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SOUTH MOUNTAIN ECORESORT

Bringing Ecotourism to the Southwest: Phoenix, Arizona

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With its growing popularity around the globe, Ecotourism has great potential in the Southwestern United States, yet its possibilities have yet to be explored. Outdoor recreation is a large part of peoples’ lifestyles in this region of the country. The city of Phoenix, Arizona is no exception. Recreation and tourism contribute heavily to the city’s economy and is the focus of much development. However, the combination of mass tourism, recreation, and the fragility of the desert environment has caused problems. Recreation here has now become one of the major threats to the desert’s biodiversity.

This study revealed the potential for the development of an ecotourist destination in a desert environment. It shows the role landscape architecture will play in bridging the gap of tourism and environmentally sustainable design. This proposed Ecoresort will provide people with a unique tourist experience centered around environmental education, physical, mental, and spiritual relaxation, and the beauty of the Sonoran Desert while becoming a great asset to the Phoenix community. It will demonstrate how a private development can support a city park in ecological management and conservation strategies while providing people with a unique tourist experience that will leave a lasting impression.

The study consisted of two key stages. The first stage introduced the principles of ecotourism and guidelines for development. The ecology of the Sonoran desert was investigated to reveal its opportunities and sensitivities. The potential for integrating sustainable systems in such an environment was also explored. Along with this, the region’s culture, geography, and climate was studied to reveal opportunities and constraints of tourism in the southwest, particularly in the Phoenix area. Existing parks and preserves in the city of Phoenix were examined in choosing a potential site for resort development. An evaluation of case studies and interviews with city park directors and residents were utilized to provide additional information. Finally, a literary analysis was used to create a basic understanding of the relavance of ecotourism today along with its current trends.

The second stage of the project demonstrated how ecotourism principles were applied to an Ecoresort in the city of Phoenix. A site was selected within one of the mountain preserves in the city. Design guidelines were created in response to the site's opportunities and constraints and a master plan was designed as a result of the analysis. It demonstrated how an ecotourist facility can be integrated into a preserve with minimal disturbance to the land and its systems. It revealed how sustainable practices are employed to educate visitors as well as provide infrastructure for a resort. A mentally, physically, and spiritually relaxing place was designed utilizing the assets of the desert environment while providing guests with the necessary amenities of a luxury resort.
Ecotourism has become the future in the way tourists travel. Despite its success as an industry, it continues to be misunderstood and misrepresented. This is most likely due to the fact that the industry is new and its guidelines, regulations, and monitoring have not yet become standardized. Resorts and tourism destinations have taken advantage of the allure that comes with the “ecotourism” label, so developers have applied it to places that are not in fact true representations of ecotourism.

The concept of ecotourism is relatively new to the southwest and opportunities for its development have yet to be explored. However, tourism is becoming increasingly popular in this region, which creates an opportunity to establish a more sustainable form of tourism, namely ecotourism, here. The city of Phoenix, Arizona in particular has great potential to build an ecotourism base. Phoenix is a thriving city of over 1.5 million people and is one of the fastest growing cities in the country. With the beautiful, year-round weather it is no surprise that outdoor recreation along with tourism is so popular here. In fact, tourism is Phoenix’s second largest industry. With over 100 urban parks and several Mountain Preserves, there are a number of locations to begin establishing ecotourism.

The Sonoran Desert and South Mountain Park

The Sonoran Desert covers a large portion of the American southwest. The ecosystem is a fragile complex system dictated by its geology and arid climate. In spite of this, this desert biome receives more rainfall than any other desert, making it the lushest in the world with much biological diversity. Yet it is in need of further recognition and understanding for its conservation.

South Mountain Park and Preserve sits in the Arizona Uplands region of the Sonoran Desert. South Mountain is a beautiful 16,000 acre city park located in south-central Phoenix. The park’s master plan was created by the National Park Service but its amenities were built by the U.S. Civilian Conservation Corps. It attracts over three million visitors a year, and because of its location, climate, and environmental and historical significance, it is one of the most unique parks in the country. From its distinctive desert mountain landscape, ancient petroglyphs, and natural springs, to its education center and extensive trail systems; the park has much to offer. However, the park has recently been struggling with maintenance and management due to lack of city funding. The park has lost some of its prominence in the city over the years because of this and is in need of something to attract people to the park again. This presents a perfect opportunity for ecotourism. However, tourism and resort development has contributed to the degradation of this fragile environment. This presents the challenge of designing an ecologically sensitive resort that also fulfills the needs and desires of people who visit. The question of, “how can a design of a resort reflect the ecology of the desert?” comes into play. Making people aware of where they are and allowing them to understand the environmental and historical significance of the place will guide the development of this ecoresort.
LITERATURE REVIEW

The literature review revealed the guiding principles of ecotourism and how they can be applied to a southwestern resort design in order to create a model ecotourist destination. For this project, case studies were compared and contrasted in order to understand the real successes and failures of different ecotourism destinations that exist around the globe. Topics surrounding ecotourism, outdoor recreation and leisure, and resort design were also investigated, along with the southwestern culture and environment. In addition, environmentally sustainable systems that can be integrated into this desert environment will be studied. Eight sources were examined in terms of its relevancy to the planning of an ecotourist destination in Phoenix, Arizona.

Ecotourism Policy, Planning, and Management

In the book, Ecotourism Policy and Planning, ecotourism is defined as, “...a form of tourism that fosters learning experiences and appreciation of the natural environment within its cultural context. It has the appearance of being environmentally and socio-culturally sustainable, in a way that enhances the natural and cultural resource base of the destination.” Although this definition is vague, it gets to the root of what ecotourism is all about and the vision that will be carried throughout the design. There are many forms of alternate types of tourism, which shouldn’t be confused with ecotourism. Types such as green tourism and nature-based tourism exist, but unlike these alternate forms of tourism, ecotourism’s primary focus is of the natural history of the place, the natural areas in which these activities take place, and the focus on environmental education. Ecotourism uses market mechanisms to conserve natural landscapes and encourage local economic development. Understanding this has revealed the need to include conservation and local economic development as guiding principles in the design process. In planning for ecotourism, both aspects of environmental planning and tourism planning should be examined. Environmental planning deals with issues such as environmental protection, resource conservation, and environmental impact assessment. In tourism planning, issues such as area development and social assessment will be dealt with accordingly. Knowing the stakeholders in ecotourism is also important. Fennell succeeded in breaking down the roles the stakeholders play in the development of ecotourism. The public sector, the private sector, non-governmental organizations, local communities, and consumers are the five main stakeholders. The public sector consists of the local, national, regional, and global governance bodies. The private sector consists of companies, corporations and any other profit-seeking organizations. It is important that all of the stakeholders are considered and have a part in the planning process.

Another important factor in the planning process are the types of activities visitors would like to participate. Nature-based activities are a crucial part of the ecotourist experience. Contributing authors of Ecotourism Policy and Planning, Jenkins and Wearing, state that, in Australia, the main motivations for visitors to participate in nature-based activities were to see the natural beauty of the sites or to see something new. They like seeing wildlife in detail and being close to nature. Although Australia’s outdoor activities will be quite different from activities in the southwest, the concept of people wanting to experience nature up close is consistent throughout all ecotourist destinations. However, this desire for people to interact with nature has to be dealt with carefully, as it has been one of the pitfalls of the ecotourism industry. Even with best efforts, ecotourism has been responsible for the decline in several biodiverse areas. For example, Fraser Island in Australia is a very successful ecotourism destination, but wildlife populations are declining and vegetation patterns are changing. “Any form of tourism brings about change to the environment”(Fennell 213). This statement is clearly true, but not so understood by all leaders within the ecotourism industry. However, one of the largest benefits of ecotourism is that it has an edge over competitors because it sells “pristine environments”. Several ecoresorts have been developed in protected areas, which makes it even more important to minimize impact to the environment. Development in these protected areas should be carefully regulated and monitored.
The site the designer choose for development will be within or near a protected natural area, so the points that Fennel illustrated are applied to the design. Fennell stressed the importance of implementing carrying capacity frameworks and regulating visitor behavior. Although, there are no standards or strict codes set in place by the industry yet, it becomes the individual's job to create and implement these plans themselves. A good example of planning and zoning that Fennell drew from was that of a Biosphere Reserve. A Biosphere Reserve is a place that encompasses a variety of ecological systems. The aim of this type of place is to achieve a sustainable balance between conserving biological diversity, promote economic development, and maintain associated cultural values. Although the particular area of interest was not classified as a biosphere, there are concepts that can be taken from Fennell's model. For example, in biosphere zoning, there are three main areas; the core areas, the buffer/support zone, and the transition zone. The core area is the main conservation area that has the least development and impact. It is the legally protected area. The buffer/support zones surround the core area and protect it from impact. This zone is used for research, education, and training. The third zone, the transition zone, surrounds the outside of the buffer zone. It is the largest of the zones, and is where most of the development takes place. It acts as a transition space to the surrounding environment or community (Fennell).

Throughout this book, it was clear that all of the policies and guidelines were still being developed and no one has set a standard that has to be applied to every project deemed an ecotourist development. Suggestions are given on good practices, but nothing has been set in stone for the industry. On the positive side, it gives designers leeway to do as they see fit. A few pieces of literature supplied beneficial case studies showcasing a variety of projects and programs that include ways different places are attempting to deal with ecotourism.

Sustainable Practices in Ecotourism: A Compilation of Good Practices, is a book that gives an in-depth look at Ecotourism projects around the globe that have the same objectives and aims of conservation, enhancement and incorporation of local communities, and tourism development. It illustrated what these destinations are trying to do, along with their problems and successes in many different environmental situations. In looking at these case studies, practices and principles that have worked in reality were adopted. This book was most helpful because it didn’t just paint pretty pictures of what these ecotourism destinations were attempting to do, but it also revealed several problems these places are facing, along with the lessons they have learned through experience. The downside of this book is that there are so many places using different techniques that it became confusing and hard to sort out the good from the bad. Some of the projects that were the most educational was the Dadia Forest Reserve, the Cambuhat River and Village Tour, and the La Dune de Bouctouche. The Dadia Forest Reserve was located in Greece and consisted of an information center, an ecotourism hostel, and hiking trails. They pointed out important issues they dealt with and learned from. This included having a zoning and management plan, having concentrated activities in certain areas, the fact that involvement in local communities takes time, and that responsibility of the destination should be of an independent management body. The Cambuhat River and Village Tour is a program that takes place in the Philippines where guests are provided with nature and cultural experiences through outdoor activities. Only local and indigenous materials are used to promote the local economy. La Dune de Bouctouche, in Canada is an Eco-Centre that consists of an education center, and interpretation center, and an information center. There are nature programs for school children, nature workshops for adults, and evening programs for residents and researchers. This ecotourist destination has implemented a lot of successful programs, but one of the issues they are facing is exceeding carrying capacity. They are receiving too many visitors, which is forcing them to decide if they will have to limit the amount of visitors allowed per day or begin charging admission. Along with other destinations in the book, these case studies allow me to examine what works and what doesn't (World).
Global and Local Trends in Tourism

It is evident that travel to “exotic” places has become increasingly popular over the last few decades. More and more people are searching for remote places and exotic cultures. In the book, Rethinking EcoTravel, the concept of “Ethnic Tourism” was hit on quite often, as it has become the backbone of travel and tourism today. This concept involves visits to villages and homes to observe social customs and cultures. This type of tourism has become easier because of globalization and the advancement of transportation systems. Ethnic has contributed to the development of ecotourism. What it attempts to do is much like what ecotourism aims to do. In the process of developing an ecotourism destination, it’s important to consider the global market and what is going on around the world. Ecotourism has become more than a trend and its market is promising. However, this particular piece of literature alludes to the great responsibility and conflicts that comes along with the development of any kind of tourist destination.

The World Tourism Organization claims that tourism is the world’s largest industry, bringing in over $3 trillion annually. However, the industry has taken much criticism over the years and has faced much opposition. Large Corporations have become the leaders in the industry, rather than governmental bodies. Some corporations are so large and powerful, they have begun to dominate smaller foreign governments and the corporate interest has become more important than people’s interest. Most types of tourism, especially ethnic tourism, seem to be in direct conflict and competition with local people and their communities. Tourism can increase the cost of land for residents and cause congestion and overtaxing of infrastructure as well. Therefore, many of the sources stress the importance of working in harmony with local communities and providing environmental and economic benefits for them in regards to tourism development. It’s important to understand that local people have a right to accept or reject and control tourism developments. It is important to establish a collective ownership between people of the surrounding communities as well as the developers and managers of the facility within my project.

Another important concept that has gained importance and popularity in travel and tourism is the initiative of travelers to become activists. This means that tourists should be well informed of what they are “buying” by demanding realistic information from the tourism industry. Becoming educated about the destination and culture and making sure you are going there for the right reasons is also very important. The current direction of the tourism industry as a whole is shifting and its principles are beginning to overlap with those of ecotourism. It is important to work with the tourism industry and not in opposition of it; helping it transform into a more sustainable industry.

It is true, however, that the tourism industry’s leaders and resource managers still face challenges. Most business today refuse to acknowledge that tourism produces impacts, which means they don’t implement monitoring. Experts feel that the industry is still very immature in this area. For the designer, this means that measuring, minimizing, and managing environmental and social impacts day to day will need to be considered in the planning process (McLaren).

Outdoor Recreation and Leisure

Leisure and Recreation has become a necessary part of people’s lives. This goes hand in hand with tourism. Literary sources such as, Managing Environments for Leisure and Recreation, and Outdoor Recreation Management, together examine the concepts of managing the systems, visitors, and resources of outdoor recreation. They both discuss the vital role the tourism industry plays in the web of recreational environments and facilities. In Managing Environments for Leisure and Recreation, the books begins by highlighting the types of recreational decisions people make based on moods, money, time, season, and preference. It is important for me to understand what people are looking for as far as leisure and active recreation when they travel. The roles the public and private sector play in the recreation and local levels needs was addressed. The book breaks down management practices, but first gives the reader a good idea of how to prepare to manage.
Preparation is a very important issue for me because it deals with the initial planning process. Steps like surveying, doing environmental, cultural, and managerial analysis and planning are included in the breakdown. Continuing on, land, labor, and capital are three big things to equally consider throughout planning as well. These ideas were basic and simple enough, although they were not applied to real life situations. In other management theories, principles of sustainable tourism were discussed, emphasizing the tourism-environment relationship. The author, Broadhurst, presents quite a utopian outlook of the future of leisure. He believes that our environmental management ethic will continue to grow and boundaries between work and leisure will become blurred. This new environmental management will shape patterns of leisure. In this respect, he is referring to movements such as ecotourism. He thinks that people will find more of a balance between work and leisure and access to leisure will improve. This outlook certainly means a bright future for the tourism industry (Broadhurst).

The source, Outdoor Recreation Management, begins to focus more on recreation impact and assessment. It deals with the classification and evaluation of resource potential. A useful concept that this book explains is the difference between recreation and ecological carrying capacity. It explained the importance of realizing and maintaining both capacities. Site planning and design is discussed briefly with a look at regional and geographical considerations, such as the difference between urban recreation planning and rural recreation planning. This more accurately breaks down outdoor recreation and tourism guidelines. It takes an in-depth look at factors associated with tourism patterns, resource base, and tourist motivations (Pigram).

Resort Design

In, Outdoor Recreation Management, the authors elaborate on resorts as far as how they function and their life cycles. Integrated resorts are properties that incorporate a wide range of recreational facilities and accommodation types. The idea of resorts being self-contained entities is examined as the authors break down what resorts should provide their guests. Accommodation, food service, shopping, and recreational opportunities are a few examples. Jinkins and Pigram sum up resort design in saying, “…a tourist development must be well planned, professionally managed, and set in the broader context of development” (Pigram).

In, Ecotourism Policy and Planning, resort design is also discussed. However, this time it is discussed particular to eco-resort design. Most of the principles and facts Jinkins and Pigram listed still hold true with ecoresort design. Fennell feels that an eco-resort should be self-contained as well, but specifies this type of resorts as being, “…a nature-based accommodation facility characterized by environmentally sensitive design, development and management which manages its adverse impacts on the environment”(217). Fennell goes on to say that the development and management impacts are particular to the areas of waste and energy management, water conservation, and purchasing. Supporting author, Dowling, states, “An ecoresort acts as a window to the natural world and is a vehicle for environmental learning and understanding” (217). This information enabled the designer to achieve a good understanding of overall goals to set in an ecoresort design. The idea of having a luxurious experience at a resort, while being close to nature and being mindful of energy uses was a concept to be carried out in the design. Landscape Architecture Magazine articles such as, “Hindu Holiday” and “Ecolodges in Kenya: Tourism Supporting Wildlife Habitat and Local Cultures,” allowed me to see the designs of rustic pavilions that blended with the natural environment while still allowing guests to feel comfortable and somewhat pampered. With these articles, the designer was able to see real life examples of types of accommodations that might work within the project scope.

Hitesh Mehta, a Planner and Landscape Architect at EDSA and a member of the International Ecotourism Society, focuses on the guiding principles and trends of eco-lodge design in his discussion summary, “International Trends in Ecolodges.” The idea that eco-lodges connect with nature while preserving local natural resources and culture is pushed as an underlying theme throughout the article. It emphasizes the moving away from luxury accommodations, but focuses more on simplistic, natural designs and fit within the physical and cultural context. Some of Hitesh’s principles of a “true” eco-lodge includes: paying attention to the natural setting and respects vernacular architecture in its design; meeting energy needs through passive design and renewable energy sources; using environmentally sensitive materials wherever possible; employing sustainable construction...
techniques; having a sustainable approach to water, wastewater and sewage, educating both the staff and tourists on local natural and cultural issues, and involving and empowering the local community in the planning and operation.

This source went more in-depth with issues related to the planning and design of ecotourism accommodations than the previous sources. It allowed the designer to analyze characteristics and current trends that have worked in real world scenarios. Hitesh took many case studies and revealed how they have influenced the direction of ecotourism. It broke down different goals and objectives and gave examples of how certain places achieved these goals. This proved to very valuable in helping plan how to accomplish goals in the project (Mehta).

The Southwest: Environment and Culture

The Southwest has grown as a popular tourist destination over past several years. The environment is fragile, yet it is harsh to its users. There are still vast expanses of undeveloped areas that fascinate visitors. However, the main attraction to the southwest, especially cities like Phoenix, is its consistently sunny weather. The book, The American Southwest: Land of Challenge and Promise, illustrated the opportunities and constraints that the southwest presents and the development that has occurred over the last 100 years. This book supplied a good base of history and culture, especially in dealing with the Native American culture. Some surprising statistics found was that forty percent of western open land is owned by the federal government and sixty percent of the southwest's population are in urban areas. This makes the region seem very urbanized, when in fact there are so much open space and fewer small towns and cities compared to other parts of the country. Much debate has arisen about what to do with all of that open land. Some would like to set it aside for conservation, but ranchers oppose that because they need land for their private use. Conflict has also risen with Native Americans and their land rights. Surprisingly, tourism has brought opportunity to Native Americans because it has created a market for Indian goods and crafts such as Navajo jewelry. There was a variety of photographs in this book that captured what spectacular things the southwest has to offer. It offered a better understanding of the regional architecture and landscape. The architecture has of a combination of Hispanic, Indiana, and Anglo influences and the landscape reveals harsh desert elements and the beauty of mountains and rock formations. Along with its beauty and uniqueness, the region has many challenges. Water conservation is one of most concern. It will be one of the main issues to be addressed throughout the design process. Xeriscaping is one example of a water conservation tool dealing with the landscape that will be incorporated as well.

To understand the specific area of the southwest, Phoenix, as a city, the website, “Phoenix.gov” offered useful information. It revealed what people like to do in the city as far as recreational activities. Hiking, mountain biking, and golfing were of the top activities that people enjoyed doing in Phoenix. As far as choosing a specific site location, there are a variety of parks that would make optimal places. One in particular, the South Mountain Park and Preserve, is the largest municipal park in the United States. Its focus is that of conservation as well as adventure recreation, which would go hand-in-hand with the concepts for an ecotourist destination. The website offers a variety of resources as well, such as historic preservation plans and mapping, arts and culture facilities mapping, and other city zoning and planning maps.

Through research, it became increasingly important to understand the ecology of the desert. This would ultimately reveal the sensitivities and opportunities for resort development within the desert environment. Phoenix is located in the Arizona uplands region of the Sonoran Desert. Therefore, the website, “Sonoran Desert,” functioned as a great resource for understanding the characteristics of the desert I would be dealing with within the context of the Phoenix area. It offered diagrams that illustrated basic concepts, but also offered many links to more detailed information pertaining to complex ideas. The most beneficial aspect of this website was the fact that it focused on sustainable desert living, so it really pinpointed the issues and challenges the desert is facing and what can be done to minimize them.
Unfortunately ecotourism has not yet caught on in the United States as much as it has in other parts of the world. Australia, Central and South America, Asia, and Africa are all places that have adopted the trend of ecotourism and benefited from it. However, there is a lot to learn from these existing destinations. These case studies are a compilation of examples given from many of the above sources. While there are different characteristics and focuses of these places, they all share a common goal. Chan Chich Nature Lodge, Crosswaters Ecolodge, Playa Nicuesa Rainforest Lodge, Punta Mangle in Dominican Republic are just a few case studies that shared common characteristics and goals. For example, they highlighted many of the same attributes of eco-lodges that Hitesh Mehta discussed in his guidelines for eco-lodges. However, there was a lacking in the documentation and explanation of most of the actual accommodations. This revealed that the design and intention of the actual buildings of these places aren’t focused on as much as they should be. Crosswaters Ecolodge is probably one of the most well-known success stories for an eco-lodge design and encompasses almost all of Hitesh’s principles. It is the most well documented source that explains why the building design was so important in the overall project and how it was achieved. Although, the stylistic design of this eco-lodge will be slightly different, the opportunity to adopt the same principles of design will be explored.

In looking closely at each individual case, certain principles and ideas that should be integrated in the design emerged. Some of these include: local plant and material use, private access, choosing a setting in a preserved area or park, focus on environmental education, integration of culture, and focus on ecology.

However, some characteristics that weren’t quite as popular were also important because I feel there is a great need for these in future ecotourism developments. For example, the use of renewable energy technology and sustainable systems was surprisingly uncommon within the typical undeveloped, remote areas these destinations are found. The one ecologically-minded resort located in the southwest that was very interesting was called El Monte Sagrado Resort in Toas, New Mexico. It offered a lot of insight to the possibilities of environmentally sustainable systems becoming complete infrastructures to resort development. The idea of having living systems take care of people’s needs, while really engaging people in how they are working. Related to this development was another interesting case study in Sante Fe, New Mexico. The Sante Fe Opera House developed a Constructed Wetlands to treat the entire complex’s wastewater. The introduction of a wetland system in a desert environment seemed odd at first, but actually proved to be very efficient and effective in this case.

There are many benefits of developing an ecoresort in a more urban setting, but it is still uncommon in the current realm of ecotourism. Because there is existing infrastructure, many problems are alleviated. Travel is reduced and opportunities for better forms of transportation are increased. One is also more likely to attract a variety of tourists because of convenience and accessibility.

Conclusions

The eight sources the designer chose to focus on proved to be valuable resources in the understanding of ecotourism and the responsibility designers and planners have in continuing the growth and direction of ecotourism. It allowed the designer to expand on ideas and shed new light on concepts that should be integrated in the design. Understanding ecotourism from a more business-like perspective revealed how one of the fastest growing industries came to be and what it attempts to do beyond protecting the environment and preserving cultures.
How do you introduce an ecotourism resort in a desert preserve? What environmentally sustainable practices can be put into place to educate visitors in a resort setting in the desert? What does the ecology and physical characteristics of the desert landscape reveal about the design of an ecotourism destination in the southwest?

Subproblems:

- How do you introduce an ecotourism resort in a desert preserve?
  - What are the sensitivities of the desert environment?
  - In what ways can people and the preserve itself benefit from the development of an ecoresort?
  - What are some necessary guidelines for resort development within a preserve?

- What environmentally sustainable practices can be put into place to educate visitors in a resort setting in the desert?
  - What sustainable systems can be employed that work with the ecology of the desert?
  - What are the characteristics of sustainable systems and technologies?
  - How are people educated about these technologies?

- What does the ecology and physical characteristics of the desert landscape reveal about the design of an ecotourism destination in the southwest?

Project Significance

With all of the assets the southwest region has to offer, it continues to attract more and more tourists each year. The city of Phoenix, in particular, brings in over thirteen million visitors per year. This makes up almost half of Arizona’s total annual visitors. It is a very attractive place for tourism because of its great weather year round, its breathtaking desert and mountain landscape, and its rich and unique culture. Developing and maintaining recreation facilities, parks, preserves and accommodations for visitors is beginning to put a strain on the desert environment. In essence, the beauty and serenity that is attracting people to Phoenix is what tourism development is destroying. There are current problems with resorts and various tourism destinations being unsustainable and insensitive to the fragile desert environment, even within the parks and preserves of the area. As tourism continues to grow in the city, the development of an Ecoresort, which focuses on environmental sustainability, will become an important archetype for future resort development. This type of development has the potential to add economic benefits, cultural and environmental awareness, as well as serve as an ecotourism model for the southwest.
Project Requirements

**Vision**

To design an ecoresort within South Mountain Park that educates visitors and promotes appreciation and understanding for the desert environment, while providing guests with a comfortable, relaxing and enjoyable experience. The resort will serve as a model for Phoenix and the southwest region. The development will bring much needed revenue to South Mountain park to provide increased management and maintenance in the hopes of reestablishing the park's prominence in Phoenix.

**Design Criteria**

- Reflect the ecology of the desert
- Integrate ecology in meeting recreational needs
- Structures to embrace and reflect surrounding landscape and natural systems
- Respect topography and pose minimal disturbance to land
- Resort amenities designed for comfort and leisure
- Integration of environmentally sustainable practices
  - natural building heating, cooling, and lighting techniques
  - photovoltaic electric systems
  - constructed wetland system for wastewater management
  - water harvesting and conservation
- Focus on environmental and historical education
- Native vegetation in all planting design

**Clients and Users**

The client for this ecoresort is the city of Phoenix, Arizona. However South Mountain Park itself, including the park staff and the Environmental Education Center staff are also clients that play an integral role in any development that takes place inside their park.

The intended users for this ecoresort are middle-income to high-income level families, couples, and singles. The ecoresort is geared to accommodate people with an interest in a physical, mental, and spiritually relaxing experience. However, the many activities within the resort as well as inside South Mountain Park can also accommodate the needs of those seeking more adventure in the outdoors.
Program

- 30 acre resort
- 15 guest houses (maximum of 60 guests)
- Welcome Center and outdoor plaza
- Environmental Education Center
- Meditation Pavilion and Stargazing Plaza
- Boardwalk system
- Secondary trail system
- Pool
- On-site wastewater treatment
  - constructed wetlands (1/2 acre)
- Desert Ecotone (native vegetation reestablishment zone)
- Covered Entry Area
- Amphitheater
- rock overlooks
- Staff housing
- Maintenance building and service drive
Site/Setting/Context

Phoenix sits in south-central Arizona in the Southwestern United States. The proposed site is located within South Mountain Park, which lies in Phoenix’s south central end. The site is situated in the north central part of the Park. The boundary of the resort is mostly dictated by the prominent terrain and consists of around 30 acres of land. It sits right of Piedras Grandes road. The site sits partly on Piedras Grandes Picnic Area as well that gets used by many people.

Location Map
Rationale

The site was unique in that it was located along the talus slopes at the base of one of the mountains in the park. The rock outcroppings scattered throughout the landscape formed distinct spaces with unique character and microclimates. The site was exciting with many opportunities and many challenges. Originally, the site was a picnic ground called Piedras Grandes. It contained existing infrastructure with road access to a 70 car parking lot, existing pavilions locally known as ramadas, and restroom facilities. The topography formed a slight cove-like area where the existing ramadas were located. Drainage channels created relatively flat areas that revealed potential for circulation and development patterns.

The site is a prime location because of its proximity to the Park Entrance and South Mountain Environmental Education Center. It is short drive from the Park Entrance to the Ecoresort. The site proposed to be difficult because of the rugged, yet fragile terrain. It was important to limit disturbance to the land as far as grading and development. The absence of water, shade, and lush vegetation also proved to be challenge.

Inventory
In beginning the analysis, three major elements came to focus: topography, solar exposure, and drainage. The sensitivity of the desert and its processes was something that had to be taken into consideration throughout the analysis. A summary of the analysis is as follows with supporting diagrams:

- most solar exposure in west-central part of site on south and west facing slopes
- cooling southwestern winds in summer
- flash flooding in flat areas and valleys- mostly in west-central part of site
- most rugged terrain on slopes in the north and eastern part of site
- scrub vegetation scattered throughout site (creosote bush, bursage, and cactus)
- existing infrastructure on site (parking, restroom facilities, picnic ramadas)
Opportunities and Constraints

From the analysis, the site’s major opportunities and constraints became clear. Although topography presented the most challenges throughout the design process, it also created many opportunities. It was a very important factor to consider in both aspects.

The topographical diversity was a chance to experiment with the impact it had on emotion and sense of place. The designer adopted the idea of separating passive and active areas based on topography. The opportunity to locate more passive areas and activities and higher elevations to reinforce feelings of solitude and serenity, while locating more active areas on the lower elevations became a theme that carried to the conceptual phase of the process.

In studying the drainage and topographical diagrams, circulation patterns emerged.

Solar exposure and desert vegetation were consistently a sensitive factor throughout the site. Although they were viewed as constraints, it was obvious they should be celebrated and integrated in the educational aspects of the resort. Focusing on the challenges of the desert environment became a part of not only the designer’s process, but also of the guests educational experience.

Conceptual Planning

Themes that emerged from the opportunities and constraints were carried through to the conceptual phase of the design process. A clear separation of activities was an important concept that the designer wanted to implement from the beginning. Fitting each element from the program to the land and integrating them into the ecology of the place was experimented with in two concepts. The first concept, as shown on page 17, looked at centralizing a main activity space close to the entry and parking. Private areas and relaxation areas would be placed in a progression of higher elevations.

This same idea was carried to the second concept, which can be seen on page 18, but slight changes were made. The main activity area was set back away from the parking and entry area in order to create an entry experience. This entry experience allowed guests to take a short journey through the environment which they will be becoming a part of during their stay. A display of the native desert vegetation, or ecotone, became the major element of the entry experience. The education center was separated from the Welcome Center, but the guest housing and Meditation Pavilion were located in the same general area as in the previous concept.
Concept 1: Central Focus Concept

- Central gathering area to promote interaction and learning
- Separation of passive/active areas
- Maintain main activity areas close to entrance
Concept 2: Entry Experience Concept

- Ecotone as entry experience
- Welcome Center to be viewed on sightline upon entering resort
- Education Center to be set at high point overlooking resort and constructed wetlands
Refrined Concept

- main boardwalk system and secondary trail system to follow topography (minimal grading)
- staff housing separate from guest activities and accommodations
- meditation pavilion and education center separate at higher elevation
Detail Overview

1. Welcome Center
2. Constructed Wetlands
3. Pool
4. Meditation Pavilion
Welcome Center Detail Plan

- amphitheater
- secondary walkway
- seating
- main boardwalk
- constructed wetland
- miniature demonstration ecotone
- Welcome Center
- photovoltaic panels
Amphitheater

- serves as a place for demonstration and education programs for guests
- built into surrounding terrain for natural feel
- native stone material for seating and stage
- accommodates up to 40 people
Building and Landscape

- Invites guests to understand important aspects of the resort, its amenities and features, and how that relates and supports South Mountain Park
- 15,000 sq ft. building- Welcome Center
  - dining services for guests and staff
  - introduction video viewing area
  - lounge
  - restroom facilities
- nestled into surrounding terrain
- photovoltaic panels on roof provide electricity for entire facility
- landscape created from native plant and building materials
- miniature ecotone displays the three main vegetative classes found within the resort:
  - wetland display area - marsh vegetation
  - lowland vegetative display area
  - highland vegetative display area

View of the East Side of Welcome Center
2 Constructed Wetlands

- provides wastewater treatment for resort
  - 1/2 acre wetland system
  - wastewater from guest houses, pool Meditation Pavilion and Welcome Center drain to system
  - treats wastewater by removing BOD, TSS, and Nitrates
- education area for guests
- adds variety and interest to resort
Boardwalk Channel System

- drainage channel located underneath boardwalk used for:
  - water harvesting
  - area flood control
  - wetland overflow
  - irrigation system for landscape
Pool

- acts as a soothing desert oasis for guests
- provides a place for sunbathing as well as a place for seating in shade
- refreshment bar, eating area, and restroom facility for guests comfort and leisure
The pool was intentionally built into the mountainside to create shade in order to prevent evaporation of the water in the pool and whirlpool. This allowed guests to have shaded seating in the hottest hours of the day. Native stone extracted from the mountain is used as the main material in the construction of the pool.

As shown in section D, the pool has a very natural feel, conveying the idea that it has always been there as a part of the mountainside. The whirlpool has an infinity edge facing the pool, creating a seamless blend of the two water features.
Meditation Pavilion

- relaxation/meditation activities
- ridgeline location for seclusion- highest point in resort
- Stargazing Plaza and Fire pit serve as additional gathering space
- overlook with seating to view resort
Entry Experience Sketch
CONCLUSION

The goal of the South Mountain EcoResort proposal was to bridge the gap of environmentally sustainable design and resort development. This project proved to be challenging because of the sensitive context of the place, but successful in its acceptance and integration. The resort does not exist as an individual entity from the environment of South Mountain Park, but it exists as a cohesive part of the environment.

The proposal will not only help bring money to South Mountain Park ensuring its survival in the future, but it will have a new draw that will attract many more visitors to the park. It will influence resort design not only in the city of Phoenix, but also regionally throughout the Southwest. It’s guest will become a part of their environment which will hopefully instill an appreciation of the unique landscape that is the Sonoran Desert. The city, the park, and the many visitor’s the Ecoresort attracts will take pride in being a part of something so distinctive and exclusive.
Appendix A: Definitions of Terms

[Ecotourism]
It is a form of tourism that fosters learning experiences and appreciation of the natural environment within its cultural context. It has the appearance of being environmentally and socio-culturally sustainable, in a way that enhances the natural and cultural resource base of the destination.

- Ecotourism Policy and Planning

[Ecolodge]
An ecolodge pays attention to the natural setting and respects vernacular architecture in its design. It meets its energy needs through passive design and renewable energy sources. It uses environmentally sensitive materials wherever possible. It employs sustainable construction techniques. It has a sustainable approach to water, wastewater and sewage. It educates both the staff and tourists on local natural and cultural issues. It involves and empowers the local community in the planning and operation stages.

-Hitesh Mehta, EDSA planner

[Xeriscaping]
Literally, the word xeriscaping comes from a combination of two other words: “xeri” derived from the Greek word “xeros” for dry; and “scape”, meaning a kind of view or scene. While xeriscape translates to mean “dry scene,” in practice xeriscaping means simply landscaping with slow-growing, drought tolerant plants to conserve water and reduce yard trimmings.

-California Waste Management Board

[sustainable tourism]
Sustainable tourism is an industry which attempts to make a low impact on the environment and local culture, while helping to generate income and employment for locals, as well as to promote the conservation of local ecosystems. It is responsible tourism which is both ecologically and culturally sensitive.

[photovoltaics]
(PV) a solar power technology that uses solar cells or solar photovoltaic arrays to convert light from the sun directly into electricity. Photovoltaics is also the field of study relating to this technology and there are many research institutes devoted to work on photovoltaics.

[renewable energy]
Renewable energy effectively utilizes natural resources such as sunlight, wind, tides and geothermal heat, which are naturally replenished. Renewable energy technologies range from solar power, wind power, and hydroelectricity to biomass and biofuels for transportation.
Appendix B: Research Bibliography


# Appendix C: EcoResort Case Study Matrix

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<tr>
<th>Case Studies</th>
<th>Local and indigenous plant use only</th>
<th>Community involvement</th>
<th>Access</th>
<th>Education/Information center</th>
<th>Nature activities</th>
<th>Location</th>
<th>Developed</th>
<th>Environmental education focus</th>
<th>Spiritual/Wellness focus</th>
<th>Cultural focus</th>
<th>Renewable energy/technology use</th>
<th>Set in preserved area</th>
<th>Accommodations</th>
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