



A Study on the Settlement Pattern of Fanouj County from Prehistory to the Islamic Era

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ABSTRACT

One of the methods to study and identify the factors in archaeological studies is to analyze the distribution pattern of settlements. This is a method to examine the formation of ancient sites in a variety of environmental contexts. Fanouj County is located in the Baluchistan region in southeastern Iran. This county leads to Iranshahr City from the north to Kerman City and Bandar Abbas City from the west, and to Nikshahr City from the east and south. The total area of Fanouj County is about 7730 km² and 700 meters above sea level. Unlike other parts of Southeast Iran, this area is not well known from an archaeological point of view. This area is very diverse in terms of natural and geographical environments. The people who have lived in this land for millennia have adapted to the difficult environmental conditions. This area has sites belonging to the Bronze Age to the Islamic era. Here, for the first time is investigated settlement patterns of this county. This study aims to identify and why the formation of ancient sites in Fanouj County. In this regard, using ArcGIS and SPSS software, the settlement patterns of Fanouj County in connection with various factors of natural geography have been identified and analyzed. According to the mentioned studies, it was found that most of the settlements of the region were dependent on environmental and natural factors and often formed near water sources.

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Introduction

In past societies, two environmental and cultural factors were among the factors that influenced the distribution and expansion of archaeological sites (Motarjem, 2008: 293). From the point of view of archaeology, Fanouj County is one of the less-known areas of Baluchistan, Iran. The archaeological survey of this area was conducted by Ruhollah Shirazi. In sum, 40 archaeological sites were identified which belong to the Bronze Age (6 sites), the historical period (24 sites), and the Islamic era (10 sites) (Shirazi, 2009). This study aims to identify and analyze settlement patterns in Fanouj County by using the geographic information system (GIS) and SPSS statistical method. In this research, the role of environmental factors in the formation and distribution pattern of settlements during different cultural and historical periods of Fanouj County is investigated. It can be hypothesized that the characteristics of the natural environment, including water resources, soil, suitable vegetation, and geomorphology of Fanouj County have played an influential role in the location selection of settlements in past periods.

Methodology

This research has been done by the method of field and document studies. After conducting the field surveys, the relative chronology of the sites was done through the typology and comparison of the data. Then, according to various factors of geography, the settlement patterns of Fanouj County were identified and analyzed. This work was done by ArcGIS and SPSS software. Based on this, various variables such as rivers, altitudes, and environmental contexts were analyzed.

Discussion

Humans have always tried to adapt themselves to their surrounding environment. Humans and the environment influence each other. In other words, as much as humans change the environment for their benefit, they are affected by environmental conditions to the same extent.

This interaction has caused both changes in the environment and changes in human behavior (Motarjem & Almasi, 2014: 52). The settlement pattern in the sites is above all a reflection of the characteristics of the natural environment (Estelaji & Qadiri Masoum, 2005: 126). The environmental factors are geological features, altitude, slope, slope direction, soil type, vegetation, and water and food sources (Niknami *et al.*, 2007:196; Saeedi, 1998: 42).

In the archaeological surveys of Fanouj County in southern Baluchistan of Iran, no settlement evidence has been found before the Bronze Age. However, at the beginning of the Bronze Age, settlements were formed in this area. Six settlements belonging to this era were identified, which were mostly in areas with low altitudes and slopes and close to water sources. These factors played an important role in the formation and dispersion of these sites. After this era, no settlements were identified in Fanouj County, and a cultural gap is visible. In the historical era (Parthian and Sassanid periods) this area was inhabited again and 24 sites were identified. Then the second gap period of the area began, which covered the early Islamic era until the 4th and 5th centuries AH. After the 5th century AH, we see the presence of settlements in the area until the modern era. Regarding the settlement patterns of Fanouj County and the impact of environmental factors on the area, the models that were drawn for the settlements by using the GIS maps were evaluated with various variables such as altitude, distance to the river, and slope angle. The altitude factor has been very effective in the distribution and formation of sites. In general, it is difficult and undesirable to live in very high altitudes due to the sharp slope, lack of suitable soil, and communication difficulties (Saeedi, 1998: 126). The altitude correlation between the sites was at an average height of 600 to 800 meters. Out of the 40 sites in Fanouj County, 60% of sites have been located at this altitude range, which is the best height for the formation of settlements and provides better environmental conditions (Fig. 1).

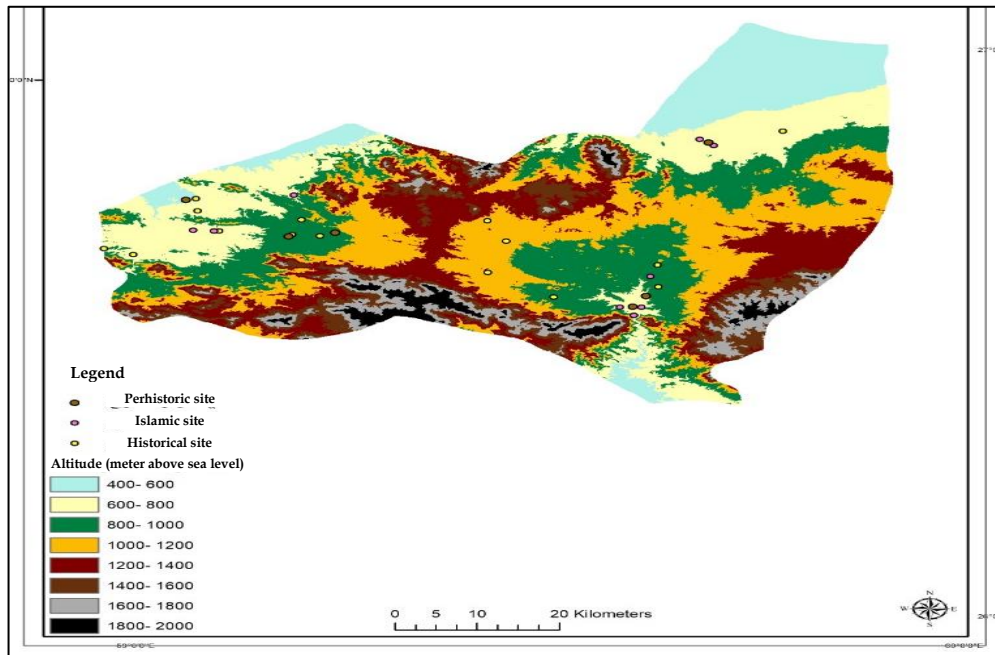


Figure 1: Distribution of settlements in relation to the altitude (meter above sea level)

Water plays a constructive role in the formation of settlements and is considered an important index for their analysis. Regarding the relationship between the sites of Fanouj County and the variable of water, according to the output of GIS maps, 75% of sites are located less than 600 meters from the river. It shows the significant role of water in the formation of settlements and

indicates the dependence of these settlements on water (Fig. 2). The slope is one of the most important geological factors, which directly or indirectly affects human lifestyle and activities (Akbaragheli & Velayati, 2007: 48). Since the past, humans have chosen the best places to establish settlements. The best slope angle for a settlement is 5-10 degrees (Anabestani, 2011: 90).

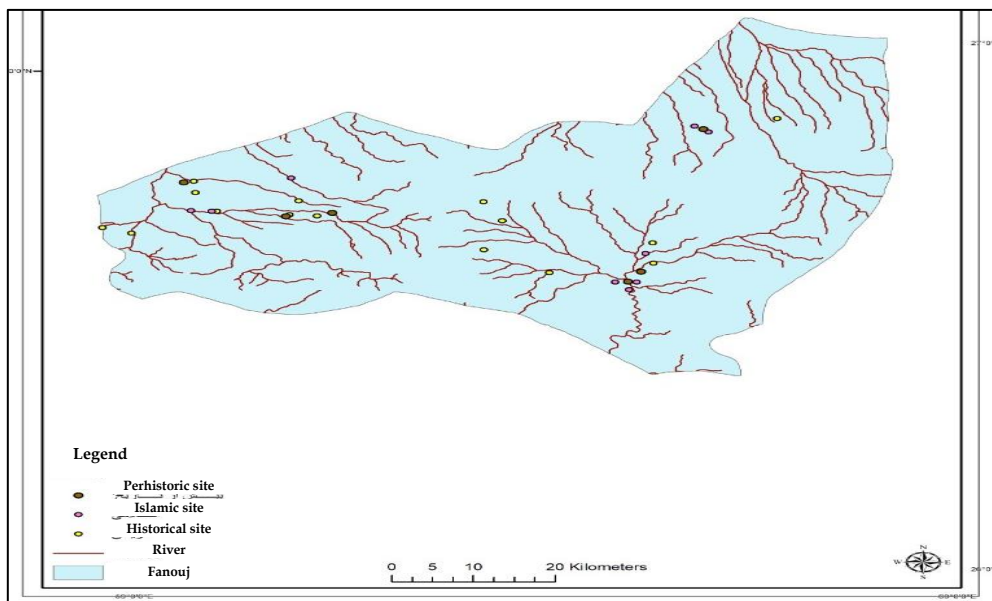


Figure 2: Distribution of settlements in relation to water sources

Another factor that plays an important role in the distribution of human settlements is the slope direction. Establishing settlements on the slopes facing the sun with a lower slope angle plays an important role in the stability of the population, the type of settlement, and the amount of land use. Without considering these factors, along with altitude, it will not be possible to understand how the settlements of different periods are distributed (Bahraminia *et*

al., 2014). A point that should be considered in the slope direction is that two factors are important for placement in different directions. The direction of sunlight provides light and heat. Besides, the direction of the slope is considered one of the most important variables in the growth of plants and agriculture, and its role is well-defined in how to distribute ancient sites and modern settlements in a geographical region (Ramshet, 2010: 26) (Fig. 3).

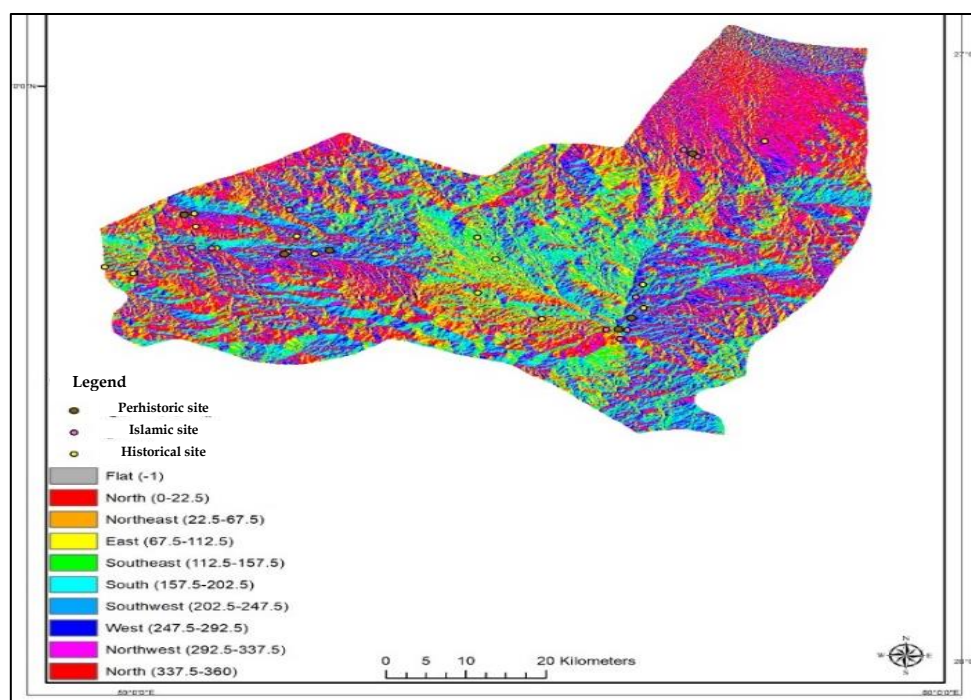


Figure 3: Distribution of settlements in relation to the slope direction

70% of the sites are located at a slope angle of <5 degrees and 30% are situated at a slope of 5 - 15 degrees. In addition, 40% of sites are located in the direction of the north slope and 32% of sites are located in the direction of the south slope. The rest of the sites are located in the eastern and western directions (Fig. 4).

As mentioned above, the northern and southern slopes have the best direction. It should be considered that due to the proximity of Fanouj County to the Makran coast and high air humidity, the selection of southern directions for residence was to provide lighting

and not to provide heat. Further, some sites are cemeteries that are not associated with the settlement. Based on the ethnoarchaeological and anthropological research in the Baluchistan region, as well as the location of these cemeteries at a relatively high altitude, far from water sources, and located on the communication routes of nomads, it seems that these graves probably belong to tribes with a nomadic economy. Examples of these cemeteries have also been observed in the neighboring areas of Pakistan and the southern coasts of the Persian Gulf.

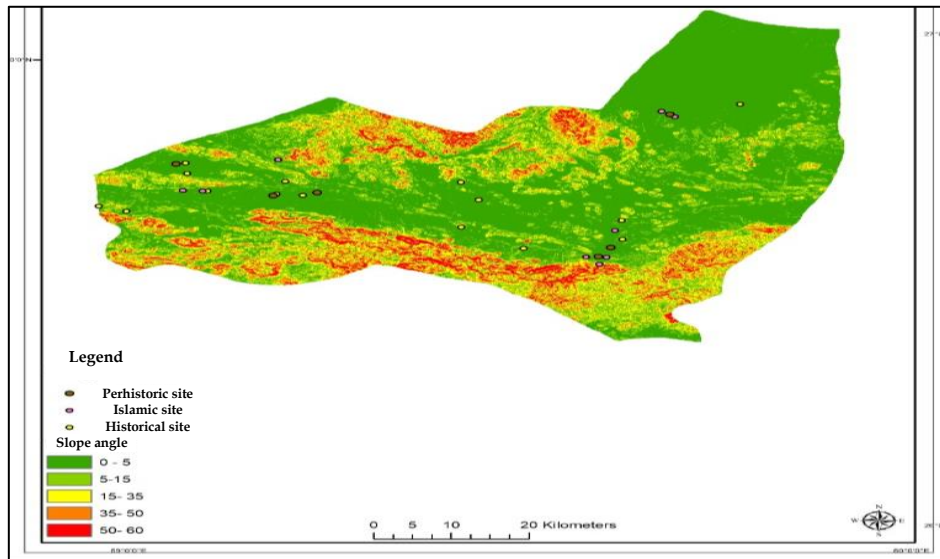


Figure 4: Distribution of settlements in relation to the slope angle

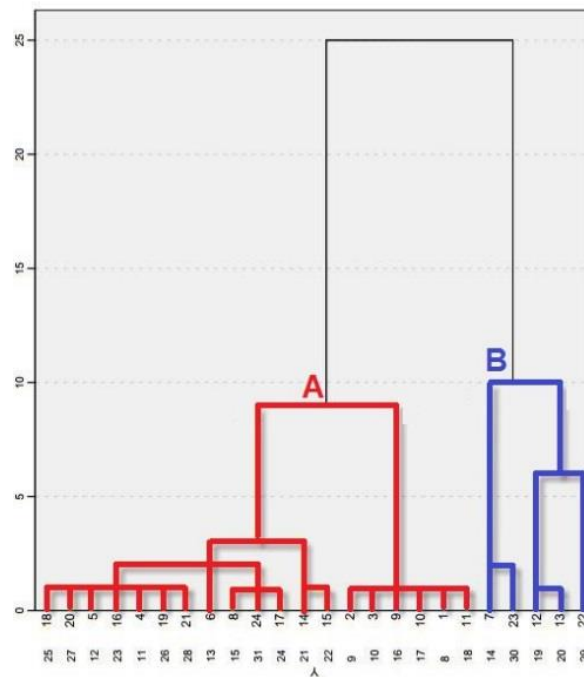


Figure 5: Dendrogram diagram of cluster analysis of settlement patterns of the historical era

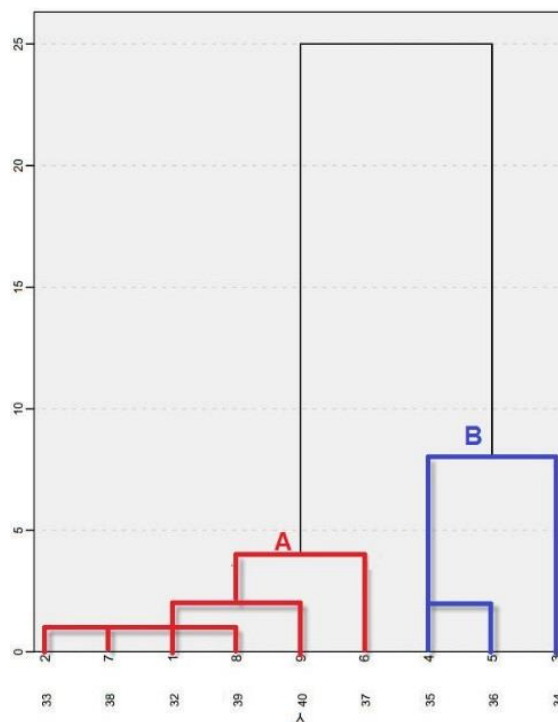


Figure 6: Dendrogram diagram of cluster analysis of settlement patterns of the Islamic era

Conclusion

The analysis of the data showed the settlement pattern in Fanouj County during past periods. According to the environmental factors, two types of different subsistence systems of husbandry and sedentary were identified. Based on the cluster analysis, the settlement pattern of cluster A, which includes most of the settlements, due to the small area of the settlements, existence of pastures, and sharp slope indicates a lifestyle of pastoral nomadism. Cluster B, which includes a small number of settlements, due to their large size, suitable slope, fertile soil, and being near water sources, indicate a sedentary lifestyle and agricultural economy (Figs. 5, 6). The continuation of this situation during the past periods shows that the people of this area consciously selected the place of their settlement according to environmental factors and they chose their subsistence system based on the potential of their surroundings.

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