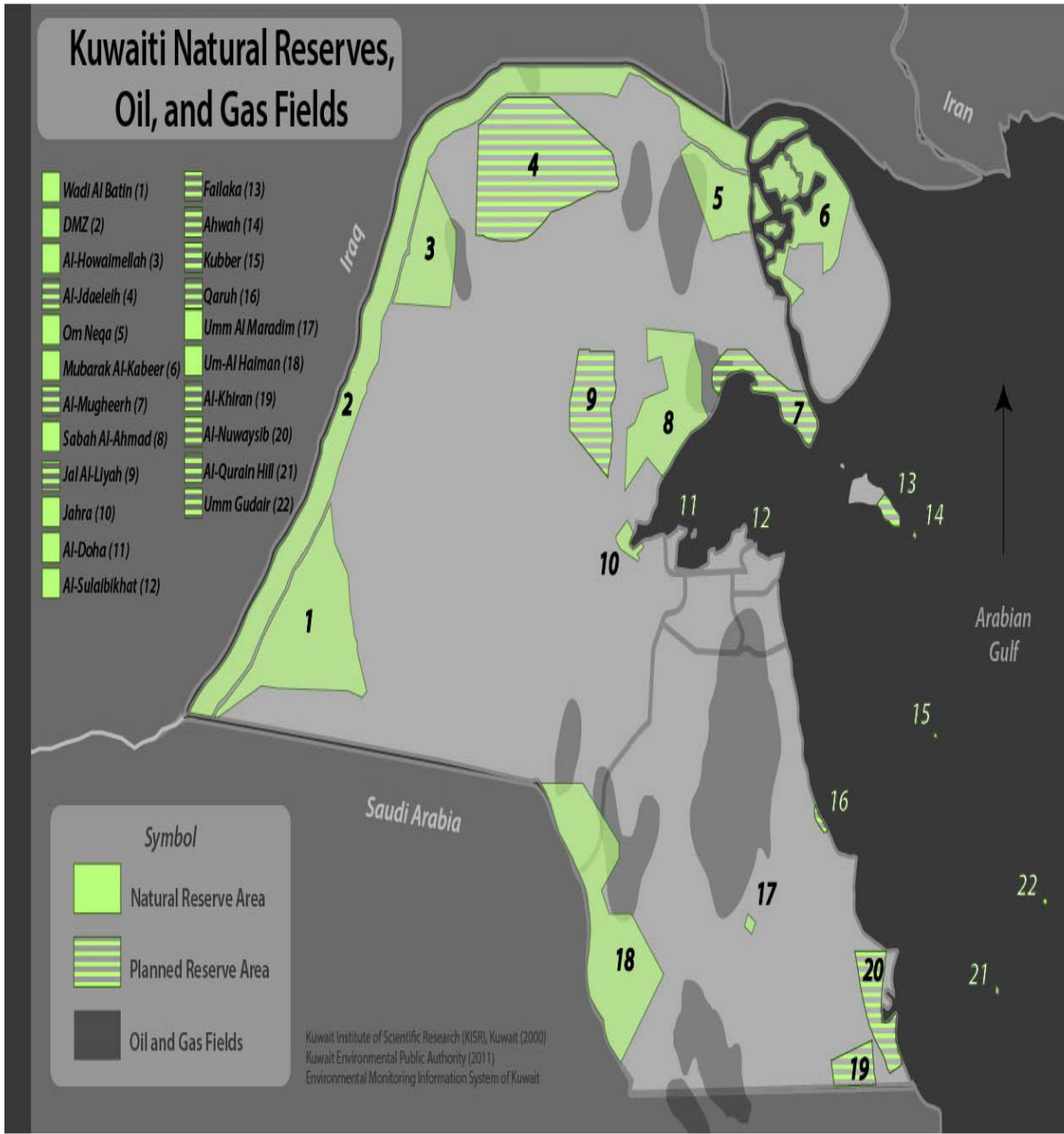


Figure (2.5): Map represents the Kuwait's Nature reserves, National parks, Gas Fields

With the nature reserves, the percentage of the death of plants has declined in Kuwait's land since the environmental experts began to take care of them (Kuwait's Ministry of Interior, 2013), even though the plants are concentrated in the reserve areas. Moreover, wild animals can find water easily because the government offers fresh water to them (KUNA, 2009). Kuwait's government has built many distillation facilities, which take in seawater and purify it into fresh water. This freshwater is then sent into the nature reserves. All of these benefits are helpful to Kuwait's ecology (Kuwait's Ministry of Interior, 2013).



Figure (2.6): Arabian Oryx (*Oryx leucoryx*) in Kuwait (<http://resources.waza.org>)

Geographically speaking, Kuwait is a relatively small country in terms of land area (17,818 square Kilometers)– only slightly bigger than the Hawaii Islands. It is mostly desert that hugs the Arabian Gulf. Its main source of GDP is its oil production from its rich oil reserves. After engaging in numerous wars with its neighbor, Iraq, Kuwait has made significant effort to repair the damages the wars caused to its environment. The result of war includes the burning of natural resources and the spill of oil on both land and bodies of water. This catastrophic scene following the last war rendered Kuwait's natural resources in danger of being lost. Fortunately, with the help of environmental experts working with the Kuwaiti government, strategies were developed to mitigate the effects of the war on the environment (Omer, 2008).

One of the strategies that its government adapted in achieving such a goal was to declare certain sites in Kuwait as natural reserves. At present Kuwait is home to flourishing nature reserves. Examples of nature reserves found in this country include the Sabah Al-Ahmad Nature Reserve and the Jahra Pools Reserve. These nature reserves are also used in tourism which adds up to the economy, along with the already stable oil industry of the country. It also has numerous green spaces which attract migratory birds which are also common tourist attractions (Bahman, 2008; Omer, 2008).

It should be noted that the majority of its nature reserves are either off-limits to their local populace or under limited access. Despite the success that the country has achieved in rebuilding and preserving its war-torn environment when it engaged in a war with Iraq, its leadership feels that it still has a long way to go in bringing back the former beauty of its environment; hence, the need for more nature reserve (Bahman, 2008; Omer, 2008).

According to figure (1.2), Kuwait has many kinds of natural reserves and they are distributed around Kuwait's urban areas. Nature reserves are divided to two parts: Marine reserves and wild reserves. The biggest one is Bubiyan Island, which represents the marine reserve and wild reserves. The map also shows the islands nature reserves in Arabian Gulf, for example Failaka Nature Reserve, Awhah, Kabber, Umm Al haiman, Umm Al maradium, and Qaruh. Those nature reserves have different spaces and the smallest one is Awhah, which is 800 meters square. Moreover, Kabber Island is a small island in the Arabian Gulf has almost 2 kilometers square. It is rich in coral reefs and the types of plants such as permanent Shannan (*Anabasis*). Kabber Island also has many types of seabirds such as terns. The birds subsist in abundance, especially in the period from May to October (Behbehani, 2009; Al-Behbehani, 2008).

On the other hand, the map (1.2) shows that most of the border areas have been changed to protected areas such as nature reserves and national parks where some of these existed and others proposed. Some of the existed nature reserves are Al-Batin desert, Mud Flats, Qast (Umm al Rimam), Umm Al-Aish Rock, Um-Niqqa desert, and Wadi Al-Batin. All of these nature reserves are

far away from Kuwait's urban area, but there are nature reserves around and near of inhabitant areas such as jahra nature reserve, Doha, and Al Sulaibikahat nature reserve. Al Sulaibikahat nature reserve is located in south of Kuwait Bay with an area of 4.5 kilometers square. Al Sulaibikahat reserve is existed for migratory birds that come to Kuwait twice a year. Furthermore, Al-Salibyah is one of the major reserves in Kuwait and has an area of 20 km² and is dedicated to ecological studies, research, and supervised by the Kuwait Institute for Scientific Research since 1975 (Behbehani, 2009).

Legislation is currently being framed to protect a significant part of the country by establishing nature reserves. While the intention of Kuwait's government is noble, its policies and nature reserve designs may not be suitable to promote good will among its citizens. It was aforementioned, for example, that the government allows only limited or authorized access to its nature reserves. Considering that the country is relatively small, and some of its people in rural areas still engage on nomadic way of sustenance such as hunting, study must be done that will examine the balance between preserving the environment and sustaining the peoples' needs, especially in the rural areas (Bahman, 2008).

While it can be reasoned out that its oil industry alone can sustain all of its people, sustainable development of its environment is still necessary in order to make sure their future generations will have enough sustenance. With the limited access to areas declared as nature reserves, and the projected increase in the number of these nature reserves, it is not hard to imagine how the space for the local Kuwait population could dramatically decrease over time. Note further that

the usual designs of nature reserves involve the erection of wired fences and the stationing of security personnel at possible entrances. Such design may have negative effects on the perceptions of the people (KuwaitBird.Org). Add to this the urban sprawl which is taking place in Kuwait. For a relatively small country, its rate of urbanization is relatively high. (Bahman, 2008)(Omer, 2008)



Figure (2.7): Vegetation blooms (Khzamah) at the Sabah Al-Ahmad nature reserve (<http://i2.cdn.turner.com>)



Figure (2.8): This view shows the vegetation blooms (Naweer) at the Sabah Al-Ahmad nature reserve (www.hawar-islands.com)



Figure (2.9): This picture shows the lizard: Dhab (Uromastyx) the Sabah Al-Ahmad nature reserve (<http://www.tarsiger.co.uk>)

Moreover, in the establishment of nature reserves Kuwaiti officials mainly consult experts in the field of environmental science and its associated fields of study. There is not an effort to hire or consult researchers in the matter, which indicates a lack of consideration for the perceptions of the lay people in Kuwait. Hence, a study on the perceptions of Kuwait's people with regards to the establishment of nature reserves is essential to make improvement in the current way nature reserves are created, maintained, and their functions determined (Bahman, 2008).

Chapter Three: Previous Research

3.1 Perception and The Environment

There are numerous studies that have been conducted as early as the 1980s, delving into the issue of lay peoples' perceptions on of the establishment, management, and function of nature reserves. These studies provide essential information that is useful in conducting the information gathering process which will be done in this research. The majority of the articles reviewed in this research are either peer reviewed or have been taken from government and academic sites in order to ensure the reliability and validity of the information considered.

Before delving deeper into the diverse literature regarding human perception of nature reserves and national parks, it first important to establish why such perceptions are important so as to elicit them from laymen, authorities, and experts. Accordingly, when a nation or a group of people engage in a developmental effort, they must take into consideration the sustainability of the effort. By sustainability we mean that the development will be able to achieve its goals and sustain these goals for relatively long periods of time, meaning for many generations of humans. The main objective of sustainable development is to make sure that what the current generations are enjoying today will also be enjoyed by future generations. In general, sustainable development is characterized by the just and efficient use of natural resources available for a certain group of people (Omer, 2008).

One important factor that determines the sustainability of a developmental effort, such as the establishment of nature reserves and national parks, is to be able to allow all stakeholders to participate in the effort, particularly in the managing process – this is not to imply that some of the stakeholders can be forgotten in the other stages of the developmental effort. In fact, all stakeholders must be involved in all stages of the development initiative – from conception, planning, establishment, maintaining, and through preparing and making future plans (Omer, 2008).

The stakeholders can be composed of the entire country or some relevant groups of people and organizations only. In case of nature reserves and national parks, everyone who is affected by their establishments can be considered as stakeholders: the people displaced by the establishment of nature reserves, the government, the experts who are consulted, the tourists, the public, and the nature reserve management and administrators. In order to obtain the constructive participation of these stakeholders, it is expedient that their individual perspective be elicited and considered in important decision making processes, such as in creating policies for nature reserves. Understanding each stakeholder's perception is essential in determining how the developmental effort will benefit all stakeholders; in other words, to achieve the utilitarian aim of the project (Muschet, 1997).

People have varying perceptions with regards to a single subject, such as whether nature reserves and national parks are beneficial or not, due to differences in culture and individual experiences. So, significant efforts must be exerted in order to obtain all perceptions as much as possible. Understanding the perceptions of the people will greatly help management authorities and the government in communicating the details of a developmental effort, which is, in this case, the establishment of nature reserves. Knowing their perceptions will allow authorities to build the spirit of stewardship, and the sense of shared responsibility and understanding, which are all essential factors to make developmental efforts sustainable (Sustainable Resource and Policy Management, 2014).

Hobbs (1996) explained how important it is to communicate with the local inhabitants when creating national parks. The main reason for such effort is sustainability, and the balance between providing for the peoples' needs and environmental conservation must be examined. The establishment of national parks, in general, requires the limited use of natural resources by the local people. This limited use adversely affects the immediate benefit that natural resources bring to local populations. It is therefore expedient for Kuwait to communicate with and to educate its people on the eventual benefits from the areas that will be affected by the developments on the way. Hobbs further provided particular topics that should be communicated to the people living in the affected areas.

One of these topics is the alternative use of the area after being converted into a national reserve or a national park. Accordingly, such areas may be perceived as converted to no more than recreational facilities for the public to use. In most cases, people from rural areas derive their sustenance directly from the areas by means of utilizing the natural resources therein, such as the plants and animals living there (SRPM, 2014). When the said areas are converted to national parks or natural reserves such activities and access will be minimized, if not entirely prohibited. Without proper planning, people from the said areas will be starved; hence, the idea of converting their areas to national parks or natural reserves is always something that they would disagree about (Hobbs, 1996).

As a part of the communication with people in effected areas, the possible alternatives from which they can obtain their means of living must be discussed. In most cases, tourism will provide such an alternative. Nevertheless, the people should also be assured that the alternative will be a sustainable one (SRPM, 2014). For example, it may be necessary to communicate to them the size of the number expected tourists who are going to the said area. Moreover, in most cases, there may be different ethnic groups living in the areas to be developed. The establishment of national parks and natural reserves must respect the cultural practices of these people. In Hobbs' research it was pointed out that Egypt has different ethnic groups living on its proposed natural parks (Hobbs, 1996).

One of the major efforts done by the Egyptian government was to conduct research on the cultural practices of its people and strike a balance between letting the people practice their traditions and developing the areas for tourism purposes. The intrusion by the government among the different ethnics group of people within the areas may displace some of them. This may necessitate that some groups take some areas owned by other ethnic groups, which could result in conflict. The government should, therefore, communicate to the local populace how security, equality, and peace will be maintained when the natural reserves and natural parks are established. The culture of the tourist may also be a problem with the local groups. These conflicting cultures may strike fear among the local settlers that their pure ethnic cultures could be influenced by the cultures of people outside the ethnic group. Hence, this concern should be properly addressed and communicated with the people in the affected areas. Hobbs, (1996), pointed out that in order to establish the St. Katherine Natural Protectorate in Egypt, park authorities had to convince the Bedouin to become friendlier to the tourists who would be visiting the areas affected by the protectorate. There was an error, however, in their communications with the Bedouin tribe members. The error arose from too broad a description on the effects of the protectorate's establishment to the Bedouin tribe's way of living, which resulted in a conflict between park authorities and the Bedouins (Hobbs, 1996; Mckee, 2009).

The incursion of drug dealers in the area has also marred the area occupied by the Bedouins. Prostitution became a common concern among the people in the affected areas. It is therefore highly important that part of the communication between park builders and the local people in urban and rural areas is the details of keeping the area secure. Kuwait must take into consideration all the aforementioned topics of communications if it wants to establish natural reserves and national parks in its urban and rural areas (Hobbs, 1996; Nassauer, 1995).

It has been proven many times in many studies that the peoples' perception is highly important in establishing natural reserves or national parks. It is from this strategy that McKee (McKee, 2009) conducted a study on the perceptions of the people of Wadi Rum, with regards to the conservation of a nationally protected area of Wadi Rum. McKee emphasized the importance of conducting such studies, especially, when the area concerned will be used as a primary tourist attraction. Accordingly, international tourism has reached the one billion arrival level. This equates to billions of dollars that can be earned from international tourism. But, the consequence of this is the possible degradation of the natural environment being visited by the tourist (McKee, 2009).

Natural environments involve a complex interaction among different species of organisms, and between organisms and their abiotic environment. These interactions can be hindered when tourists flock into a certain area, even just to observe. To give an example of the sensitivity of nature to the influx of people in a nature reserve area, consider a lake that has natural flora and fauna

in its surrounding areas – immediately around its waters. The roots of the different plants have symbiotic relationships with each other and with the native microorganisms in the soil and water. Once this symbiotic relationship is adversely affected by the pressure exerted by peoples' weight as they walk across or near the areas, the plants begin to die or decrease in population. Since the fauna relies on these plants, they will also be adversely affected. Before tourism ensues, the number of people traversing such areas may be bearable to the soil; hence, the flora, fauna, and microbiota are not significantly effected by such pressures. But, when the influx of people increases the pressure starts to increase as well, posing dangers to the natural environment. Stephenso, (1993) has shown that an uncontrolled influx of tourists on nature reserves can cause the rapid decline of diversity with the said area.

3.2 Nature Reserves Creation and Establishment

The people within or near the said areas may be misled into believing that by continuously increasing the number of tourists going to the national reserves or national parks is the unending goal that they must adhere to. Such should not be the case. Thus, it is highly important that local settlers near the affected areas are well informed about the intricacies involved in tourism and environmental conservation. Having an access to their perceptions is, therefore, highly recommendable, because this tool will reveal their knowledge of the consequences of creating national parks and natural reserves. For Kuwait to have a sustainable development in its future national reserves and national

parks, it must, therefore, engage actively in determining the perceptions of its people with regards to the creation of the said establishments (Krupa, 1997).

The implication of this is that, for any project to become sustainable, both nature's and human's present needs must be well provided for significantly long periods of time and the needs of future generations are not adversely affected, but rather improved, a limit must be set. This limit should be communicated, firstly, to the people who are directly affected by the establishment of natural reserves and then to the people who are planning to visit them. Such effort does not end with this study; perception determination is a continuous and regular effort (Omar.2008). The first group of people that need to be informed and their perceptions gathered are the population within or near the areas of the natural reserves and national parks, and the people charged with maintaining them. Making regular initiatives to determine the perceptions of people will help, not only in helping to conserve the environment, but also to avoid future conflicts (Steph, 1993).

Note that such initiatives are highly important, especially, among areas where people belong to different ethnic origins and have existing cultural conflicts with each other. Such is the case with many Kuwait rural areas. With such cultural or ethnic divide, it can be expected that not all groups will have similar perceptions to the aforementioned developmental efforts. McKee shows in the results of her study that there is a correlation between the perceptions of people and their demographic characteristics. For example, McKee (2009) made the observation that people from the same shareholder type, age, regional affiliation,

and education level tend to have similar perceptions, but different perceptions from those of other such groups. Another goal of determining the peoples' perception, therefore, is to understand the reason for this divide or differences in perceptions and minimize them, as much as possible. Note further that two effective factors that will determine the sustainability of a project are: the direct and supportive involvement of all its stakeholders, and the unity among them; in other words, unity and collaboration (Stephenson, 1993).

Establishing nature reserves and national parks involves the creation of policies that regulate the people's actions as well as preserve the areas affected by the establishment. Slovic (1987) conducted a study which examines a particular type of perception among the stakeholders of nature reserves called risk perception. Risk perception, according to Slovic affects the stakeholder's acceptance, response, and participation on policies implemented by nature reserve authorities. This means that risk perceptions directly impacts the effectiveness of a policy (Slovic, 1987).

In order to obtain such perceptions, the government of Kuwait or members of the stakeholder groups involved in policy making must obtain a complete list of the activities and technologies which will be performed and used on the affected areas respectively (Slovic, 1987). For example, if the area will be used a tourist attraction site, what are the activities that the tourist are more likely to engage in; will the nature reserve or national park use more energy than what is available at the area and from where they will be taking this energy; what new technologies will be transported into the area, and how will these changes affect the people

and the environment. In other words, what risks do all these changes pose, both on normal times and when there are unlikely events, such as accidents. For example, what do the people feel or perceive on about having a nuclear-based technology (a nuclear power plant) near or within the affected areas? Do they feel safe about this technology? What do they think they must do when unlikely events happen?

Usually in dry climates, such as that in Kuwait, forests fires are imminent causes of danger for people living near or within a forest. Such events can cause fear among the groups of people living there and can be a determining factor in their perception of nature reserves. All these questions must be taken into consideration when taking the risk perceptions of the people affected by development efforts. Evident from the findings of Slovic's research is the fact that the seriousness and the number of risks affect the acceptability of the technology or activity with which the risk is associated (Fischhoff et al, 1981).

Slovic (1987) has also shown results similar to those from the study by McKee; that is, different groups of people have different views about risks. Sometimes, the issues in the use of modern technologies may not always involve risk but the preservation of the nation's sovereignty and the individual's privacy. Recently it was proposed that Kuwait use GIS-based technologies for areal imaging of nature reserves. These modern technologies, of course, will be operated by foreign experts. Such technology may not be readily acceptable to the public and even to the government as it may pose a threat to national security and sovereignty. These technologies may also pose a threat to the

privacy of individuals living in areas near nature reserves. Note that GIS based technologies are capable of providing areal images of structures and terrains at a relatively high resolution. More important to note about this technology is that it integrates into the internet; hence, to the World Wide Web (Liu, 2014). Such technology, despite having all the characteristics needed to conduct efficient monitoring of nature reserves should be evaluated carefully. Such evaluation will again necessitate the elicitation of the public's perception (McKee, 2009).

Nevertheless, Slovic pointed out that the risk perceptions of the people immediately affected by the development effort have great effects on the perceptions of the public, at large. Note that the success of policies and the success of the entire development effort also rely on the acceptance and approval of the public. Such perceptions are also strong determinants of what should and what should not be included in the development effort. In other words, risk perception has a strong power in determining the size, functions, and future plans of nature reserves and national parks. It therefore, obvious, that Kuwait must perform regular risk perception assessments among its populace in order to make its policies effective and its development efforts acceptable to the public.

An effective tool which may be of use in such effort to determine risk perceptions is the psychometric paradigm. This method plots the level of risk (fear, feeling of trouble, dread, etc.) and the groups of people having such levels of risk for each activity or technology associated with the development initiative. What is powerful about this technique is that once the points are all plotted it can

be readily determined whether the groups of people have extremely variant risk perceptions or a unanimous one. This same technique can be employed to study the perceived impact of possible hazards or accidents to the money generating capacity of the development effort. This same technique can be employed in determining the peoples' perceptions in Kuwait of the nature reserve policies over time and space (Slovic, 1987).

Another type of perception which should be elicited among the stakeholders, particularly those who are using the national parks or will be benefiting from the nature reserves, was studied by Panza and Cipriano (2004) who emphasized that parks and nature reserves play crucial roles in bringing about and maintaining the vitality and quality of life of the people using them or who live near them. However, there are certain policies that are made which restrict people from acquiring such benefits. The authors further explained that, in the twenty-first century, there is a sudden obsession with security such that policies on security are put ahead of with the aim of improving the vitality and quality of life for people by giving them almost unlimited access to national parks or nature reserves.

Such security policies, according to Panza and Cirpriano, (2004) must be amended and improved so as not to exclude the benefits of using national parks and similar establishments. To do this, studies, which elicit information about the perceptions of people on the positive effects that nature reserves and natural parks have in their lives, must be performed and the results made known. Just like Slovic (1987) and McKee (2007), Panza and Cipriano (2004) believe that

understanding these kinds of perceptions will greatly aid in the maintenance and in the effectiveness of all the policies concerning the nature reserves and similar establishments. Panza and Cipriano further explained that such perceptions have political implications. They noted that the level of satisfaction, as reflected by the peoples' responses, helps to determine whether a political party or a politician stays in his office in the coming elections or not (Panza and Cipriano, 2004, p. 24). This research will therefore elicit the perceptions of the different stakeholders of nature reserves as to whether the establishment of the nature reserves and their policies benefited them socially, economically, or both.

3.3 Nature Reserves and Policy

West, Igoe, & Brockington (2006) explained that the establishment of nature reserves has increased over time. They have also explained that the establishment of nature reserves almost always displaces people from their ancestral dwellings and they must be relocated to other areas. Sometimes, such an alteration in population density promotes the influx of other groups of people into areas near the nature reserves. These changes in demography facilitate the creation of new social organizations, new economies, and political regimes. In other words, nature reserves have economic, social, and political effects. In all these changes, a nation must always balance the needs of humanity with the needs of nature. And nothing can be a stronger tool than understanding the peoples' perception of nature reserves. West, et al (2006) further explained that the establishment of nature reserves usually results in an increase in poverty

among the displaced people. The establishment of nature reserves decreases the land use rights of the people that in turn may spark conflicts between the government and the people, even the general public.

An example of such conflict happened in Nepal. When people on the buffer zones of nature parks were given very limited right to land use and the government executed policies that destroyed traditional land tenure systems, discontent among these “buffer” groups increased significantly. This discontent affected Nepal’s economy adversely. This is the main reason why the usual perception by people who will be directly impacted by forest reserves is usually negative or unfavorable. Note that buffer zones refer to areas that are sandwiched between the nature reserves and the dwelling places of the local people. The buffer zones’ purpose is to limit the access of the people to the nature reserve, while still permitting them to do their usual activities, such as farming and fishing. The idea of buffer zones is entirely new, as pointed out by Ebregt and De Greve in their research article, “Buffer Zones and Their Management: Policy and Best Practices for terrestrial ecosystems in developing countries” (Ebregt and De Greve, 2000).

Buffer zones, if properly managed could be the best way to strike a balance between complete banning and liberal access of people on nature reserves. It is important, therefore, for the Kuwaiti government not to make the same mistake as did the government of Nepal. In establishing nature reserves governments should always take into consideration the welfare of the indigenous people – particularly their livelihood – in the framing of the policies for nature

reserves; the establishment of buffer zones as part of these policies can be a solution to such a challenge. There is nothing more useful than getting the perceptions of the people of Kuwait in this regard. This research will therefore consider the perceptions of the people with regards to how efficient the Kuwaiti government or the nature reserve administrators are in addressing their economic and social needs through their policies in resource use in nature reserves and in the buffer zones surrounding these reserves (Ebregt and De Greve, 2000).

Aside from the economic factors that may dictate the perception of people on nature reserves, another factor was suggested by Nassauer (1995). In his study, Nassauer explained that when establishing a nature reserve or a national park, the policy makers must consider how they might present the idea and design of the reserve to the people, especially to those who will be regularly interact with the reserves, such as the people who will be displaced and will be relocated near the nature reserves. Nassauer further explained that the design of the place, no matter how novel and beautiful its design is nor how novel the intention behind the design is, the people may find it disagreeable.

The solution to this problem, according to Nassauer (1995), is to make the design so that it communicates the intention of the nature reserve are national park. This design should then be reinforced by policies. Note that, people can pose a threat, as well as offer help, in the maintenance and welfare of the nature reserve. This help can only be gained through the effective communication of its purpose, verbally, through policies, and through designs. In order to understand

the concept of communicating the purpose or intention of a nature reserve through its design, Nassauer discussed the discrepancy between the general concept of “nature” and the scientific concept of ecology. Ecologically, each part of the ecosystem has its function. Most of the time, this function may not be visible at first glance. Nature has its own design of things, and, usually, such designs are not readily apparent to the human eye (Nassauer, 1995).

3.4 Nature Reserves and Design

The cultural concept of “nature,” on the other hand, usually associates function with appearance – the more ordered a system is, the more efficient it is in achieving its purpose. For nature reserves, the most efficient way to sustain the needs of the ecosystem is to let the ecosystem do the designing; that is, let nature take care of its own. Nature is a self-correcting and self-healing system and it could manage without human intervention. It is humanity’s direct infringement on nature that actually becomes the source of environmental problems. Nevertheless, lay people usually do not see nature this way; they prefer a more aesthetically appealing nature reserve or national park. The goal of nature reserve and national park management, therefore, is to strike a balance between these two views and communicate this balance through the design of a nature reserve. For example, the article Kuwait Mom’s Guide (2014) was written by a visitor to one of Kuwait’s national parks, Sabah Al-Salem. The visitor quickly noticed the unmaintained park and immediately concluded that the process of

setting up such a park was a complete waste of green spaces in Kuwait. She says:

There were a few other visitors while we were there, but like us kept to the grass and the playgrounds. The place is completely overgrown. Weeds have sprouted in the sidewalks and the dirt areas around the playgrounds, the grass and bushes are completely overgrown and out of hand, benches are broken and left lying on their sides and, of course, trash is strewn everywhere and there were lots and lots of bugs. I was okay with just exploring until a small beetle crawled over my sneaker - that's when we had to leave! (Kuwait Mom's Guide, 2014).

Certainly, part of the problem as seen by this woman was an issue of improper maintenance rather than nature's role in the condition of this park. In order to communicate more effectively the message of improvement and nature preservation or the concern towards people's welfare, policies on the maintenance and administration of national parks and nature reserves must always be implemented. Again, such strategy would necessitate the creation of certain policies that will allow the management of nature reserves to create and maintain the ideal design that satisfy nature's needs, as well as the aesthetics that the lay people would find appealing and useful. (Kuwait Mom's Guide, 2014)

Naussauer gave a suggestion stating that, "we must design to frame ecological function within a recognizable system of form" (Naussauer, 1995, p. 162). Applying this to the Kuwait government's initiative to create nature reserves means the design should not alter the areas so much that they become unrecognizable to its dwellers or people dwelling near the area. Note that culture creates the landscape or has shaped the environment. How the areas looked before they were declared as nature reserves represent or reflect the culture of

the people living within or nearby the areas. Destroying or altering them so much so that they are no longer recognizable may communicate disrespect to the culture of the people living in the areas. While the people recognize the need for nature reserves, they do not appreciate or accept extensive changes in their surroundings so much that they will not be able to refer to it as something related to them. In order to do this, the government must become well acquainted with the people's culture, which is manifested in their perceptions.

Zue (1987) delved deeper into the human and landscape (nature reserve) relationship in his work. Zue believes that it is the interaction of humans with nature that governs the human perception about the latter. Accordingly, when changes or policies which either restrict or ban access to parts of the environment incorporated within nature reserves, the trend or use patterns are disturbed. This disturbance then greatly influences the people's perception of nature reserves and of the authorities who instigated the disturbance. The result often is conflict, which if allowed to remain unresolved, could grow into more serious conflicts in the future.

3.5 Models and Preservation

The interaction of humans with nature and the generation of their perception with regards to the former are explained in the “Transactional Model of Human and Landscape Relationships” (Zue 1987).

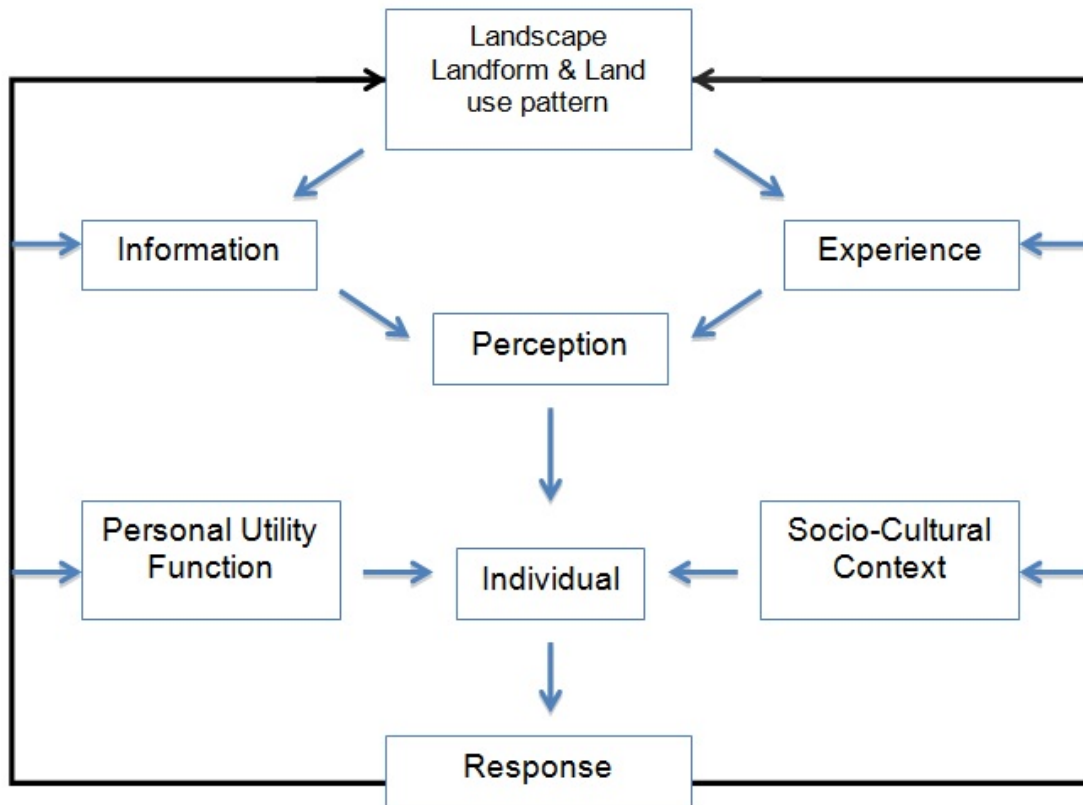


Figure (3.1): Transactional Model of Human and Landscape Relationships (Zue 1987)

According to this model the perceptions of people with regards to nature reserves or landscapes is governed by two things: their experience from interacting with “their” part of nature before and after it has been designated as a nature reserve, and the information fed to them with regards to the nature

reserve – such information may include the purposes and the policies related to the establishment and management of the nature reserves, respectively. Note that if the interaction is more beneficial to the people in general before its designation as a natural reserve compared to after such a designation, then a negative perception is to be expected. Nonetheless, this negative perception can be outweighed by the information that the people will receive and understand with regards to the importance or significance of the nature reserve (Zue, 1987).

What this model suggests is that for a government to gain approval in establishing nature reserves, it is expedient that it implements policies that are aimed at informing or educating people about the importance and significance of the nature reserves being established. The government must not keep its people in ignorance with regards to the environmental impact of setting up of nature reserves. Another factor that influences people's perception of nature reserves, as aforementioned, is their culture. In general, cultures that value the environment more than material gains or individual benefits are more likely to have positive perceptions of the establishment of nature reserves. Kuwait is an Islamic nation. The Islamic faith teaches its followers not to become too enmeshed with material things. Abdul-Matin (2010:22) writes, "Retreating from the world is something Muslims just do not do. In our Deen, our religious path, we have been taught to be present in the world, to plan for this life and for the next. But to be in this world means to understand it, to be diligent, and to be informed". What this passage means is that each person who is a Muslim must

show concern for the environment, for the environment is God's creation- a wise lesson for us all.

Such concern can be shown by understanding the environment and taking good care of it. The passage also expresses one principle of sustainable development – that the present generation must exert efforts to protect the environment so that the next generation can benefit from it. Therefore, the establishment of nature reserves is consistent with this Islamic credo. Since the Islamic faith permeates the political events, the social life and the culture of the people of Kuwait, it can be expected that they will have a positive perception, in general, about nature reserves. Nevertheless, it is not as simple as such, because, according to the “Transactional Model of Human and Landscape Relationships” (Zue, 1987), many other factors govern human perception, and the strength of these factors varies for every individual. Such factors include the individual experience with nature reserves and with other parts of nature before the establishment of a new nature reserve. Since each individual has his or her unique way of interpreting experiences, it can be expected that their perceptions can vary as well. This research will, therefore, take into consideration the policies in designing nature reserves, whether they are in accordance with the people's perception or not – noting that these perceptions are a product of a complex interaction between culture, religion, fed information, and personal experiences.

Taylor (1987) proposed the Model of Landscape Perception for nature reserves and national park developers in creating their designs.

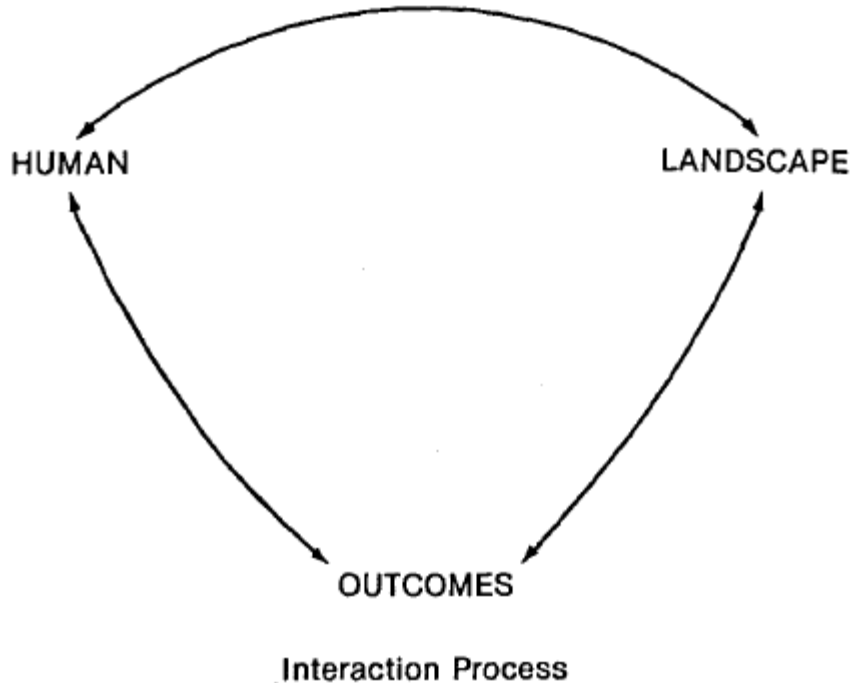


Figure (3.2): Model of Landscape Perception (Taylor, 1987)

The model is a triad of three factors: Human, Landscape (nature reserve) and the outcomes of their interaction which include peoples' perceptions. Note that this model was created particularly for landscape designers and for the designers of large expanses of land. Nevertheless, the model can also be applied, according to Taylor, to any physical structure that people interact with on a regular basis. These three are positioned at the vertices of a triangle to indicate that each of them affect each other. What this model suggests is that the nature reserve design affects people's perception and the people's perception affects the design, their perceptions affect both previously mentioned factors and vice

versa. The determining point as to which factor has greater influence over the other two factors is the result of the interaction of other outside forces, such as the person's culture and experience. Therefore, going back to the works of McKee (2009), Slovic (1987), Taylor (1987), and Hobbs (1996), it is only reasonable to think that for a nature reserve to be perceived positively, the people must be able to interact with it and the result of the interaction must satisfy certain needs of the people. Taylor further explains that not only should lay people be satisfied with the interaction, but the experts as well – in this case, the environmental experts and the educated people who will evaluate the nature reserve's design and function. Nassauer (1995) explained that the interaction between humans and nature reserves operates on four principles: (a) Human landscape values perception and cognition; (b) Cultural conventions; (c) Cultural concepts of nature that differ from the scientific concepts of ecological function; and (d) The appearance of the landscape.

The first principle takes into consideration the relationship between perception, evaluation, and cognition as significantly interrelated processes. What this means is that how an individual perceives and apprehends the environment is greatly affected by cognition and how information is presented and organized, which are in turn affected by culture. The society's notion on what is moral and acceptable, therefore, affects the individual's perception of nature reserve designs and policies. When an individual sees and goes on to evaluate the usefulness or the justifications for the existence of nature reserves, all the aforementioned factors come to interplay to produce the individual's perception

(Kaplan, 1987). The implication of this principle is that nature reserves should be established in such a manner that they coincide with society's culture and expected land use (Nassauer, 1995).

This principle is supported by the transactional theory, which states that people do not see themselves as apart from the environment they are living in. They view their surroundings as a force that encourages them to become participants, to pursue certain goals that are valued by the individual's culture. The theory also suggests that nature reserves are multimodal. What this means is that nature reserves or any landscape supply information to the individual through multiple senses at the same time. All this information is processed simultaneously to create the overall perception. The theory further suggests that nature reserves provide peripheral information. What this means is that the information that the individual uses in order to evaluate nature reserves may come from personally processed information, personal experiences, and from the experiences of others or experiences from the outside. Another interesting point raised by this theory is that nature reserves and landscapes provide too much information for the human mind to handle or to use all at once. Nature reserves also provide opportunities for people to take action, manipulate, and control nature. The more people think that they have high control over nature, in general, the more positive their perception is. Inability to gain control over nature, such as when the government policies restrict access and use of natural resources within nature reserves, the more their perceptions become negative (Nassauer, 1995; Taylor, 1987).

The theory further points out nature can have symbolic meanings and can convey subconscious messages to people. Hence the government must take care in the creation of nature reserves to convey these subtle messages to the people, for the latter to have positive perceptions of the reserve. The second principle is easier to understand. It simply points out that the peoples' conventional customs dictate how people react to about nature reserves. Nassaeur (1995) explains that people simply base their perceptions on how things should look based on customs, without really making any effort to explain why things should appear the way they think they should be. In other words, the people are biased, and this bias should be taken into consideration in assessing their perceptions of nature reserve policies.

Braden (1983) explained that not all natural reserves are the same. In fact, the government would usually designate nature reserves based on a classification scheme. How well these nature reserves will be maintained and other policies associated with them will be determined from such classification. The conflict between the government and the local populace usually occurs when the local classification, which is based on their culture and their use of the natural resources within the reserves, is not in accordance with the classification made by the government. When such conflict arises, it is to be expected that the local populace will have negative perceptions about nature reserves.

The third principle simply states that cultural perspectives on how nature should look are usually not in accordance with the perspectives of science. It is there for expedient for policy makers, particularly those who are concerned with maintaining nature reserves, to consider both cultural perspectives and scientific perspectives. The fourth principle is simply a rejoinder of the first three principles. It suggests that nature reserves should reflect cultural values. Thus, the people near or within a nature reserve can appreciate its existence. As mentioned above, nature reserves, just like landscapes, can also shape the culture of people, as well as their perceptions. According to Nasseaur, "Culture can change when people begin to recognize different landscape patterns as material evidence of long held values" (1995). The evaluation of the policies of the government of Kuwait across time and space on its nature reserves can be done by comparing the policies against the Model of Landscape Perception and the transactional theory, so as to come up with better policies that would generate better, more positive perceptions.

Despite the fact that the Islamic faith has a uniform teaching all throughout its people, there can still be variations among people's perceptions on nature reserves at a group level. According to Gomez-Pompa and Kaus (2002) the perception of how nature should be handled or preserved also depends on the type of environment where people reside. Accordingly, people from the urban places will have a different perception compared to people from the rural areas when it comes to nature reserves. The reason behind this difference is that these

two groups of people are exposed to different environmental problems and have experienced strikingly dissimilar interactions with nature.

Sara Borgström (2011) addressed the differences between nature reserves in urban areas and in rural areas were studied. The study focused on the nature reserves at the northern part of Sweden. The main reason why Borgström selected this area is because it has been under strict and systematic rules of urban planning and management, similar to that of Kuwait. Urbanization has been rapidly increasing in Sweden which has been brought about by its rapid population increase. The same can be said about Kuwait. In a research article written by Haynel Jacob, "Summer turns heat on Kuwait's power grids – Rapid urbanization, growing population add to electricity woes," he states that rapid population growth also increases the rate of urbanization, resulting in an insufficient supply of electricity in some urbanized regions.

Borgström (2011) wrote that in Sweden, in order to stop the congestion of people in cities, the Swedish government has taken a step to increase the number of nature reserves within urban areas. Nevertheless, the fact still remains, that rural areas are rapidly decreasing in size because of rapid urbanization. The ultimate fate of countries such as Sweden and Kuwait, therefore, is the almost total elimination of rural areas as they are converted into urbanized areas. With the increase in the urban population and urbanized land comes also a need for the increase in the number of urban nature reserves in order to preserve nature despite the incursion of man into rural areas which are

essentially “greener.” Borgström emphasized the differences between rural and urban nature reserves.



Figure (3.3): Sweden National Parks (Sarek National Park) discussed by Borgstrom (www.earthrandom.com)

3.6 Urban vs Rural Reserves

A primary difference is the current number and size of urban and rural natural areas. Borgström (2011) notes that urban nature reserves are still fewer in number than are those in rural areas. But, when it comes to size, urban nature

reserves are leading. Another interesting bit of information that Borgström showed in her research is that people in urban areas rarely interact with these nature reserves on a regular basis. Another insight was provided by Gomez-Pompa and Kaus (2002) in explaining why such differences between urban and rural nature reserves exist. Accordingly, they explained that the concept of an “untamed wilderness” is purely an urban concept. It is not something the rural people believe or subscribe to. For urban people, the “wilderness” which may refer to nature reserves, must remain untouched by humans. Rural people, on the other hand, make no such distinction between common lands, such as farm lands, and nature reserves.

The nature reserves were seen to be more as sites for recreational activities – for viewing. People on rural areas, on the other hand, show more regular interaction with their nature reserves. Accordingly, people from rural areas depend greatly on the benefits of nature in the buffer zones surrounding their nature reserves for sustenance, while urban people depend on outside sources, such as agricultural activities and farming on rural areas for their sustenance. Export is also another outside source for sustenance among people in the urban areas (Pompa and Kaus, 2002).

The result of this lack of interaction with nature among urban people is that they are detached from nature by seeing the purpose of nature reserves to be purely scientific; such as, for fixing carbon dioxide to freshen the air, or a habitat for many different species. People in rural areas, on the other hand, develop a sense of attachment and belongingness to the nature reserves that

they interact with. In other words, they are emotionally attached to the nature reserves or the buffer zones surrounding them. It could be imagined how these people will feel when their sources of living and their places for socialization are taken away from them to be converted into national parks or nature reserves (Pompa and Kaus, 2002).

Another difference between rural and urban people was pointed out by Gomez-Pompa and Kaus (2002). Accordingly, they used the concept of anthropogenic forest fires in order to differentiate the perceptions of urban and rural people. They have pointed out that for urban people anthropogenic fires are events that should be condemned as they are unjustifiable incursions into nature. Rural people, on the other hand, especially those who are engaged in farming, may perceive anthropogenic fires from a more positive viewpoint. One of the most common methods of clearing a site for agriculture in rural areas is by burning small trees, shrubs, and grasslands. It is due to this common practice that rural people perceive anthropogenic fires as essential to starting a new farming plot – the start of a new planting season. Such difference can also be traced to the “Transactional Model of Human and Landscape Relationships,” (Zue, 1987) which indicate that social and cultural factors play crucial roles in determining peoples’ perceptions.

Another difference between people in cities and people in rural areas is that the former are less socialized than the latter. According to Borgström (2011), people in the urban areas usually stay indoors at most times during the day. Their interactions are simply limited to their colleagues at work or their families.

Rural people, on the other hand interact with their fellow villagers more often. The higher rate of interaction among rural people results in stronger social and cultural bonds. Since, they usually interact in the out-of-doors, they are also bonded to the physical environs of nature reserves as much as they are bonded to each other. Another difference that Borgström mentioned in her study was that biodiversity is higher in nature reserves in urban areas compared to those in rural areas (Borgström, 2011).

Based on observations of the many differences between urban and rural nature reserves, it seems logical that these two types of nature reserves be managed differently; that is, they should have different policies and designs. While it would be perfectly okay among urban dwellers that there would be a ban on access or use of nature reserves, such would not be applicable or agreeable to the populace of rural areas. The main reason for this is that the latter depend on nature reserves for their sustenance. The design of rural nature reserves should then coincide with this difference. Rural nature reserves would need to include buffer zones in the surrounding areas for people to be able to perform farming and hunting. Urban nature reserves may not need to have buffer zones. Rural nature reserves may also need to allow limited access to the natural resources since the local people see the areas as part of their heritage or culture.

Moreover, there should also be differences in terms of the scientific management of natural resources within the two types of nature reserves. As aforementioned, urban nature reserves have higher diversity of species than do rural nature reserves. This difference would equate to more complex interactions

among the many different species and the abiotic environment in urban nature reserves. This would also mean a more stringent monitoring of these interactions. These differences would also mean, according to Borgström, that the nature reserves in the urban areas be constructed with more and/or more expansive objectives (Borgström, 2011).

If urban and rural nature reserves are managed using the same policies, then, varied perceptions between the people in the urban areas and the people in the rural areas can be expected. While one group may perceive the management policies as being perfectly normal and efficient, the other may perceive them differently. Hence, this research must take into consideration the fact that differences in the perceptions of people from urban and rural areas of the benefits and functions of nature reserves exists.

Gomez-Pompa and Kaus (2002) further discussed the implications of the differences in perceptions between rural and urban people when it comes to providing expert opinions on how nature reserves should be established, designed, and maintained. They pointed out that the majority of the perceptions on how environmental preservation are biased because the majority of the experts who are being consulted for the design, establishment, and maintenance of nature reserves come from urban areas – where education flourishes more compared to that in rural areas. The consequence of this imbalance in education is that the opinions and the insights of people from the rural areas with regards to how nature reserves should established is neglected by many government officials.

Gomez-Pompa and Kaus (2002) argue that this should not be the case, because, the people from the rural areas, where most of the nature reserves are established, have experience as their teacher. For example, some of the people from rural areas may be taking their sustenance through hunting and planting of domesticated crops and harvesting of wild fruits. People from the urban places, however, derive the same sustenance by purchasing them from stores and supermarkets. These two groups of people will most likely have opposing perceptions on how hunting and wild fruit harvesting should be viewed. While the people from the urban areas may automatically say that such acts are not in accordance with the principles of nature preservation and conservation, the people from the rural areas may see this quite differently. These differences in experiences should be considered by the government authorities; because not everything about nature can be learned inside the classroom – they can also be learned through personal experiences. This idea can be taken further into bigger groups of people, between nations.

3.7 Preserves, Scale, and Culture

Kuwait, despite its advanced western technology, has hardly adapted the western culture and the western way of life and thinking. Yet the methods and the perceptions used to evaluate how nature reserves must be established in it are based on western education. This does not appear to be a bad idea until this approach pushes the perspectives of the local people aside. For these endeavors to be successful and sustainable, a significant amount of

consideration must be given to the perspectives and opinions of the local people of Kuwait, therefore. Such consideration to the local people's perspectives will allow them to engage actively in the implementation of nature reserve policies and in taking care of the nature reserves. There may also be varying perceptions between educated and environmental experts and the laymen's opinion. Note that, as mentioned above, the nation of Kuwait has a largely Muslim population. This means that the people are taught that man ought to exert efforts to control and manipulate nature in accordance with the laws set by God. Such may not be the perception of scientists and other experts in the field of environmental studies, who perceive nature as being able to preserve its own, with or without human intervention. Note that in this research, the perceptions of both experts and those of laymen will be given due consideration with reference to the points raised by Gomez-Pompa and Kaus (2002).

There are thousands of nature reserves all over the globe and some of these are managed well as indicated by the awards and recognitions received by their respective managements. It is important to understand, therefore, how these organizations were able to effectively manage these numerous nature reserves. Their best practices can be important considerations in evaluating the policies in Kuwait, as well as in integrating them for future nature reserves in Kuwait. One of these organizations is the *Management of Natura 2000*. The Management of Natura 2000 manages natural reserves across Europe. They have received major awards from the European Union. This organization also overseas other nature reserve management teams and offers them advice on the

best practices in different aspects of management, such as the creation of policies and resolving conflicts among stakeholders (MON, 2014).

From the lists of suggested best practices on the Management of Natura 2000, the organization emphasizes involving all stakeholders in the policy making and implementation processes. According to this organization, this is the most effective and efficient way to make sure that nature reserves' maintenance and administration remain sound for long term goals. The organization acknowledges that nature reserves are essentially used by the local people for sustenance; So, the best practice is not to prohibit the use of the reserves site or to completely relinquish it for economic use. The organization explains,

“The aim is not to stop economic activities altogether, but rather to set the parameters by which these can take place whilst maintaining (or restoring) the rare species and habitats present at a favorable conservation status. Indeed, many sites in Natura 2000 are valuable precisely because of the way they have been managed up to now and it will be important to ensure that these sorts of activities (e.g. extensive farming) can continue into the future” (Management of Natura 2000).

It is clear from this management tactic that the idea of barricading nature reserve sites with metal fences and barbed wire and installing security personnel on every entrance possible may not be the best strategy to foster sustainable development in Kuwait's nature reserves.

Such strategy can become the spark for conflict among stakeholders – the managing authorities or the government and the local people. It is always important and beneficial for the management authorities to consider the perceptions of all of the nature reserves' perspectives. The United Kingdom

Environment and Heritage Service (2006) provides an important insight in how avoid conflicts and understand the diverse perceptions of people affected by the establishment of nature reserves. Accordingly, the government should take an initiative to understand the historic use of the areas being considered as nature reserves. This means that the government must conduct extensive research and have communication with the different groups of people involved with prospective nature reserves before even before declaring them as such. This step should be part of any government's policy in selecting a nature reserve site. The government may need to appoint a body in order to accomplish such a task (EHS, 2006).

Establishing areas as nature reserves or national parks can also change the way of life for people in these areas. For example, once an area is declared a nature reserve or made into a national park, transportation activities that were previously performed there may need to stop, which will cause significant changes in the local people's way of life. This adverse effect on the daily life of the lay people can generate negative perceptions of nature reserves – that nature reserves and national parks are only beneficial to some groups of people, such as the tourists or that nature reserves only benefit the wild animals and wild plants, instead of being of benefit to local inhabitants. On the other hand, not all changes in a people's way of life can result in negative perceptions of nature reserves. When people have weak bonds to nature reserves, such as when people merely considered nature reserves as recreational places – for viewing

purposes only – they are less likely to form negative perceptions, if they are given limited access to the nature reserves.

3.1.1 Why US National parks?

The American experience in protecting parks, reserves and other areas of environmental and historical concern is a one-century story of legislative battles amid a growing public demand for resources and recreation. The establishment of the United States National Park Service and the United States Forest Service led to the growth and evolution of the National Park System and the National Forest System, which have become models for natural resource preservation and protection for many nations worldwide (Carr, 1998).

So, Kuwait's Experts can use the US Experiences to develop their Environment and wildlife. And use it as steps to deal with any obstacles that against preserving areas, establishing nature reserves, and national parks. Also, we cannot forget the policies and legislations that American created for preserving their land that Kuwaiti government can create to help and support Kuwait's experts reserve their environment.

3.1.2 The US National Park System

Admittedly, the United States was not considered a progressive country during the mid-1900s when it came to land policies, but the efforts given to the national parks were the main attraction worldwide as nations began to copy and adapt the national park policy of the United States (Isne, 2011).

Prior to the establishment of the National Park Service in 1916, there were many notable efforts by conservationists and preservationists who campaigned for further protection of parks and recreational areas. The most influential of those was John Muir. John Muir was responsible for lobbying in Congress for the passage of a national park bill in 1890, which established the Yosemite and Sequoia National Parks. Considered as the "Father of National Parks", his writings were a source of inspiration for readers including presidents and members of Congress (Miller, 2007).

In the early 20th century, the federal government was at the beginning of a focused effort in managing the national parks including reservations for Native Americans that had been placed under control of the Department of the Interior since 1832. Many believed that there was a lack of public knowledge about the parks. Walter L. Fisher, then the Secretary of the Interior, called for the first National Park Conference in 1911 mainly to address the visitor issue. Only 200,000 visited the twelve national parks in existence then, in 1911. Federal appropriations were low during those years not even reaching a million dollars. Congress was also disinterested owing to the fact that the travelling public was also indifferent.

A growing concern over sanitation and park rule infractions, despite the dismal number of visitors compared to government expectations, were also observed in many parks. On the side of park managers, existing arrangements (due to no single bureau to manage the parks) would lead to "dual administrations and overlapping jurisdictions" (Carr, 1998). An increase of

appropriations through a national park policy was the sole answer to this dilemma. An increase would make people visit more and improve park management (Carr, 1998). Pinchot's position on logging, grazing, and dam construction under controlled commercialization in the national forest system did not sit well with national park advocates. This led to a clamour for a separate jurisdiction for a national parks bureau under the Department of the Interior. Richard B. Watrous, the Secretary of the American Civic Association, purported tourism as the only "dignified exploitation" for the nation's national parks. By 1909, President Taft endorsed the creation of a national parks bureau.

In 1916, Congress eventually passed the National Park Service Organic Act mandated to conserve the scenery of parks, natural and historic objects including the wildlife within. The National Park Service was created with Stephen Mather as the first director (Carr, 1998). Mather, a businessman and conservationist, was responsible for campaigning for a separate parks bureau within the Department of the Interior. With the help of journalist Robert Sterling Yard, the aesthetic values of parks, including both educational and recreational benefits, were emphasized (Sutter, 2002).

Under Mather, tourist visits jumped from thousands to millions. The landscape improvements like parkways and hotels led to the increase as visitors found the campgrounds decentralized conveniences appealing. In 1921, Mather was instrumental in convening the first National Conference on State Parks, which aimed at encouraging state and local park developers to aid in achieving a true national park system. After the Great Depression of the early 1930s, the

Service benefited from Franklin Delano Roosevelt's New Deal programs.

"Emergency conservation work" was needed so the Service supervised. More monuments and battlefields were added to the system the following years. In 1936, the Park, Parkway and Recreational-Area Study Act was passed to allow the Service to go beyond their national parks management domain, i.e. recreational uses of public lands (Carr, 1998). After the Second World War, the task of bringing back the facilities of the park system went to the Service's sixth director, Conrad Wirth. There was an over-demand for park services during the time, with the help of President Eisenhower. Wirth started Mission 66, a ten-year plan to develop and upgrade the system's park facilities before the Service would turn fifty in 1966. Apart from the rehabilitation and massive redevelopment, the system was expanded (Mckintosh, 1991).

Between the two World Wars, the National Park Service extensively developed the national park system. Landscape architects and engineers designed roads, camping areas, administrative villages, and many more park facilities in what could have been the most intensive human intervention in the history of the parks (Carr, 1998). This era paved the way to the very common look of present day national parks, termed as "developed areas", setting a consistent image and character, and a degree of convenience that visitors experience. By the 1960s, an extensive park system, under the governance of the National Park Service, already consisted of 180 areas that totaled to 23 million acres, mainly scenic areas, but also wildlife areas, volcanic monuments, archeological and historical sites and battlefield sites (Isne, 2011). Then Director

George Hartzog, the seventh director of the Service, added the National Lakeshores and the National Recreation Areas into the Service (Mckintosch, 1991). However successful in many respects the policy had been in past decades, the story of the National Park Service is strewn with management struggles. The influx of tourists and the lengthening lines of parked cars were omnipresent in America's national parks. In the 1960s alone, Yellowstone would get congested with 80 million tourists in a year or the Grand Canyon with 60 million (Isne, 2011).

Currently, different priorities have come to define national park management. Whereas park development largely became the overdriving mission of the Park Service since its inception until the close of the 1980s, handling the continually rising number of visitors was a key issue, that is, 15 million in 1939 and 250 million in 1991 (Carr, 1998). Many parks had completed all its road, village and facility development by the 1990s, but management was facing a dipping supply of recreational opportunities to cater to this visitor onslaught. Along with the National Park Service, another agency took on the task of maintaining complete oversight of the national parks and of meeting current needs, such as recreational demand. This agency is the National Parks and Conservation Association (NPCA), a non-government watchdog of the National Park Service. Created just three years after the National Park Service was born, the NPCA was viewed by historians and critics alike as conservation group before the 1970s when "environmentalism" was born, and after which it was

deemed more properly to be called an "environmental organization" (Miles, 1995).

3.1.3 The US Forest System

The US Forest Service and the National Forest System were products of efforts by wise and visionary men like Theodore Roosevelt and Gifford Pinchot (Isne, 2011). The National Forest System traces back its origins to the 1891 Forest Reserve Act, signed on the 30th of March by President Benjamin Harrison. The 1891 Act was soon amended through the Forest Management Act of 1897 and the Organic Administration Act (or Pettigrew Amendment) signed by President William McKinley. The 1891 Act drew the line on how to manage the nation's forests primarily to "ensure predictable supplies of water and timber" (Steen, 1991). It was in 1960 that Congress expanded the 1897 definition of national forest purposes through the Multiple Use-Sustained Yield Act, a supplemental amendment to the 1897 Act. Later the National Forest Management Act of 1976 would replace the delegation of administrative authority under the 1897 Act. This was in response to a number of significant challenges over the water and timber sections of the 1897 Act (Steen, 1991).

Pinchot, under the Division of Forestry, led the writing of the policies and procedures for forest reserve management. He was successful in enlisting political support from statesmen, irrigationists, and stockmen for his multiple economic use policy for forest management (Carr, 1998). The policy rested on the fact that under proper regulation, logging and grazing in the forest can

continue without disturbing the flow of water for irrigation (Carr, 1998). In contrast to the problematic national parks in the early 20th century, the country's national forests were more efficiently managed. Gifford Pinchot's arrival at the Division of Forestry of the Department of Agriculture in 1898 was the beginning of the creation of a management model that greatly inspired the succeeding forest system administrations. Trained in forest sciences, Pinchot redefined the Division's role in public land management redirecting government policy. In 1905, Congress transferred 62 million acres of national forests to Pinchot's agency from the Department of Interior, which automatically created the US Forest Service. Pinchot's knowledge in the scientific management of public lands led him to use leases and permits. This was a cost-effective strategy for the federal government. By 1909, Theodore Roosevelt had already expanded the national forest system justifying that public ownership is the best way to sustainably manage the nation's forests (Carr, 1998).

The 1930s saw a conservation policy framework that emphasized protection of forests from wildfires and overharvesting, and the use of scientific principles in managing forests and wildlife. Specific actions included the promotion of forest protection regardless of ownership, acquisition of forest science techniques, encouragement of productive management of forests, wildlife conservation law enforcement and acquisition of commodity lands for commodity and amenity values. The public policy efforts also led to cooperation among private, state, and federal sectors (MacLeery, 1992). The increase of academic institutions offering the forestry curriculum also helped in the overall

management of forests. In 1900, only Cornell and Yale offered forestry degrees. By the turn of the 1940s, 23 were offering such degrees. Research was also a key component in the surge in better forest management. The Forest Service put up the Forest Products Laboratory in 1910 to improve the use of wood products. In 1915, the Research Branch of the Service was created for "scientific and technical investigations". By 1928, the McSweeney-McNary Act furthered forestry research to newer heights. The 1930s, after the Depression, some headway was made in increasing the number of forestry schools and state agricultural experiment stations. After the Second World War, the growth further increased as advances in silviculture, genetics, and pest control contributed to a more improved forest management (MacLeery, 1992).

Fire protection was also another success of the Forest Service framework. Due to the sheer number of forest fires in the early 1900s, the 1911 Weeks Act was passed to oversee fire suppression programs. The Clarke-McNary Act of 1924 made the efforts state and federal-wide with more intensive cooperation among agencies. The results were significant. By the 1950s, only 3 to 5 million acres of forest were affected by wildfires, far from the annual 20 to 50 million acres before 1930. The low level of forest fires has been maintained up to the present, with the early 1970s experiencing the lowest level of forest fires at around 1-3 million acres per year (MacLeery, 1992).

As a result of improved wood utilization, industrial forestry was born offering an alternative to traditional resource use. Industrial tree planting rose sharply after 1950 from a pre-1945 average of 7,000 acres a year to 1.2 million

acres in the 1980s. Forestland holdings also made leaps as holdings rose to 11.6 million acres in 1987 in just 35 years. Forestlands also are making a comeback in the East as the New England Forest nearly doubled its acreage in the 1980s as compared to the 1800s when agriculture transformed many swats of forestlands to farms (MacLeery, 1992).

The US National Park Service and the US Forest Service are glaring reminders of the success of political mobilization instituted by pioneering minds who exemplified effective planning and foresight. Pinchot and Muir were the forester and the ecologist, the men of science, who had to politically lobby their beliefs and knowledge of the environment and the rich resources it can offer into protective legislation. Although Pinchot's stance was affected by economics, as opposed to Muir's, both men championed for bio-resource sustainability. The models that both systems have shown in the past century were already adopted by many countries, especially those having the same resource-rich natural endowments as America.

These models, powered by legal frameworks, state-federal cooperation and scientific research, can be adopted for Kuwait. Although Kuwait is not blessed with forests like the United States, the country can benefit from the public policy framework that even strengthens the mandate of the US Forest Service and the US National Park Service. The Kuwaiti government and environmental agencies can benefit from American scientists and their experiences, by using the same strategies to create strict policies for preserving lands and the environment. We need positive actions in Kuwait to improve nature

reserves and national parks, the same as the American scientists have done.
Without planning and regulations, the environment will not be protected and
restored.

Chapter Four: Methodology

One of the most pressing problems facing Kuwait is that with urban expansion comes a decrease in nearby green spaces and natural areas surrounding urban habitations (Al-Asfour, Mahfoth, Misak. 2003). It is proposed that this research will reveal and reinforce positive outcomes for the creation, maintenance, use and function of nature reserves and national parks across Kuwait. Through this research I will attempt to understand the causes of negative trends and policies at regional and national levels.

My research approach was two-fold: first, I gathered information and images through archives, texts, reports, and other secondary sources. Furthermore, I obtained past maps, images, and aerial photos from the Ministry of Defense and the Ministry of Planning of Kuwait. Then, I digitized past maps and create thematic maps using Adobe Illustrator, and Mapviewer. In addition, I collected and assessed information from records for past and new national parks from 1970 to the present from The Environment Public Authority (EPA) of Kuwait (Haring, *et al.* 1992). However, the primary focus of this thesis involved the use of survey instruments (questionnaires) and interviews with respondents of the urban and rural communities that are involved in the nature reserves' maintenance and use (Haring, *et al.* 1992). I focused my surveys on both Kuwaiti citizens and agency officials in related Kuwaiti administrative offices and ministries (planning, environment, transportation, and recreation). Furthermore, I examined Kuwaiti's Bedouin who live around Kuwait City. I analyzed survey data regarding their perceptions of nature reserves' needs, sizes, functions, and future

plans and trends for green utilization and integration into the Kuwait communities and urban fabric. After I have collected the survey information, I collated, using EXCEL, the respondents' perceptions over time and space in the hopes of understanding the status of efficacy of contemporary and past nature reserve policies in Kuwait.

Following this initial work, secondary data were gathered through past investigations to represent a selection of relevant, local 'official' understandings of nature reserves and global national parks worldwide, including government reports representing both the history of nature reserves and landscape perceptions. Then, a selection of secondary data analyzed to compare with the primary data that relates to Kuwait's nature reserves and national parks.

4.1 Primary research questions

To address these issues, this study sought to answer the following core questions:

- *Is there a relationship between public perception of nature reserves and the government's protection of green spaces?*
- *Is there overall public support for protecting green spaces and natural areas in Kuwait?*
- *How has legislation affected the nature reserves and national parks over time?*
- *How does the public perceive natural areas' protection laws?*
- *Is the public willing to volunteer or donate money in order to protect green spaces and Kuwait's landscapes?*

4.2 Methodology of the survey

In an attempt to record perceptions and attitudes towards nature reserves and national parks, a survey carried out in various locations surrounding areas taking part in the nature reserves project. The survey (questionnaire) consisted of four parts. The first part gathered demographic information about the respondents: their nationality, gender, years of living in Kuwait for non-Kuwaitis, income, age, education, and employment area. In the second part, issues explored with reference to prospective nature reserves and their preservation. These questions have only three answers: “yes, no, or unsure”. Part three examines and assesses the views of the respondents with regard to nature reserves and protected areas projects in Kuwait with space for the respondents to expand on and discuss their opinions. The objective questions (Likert Scale) will be answered with scores ranging from one (“strongly disagree”) to five (“strongly agree”). Finally, the fourth part examined attitudes towards nature reserves and their regulations, utilizing questions that fall on a continuum from “ I fully agree, I somewhat in agree, I neither agree nor disagree, I somewhat disagree, I fully disagree”. Additionally, the survey included questions to evaluate the perceptions of the respondents with regard to existing nature reserves and national parks that may be constructed in the future (Paschalis, 2007) and (Haring, *et al.* 1992).

This study seeks to determine peoples’ attitudes and perceptions toward various aspects of existing and prospective nature reserves, exploring a number of issues with regard to their needs, functions, necessity, maintenance, creations,

and use. The data analysis will be based on a questionnaire survey that will be conducted in Kuwait, using respondents from very different levels of society. The hope is that results of the analysis give rise to a number of important conclusions and enrich our current knowledge base of nature reserves and national parks and the attitude that a broad spectrum of the populace have toward these reserves.



A geographic study of the perception of nature reserves and national parks in Kuwait

UNIVERSITY OF ARKANSAS

Home Country and City? _____ **Sex:** Male Female
How long have you lived here? 1-2 years 2-4 yrs 5-6 yrs 7-8 yrs 9-10 yrs more than 10 years
Do you have a spouse? yes no widowed or widower **Children:** How many children? _____
Income: <\$15,000 \$15,001-20,000 \$20,001-25,000 \$25,001-30,000 \$30,001-40,000 >\$40,000
Age: <20 21-25 26-30 31-35 36-40 41-45 46-50 51-55 56-60 61-65 >65
Education: HS some college college graduate (BS/BA) some graduate studies MS/MA PhD
Employment (yourself): full-time part-time managerial private firm public agency own business
Employment (spouse): full-time part-time managerial private firm public agency own business
Employment sector: agriculture education health industrial tourism trading engineering religion

- ▶ **Do you consider yourself familiar with nature reserves issues in the Kuwait ?** yes no
- ▶ **Do you agree with preservation of environment ?** yes no
- ▶ **If you own a factory, will you be interested in preserving the environment?** yes no
- ▶ **Do you interact with environmental experts and encourage them ?** yes no
- ▶ **How do you rate your interaction with preservation of environment and nature reserves?** rare limited
 less often often
- ▶ **Are you interested in hunting and camping?** yes no
- ▶ **Have you been picking truffles in the desert?** yes no
- ▶ **Do you use four-wheel drive (SUV) in the desert?** yes no

Please circle the number that represents your best response to each of the following statements about the Kuwait. (1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, 5 = strongly agree)

- | | | | | | |
|-----------------------------------------------------------------------------------------------|---|---|---|---|---|
| ▶ Nature reserves in the Kuwait are <u>useful</u> for Kuwait's environment ? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves in the Kuwait are <u>necessary</u> for Kuwait's families? | 1 | 2 | 3 | 4 | 5 |
| ▶ The Kuwait government should continue to preserve nature reserves to improve our ecosystem? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves must be reduced in number ? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves are affecting families by influencing their customs and behaviors? | 1 | 2 | 3 | 4 | 5 |
| Explain why? _____ | | | | | |
| ▶ The nature reserves are gaining social and political influence in Kuwait? | 1 | 2 | 3 | 4 | 5 |
| comments _____ | | | | | |
| ▶ The majority of Kuwait's people refuse building new nature reserves? | 1 | 2 | 3 | 4 | 5 |
| comments _____ | | | | | |
| ▶ There is a need to develop the nature reserves systems? | 1 | 2 | 3 | 4 | 5 |

Figure (4.1): The first questionnaire page of the research

- ▶ Nature reserves take large space from Kuwait's land that people can not go camping, hunting, grazing?

1	2	3	4	5
---	---	---	---	---

- ▶ The Kuwait government should implement policies to encourage preserving of environment and build new nature reserves in Kuwait?

1	2	3	4	5
---	---	---	---	---

- ▶ The Kuwait government should create policies and regulations to protect nature reserves and their wildlife from individuals ?

1	2	3	4	5
---	---	---	---	---

*** KUWAIT'S ENVIRONMENT AFTER IRAQ'S INVASION**

Place an 'X' along the line to show your level of agreement with each of these statements

- ▶ *Kuwait's environment remains destroyed by Iraq's invasion of Kuwait, so nature reserves are good way to restore?*

fully agree somewhat in agreement neutral somewhat in disagreement fully disagree

Explain why? -----

- ▶ Kuwait's ecosystem has been changed by Iraq's weapons and tanks?

fully agree somewhat in agreement neutral somewhat in disagreement fully disagree

- ▶ *The weather in Kuwait has changed for 10 years?*

fully agree somewhat in agreement neutral somewhat in disagreement fully disagree

Explain why? -----

- ▶ *Do you think that Kuwait's environment will restore and Develop after nature reserve?*

fully agree somewhat in agreement neutral somewhat in disagreement fully disagree

Why? -----

Thank you very much!

Figure (4.2): The second page of the questionnaire page of the research

Chapter Five: Results

The section presents the primary survey findings and the sample responses in Kuwait. This section also explains whether the hypotheses were confirmed or not supported for survey. The results provide the sample frequencies and percentages that are the basis of my conclusions. Moreover, you can identify statistical analyses that were used to provide values, means, and standard deviations. Compiled tables illustrate the data for understanding the participants' responses and provide clear descriptive statistics. Also, tables represent the sample specifications including nationality, sex, marital status, number of children, income, age, education attended, career, and survey questions.

Table 5.1.1: Nationality

	<i>Frequency</i>	<i>Percent</i>
Kuwait	218	90.1
Saudi	9	3.7
Jordan	2	.8
Other	13	5.4
Total	242	100.0

This table presents the categories of nationality for the study sample and their distribution in term of numbers and percentage. Kuwaitis constituted for 90% of the survey respondents, while other represent 9.9% included Saudi, Jordan, and other (foreign).

Table 5.1.2: Sex

	<i>Frequency</i>	<i>Percent</i>
Male	64	26.4
Female	178	73.6
Total	242	100.0

This table presents the categories of gender for the study sample and their distribution in term of numbers and percentage. Females constituted for 73.6% and males constituted for 26.4%. This table reflects the percentage of the country's male-female nations.

Table 5.1.3: Marital Status

	<i>Frequency</i>	<i>Percent</i>
No	162	66.9
Yes	80	33.1
Total	242	100.0

This table presents the categories of marital status for the study sample and their distribution in term of numbers and percentage. Most of the samples were not married and they constituted 66.9%. This table reflects the young people in this research and the low percentage represents the married respondents.

Table 5.1.4: Number of Children

	<i>Frequency</i>	<i>Percent</i>
no child	184	76.0
1 to 5	45	18.6
6 to 9	12	5.0
10 and above	1	.4
Total	242	100.0

This table presents the distribution of number of children for the study sample and their distribution in term of numbers and percentage. Young respondents were constituted the high percentage, which is 76% and this table divided the results to 4 sections according to the number of children. The respondents who have 1 to 5 children were constituted 18.6%.

Table 5.1.5: Income (KD= 3.5\$)

	<i>Frequency</i>	<i>Percent</i>
500 and below	145	59.9
501 to 1000	48	19.8
1001 to 3000	35	14.5
above 3000	14	5.8
Total	242	100.0

This table presents the categories of income for the study sample and their distribution in term of numbers and percentage. Because the most of samples were young, the respondents who have income below 500 KD constituted 59.9%. Also, people who have income above 501 to 1000 KD were 48 respondents and 35 respondents, who have 1001 to 3000 KD.

Table 5.1.6: Age

	<i>Frequency</i>	<i>Percent</i>
20 and below	101	41.7
21 to 25	74	30.6
26 to 30	16	6.6
31 to 35	9	3.7
36 to 40	11	4.5
41 to 45	11	4.5
46 to 50	9	3.7
51 and above	11	4.5
Total	242	100.0

This table presents the categories of age for the study sample and their distribution in term of numbers and percentage. It divided to eight parts and the young people who were under twenty years old constituted 41.7%. Also, the lowest percentage represents the respondents who were 36 to 40 years old and 46 to 50 years old.

Table 5.1.7: Education Attended

	<i>Frequency</i>	<i>Percent</i>
HS	46	19.0
Diploma	13	5.4
BS	161	66.5
MA	16	6.6
PhD	6	2.5
Total	242	100.0

This table presents the categories of education for the study sample and their distribution in term of numbers and percentage. Respondents that have BS constituted 66.5% and it comes second who have HS 19%. This table represents most of Kuwaitis education attended because most of Kuwaitis have level education.

Table 5.1.8: Career

	<i>Frequency</i>	<i>Percent</i>
Student	172	71.1
Employer	39	16.1
Own Business	9	3.7
Others	22	9.1
Total	242	100.0

This table presents the categories of career for the study sample and their distribution in term of numbers and percentage. The students constituted the highest percentage, which is 71.1% and this table represents the many careers in Kuwait such as employer, own business, and others (Bedouin). Furthermore, the lowest percentage represents the (own business) respondents.

5.2: Survey

Table 5.2.1: (Q1) a

	<i>Frequency</i>	<i>Percent</i>
Yes	164	67.8
No	78	32.2
Total	242	100.0

This table shows the frequency number and percentage for the respondents (Q1) that were asked if they have any idea about reservation in Kuwait. The table shows the number and percentage of yes and no responses. The highest percentage constituted 67.8% and the respondents with (no) responses constituted 32.2%.

Table 5.2.2: (Q2) B

	<i>Frequency</i>	<i>Percent</i>
Yes	211	87.2
No	31	12.8
Total	242	100.0

This table shows the frequency for the second question (Q2), which inquired if the people in Kuwait agreed on environment protection. The table shows the number and percentage of yes and no responses. The percentage of yes response constituted 87.2% and the percentage of no response constituted 12.8%

Table 5.2.3: (Q3) C

	<i>Frequency</i>	<i>Percent</i>
Yes	189	78.1
No	53	21.9
Total	242	100.0

This table shows the frequency for the third question (Q3), which inquired if respondents own factory will they interest to environment protection. The table shows the number and percentage of yes and no responses. The percentage of yes response is 78.1%, which represents 189 samples and the percentage of no response constituted 21.9%.

Table 5.2.4: (Q4) D

	<i>Frequency</i>	<i>Percent</i>
Yes	88	36.4
No	154	63.6
Total	242	100.0

This table shows the frequency for the fourth question (Q4), which inquired if respondents participate in voluntary work for environment. The table shows the number and percentage of yes and no responses. The percentage of yes response is 36.4%, which represents 88 samples and the percentage of no response constituted 63.6%, which presents the high percentage.

Table 5.2.5: (Q5) E

	<i>Frequency</i>	<i>Percent</i>
Rare	49	20.2
Limited	58	24.0
Average	64	26.4
less often	56	23.1
Often	15	6.2
Total	242	100.0

This table shows the frequency for the fifth question (Q5), which asked the respondents to evaluate their interaction with environment protection Kuwait. The table shows the number and percentage of choosing one of following response: rare, limited, average, less often, and often. The percentage of rare response is 20.2%, which represents 49 samples and the percentage of average response constituted 26.4%, which presents the high percentage. The often response constituted 6.2%, which is the lowest.

Table 5.2.6: (Q6) F

	<i>Frequency</i>	<i>Percent</i>
Yes	125	51.7
No	117	48.3
Total	242	100.0

This table shows the frequency for the sixth question (Q6), which asks the respondents if they interest in hunting and camping. The table shows the number and percentage of yes and no responses. The percentage of yes response is 51.7%, which represents 125 samples and the percentage of no response constituted 48.3%, which represents the lowest percentage.

Table 5.2.7: (Q7) G

	<i>Frequency</i>	<i>Percent</i>
Yes	101	41.7
No	141	58.3
Total	242	100.0

This table shows the frequency for the seventh question (Q7), which asked the respondents if they have picked truffles in the desert. The table shows the number and percentage of yes and no responses. The percentage of yes response is 41.7%, which represents 101 samples and the percentage of no response constituted 58.3%, which presents the high percentage (141 samples).

Table 5.2.8: (Q8) H

	<i>Frequency</i>	<i>Percent</i>
Yes	109	45.0
No	133	55.0
Total	242	100.0

This table shows the frequency for the eight questions (Q8), which asked the respondents if they use four-wheel drive (SUV) in the desert. The percentage of yes response is 45%, which represents 109 samples and the percentage of no response constituted 55%, which presents the high percentage (133 samples).

5.3: Explanation

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
(Q2) a	242	1	5	3.91	1.110
B	242	1	5	4.14	1.047
C	242	1	5	2.23	1.254
D	242	1	5	3.62	1.091
E	242	1	5	3.51	1.055
F	242	1	5	3.37	1.016
G	242	1	5	3.15	1.056
H	242	1	5	3.98	.998
I	242	1	5	2.74	1.290
J	242	1	5	4.01	.964
K	242	1	5	4.12	1.046
(Q3) a	242	1	5	4.07	.942
B	242	1	5	4.20	.978
C	242	1	5	4.15	1.033
D	242	1	5	4.13	.972
Valid N (listwise)	242				

This table shows the mean and standards deviation value for the respondents on the statements that contain a scale from 1-5 which indicate their agreement regarding this statements, and standard deviation show the convergence of their response and how its related to the mean value. Where, the value is considered good if it higher than 3 and weak if it lowers than 3 regarding standards deviation it should be less than 1 to consider good.

Chapter Six: Analysis and Discussion

This section will present the analysis of the data collected through questionnaires and analyzed using SPSS statistical system, with explanation and a brief discussion. The following tests were used.

- 1- *Frequency analysis, which shows respondents demographic and characteristics.*
- 2- *Descriptive analysis, which determines the mean and standard deviation for all the variables and its statements.*
- 3- *Crosstabs and correlation tests for the data of the second part of the questionnaire, to examine the relationship between the public's perceptions of nature reserves and the government's protection of green spaces and natural reserves.*

6.1 Respondents Demographic

The study sample included 242 participants, 64 male and 178 female, with Table 6.1.1 showing the demographic characteristics of the respondents. The majority of the respondents have a BS degree and those with a high school degree represent the next largest group. The numbers in each educational category are: 161 with a Bachelor degree, 46 with a High School/General Secondary degree, 16 with a Master Degree, 13 with a Diploma (associate degree), and 6 with a Doctorate. Moreover, the majority of the respondents were Kuwaiti; most of the respondents were not married. From the table, it can be seen that most of the respondents do not have children, only 45 of them have children. Also, most of the participants have income of 500 Kuwaiti Dinars (KD) and below. Most of them were students, 39 were employees, 9 have their own

business, and 22 have other careers. In addition, most of the respondents are 20 years old or younger, and 74 of them are between the ages of 21 to 25 years old.

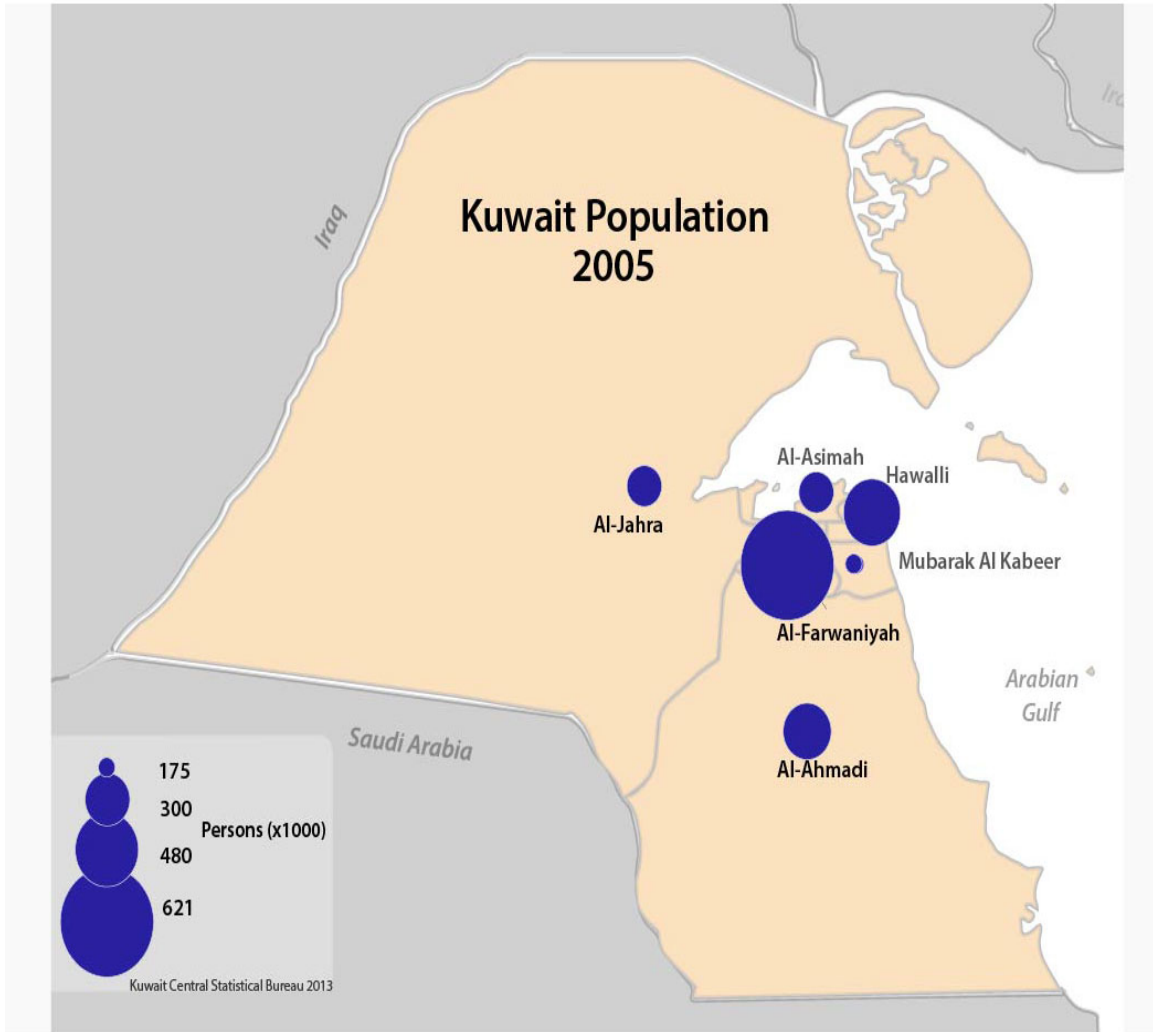


Figure (6.1): Map represents the Kuwait Population in 2005

Table (6.1.1): The demographic characteristics of the sample

Variable	N (%)
Gender	
Male	64 (26.4)
Female	178 (73.6)
Education level	
HS	46 (19)
Diploma	13 (5.4)
BS	161 (66.5)
MA	16 (6.6)
PhD	6 (2.5)
Nationality	
Kuwait	218 (90.1)
Saudi	9 (3.7)
Jordanian	2 (0.8)
Other	13 (5.4)
Marital Status	
No	162 (66.9)
Yes	80 (33.1)
Number of Children	
No child	184 (76.0)
1 to 5	45 (18.6)
6 to 9	12 (5.0)
10 and above	1 (0.4)
Income	
500 and below	145 (59.9)
501 to 1000	48 (19.8)
1001 to 3000	35 (14.5)
Above 3000	14 (5.8)
Age	
20 and below	101 (41.7)
21 to 25	74 (30.6)
26 to 30	16 (6.6)
31 to 35	9 (3.7)
36 to 40	11 (4.5)
41 to 45	11 (4.5)
46 to 50	9 (3.7)
51 and above	11 (4.5)
Career	
Student	172 (71.1)
Employee	39 (16.1)
Own Business	9 (3.7)
Others	22 (9.1)

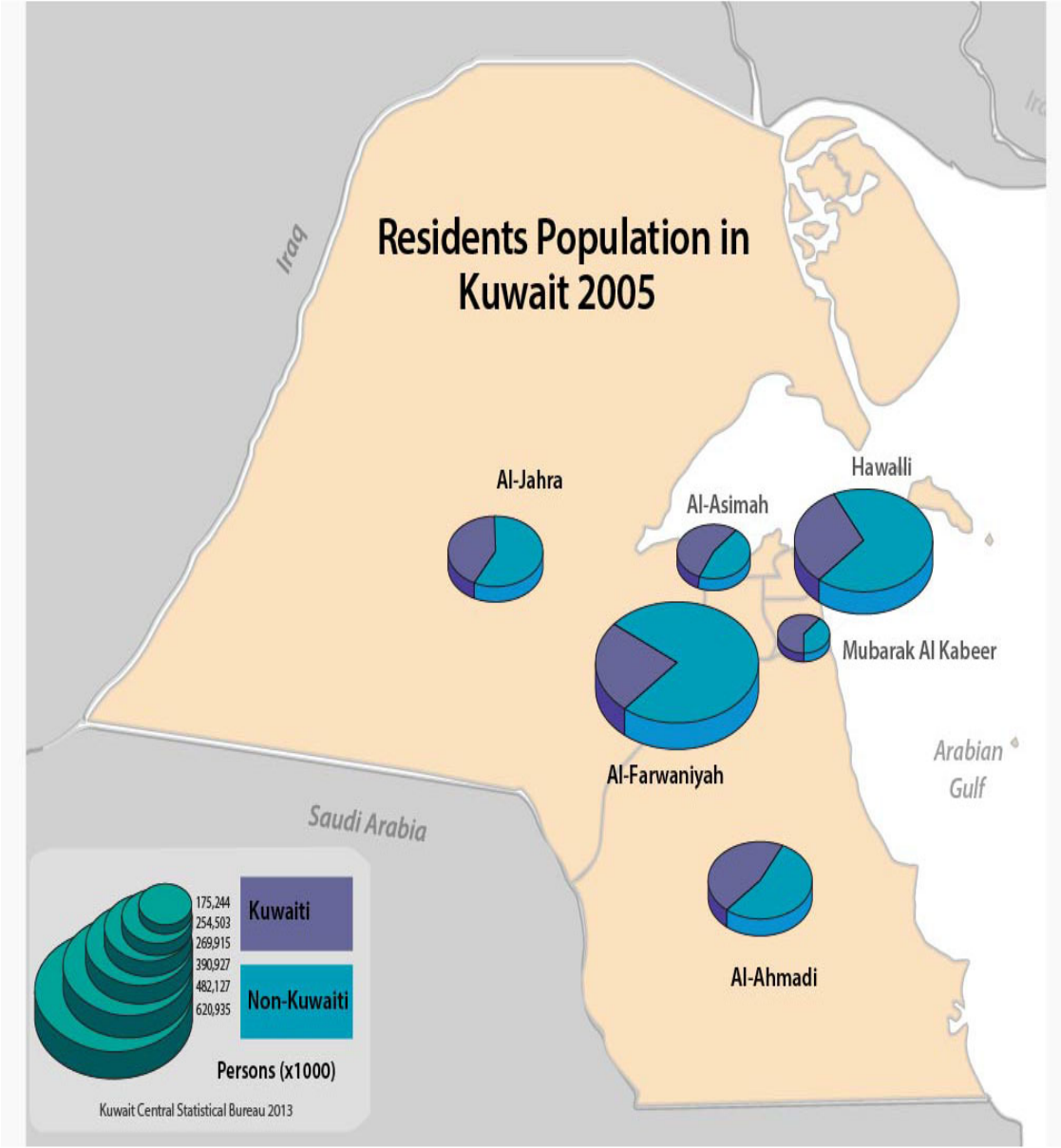


Figure (6.2): Map represents the Kuwait's Residents Population

6.2 Descriptive Statistics

This section will present a descriptive analysis, which shows the respondents' view regarding the nature reserves in Kuwait. The following subsection presents each statement and frequency of the responses.

1: *Are you familiar with nature reserves issues in Kuwait?*

Table 6.2.1: Results of Statement (1)

	<i>Frequency</i>	<i>Percent</i>
Yes	164	67.8
No	78	32.2
Total	242	100.0

It is obvious from the responses given in table 6.2 that most of the respondents are familiar with nature reserves issues in Kuwait. Those who have such familiarity were 67.8% of the sample. This result indicates that there is a significant majority of the public who are familiar with nature reserve issues in Kuwait, to some extent.

2: Do you agree with preservation of the environment?

Table 6.3: Results of Statement (2)

	<i>Frequency</i>	<i>Percent</i>
Yes	211	87.2
No	31	12.8
Total	242	100.0

Table 6.3 shows that most of the participants agree with the idea of preserving the environment. They form a majority (87.2%) of the sample. This indicates that the public is attentive to the environment of Kuwait and its preservation.

3: If you were to own a factory, would you be interested in preserving the environment?

Table 6.4: Results of Statement (3)

	<i>Frequency</i>	<i>Percent</i>
Yes	189	78.1
No	53	21.9
Total	242	100.0

It can be seen from table 6.4 that most of the respondents (78.1%) indicated that were they to own a factory they would still be concerned about preserving the environment. This indicates a strong public concern for nature and its preservation in Kuwait.

4: Have you ever participated in voluntary work for environment preservation?

Table 6.5: Analysis of Statement (4)

	<i>Frequency</i>	<i>Percent</i>
Yes	88	36.4
No	154	63.6
Total	242	100.0

Table 6.5 illustrates that most of the respondents have not participated in any sort of voluntary action for the preservation of the environment. A large majority (63.6%) of the respondents said that they do not participate in voluntary work regarding environment preservation. This is may be attributed to a lack of awareness of the importance of environment preservation, or a lack of information about an organized voluntary actions for environmental preservation. This indicates that this issue needs to be given more attention from the concerned participants in environmental actions and institutions sponsoring and/or involved in such activities.

5: How do you rate your involvement with preservation of environment and nature reserves?

Table 6.6: Analysis of Statement (5)

	<i>Frequency</i>	<i>Percent</i>
Rare	49	20.2
Limited	58	24.0
average	64	26.4
Often	56	23.1
always	15	6.2
Total	242	100.0

This table shows that most of the respondents (26.4%) rate their involvement with environmental preservation activities and with nature reserves with average interaction. In addition, it is shown that only 6.2% of the respondents always interact with preservation activities. These data indicate that there is a low level of public interaction with activities dealing with environmental preservation and nature reserves.

6: Are you interested in hunting and camping?

Table 6.7: Analysis of Statement (6)

	<i>Frequency</i>	<i>Percent</i>
Yes	125	51.7
No	117	48.3
Total	242	100.0

Table 6.7 shows the responses about the interest in hunting and camping, where 51.7% of responses were “yes” and 48.3% were “no”. This result indicates that about half of the participants are interested in camping and hunting, which implies that there is a medium level of the public who are interested in hunting and camping. Thus, this issue is significant to some extent to those interested in hunting and camping, but, on the other hand, camping and hunting in the desert have a significant destructive impact on the desert environment. I feel that the results from this suggest that the public do not have a sufficient awareness about the seriousness of this issue on the health of the desert ecosystem, and this will complicate the problem of setting aside areas of the desert ecosystem as nature reserves. This issue should be given more attention from the interested parties.

7: Have you picked truffles (*Tirmania nivea*) in the desert?

Table 6.8: Analysis of Statement (7)

	<i>Frequency</i>	<i>Percent</i>
Yes	101	41.7
No	141	58.3
Total	242	100.0

Table 6.8 illustrates that most of the respondents have never picked truffles in the desert, with 58.3% of them answering “no”. But, the percentage of respondents who have picked truffles is quite high, as well; 41.7% of the respondents. It is worth mentioning that truffles in Kuwait are one of the endangered native species, and the public should be informed to take care when picking truffles and to not destroy the environment in which this fungus grows.

8: Have you used four-wheel drive vehicles (SUV) in the desert?

Table 6.9: Analysis of Statement (8)

	<i>Frequency</i>	<i>Percent</i>
Yes	109	45.0
No	133	55.0
Total	242	100.0

This table shows that 55% of the respondents have not used four-wheel drive vehicles in the desert (never drove), while 45% of them have already used such vehicles. So the respondents are almost evenly split between those who have driven SUVs in the desert and those who have not. Of course, driving an SUV in the desert contributes to the problem of mechanical compaction of the soil, which will cause the soil to harden, this leads to the destruction of the soil structure and the vegetation growing in the soil, this causes to a massive increase in the areas that have been desertified and a trend for desertification to be transmitted to areas located between these desertified spots. This result indicates a lack of awareness among the public about the risks associated with using SUV in desert areas. This issue certainly requires more attention in Kuwait.

This section displays the mean and standard deviation values for the responses to the statements that have a scale of 1-5. This scale indicates the respondents' level of agreement or disagreement with statements concerning nature reserves and issues pertaining to them. The standard deviation shows the convergence of the responses and how its related to the mean value. The value of the mean is considered more in agreement with the statement if it is higher than 3, and in disagreement if it is lower than 3. Moreover, this section discusses and explains the obtained results.

Table 6.10: Results of the Second Part of the Questionnaire

Statement	Mean	SD
1. Nature reserves in Kuwait are necessary for environmental ecosystem.	3.91	1.110
2. The government of Kuwait should continue to conserve nature reserves.	4.14	1.047
3. The number of nature reserves in Kuwait should be reduced.	2.23	1.254
4. Nature reserves influence environmental customs and behaviors.	3.62	1.091
5. The nature reserves are gaining social and political influence in Kuwait.	3.51	1.055

6. The majority of people in Kuwait refuse establishing new nature reserves.	3.15	1.056
7. There is a need to develop the nature reserves systems in Kuwait.	3.98	.998
8. People cannot camp, hunt, or animal-graze because nature reserves occupy a large part of the Kuwait's land.	2.74	1.290
9. Kuwaiti government should encourage preservation of the environment by creating new nature reserves.	4.01	.964
10. Kuwaiti government should implement policies and regulations to protect nature reserves and the wildlife.	4.12	1.046
Average Mean and SD	3.52	1.08

The above table demonstrates that the public believes that nature reserves in Kuwait are necessary for the protection and health of the environment where the mean of responses (3.91) shows a high level of agreement and the standard deviation (1.11) is in its normal value and reflect a convergence of sample responses. The respondents realize that the Kuwaiti government should continue to maintain nature reserves; the mean of responses regarding this statement (4.14) shows a very high degree of agreement and the standard deviation (1.04) reflects the convergence of sample response. This result indicates that public understands the importance of preserving nature reserves in Kuwait and that the government should pay more attention to this issue.

Responses to statement 3 indicate the importance of having nature reserves in Kuwait and increasing their numbers as perceived by the sample of respondents. The mean of responses to this issue (2.23) shows a low level of agreement to the statement, which says that the number of nature reserves should be reduced in Kuwait, and the standard deviation value (1.25) shows a

convergence of sample responses. Statement 4 points to the public perception that the establishment of nature reserves will result in an alteration in the traditional customs and behaviors in desert ecosystems. The mean for this statement (3.62) shows a high level of agreement. Moreover, statement (5) indicates that the public perceives that nature reserves are gaining political and social influence in Kuwait. The mean regarding this statement (3.51) indicates an acceptable level of agreement, and the standard deviation (1.05) reflects a convergence of sample responses.

From table (6.10), the mean of statement 6 which is (3.15) indicates a reluctance of the majority of Kuwaiti people to establish new reserves. The mean value regarding this statement reflects an acceptable level of agreement. Responses of statement 7 suggested that there is a significant need to develop the nature reserves systems in Kuwait as perceived by the sample. The mean of this statement (3.98) reflects a high level of agreement, and the standard deviation (0.998) is normal value. The results indicate that the public believes that nature reserves do not occupy a large part of Kuwait's land and that people in Kuwait can continue to camp, hunt, and graze animals, as they wish. However, the mean value regarding statement 8 (2.74) reflects some levels of disagreement.

Statement (9) indicates that the members sample group feel that the Kuwaiti government should encourage the preservation of the environment by establishing new nature reserves. The mean value regarding this statement (4.01) shows a high level of agreement and the standard deviation value (0.964)

reflects a convergence on sample responses. Moreover, the public indicated that the Kuwaiti government should implement policies and regulations to protect nature reserves and the wildlife within them. The mean value (4.12) shows a high level of agreement and the standard deviation value (1.04) is a normal value that reflects a convergence of sample responses.

Safely, from the results shown above, the following can be concluded:

- A. A good percentage of the public perceived the importance of nature reserves for the maintenance of the health of the environment in Kuwait, but, in a somewhat unexpected response in opposition, 35.6% of the sample agreed that most of Kuwait's people are opposed to the establishment of new nature reserves. While 42.6% of the sample have no opinion on this issue.*
- B. The Kuwaiti government has reluctance towards establishing new nature reserves, where the public observed that protecting Kuwaiti environment requires establishing new nature reserves.*

6.2.1 Relationship between Perception and Policy

To find if there is a relationship between the public's perception of nature reserves and the government's protection of green spaces, the crosstabs and correlation tests have been applied on the related statement to this. As a result, the following table was extracted.

Table 6.11: Analysis The Correlations Test

		Nature	Government.
Nature reserves	Pearson Correlation	1	0.307**
	Sig. (2-tailed)		0.000
	N	242	242
Government	Pearson Correlation	0.307**	1
	Sig. (2-tailed)	0.000	
	N	242	242

It can be seen from table 6.11 that sigma value 0.00 is lower than 0.05, which indicates that there is a relationship between the two variables, which are the public's perception of nature reserves and government's protection of green spaces.

6.2.2 Kuwait's Environment after Iraq's Invasion

The following table shows the mean and standard deviation values for the statements regarding this issue. These statements are discussed in this section below the table.

**Table 6.12: Kuwait's Environment after Iraq's Invasion
(Analysis vs Discussion)**

Statement	Mean	SD
1. Creating nature reserves is a good way to restore the Kuwait's landscape since the 1990 invasion and destruction.	4.07	0.942
2. The ecosystem of Kuwait has been changed because of Iraqi's attack, invasion, and destruction.	4.20	0.978
3. Do you believe that Kuwait's environment has been changed since the Gulf War: climate, weather, water, air quality, animal, and plant life, etc.	4.15	1.033
4. Do you agree that nature reserves will restore Kuwait's environment in natural and protected areas.	4.13	0.972
Average Mean and SD	4.14	0.98

From table 6.12, the public largely agreed that creating new nature reserves is a good way to restore Kuwait's landscape following Iraq's invasion and destruction. The mean value regarding this statement (4.07) shows a high level of agreement, and the standard deviation (0.942) reflects the convergence of sample responses. Also, the public realized that the ecosystem of Kuwait has been changed because of Iraq's attack, invasion, and destruction, and this statement has the highest mean value (4.2) among the statement in the above table and, thus, shows a very high level of agreement among the sample responses. Also, the standard deviation value (0.978) reflects a convergence of sample responses to this statement. Moreover, the public believed that Kuwait's environment has been changed since the Gulf War in terms of climate, weather, water, air quality, animal and plant life, *et cetera*. Here the mean value (4.15) shows a high level of agreement. Furthermore, there is a high level of agreement that nature reserves will restore Kuwait's environment in wild, or natural and protected areas. The mean value (4.13) also shows a high level of agreement among those questioned and the standard deviation (0.972) reflects a convergence of the sample responses.

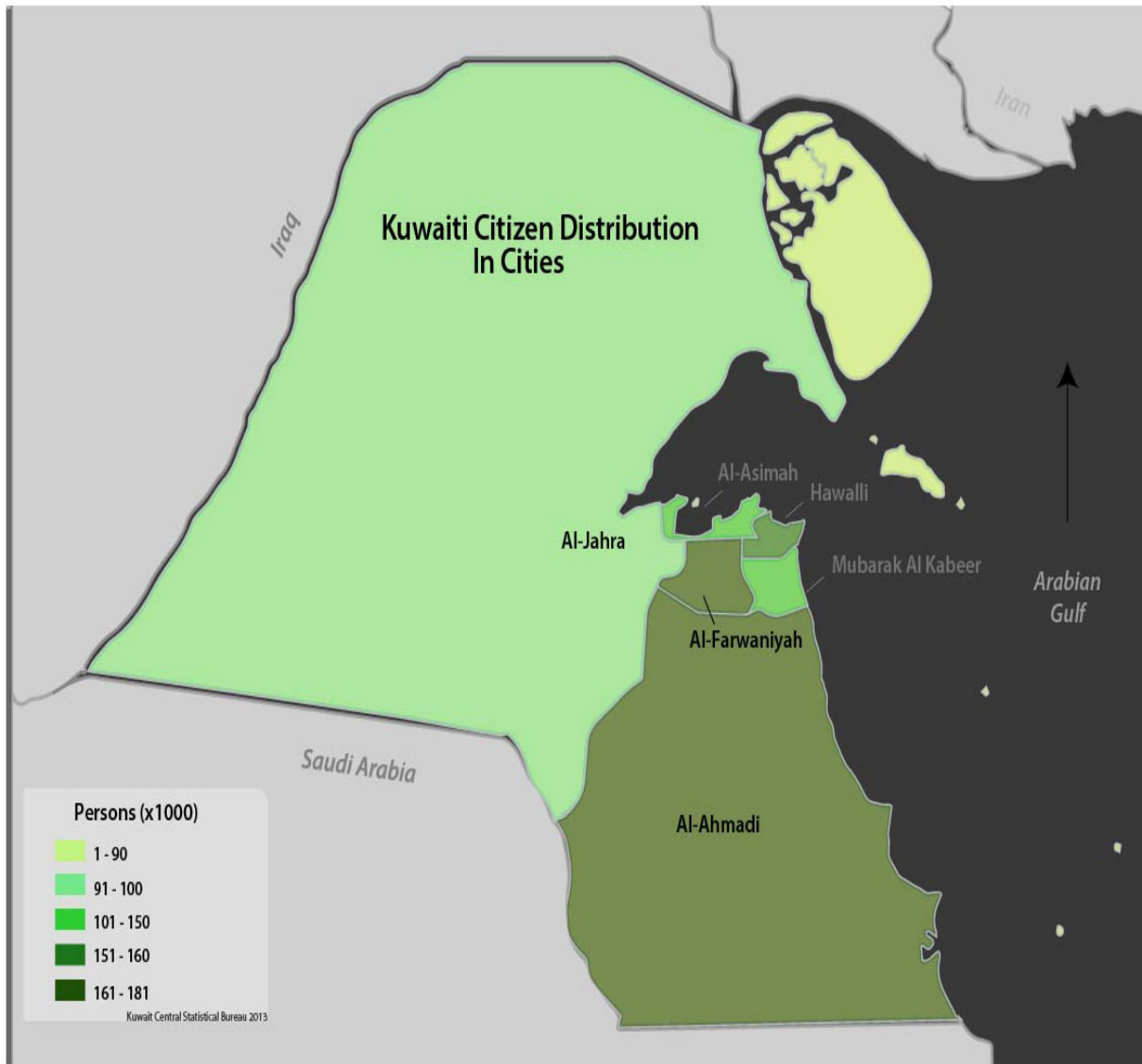


Figure (6.3): Map represents the Kuwaiti Citizen Distribution in Kuwait cities

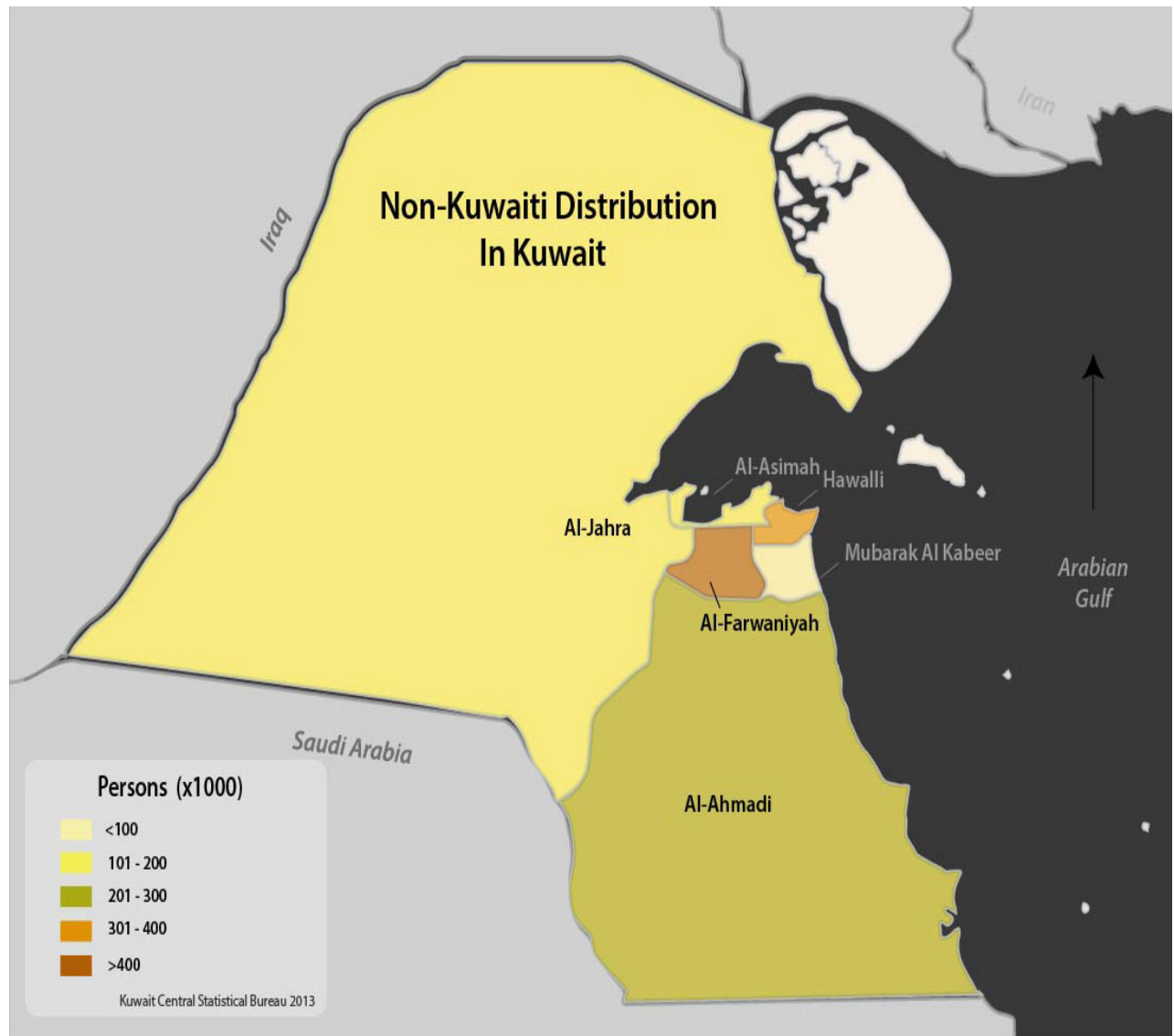


Figure (6.4): Map represents the Non-Kuwaiti Distribution In Kuwait's Cities

6.3: Discussion of Questions

A: Is there a relationship between the public perception of nature reserves and the government's protection of green spaces?

The results revealed that there is relationship between the public perception of nature reserves and the government's protection of green spaces. From this relationship, it can be observed that public perception of nature reserves is associated with their perception of government's protection of green spaces in Kuwait with a percentage of (30.7%).

According to Gomez-Pompa and Kaus (2002), the perception of how nature should be handled or preserved depends on the type of environment where people reside. Accordingly, people from urban places will have a different perception compared to people from rural areas when it comes to nature reserves. The reason behind this difference is that those two groups of people are exposed to different environmental problems and have experienced strikingly dissimilar interactions with nature. For instance, it was pointed out that for urban people, anthropogenic fires are events that should be condemned, as they are unjustifiable incursions into nature. Rural people, on the other hand, may perceive anthropogenic fires in a more positive perspective, especially those who are engaged in farming.

This result agrees with Szell and Hallett's study (2013), which investigated the local residents' perception about the enforced policies regarding protected areas. Their results showed that the respondents were dissatisfied with the

enforced policies regarding their access to natural resources located on protected areas.

B: Is there overall public support for protecting green spaces and natural areas in Kuwait?

The obtained results suggested that a good percentage of the public are familiar with nature reserve issues in Kuwait, to some extent. Moreover, there is public attention with regards to the environment and its preservation in Kuwait. This result indicates that the public perceived the importance of preserving nature reserves in Kuwait, and that the government should pay more attention to this issue. Furthermore, a good percentage of the public perceived the importance of nature reserves for the environmental ecosystem in Kuwait. On the other hand, (35.6%) of the sample agreed that most of the Kuwaiti people disagree with the establishment of new nature reserves, while (42.6%) of the sample have no opinions regarding this issue.

C: How has legislation affected nature reserves and national parks over time?

The results indicate that half of the participants are interested in camping and hunting, and that there is a moderate level of public interest in hunting and camping. Thus, the stakeholders may give this issue more attention, as this percentage of people who are interested in hunting and camping is significant to some extent. On the other hand, the practices of camping and hunting in the desert have a great impact on the destruction of the desert environment. From

this result, it is obvious that the public do not have sufficient awareness about this issue, and this will make the problem more complicated. Thus, this issue should have more attention from interested actors.

It is worth mentioning that truffles in Kuwait is one of the plants that are endangered, and the public should be informed with this so as to be careful when picking truffles and to not destroy its environment. Moreover, driving an SUV in the desert contributes to the problem of mechanical compression of the soil by hardening it. This will lead to the destruction of soil and vegetation and expose the surface of the desert to mechanical compression, causing a massive increase in desertified spots and transmission of desertification to the areas located between them. This result indicates the lack of awareness among the public about the risks associated with using an SUV in the desert, and that this issue requires more attention in Kuwait.

D: How does the public perceive natural areas' protection laws?

From the obtained results, it can be noticed that the Kuwaiti government has a shortening towards establishing new nature reserves, and that the public observed that protecting the Kuwaiti environment requires establishing new nature reserves. Regarding the legislation of environmental protection in Kuwait, the results showed that the Kuwaiti government has a shortening towards this issue. By contrast, the public perceived the natural area's protection laws as insufficient for protecting the environment, and stated that there should be policies and regulations to protect nature reserves and wildlife in Kuwait.

In this context, Nassauer (1995) explained that people simply base their perceptions on how things should look like based on custom, without really making efforts to explain why things should appear the way they think they should be. In other words, people are biased, and this bias should be taken into consideration in assessing their perceptions on nature reserve policies.

E: Is the public willing to volunteer or donate money in order to protect green spaces and Kuwait's landscapes?

To an extent, the results indicate that a high percentage of the public do not participate in voluntary work regarding environmental preservation. This may be attributed to the lack of awareness regarding the importance of environmental preservation, or the lack of information about organized voluntary work to participate in. However, this issue needs to have more attention from concerned actors and institutions. The results shown above indicate that there is a low level of public interaction with the preservation of the environment and nature reserves.

In a similar study, Szell and Hallett (2013) found that local residents in Romania have a relatively high level of awareness of the importance of nature reserves in the conservation of natural resources. The public interest in environmental issues was also of a high level. However, their willingness to pay entry fees to support the conservation of nature reserves was at a low level. The majority of respondents also stated that local communities do not benefit from nature reserves. Moreover, it was found that there is a relationship between

individuals' concerns with environmental issues and their awareness level.

However, the local residents were satisfied with the protected areas in Romania to some extent.



Figure (6.5): 'this picture shows the Truffles (Tirmania nivea) in Kuwait's environment (www.up.albreah.com)

Chapter Seven: Conclusion, Implications, and Recommendation

Nature reserves are important to a community's well-being because they offer natural life and clean environment without any pollution. Nature reserves creation and maintenance may be fundamental to ecosystem's longevity and sustainability, in addition to a country's identity and landscape (carr, 1998). There is a significant relationship between public perception of nature reserves and the government's protection of green spaces. There is an overall support for protecting green spaces and natural areas in Kuwait. This support could be summarized as follows:

- A. The public sees that nature reserves are important for Kuwait's ecosystems,
- B. The public believes that the Kuwaiti government should keep preserving nature reserves and green spaces through creating new nature reserves and implementing policies and regulations regarding this issue.

On the other hand, the results showed a lack of sufficient awareness by the public in general towards the preservation of nature reserves and the health of the environment. This is demonstrated through the continuance of some activities that have a negative impact on the environment such as driving SUVs and picking truffles in the desert.

The results also indicated a consensus among sample responses that the Iraqi invasion damaged the Kuwaiti environment and nearly destroyed it in terms of climate, weather, water, air quality, animals, and other wildlife. And, the respondents seemed to agree that nature reserves would restore Kuwait's environment in wild and protected areas (82%).

Moreover, regarding the legislation of environmental protection in Kuwait, the results showed that the Kuwaiti government has reluctance towards this issue (82.8%). The public perceived that the natural areas' protection laws as insufficient for truly protecting the environment (78%). The people sampled stated that there should be policies and regulations to protect nature reserves and the wildlife in Kuwait (82.4%). On the other hand, as the overall results indicated the public's love for nature and the environment in general, and it also showed the willingness of the public to volunteer or to donate money in order to protect green spaces and Kuwait's landscape (36%).

Kuwait's perceptions of nature reserves are important factors that should be considered in the decision making process with regard to creating, maintaining, and establishing future plans for nature reserves. There are diverse factors that influence people's perceptions. Including culture, religion, personal experiences, level of education, place of residence (urban or rural), and the policies created to manage these. Governments must take into consideration these factors in assessing the peoples' perception of such reserves. This can only be achieved if all major stakeholders of the nature reserves contribute to its management and administration. Perceptions of the importance and helpfulness of nature reserves and national parks are highly subjective, yet management authorities must use these perceptions in a highly objective way. With the numerous justifications for the importance of eliciting the involved peoples' perceptions of nature reserves presented, it is concluded that this research can be a stepping stone in understanding the opinions of the people of Kuwait of the

planning, management, and future plans for the nature reserves. This research can be used as a basis for developing best practices in nature reserve and national park management in Kuwait. As already presented, there is a reduction of green spaces in Kuwait, at present. Results from this research can be used to properly manage and efficiently use these green spaces.

Recommendations

- *Support nature reserves, educational programs that encourage people to maintain their environment and engage in preserving their wildlife.*
- *Make the development of network of protected areas a high priority for the conservation of threatened and endangered species in Kuwait.*
- *Support cleaning up operations in currently polluted ecosystems and water systems.*
- *Focus on the importance of the development of domestic laws to protect the environment, taking into account regional and international laws related to the impact on the environment.*
- *Train and qualify the employees of the environmental services and municipalities who are newly trained in the field of the health and protection of the environment.*
- *Use an ecology etc curriculum in schools to teach students how to preserve their environment.*
- *Reduce the haphazard throwing wastes away and increase the use of dumping sites to prevent spreading pollution.*
- *Fund researchers in the development of procedures and specialized research studies and practical information in the field of environmental health and ecological balance*

Overall, these findings suggest that public perception is very significant for supporting a healthy environment and its protection. Kuwaiti are proud to have such nature reserves and they expect that the Kuwaiti environmental agencies will wisely maintain and develop these nature reserves for posterity.

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Figures and Pictures

Figure (1.1): <http://diwania.alazraq.com/archive/index.php/t-165314.html>

Figure (1.2):

http://www.emisk.org/publish_emisk_Servicesdomain/Download_eMISK_Map_s/mage/0144289251289229.jpg

Figure (2.1): http://www.kuna.net.kw/NewsPictures/2008/12/15/cd75f57e-2056-4b9cbb21-640265dc7bb6_othermain.jpg

Figure (2.2): http://farm1.static.flickr.com/124/420801739_cd40f0d4b9.jpg?v=0

Figure (2.3): https://farm7.staticflickr.com/6019/6330177609_9ca3f1e47f_n.jpg

Figure (2.4): http://media.al-sharq.com/PortallImages/News/Large/136650_0.jpg

Figure (2.5):

[http://resources.waza.org/files/images/w\(415\)h\(252\)c\(1\)q\(90\)/68cd315a77ae4d1b7aab474bc0d1bab.jpg](http://resources.waza.org/files/images/w(415)h(252)c(1)q(90)/68cd315a77ae4d1b7aab474bc0d1bab.jpg)

Figure (2.6): <http://i2.cdn.turner.com/cnn/dam/assets/121105060809-kuwait-reserve-1-horizontal-gallery.jpg>

Figure (2.7): <http://www.hawar-islands.com/blog/media/blogs/kuwait/Yellow-Flowers.jpg>

Figure (2.8): http://www.tarsiger.co.uk/images/qatar_images/lizard_egyptian_spiny-tailed_2013-11-14_IMG_0593.JPG

Figure (6.3.1): <http://www.up.albrea.com/uploads/images2/albrea-53e6a37fd4.jpg>

Figure (3.1): Zube, E. (1987). Perceived land use patterns and landscape values. *Landscape Ecology*

Figure (3.2): Taylor, J.G. (1987) Landscape assessment and perception research methods. *Methods in environmental and behavioral research*,

Figure (3.3): <http://www.earthrandom.com/wp-content/uploads/2012/03/Sarek-National-Park-Sweden.jpg>

Figure (4.1): The first questionnaire page of the research

Figure (4.2): The second page of the questionnaire page of the research

Figure (6.5) <http://www.up.albrea.com/uploads/images2/albrea-53e6a37fd4.jpg>

APPENDICES

A: Survey's Questions

B: Photographs

C: Tables

D: Maps

Appendix A1: Survey Questions (First part)



A geographic study of the perception of nature reserves and national parks in Kuwait

UNIVERSITY OF ARKANSAS

Home Country and City? _____ **Sex:** Male Female
How long have you lived here? 1-2 years 2-4 yrs 5-6 yrs 7-8 yrs 9-10 yrs more than 10 years
Do you have a spouse? yes no widowed or widower **Children:** How many children? _____
Income: <\$15,000 \$15,001-20,000 \$20,001-25,000 \$25,001-30,000 \$30,001-40,000 >\$40,000
Age: <20 21-25 26-30 31-35 36-40 41-45 46-50 51-55 56-60 61-65 >65
Education: HS some college college graduate (BS/BA) some graduate studies MS/MA PhD
Employment (yourself): full-time part-time managerial private firm public agency own business
Employment (spouse): full-time part-time managerial private firm public agency own business
Employment sector: agriculture education health industrial tourism trading engineering religion

- ▶ **Do you consider yourself familiar with nature reserves issues in the Kuwait ?** yes no
- ▶ **Do you agree with preservation of environment ?** yes no
- ▶ **If you own a factory, will you be interested in preserving the environment?** yes no
- ▶ **Do you interact with environmental experts and encourage them ?** yes no
- ▶ **How do you rate your interaction with preservation of environment and nature reserves?** rare limited
 less often often
- ▶ **Are you interested in hunting and camping?** yes no
- ▶ **Have you been picking truffles in the desert?** yes no
- ▶ **Do you use four-wheel drive (SUV) in the desert?** yes no

Please circle the number that represents your best response to each of the following statements about the Kuwait. (1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, 5 = strongly agree)

- | | | | | | |
|-----------------------------------------------------------------------------------------------|---|---|---|---|---|
| ▶ Nature reserves in the Kuwait are <u>useful</u> for Kuwait's environment ? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves in the Kuwait are <u>necessary</u> for Kuwait's families? | 1 | 2 | 3 | 4 | 5 |
| ▶ The Kuwait government should continue to preserve nature reserves to improve our ecosystem? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves must be reduced in number ? | 1 | 2 | 3 | 4 | 5 |
| ▶ Nature reserves are affecting families by influencing their customs and behaviors? | 1 | 2 | 3 | 4 | 5 |
| Explain why? _____ | | | | | |
| ▶ The nature reserves are gaining social and political influence in Kuwait? | 1 | 2 | 3 | 4 | 5 |
| comments _____ | | | | | |
| ▶ The majority of Kuwait's people refuse building new nature reserves? | 1 | 2 | 3 | 4 | 5 |
| comments _____ | | | | | |
| ▶ There is a need to develop the nature reserves systems? | 1 | 2 | 3 | 4 | 5 |

A2: Survey Questions (Second part)

- ▶ Nature reserves take large space from Kuwait's land that people can not go camping, hunting, grazing?

1	2	3	4	5
---	---	---	---	---

- ▶ The Kuwait government should implement policies to encourage preserving of environment and build new nature reserves in Kuwait?

1	2	3	4	5
---	---	---	---	---

- ▶ The Kuwait government should create policies and regulations to protect nature reserves and their wildlife from individuals ?

1	2	3	4	5
---	---	---	---	---

*** KUWAIT'S ENVIRONMENT AFTER IRAQ'S INVASION**

Place an 'X' along the line to show your level of agreement with each of these statements

- ▶ *Kuwait's environment remains destroyed by Iraq's invasion of Kuwait, so nature reserves are good way to restore?*

I fully agree somewhat in agreement neutral somewhat in disagreement I fully disagree

Explain why? -----

- ▶ Kuwait's ecosystem has been changed by Iraqi's weapons and tanks?

I fully agree somewhat in agreement neutral somewhat in disagreement I fully disagree

- ▶ *The weather in Kuwait has changed for 10 years?*

I fully agree somewhat in agreement neutral somewhat in disagreement I fully disagree

Explain why? -----

- ▶ *Do you think that Kuwait's environment will restore and Develop after nature reserve?*

I fully agree somewhat in agreement neutral somewhat in disagreement I fully disagree

Why? -----

Thank you very much!

Appendix B: Photographs

B1. Photographs (Iraqi invasion)



(source: <http://images.alarabiya.net>)

B2.



(source: <http://www.manager.ro>)

B3.



(source: <http://media3.s-nbcnews.com>)

B4.



(source: <http://wikia.nocookie.com>)

B5: Examples of camping in Kuwait



(source: <http://media.q80.tt>)

B6.



(source: <http://egykwat.com>)

B7. Tent of Bedouin (Beat Sharr)



(source: <http://www.kw.sogarab.com>)

B8.



(source: <http://www.alweeam.com>)

B9. The views of the spring season in Kuwait



(source: <http://www.kwtphoto.com>)

B10.



(source: <http://farm1.static.flickr.com>)

B11.



(source: <http://www.mutla.com>)



(source: <http://g.abunawaf.com>)

Appendix C: Tables

C1- a: (Q1)

	Frequency	Percent
Yes	164	67.8
No	78	32.2
Total	242	100.0

C2- b: (Q2)

	Frequency	Percent
Yes	211	87.2
No	31	12.8
Total	242	100.0

C3- c: (Q3)

	Frequency	Percent
Yes	189	78.1
No	53	21.9
Total	242	100.0

C4- d: (Q4)

	Frequency	Percent
Yes	88	36.4
No	154	63.6
Total	242	100.0

C5- e: (Q5)

	Frequency	Percent
Rare	49	20.2
Limited	58	24.0
Average	64	26.4
less often	56	23.1
Often	15	6.2
Total	242	100.0

C6- f: (Q6)

	Frequency	Percent
Yes	125	51.7
No	117	48.3
Total	242	100.0

C7- g: (Q7)

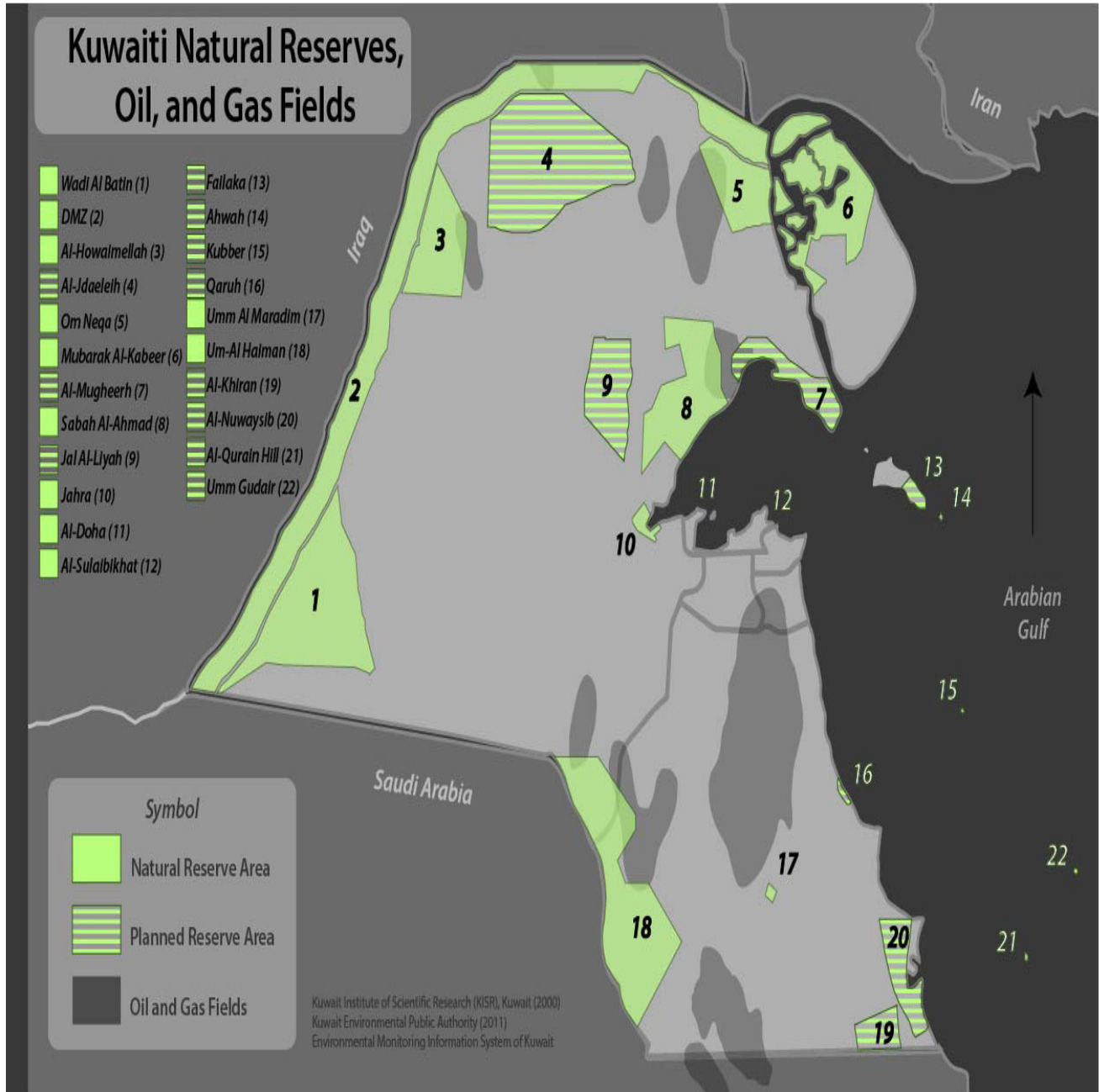
	Frequency	Percent
Yes	101	41.7
No	141	58.3
Total	242	100.0

C8- h: (Q8) H

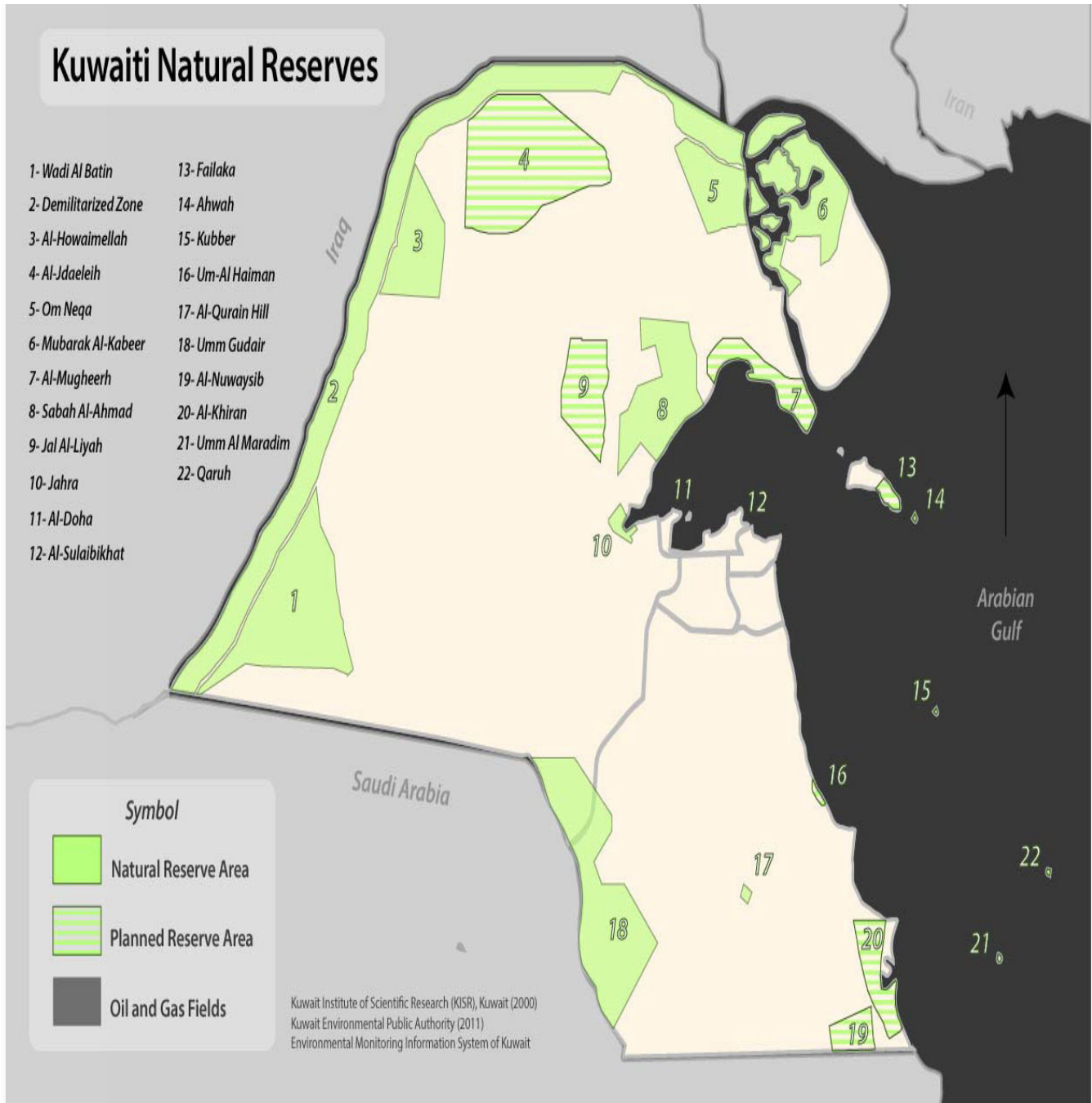
	Frequency	Percent
Yes	109	45.0
No	133	55.0
Total	242	100.0

Appendix D: Maps

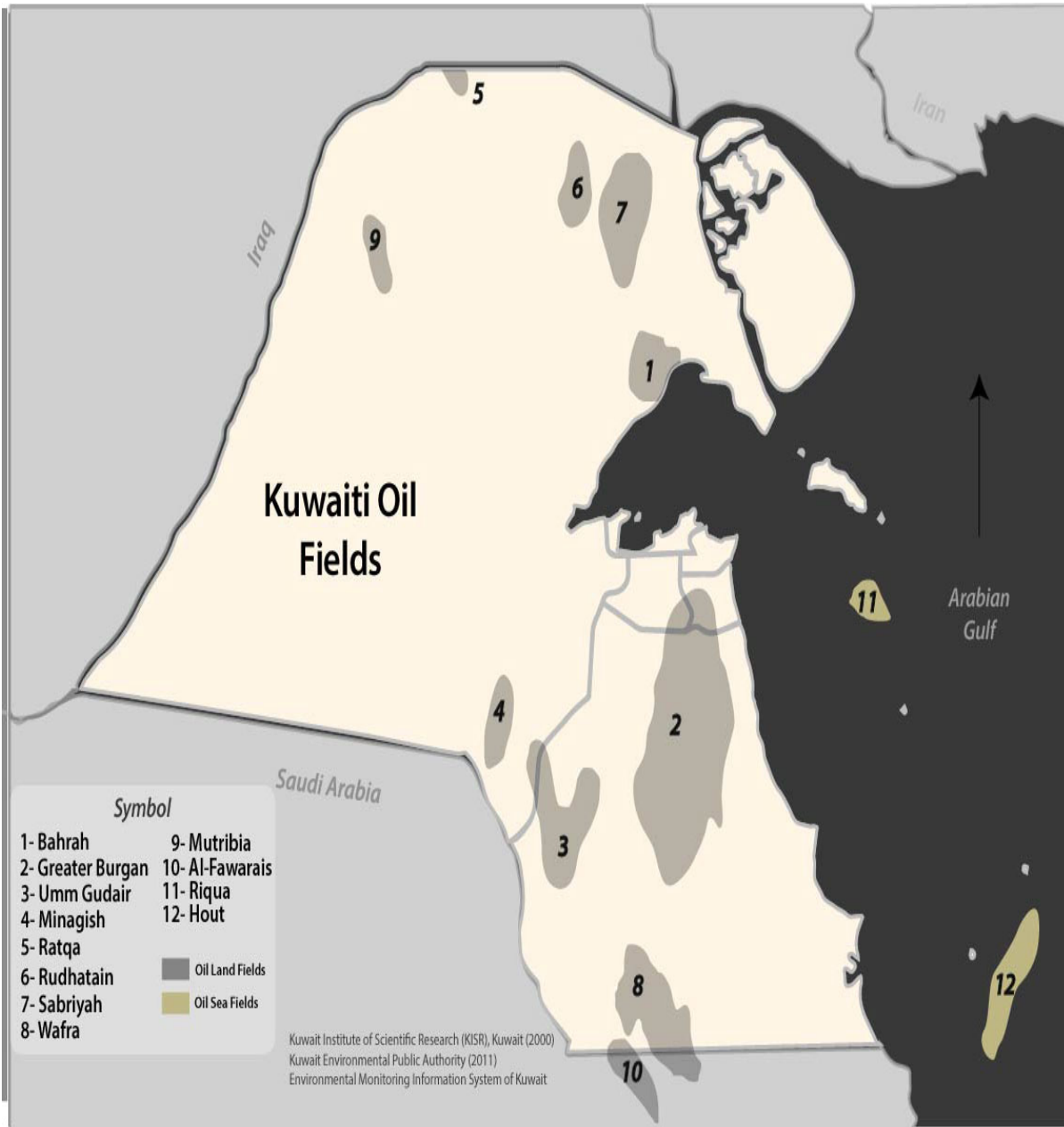
D1: Map of Nature Reserve and National parks



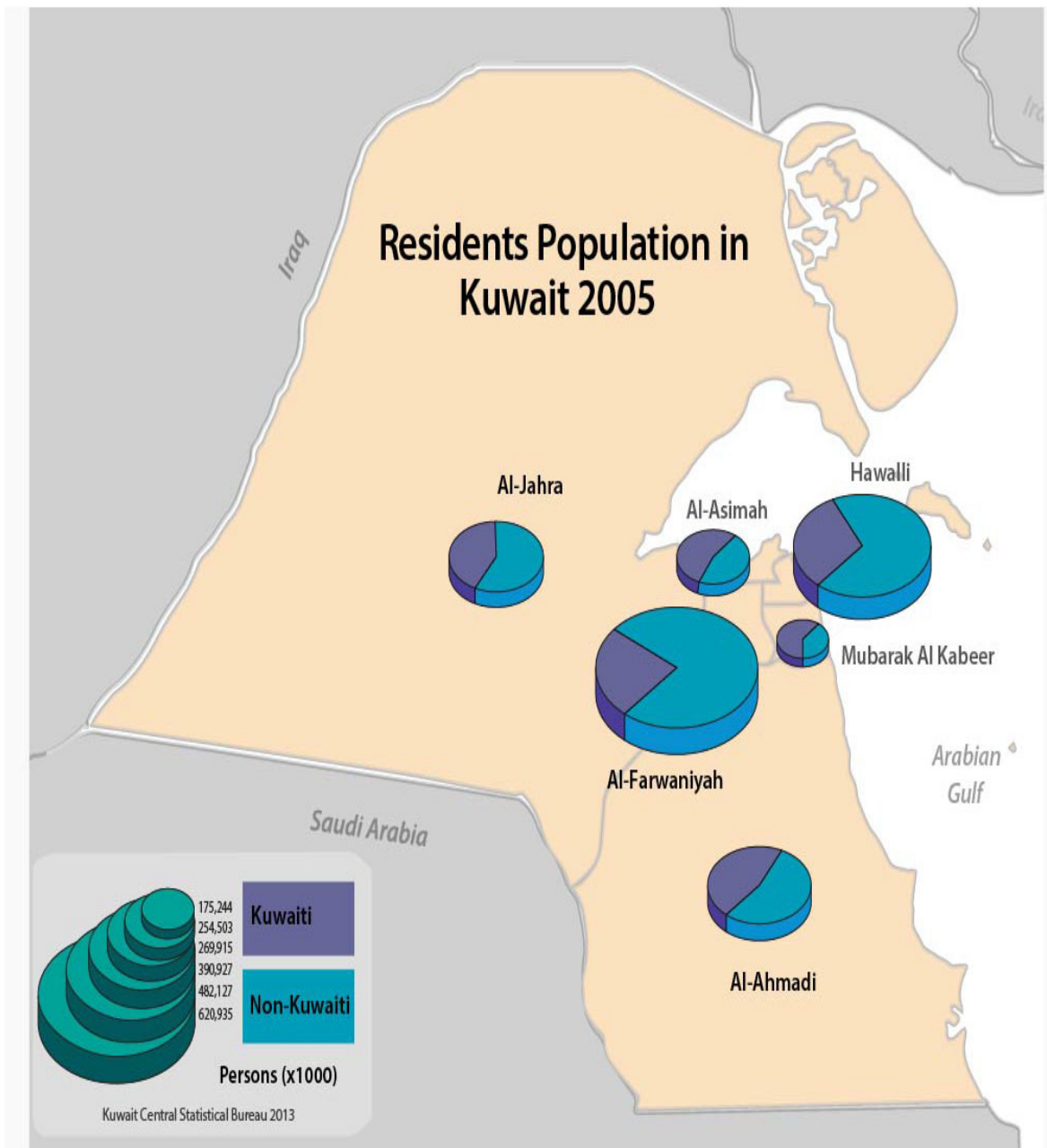
D2: Map of Vegetation cover in Kuwait



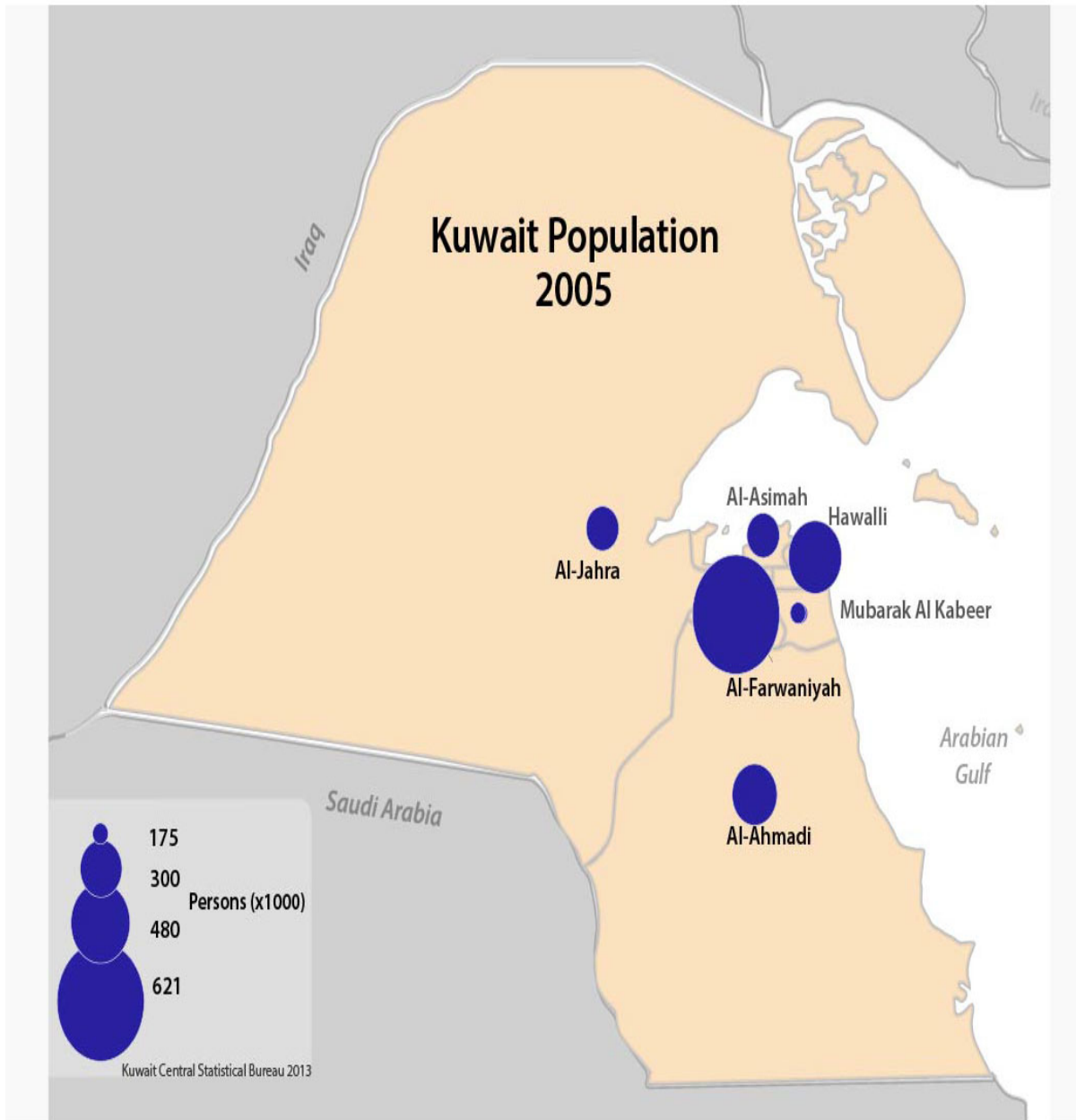
D3: Map of Kuwait Oil Fields



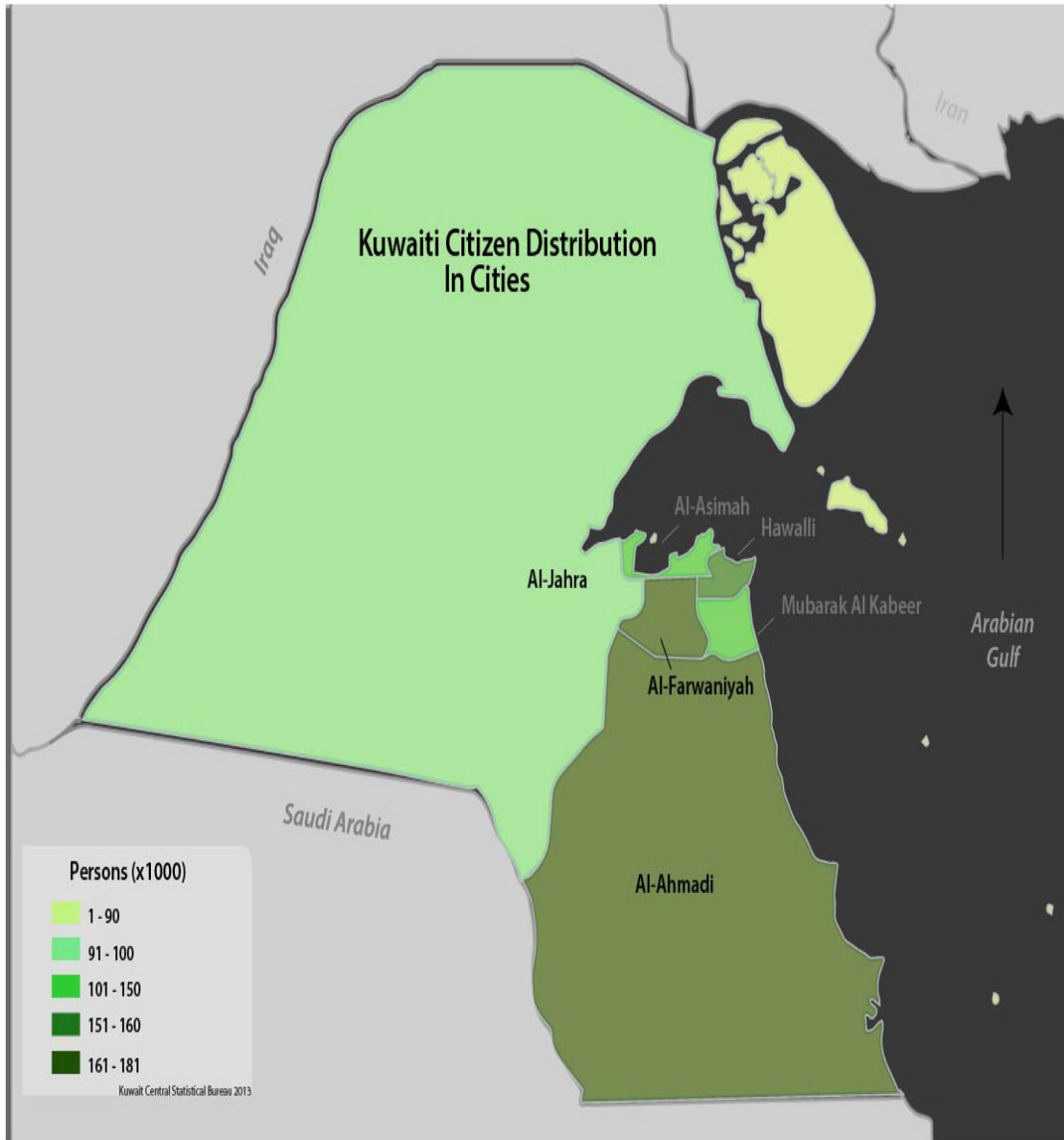
D4: Map of the Kuwait's Residents Population



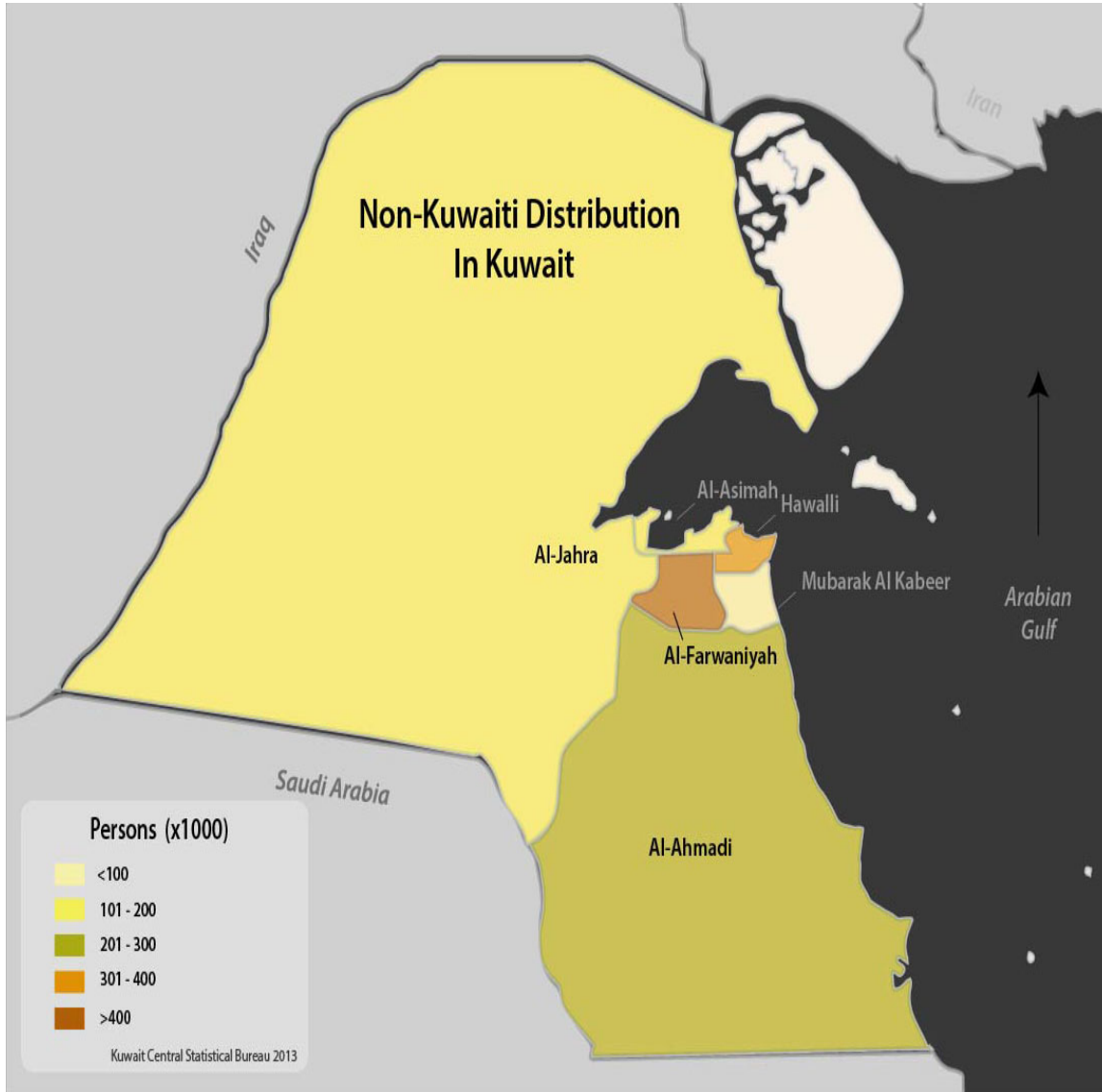
D5: Map of Kuwait population



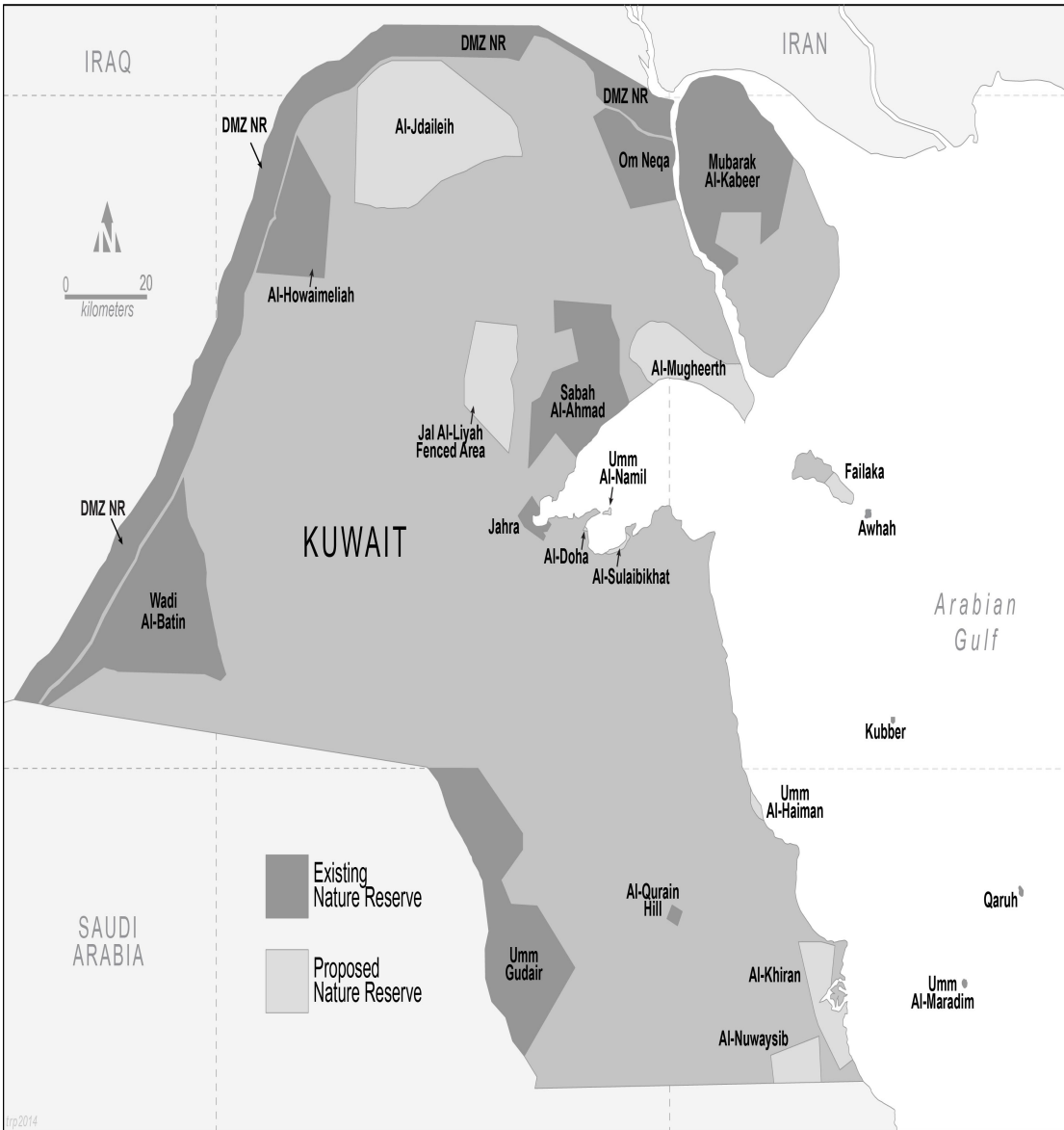
D6: Map of the Kuwaiti Citizen Distribution in Cities



D7: Map of the Non-Kuwaiti Distribution in Cities



D8: Map of National Parks and Nature Reserve



Mubarak Al-kabeer Nature Reserve: (Bubiyah Island)

It established in 2011 and it constituted the biggest nature reserves in Kuwait

Sabah Al-Ahmad Nature Reserve:

A total area of this natural reserve is 320 square kilometers

Al-Qurain Nature Reserve:

It established in 1989 by the Public Authority for Agriculture Affairs and Fish Resources in Kuwait and its space 1 Kilometer square

Al-Sulaibkhat Natural Reserve:

It established in 1988 and its space 4.5 kilometers square

Jahra Natural Reserve:

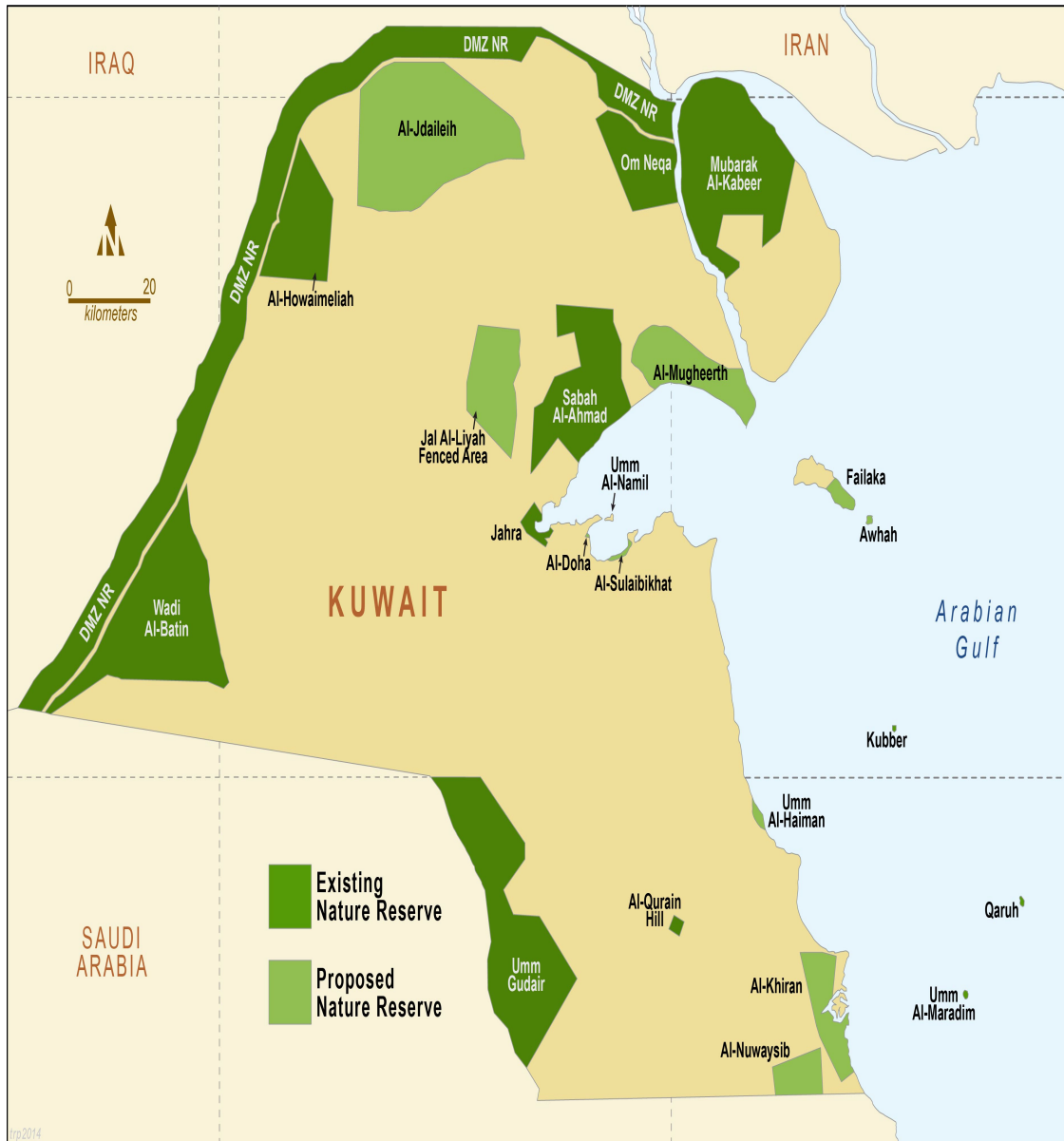
Its space is 3.5 kilometers square and it is for Migratory birds

Kubber Natural reserve:

It is an area of approximately 2 kilometers square, and it is rich in coral reefs

Source: www.beatona.net

D9: Map of National Parks and Nature Reserve



IRB:



UNIVERSITY OF ARKANSAS

Office of Research Compliance
Institutional Review Board

April 28, 2014

MEMORANDUM

TO: Meshari Alenezi
Tom Paradise

FROM: Ro Windwalker
IRB Coordinator

RE: PROJECT CONTINUATION

IRB Protocol #: 13-05-708

Protocol Title: *An Assessment of the Perception of Nature Reserves in Kuwait*

Review Type: EXEMPT EXPEDITED FULL IRB

Previous Approval Period: Start Date: 05/24/2013 Expiration Date: 05/23/2014

New Expiration Date: 05/23/2015

Your request to extend the referenced protocol has been approved by the IRB. If at the end of this period you wish to continue the project, you must submit a request using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. Failure to obtain approval for a continuation on or prior to this new expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

This protocol has been approved for 300 total participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.

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