

***Habitat preference Modelling of Lesser Spotted Woodpecker
(Dendrocopos Minor) Between Breeding and Non- Breeding Periods in
Golestan National Park***

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Abstract

Lesser spotted woodpecker is one of the most important and as an umbrella species in Golestan National Park. Classification tree models were applied to explore the relationship of the occurrence of this woodpecker and habitat variables between two contrasting periods (breeding vs. non-breeding seasons) and for the entire annual cycle. During the reproductive period the availability of mature trees (DBH > 40 cm), and snags (dead trees), for nesting and roosting, characterize the breeding territory. Outside the breeding season the choice of locations was driven by a tree cover larger than 35% and the presence of trees taller than 7 m. Overall, during the annual cycle, well-developed canopy sites influenced the presence of this picidae (tree cover > 40%) and on more open sites (<40%) the presence of mature trees (DBH > 40 cm) became the second most important predictor of occurrence. The abundance and availability of food could be the ultimate factor explaining the seasonal variation observed, with the availability of snags being an important factor during nesting time. It is recommended to minimize the elimination of snags, and to harvest some large trees if the priority is to expand the distributional range of the woodpecker.

Keywords: Classification tree, Golestan National Park, Breeding and non- breeding season, Lesser spotted woodpecker

***Using Landscape Ecological Metrics to Investigate Impacts of
Road on Structural Changes in
Golestan National Park During 1987 to 2010***

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Abstract

The echoes of human activities are felt everywhere, even in regions usually regarded as wilderness, such as national parks. Presence of adverse activities inside these areas, which is inconsistent with conservation of their primary goal of protection, will end in structural damages and prevent the fulfillment of the function of these sensitive and important areas. Among these adverse activities inside the protected areas, roads are of considerable importance due to their length, which makes their zone of influence wider and their impacts much more complicated. Considering the negative structural impacts of simultaneous construction and operation of road crossing Golestan national park, this research aims to use landscape ecological metrics to measure the structural changes of landscape to identify the spatial effects of this road on the park. The results show increase in fragmentation in Golestan national park, which is noticeable at landscape and dense forest class level.

Key words: Golestan national park, Landscape ecology, Structural changes, Fragmentation

***Estimation of People's Willingness to Pay for Conservation of
Rare and Threatened Species of Cheetah in Iran.***

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Abstract

Cheetah is one of the threatened species of wildlife of Iran, and Bafgh is one of the most important habitats of cheetah. In this study, cheetah's conservation value in Bafgh zone and effective factors on people willingness to pay has been estimated. On the bases of stochastic sampling method, 290 questionnaires were gathered from Bafgh zone. Results show that 227 people in Bafgh have willingness to pay for preservation of cheetah. In attention to these results with increasing one percent in Bid variable, acceptance probability would decrease to 0.3044 percent. Monthly, willingness to pay for conservation of cheetah in Bafgh zone is estimated about 23\$ per family. Generally, annual conservation value for Cheetah in Iran are estimated about 5\$ billion. Most important and effective variables for conservation of Cheetah are Bid, income level, education, genus and type of jobs. With attention to these results, suitable policy making could determined.

Keywords: Willingness to pay, Conservation value, Cheetah

Ecological Capability Evaluation of Sajafi Region Using Geographic Information System (GIS) and Fuzzy Logic

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Abstract

In this research the ecological Capability Evaluation of the Sajafi district in Hendijan, was evaluated due to the increasing development in its coastal areas and adjacent areas on one hand and their vulnerabilities on the other hand, in 1,100000 scale. Boolean method with the help of the Geographical information system GIS along with Fuzzy Logic was used. The results of Fuzzy Logic were compared with Boolean method. Results show that the application of Fuzzy Logic has lead to a considerable change and the suitable class for aquaculture has changed from 68% to 72% and in ecotourism application from 25% to 30%, but the most change in the surface area is observed in the unsuitable class so that the percentage of this kind in aquaculture application has changed from 14% to 5% and in ecotourism application from 69% to 59%. This shows that the use of Fuzzy Logic can have a significant impact in capability evaluation.

Key Words: Ecological capability evaluation, Geographic Information System (GIS), Sajafi region, Fuzzy logic

Sitting for Intensive Recreation in Chahnime Zone (Zabol Township) Using Multi- Criteria Decision System

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Abstract

Zabol township, with benefiting by Soukhte city, as home of lifelong civilization, having Hamon lake and Aryan people with rich culture, have important role in providing ecotourism. The goal of this study is to identify suitable zones for recreation by using Multi Criteria Evaluation (MCE) emphasizing on ecological criteria and some social-economic factors. The criteria for site selection included soil, resistance of geological formation, slope, aspect, vegetation, and distance from: wetland, roads, residential area (city and village), surface water, historical centers, and political border line and welfare facilities. Each criteria is standardized with fuzzy logic and constraint map is produced with Boolean logic. The relative importance weights of the evaluation criteria are estimated using pair wise comparison method in the analytic hierarchy process. Then a weighted linear combination (WLC) method was used for combining layers. Land suitability index is evaluated in this area and 4 zones are evaluated for intensive recreation.

Key words: Coastal sustainable tourism, Zoning, multi criteria evaluation, Fuzzy logic, Chahnime area

***Multi Criteria Evaluation of Land Suitability for
Agriculture Land Use Using Geographic Information System
(Case Study: Qazvin Region)***

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Abstract

Land evaluation is an integrated process for evaluating potential land productivity and land suitability for varied purposes. Since that agriculture has enormous environmental impacts on peri-urban regions, it is necessary to evaluate agriculture land use. This paper presents a technique of geographic information system (GIS) to evaluate the land for urban fringe agriculture of Qazvin. Based on field survey data analysis, identification and mapping of ecological factors in the region, such as physical parameters (Land use, Slope, Soil, and Precipitation) and biological parameters (Vegetation density) as major factors affecting the peri-urban agriculture land use was implemented by geographic information system (GIS). The Iran ecological model was applied to identify the priority weight of each factor. Therefore, the layers were overlaid by Weighted Linear Combination (WLC) to prepare the suitability map. The map was further scaled as six classes for the peri-urban agriculture. The results indicate that among 6 classes of agriculture land use in the region, class 5 entails 31% of the area.

Key words: Ecological capability evaluation, Word ecological model, Qazvin region, Agricultural land use, Analytical hierarchy process, Geographic information system

***The Development of a New Methodology Base on GIS and
Fuzzy Logic and AHP to Locate Industrial Area
(Case Study: Birjand)***

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Abstract

The site selection of industrial areas is a key factor in regional planning due to the social, economic and environmental impacts of this kind of development. A proper location must fulfil a wide range of factors like ecological sustainability, access to transport and communication infrastructures, work force availability, proximity to main market and to the raw materials.

Today using of spatial data and the abilities of Geographical Information system are important for industrial site selection. Therefore it is necessary to determine the appropriate combination functions in the design and implementation of practical GIS for finding the proper place.

Combination functions are one of the GIS spatial analysis functions that choose appropriate place with using of input maps and Combination operators.

These functions includ Boolean, Analysis hierarchical process (AHP), index overlap, Fuzzy logic, genetic, Weight of evidence.

In this research at first the proper factors and criteria for finding industrial areas were determined and then were prepared for input to fuzzy function and hierarchical analysis processing in Arc Sdm and Expert Choice environments. Afterwards results precision were evaluated. Finally fuzzy model prominence and accuracy out weight hierarchical analysis.

Key words: Site selection, Fuzzy, AHP, GIS

Natural Landscape Design Principles of Protected Areas with Emphasis on IUCN Criteria

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Abstract

Two comprehensively opposite views on interaction between human and nature have been defined. Firstly, human as conservationist and even reviver of the nature and secondly, human adverse as an interfering factor. Therefore, motives, reasons and, development plans which are prepared to use nature would be different with each other. Considering the extension of damages to nature, international organizations and unions decided to identify and determine unique natural areas throughout the world that need protection, maintenance and introduction as world natural heritages. Consequently, protected areas as vast lands with high conservation values are defined to conserve their biodiversities and protect them as natural heritages that should be utilized by future generations.

So, in current research descriptive- analytic research method is used to analyze, latest IUCN perspectives and guidelines in natural conservation and assign landscape design principles in protected areas. The results suggest that focusing on accompanied design with ecological, social and cultural context values and considering to the indigenous features and restoration design for promoting natural beauties are the basic principles in regenerative landscape design in these areas.

Keywords: Natural landscape, Protected area, Landscape design principles in protected area