Social ecological response diversity in a Biocultural system

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Uncertainties in our global and local food systems require an ever-increasing diversity of responses to unexpected change. Meanwhile, the global food system is becoming ever more homogenous. Agricultural biodiversity has and will continue to play an important role in feeding an increasing population in a sustainable way, often created and managed by farmers and communities with a corresponding high linguistic and cultural diversity (Biocultural diversity). In this paper, we propose the notion of a new concept, social-ecological response diversity, as a way to empower an understanding of response configurations of biocultural systems undergoing transformative change. The health and resilience of ecosystems (including agricultural ones) depend on a variety of functions. The diversity and maintenance of these functions has long been thought to be an important contributor to ecosystem resilience. The range of actions among species to contribute to the same functions is called response diversity. We venture into the cultural sphere, and propose a new framing of response diversity, in which both functions and responses are social-ecological practices. The paper focuses on a region where less than three per cent of the land is arable, and all farming takes place between 2000-4000 m. "The Roof the World" as the Pamir Mountains of Tajikistan and Afghanistan are popularly known is a centre of secondary origin of a number of staple grains, and seven different languages are spoken in the main valleys. Over millennia, the people and the land have responded to shocks and disturbance in a sequence of mutual innovation. The objective of the paper is to explore the utility of using social ecological response diversity as way to better incorporate important cultural aspects of sustainability in food systems.

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