



Case Report

The Landscape as a Unit for Rangeland Monitoring in Arid Regions of Iran

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Article History: Received: March 23, 2016 Revised: July 24, 2016 Accepted: August 16, 2016

ABSTRACT

Severe land fragmentation, degradation, and pollution problems will force us to think about a rural community and research group in Iran to combine our experiences and skills to deal with the challenges of improving land use sustainability. In ancient countries like Persia (Iran), past land use suggests that rangelands exploitation by local herders was co-adapted with natural environments. In ancient countries like Persia (Iran), past land use suggests that rangelands exploitation by local herders was co-adapted with natural environments. Iranian rangelands, however, were nationalized through the land reforming and the modernization of rural communities, so private range properties were rejected. But, government failed to properly manage the rangelands. In this research one study area of arid regions were selected in Torbat-e Jam of Rasavi province in Iran. We have proposed an integrated model includes various levels of management, needs of social organizations, potential rangeland classes, and agro-ecological-based dry land farming. The main advantage of planning based on landscape unit is that by considering ecological aspects of past use and present features and land use, integrated models can be provided based on land suitability. Combining the benefits of different rural groups is the most important parts of decision making.

Key words: Rangeland, Land suitability, Local herders, Dry land farming

INTRODUCTION

Severe land fragmentation, degradation, and pollution problems will force us to think about a rural community and research group in Iran to combine our experiences and skills to deal with the challenges of improving land use sustainability (Bouch *et al.*, 1995; Mesdaghi, 1993). Planning rangeland inventory requiring recognition of the ecological processes operating at different scales and their particular characteristics (Friedel and Laycock, 1995).

In ancient countries like Persia (Iran), past land use suggests that rangelands exploitation by local herders was co-adapted with natural environments (Nyerges, 1980; Mesdaghi, 1993). Iranian rangelands, however, were nationalized through the land reforming and the modernization of rural communities, so private range properties were rejected. But, government failed to properly manage the rangelands. Local people tried to make properties inside nationalized rangelands, and the rangelands were converted to dry lands (Mesdaghi, 1993). The results of these interventions were the heterogeneity of landscape and both rangelands and dry lands were

interwoven in nested complex systems. Therefore, rangeland inventory as an isolated activity is almost meaningless. Meanwhile, current landscape planning involves contributions from many different social organizations often with different interests and with different desired outcomes (Mesdaghi, 1995). In this research one study area of arid regions were selected in Torbat-e- Jam of Rasavi province in Iran.

MATERIALS AND METHODS

A definition of landscape based on traditional pastoral practices reveals the importance of cultural and ecological perspectives of past land use (Spooner and Horne 1980). I have proposed an integrated model includes various levels of management, the need of social organizations, potential rangeland classes, and agro-ecological-based dry land farming. Case studies were selected from two locations of arid rangelands (Abdualahabad summer rangeland in Razavi province). In the study area, the following steps of range inventories were planned:

Cite This Article as: Tazik SA, M Mesdaghi, V Shamsabadi, M Moradi and EIK Abadi, 2016. The landscape as a unit for rangeland monitoring in arid regions of Iran. *Inter J Agri Biosci*, 5(6): 322-324. www.ijagbio.com (©2016 IJAB. All rights reserved)

Step 1: Documents of range properties were provided from Forest and Range Organization and the Bureau of Property and Documents Registrations. A map of rangelands before land reforming in 1965 was provided through old layouts and compared with new maps of recent range use.

Step 2: Gathering data by interviewing local people on land use in past and present.

Step 3: Different organization land users were considered in planning landscape as a management unit.

Step 4: An integrated model includes various levels of management, the needs of social organizations, potential

rangeland classes, and agro-ecological-based dry lands farming was proposed with references to the case studies.

RESULTS

By comparing the past and present land use, integrated models were prepared based on four scales of 1:20,000, 1:25,000, 1:50,000, and 1:100,000 (Table1). An integrated model of 1:50,000 scale will be provided which shows the features of land use in past and present (Figure 1).

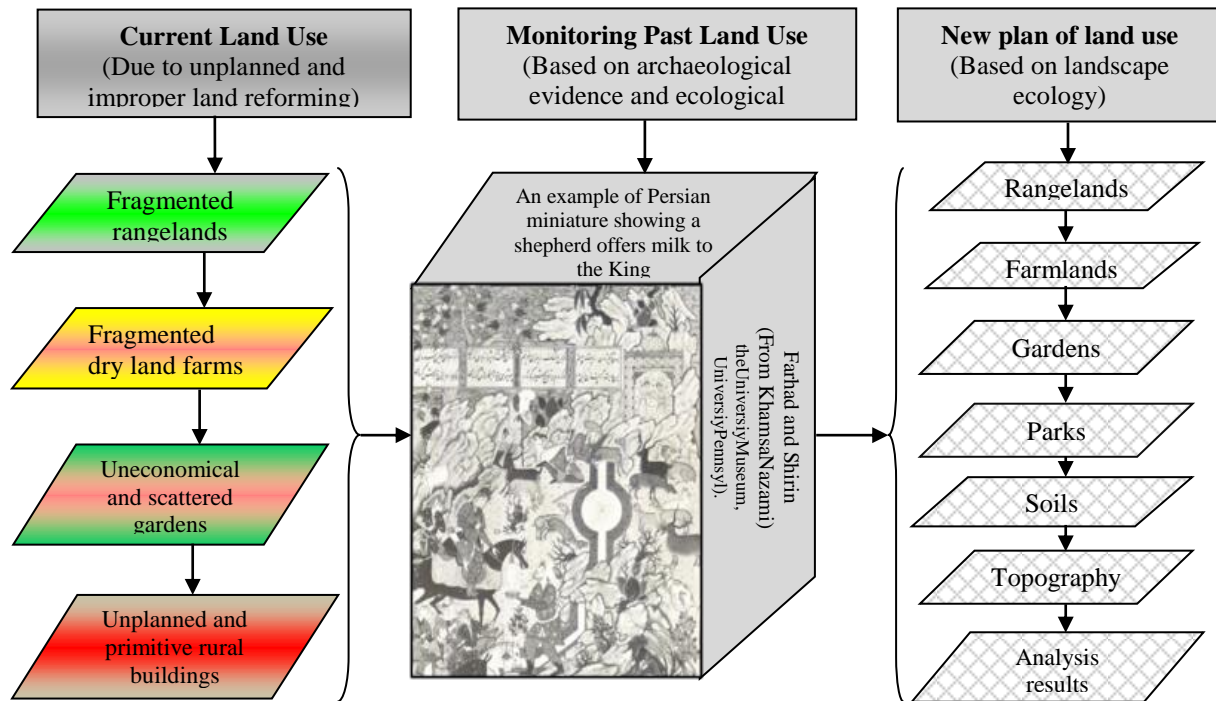


Fig. 1: Integrated model of land use based on ecological passed land use and modern designs of landscape as unit for planning.

Table 1: Level and scale of rangeland planning in Iran

Kind of plan	Planning Unite	Scale	Area (Ha.)	Vegetation level
Comprehensive	Marteh	1:100,000	>100,000	vegetation type
Semi-detailed	Charagah	1:50,000	>5,000	community type
detailed	Yourt	1:25,000	<5,000	community type
detailed	Deh-Dashet	1:20,000	<2000	degraded veg.
detailed	National Park & protected areas	1:20,000	variable	Climax veg.

Table 2: Historical aspects of rangeland inventory and monitoring in Iran

Method	Presented (person/org.)	Objective	Executive organization	Scope (scale)	Qualitative /Quantitative
Range grading	UNDP (1950)	Determination of condition and capacity	Range and Fodder org.	Private Saman (1:20,000)	Qualitative
Adjusted range grading	Technical Range Bureau	condition and capacity (rainfallbased)	Forest and range dept. (provinces)	Smallrange plans (1:25,000)	Qualitative
6-Factor method	FAO, 1971 (D.L.Goodwin) adapted from Dyksterhuis (1949)	Range condition classification	FAO	Small range plans 1:50,000	Quantitative
Climax method	FMC (USA)	Range condition classification	Technical Range Bureau	Small range plans 1:50,000	Quantitative/ qualitative
Satellite classification	Inventory planning (1993, 1995)	Estimation range production	Ministry of Natural Resources	National level (1:1,000,000)	Quantitative
Landscape function analysis	Tongway and Hindley (2005)	Range Use planning	?	National level (1:1,000,000)	Quantitative/ qualitative
		Sustainable Range use	CSIRO (Australia)	Small scale range management plans (up to 1:50,000)	Quantitative/ qualitative

The following items will be considered in new model:

1. Transferring nationalized rangelands to herder based on a logic long-term rental criteria,
2. Combining fragmented cultivated crop lands to cooperative sharing systems,
3. Developing and sharing the knowledge of different beneficial groups
4. To improve our knowledge for development a comprehensive rangeland inventory by recommendations of land use specialists of other countries. Historical aspect of range inventory and monitoring is presented in Table 2.

Conclusion

Our monitoring the past land use suggests that the use of rangelands by local herders was co-adapted with natural environments. We have proposed an integrated model includes various levels of management, needs of social organizations, potential rangeland classes, and agro-ecological-based dry land farming. The main advantage of planning based on landscape unit is that by considering ecological aspects of past use and present features and land use, integrated models can be provided based on land suitability. Combining the benefits of different rural groups is the most important parts of decision making.

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