Pastoralism and Sustainability in Aspromonte
Understanding the past to plan for the future

The research presented here investigates the complex systems involved in pastoral land management in the mountain area of Aspromonte in Calabria, Italy.

Aspromonte is a mountain massif containing a large number of both abandoned and inhabited villlages. This research has focused on the territory of **Africo Vecchio** and **Casalnuovo,,** which were home to villages abandoned in the mid-20th century after a period of hydrogeological instability and resulting changes to land use.

Workshops to involve local communities were held to bring multiple perspectives into the types and weighting of relationships between elements in landscape systems. **Conceptual mapping** of key actors and relationships, the simulation of possible scenarios and the analysis of resulting data have produced ideas for new initiatives aimed at protecting both the landscape and cultural traditions in Aspromonte.

This research highlights the importance of **bottom-up policies** and the **involvement of communities** as well as the possibilities presented by **traditional sheep farming as a tourist attractor**. The maintenance of infrastructure is proposed as an immediate initiative, to aid local political participation. A healthy pastoral economy, sustainable tourism and favorable regulations are seen as key to socioeconomic, cultural and environmental improvement in the region.

How can we promote the protection of sheep farming without damaging the environment?

The abandonment of Aspromonte may be more problematic for the environment due to the lack of management and fire risk. Intense pastoral activity, however, might lead to overgrazing and slope instability. Traditional pastoralism is very different and new rules for pasture management could encourage sustainable exploitation. The promotion of traditional structures (e.g. *terrate*), the use of local materials and the recovery of past production techniques could have socio-economic, environmental and cultural benefits.

Are cultural tourism and pastoral activities compatible?

Both trekking and agri-food tourism, focused on quality local production, are compatible with the characteristics of local pastoral activities. The professional training of tourism and hospitality operators could provide new employment opportunities in the region. Repopulation of the area is also essential, including the opening-up of these areas to non-local people. This may also facilitate further innovation, alongside the protection of material and immaterial heritage.

How can we encourage the participation of local communities?

Currently the only way local people can engage with decision making processes is via local administrators and information desks and many people are wary of state initiatives. Fairer access to financing and greater awareness of the benefits of development plans can build trust in institutions and initiatives. The organisation of events, fairs and exhibitions, as well as improvement in the accessibility of these places allows more participation in the local economy.

PARTICIPATORY EVENTS

- The events involved a variety of stakeholders including university staff and students, representatives of non-government organisations, sheep breeders, geologists and naturalists.

- Participants were involved in the identification of 15 key concepts related to pastoralism and land management in the region (e.g. heritage, biodiversity, tourism, desertification).

- Each group was asked to find connections between the concepts and to identify the direction of influence, whether it was positive or negative, and to estimate the strength of the connection. Values assigned to each connection was limited to weak (0.5) and strong (1), to facilitate comparison. The 15 concepts identified in the workshops were then used as to produce "Fuzzy" Cognitive Maps.

- Fuzzy cognitive maps employ the principles of "fuzzy" logic: that the relationships are not just positive/negative but on a gradient from one extreme to another. These represent more realistic relationships that constitute complex systems.

- Three maps produced by the different groups were then combined to produce one synthetic map, allowing equal representation of the viewpoints of each group.

- The results of the FCM and scores of the scenarios allowed the complex relationships between the identified concepts to emerge.

SCENARIO RESULTS

The **political participation of local communities** was recognised as a fundamental factor across the scenarios. Another key element is **the improvement of communication and hospitality infrastructure** in the region, while **enhancing the tourist attractiveness of Aspromonte sheep farming**, would bring significant environmental and socio economic benefits.

Biodiversity and desertification did not appear to be closely related to the improvement of other environmental, socio-economic and cultural conditions in the region, nor did the conversion to traditional **sheep breeds.**

Across different models, the **presence of wild predators** had a negative correlation with both sheep farming and tourism in Aspromonte