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## Combining agroecological knowledge and empirical knowing to build pastoral management guidelines within multipurpose land use

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**Key words :** pastoral resources, rangelands, agropastoral diagnosis, agroecological knowledge, knowing

**Introduction** Whereas many technical references on grazing management of permanent grasslands exist, operational knowledge for rangeland management is scarce. For this reason, rangeland extension agents take available knowledge and transpose it to more complex rangeland vegetation, for which it is no longer valid. The objective of this paper is to investigate how these practitioners face this lack of specific knowledge for rangeland management and adapt existing knowledge to their own knowing (Cook and Brown, 1999).

**Materials and methods** We took a knowledge engineering approach (McGraw and Harbison-Briggs, 1989), that is, an activity consisting of eliciting and modelling knowledge currently in use, which is mainly tacit (Nonaka, 1991), i.e., *highly personal [...] hard to formalize and, therefore, difficult to communicate to others*. We analysed the reasoning process of pastoral diagnosis in a case study of a land-use project in the Western Pyrenees. For that purpose, we conducted semi-structured interviews with the practitioner and analysed methodological documents (technical and scientific literature) as well as documents produced by the practitioner related to his own diagnosis of several pastoral areas.

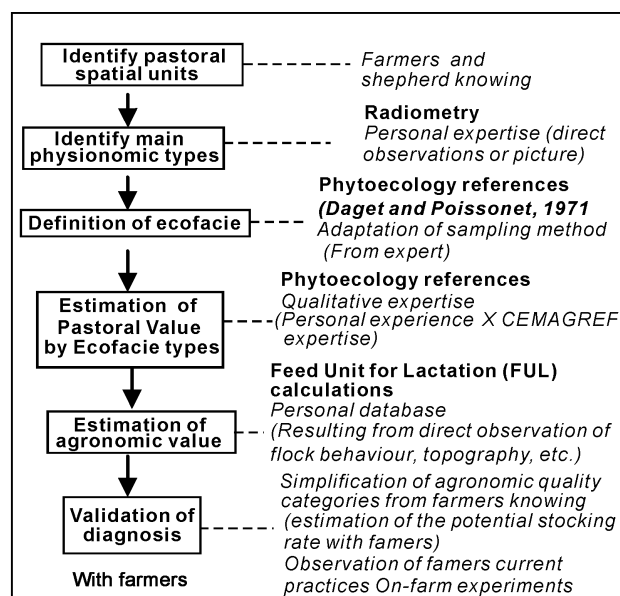
**Results** Our results show that the pastoral extensionist combines scientific agroecological knowledge (agronomy and phytosociology) and empirical knowing (from himself, other extensionists and from livestock farmers using these areas). This combination appears at different stages in his approach (Figure 1), from the zoning of physiognomic types to the building of a map of resource potentialities for livestock feeding.

Pastoral Value (PV) (Daget and Poissonet, 1972) is used as a key concept in his approach, but after being assessed from generic tables, it is twice re-evaluated with: (i) his experience of other similar ecofacies, integrating their accessibility into their PV; (ii) interactions with livestock farmers and their own categorisations of these areas regarding their use to feed their flocks (*agronomic value*).

**Conclusions** This type of cognitive approach to the synergy between empirical and scientific knowledge should be completed by an analysis of the socio-organisational settings in which this knowledge finds its sense meaning (see poster of Girard et al.). These results also point out the necessity to develop new qualifications of complex vegetation in rangelands (see two posters of Agreil et al.) and even to design new approaches to build agroecological knowledge that could be both shared and *actionable*. In keeping with Russel and Ison (2000), it may be seen as an opportunity to develop *contextual science*, and a first step in imagining new relationships between research, agricultural extension and rural development.

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**Figure 1** Reasoning process for pastoral diagnosis. On the left, the main diagnosis step; on the right, the agroecological knowledge (in bold type) and knowing (in italics) used.