On the Ground

- This study assesses the drought coping strategies of rangeland users (RUs) in Fars province in southwest Iran.
- Our findings reveal that in the RUs’ experience, the most effective drought coping strategies include reducing stocking rates and the gradual reduction of inefficient, old, and sick livestock.
- The data also indicate that RUs promote rangeland resilience during a drought through range protection/exclosures, seeding, and broadcast seeding.
- This study therefore suggests that the indigenous knowledge of RUs could improve existing training and extension programs by providing localized environmental contexts for developing coping strategies before, during, and after drought.

Keywords: sustainable rangeland management, rangeland improvement, indigenous knowledge, stocking rate, grazing capacity, drought.

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Drought is a common natural hazard in arid and semi-arid regions. It is a prolonged period of abnormally low rainfall that negatively affects land managers, ranching enterprises, and pastoral systems. Drought may be the most complex but least understood of all natural hazards, and it directly affects more people globally than any other natural hazard. Heim (2002) divides drought into four categories based on myriad localized effects on human and natural phenomena: meteorological, agricultural, hydrological, and socioeconomic. Drought is a normal, recurrent feature of climate that may occur anywhere, even if its characteristics and impacts vary significantly from one region to the next. Thus, an objective evaluation of drought conditions in a particular area is the first step for planning natural resource protection and allocation to prevent and mitigate the negative impacts of future occurrences.

In recent decades, the frequency of drought in arid and semi-arid regions such as West Asia, North Africa, Eastern Australia, and Southwestern United States has been increasing. This climatic phenomenon has negatively affected agriculture (e.g., crop and livestock production) and natural resources (e.g., rangelands and surface waters). Rangeland users (RUs) in arid and semi-arid regions consider drought to be a significant problem because it can lead to forage production losses between 30% and 100%. Rangelands within advanced economies are not immune to this hazard. For example, from 2014 to 2015, drought caused an 80% forage production loss in San Luis Obispo County, California. The widespread droughts of the early 1990s in particular had a major detrimental impact on rangelands and livestock production. A drought usually entails a number of different and interconnected social, economic, and environmental consequences. For example, a drought will significantly affect rangeland activities, and in developing countries in arid and semi-arid regions, it can be a primary cause of poverty and emigration.

Arid and semi-arid regions are characterized by wide deviations in annual precipitation that make them highly susceptible to drought. Turning the focus to Iran specifically, in the past 40 years, the country has experienced 27 droughts. Drought is clearly not an unusual climatic hazard in Iran, but it nonetheless remains a phenomenon that has not been fully considered in the country, despite the clear challenges that drought presents for RUs’ livelihoods and environmental management policy making. Droughts in Iran affect large numbers of people, causing tremendous economic losses and social hardships as well as severe environmental damage.

Global and regional climate change is expected to increase the frequency of drought in Iran. South and southwest Iran, including Fars province, are highly susceptible to frequent and