

## *Evaluation of Ecological Capability of Bolhasan- e- Dezful Region for Tourism Using SMITH Method*

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### **Abstract**

Bolhasan forest zone with an area of 5725 hectares is located in the northeast city of Dezful. This region comprises natural forests and tourist areas. Characteristics of Bolhasan area such as cultural, historical and tourist attractions, Haft Tanan Mount and geological features near the area have led to selection of the area as a tourist destination. Hence, given the specific ecological features of the area, its ecological capability for tourism was evaluated using SMITH method. The necessary maps were prepared through identification and generation of stable and unstable resources, as well as, the desired criteria and variables for evaluating Bolhasan forest area were also considered. We divided the study area to networks of squares (pixels) and then ecological resources associated with the networks were evaluated and various parameters of land scored by ecotourists were also collected. Finally, mean scores for different factors in each pixel were calculated that showed the degree of ecological capability for ecotourism. The results of this study showed that about 118 pixels, i.e. about 31% are placed in the middle class and 262 pixels, about 69% are placed in the poor class. By integration of maps we determined the capability of the region for ecotourism. The resulting map showed weak to moderate condition of the region for ecotourism.

**Keywords:** Evaluation of ecological capability, Ecotourism, Network method, Bolhasan, Dezful, SMITH method

## *Study of Environmental Effects of Application of Scrap Tires as Artificial Reefs*

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### **Abstract**

Artificial reefs have been suggested as a tool for conservation, enhancement and restoration of natural habitat in the marine environment. Artificial reefs have been built from a wide variety of materials in the world. Scrap tires due their availability, cost, stability and having large empty spaces, are one of the most popular materials used for building the artificial reefs. In this paper, we show the results of our study on the environmental positive and negative effects of scrap tires as artificial reefs. Increasing of aquatic biodiversity is the main positive effect associated with scrap tires while seawater pollution with heavy metals such as Zn, Cd, Cu and Pb are the most important negative effects in the marine environment. Also, in this paper we indicated that leachates from scrap tires in the fresh water (waters with low salinity) in comparison with seawater (waters with high salinity) have the largest negative impacts on the aquatic organisms. Based on the results, utilization of scrap tires as artificial reef in highly turbid waters should be controlled to prevent the waters from secondary contamination.

**Keywords:** Scrap tires, Artificial reefs, Aquatic organisms, Heavy metals, Pollution

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## *The Application of Geographical Information Systems (GIS) in Tourism Planning*

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### **Abstract**

Decision-making in tourism development and planning is becoming increasingly complex as economic, social and environmental aspects of sustainable development are becoming more important for organizations and communities. Geographical Information Systems (GIS) can provide a tool box of techniques and technologies of wide applicability to the achievement of sustainable tourism development. Spatial (environmental) data can be used to explore conflicts, examine impacts and assist decision-making. Impact assessment and simulation are increasingly important in tourism development, and GIS can play a role in auditing environmental conditions, examining the suitability of locations for proposed developments, identifying conflicting interests and modelling relationships. Systematic evaluation of environmental impact is often hindered by information deficiencies and the required tools for data integration, manipulation, visualization and analysis. GIS seems particularly suited to this task. This paper examines the application of GIS in tourism planning.

**Keywords:** Geographical information systems, Tourism planning, Tourism sustainable development

## *Environmental Effects of the Sport Places on Urban Environment*

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### **Abstract**

The major goal of the present study was to examine and analyze the influence of environmental effects of sport places on the city of Isfahan. The method of this research was descriptive based on question aire survey. A total number of 185 of the inhabitants, officials sport experts who were working and living there at that time were selected and their ideas inferred through questionnaire.

Validity and reliability of the sample was proved and its reliability was 0.86 according to Cronbach alpha' test. The data has been analyzed in two different levels: descriptive and deductive statistics. Results: people and officials believed that the environmental effects of stadiums on urban space were greater than the medium level. A significant difference was found between people views and officials of the sport places on environmental effects of these areas on urban environment. Officials thought these effects are more significant.

**Keywords:** Sport, Sport places, Urban environment, Environmental effects

## *Fuzzy Logic and its Application to Environmental Impact Assessment*

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### **Abstract**

In recent decades, human activities have resulted in a lot of environmental impacts. Besides, lack of public knowledge about the surrounding environment and the negative environmental impacts have caused deeper and more significant impacts. Therefore, we need stronger and more proper tools for Environmental Impact Assessment (EIA) while the environmental impacts are increasing. Usually, huge amount of heterogeneous information are involved in the EIA process which the traditional methods are unable to handle it adequately. As the EIA is one of the suitable approaches to sustainable development and environmental management, so, adoption of a proper method for its application is vital. In this paper, we described the application of FUZZY Logic in EIA. This approach is able to support and handle the quantitative and qualitative data as well as helping practitioners for decision making.

**Keywords:** Environmental impact assessment, FUZZY logic, Linguistic variables, Decision

## *A Critique to the Common Matrices Applications in EIA*

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### **Abstract**

There are only a few decades past from approval of EIA studies for development projects in Iran. Approval of this law was a direct result of both international and local efforts in the field of sustainable development, (in Iran, efforts of experts, academic societies and environmental NGOs are notable). An important question is that, has this law reduced the number of unsustainable projects? Meaning that its passing as law, by itself, has been enough for projects to be sustainable?

Apart from the methodologies used for EIA studies, the importance relies on analyzed information of the project's impacts on environmental elements including physical, chemical, biological and socio-economic and cultural properties. In other words, the conclusion made from EIA studies plays the most important role in the process of deciding whether the project can be implemented or not. Also, it is valuable for suggesting alternative approaches or rehabilitation programs for environmental elements mentioned above.

The methodology commonly used for analyzing EIA reports in Iran is based on matrices which quantifies all the identified impacts as numbers which are later used for a general conclusion. In the current paper, we criticize this method and suggest a new methodology.

**Keywords:** Matrix, EIA, Shortcomings, New methodology

## *Assessment of Recreation Opportunity in Miankaleh Wildlife Refuge*

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### **Abstract**

Ecotourism is a major tourist activity around the world nowadays. Wetlands, birds, and beautiful views-sceneries are examples of natural attractions for ecotourism. When implemented within the capabilities of natural systems which are evaluated based on natural and socio-economic factors, ecotourism can simultaneously lead to regional prosperity and environmental protection. We chose Miankaleh Wildlife Refuge in the south of the Caspian Sea. We used self filled questionnaires for collecting public opinion. In doing so, experts chose 14 suitable recreational activities for the area. We asked visitors to rank the recreational activities on a range of 1 to 14.

A formula was suggested for analyzing the collected data. The results indicated that the weights of the selected recreational activities are as follows: bird watching (91), swimming (89), photography and filming of nature (84.7), viewing scenery (83.6), horse riding (83), boating (81.6), fishing (77.3), resting (76.6), research (75.6), camping (59.5), viewing cultural locations (75.5), picnicking (74.8), biking (74.8), and hunting (74.2).

**Keywords:** Ecotourism, Recreation, Questionnaire, Miankaleh wildlife refuge.

***Reviewing the Different Methods of Land Quality Assessment as a Tool  
for Land Management Monitoring and Proposing a  
Model for Iran Conditions***

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**Abstract**

One of the concepts which have entered the development literature and still continue to grow is sustainable land management which, in turn, entails other concepts such as land management monitoring and subsequently land quality assessment. This paper is aimed at reviewing and categorizing methods used in land quality assessment as a tool for monitoring sustainable land management and finally providing a model for assessing land quality concerning natural and managerial conditions in Iran. The study was carried out as a library research by reviewing the literature in the field of land quality assessment and a qualitative analysis. The results show that, in the world, the methods of land quality assessment are of two kinds: one based on detailed intrinsic biological data and the other based on assessing extrinsic human activities. Finally, the Degradation Model used in EIA has been proposed for assessing land quality in Iran.

**Keywords:** Land quality assessment, Sustainable land management, Environmental monitoring, Degradation model

## *A Protocol for Data Exploration to Avoid Common Statistical Problems*

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### **Abstract**

1. While teaching statistics to ecologists, the lead authors of this paper have noticed common statistical problems. If a random sample of their work (including scientific papers) produced before doing these courses were selected, half would probably contain violations of the underlying assumptions of the statistical techniques employed.
2. Some violations have little impact on the results or ecological conclusions; yet others increase type I or type II errors, potentially resulting in wrong ecological conclusions. Most of these violations can be avoided by applying better data exploration. These problems are especially troublesome in applied ecology, where management and policy decisions are often at stake.
3. Here, we provide a protocol for data exploration; discuss current tools to detect outliers, heterogeneity of variance, collinearity, dependence of observations, problems with interactions, double zeros in multivariate analysis, zero inflation in generalized linear modelling, and the correct type of relationships between dependent and independent variables; and provide advice on how to address these problems when they arise. We also address misconceptions about normality, and provide advice on data transformations.
4. Data exploration avoids type I and type II errors, among other problems, thereby reducing the chance of making wrong ecological conclusions and poor recommendations. It is therefore essential for good quality management and policy based on statistical analyses.

**Keywords:** Collinearity, Data exploration, Independence, Transformations, Type I and II errors, Zero inflation

## *Environmental Potential of Alisadr Geopark Towards Socio-Economic Sustainable Development*

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### **Abstract**

Alisadr cave, in the Kabodarahang city is located 75 kilometers northwest of Hamadan. This cave has a large extent due to the multiple perspectives and forms a natural talent Geomorphology and is one of the most important Geopark potentials in the west of Iran. There are funnel shape holes in 1-2 m intervals, large Stalactites, Stalagmites which sometimes can be likened to the hypothetical creatures, several corridors, and other specific features that make the cave unique. There are big and small roundabouts as large as several hundred square meters, plenty of water and a clear, peaceful environment, which make walking in the cave a pleasure while boating facilities and long-term welfare and recreational facilities are available as well. Alisadr cave is considered a great potential for a Geopark. The length of Alisadr cave on the ground is 2 kilometers, while its available and explored underground route is around 23 km. Over 800 thousand tourists visit the cave yearly which can be significantly increased through development of facilities, access ways and discovery of other cave routes, building of natural hotels inside the cave, better advertisement of the cave to the world ecotourists, and more efficient management of the area as a Geopark complex. In this way, the area can provide an opportunity for investment and socio-economic sustainable development.

**Keywords:** Alisadr cave, Geopark, Geotourism, Potential of environmental tourism, Sustainable development