



The Scientific Conceptual Framework For Ecological Quality Of Dryland Ecosystem: Concept, Indicators, Monitoring and Assessment

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Abstract: Dryland ecosystem is the dominant part of terrestrial ecosystem. Arid region accounts for more than 40% of the earth's land area and 38% of the world's population live in the arid region. The stability and sustainable development of dryland ecosystem is a great key to achieve the millennium development goal (MDG) in the arid and semiarid area. The purpose of this study is to develop the scientific conceptual framework for to define, monitor and evaluate the ecological quality of dryland ecosystem. The ecological quality of dryland ecosystem is represented by comprehensive indicators system of which are extracted from the ecological elements, structural and functional indices of the ecosystem. These indicators can be monitored by integrating satellite, unmanned aerial vehicle with ground-based sensor network at observation site scale and regional scale. Finally, the ecological quality would be evaluated by evaluation model based on the normalized indices values and their thresholds. This paper presents a conceptual framework of monitoring and evaluating the ecological quality of dryland. It provides a way to put forward to monitor, diagnose, and evaluate for the ecological equality of dryland ecosystem.

Keywords: dryland ecosystem; ecological quality; monitoring indicators, "satellite-air-ground" integrated monitoring;