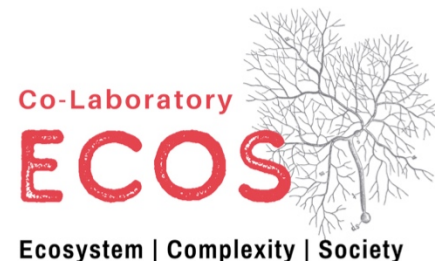




Cultivating social-ecological resilience, Harvesting biocultural resistance in the Southern Andes food systems

Constanza Monterrubio, T.
Ibarra, A. Barreau and R. Urrea

FONDECYT 3180204



Socio-ecosystems and biocultural memory

- Socio-ecosystems are a vital source of biocultural diversity for communities and impact people's food, health, socioeconomic wellbeing, and belief systems in fundamental ways.
- Communities that use local food, including both wild and home-grown edibles, are more likely to be food secure and more resilient to homogenization (Barreau et al. 2019).
- Biocultural memory: socio-ecological knowledge and practices transmitted through generations.

Food Systems Homogenization

- Homegardens are small-scale social-ecological systems where biocultural diversity is expressed through vegetal varieties important for food security and sovereignty.
- Ongoing process of domestication, diversification, agricultural production, and native seed conservation.
- Biocultural homogenization of food systems: loss of both diversity and quality of local food-related practices and foodstuff, which are increasingly replaced by less diverse market-based foods.

Food and Agency

- Food choices depend on availability, accessibility, acceptability, and biocultural memory, including resource use techniques and knowhow.

- Everyday resistance:

“a strategem deployed by the weaker party in thwarting the claims of an institutional or class opponent who dominates the public exercise of power.” (Scott, 1989, p. 52)

“By consuming certain food items and by preparing, eating, and enjoying these particular foods in particular ways, people asserted who they were or wanted to be...” (Martschukat & Simon 2017)

Research questions

- How resilient are crop diversity and food practices?
- Which practices are key to the vitality of the local food biocultural heritage?

Social-ecological resilience

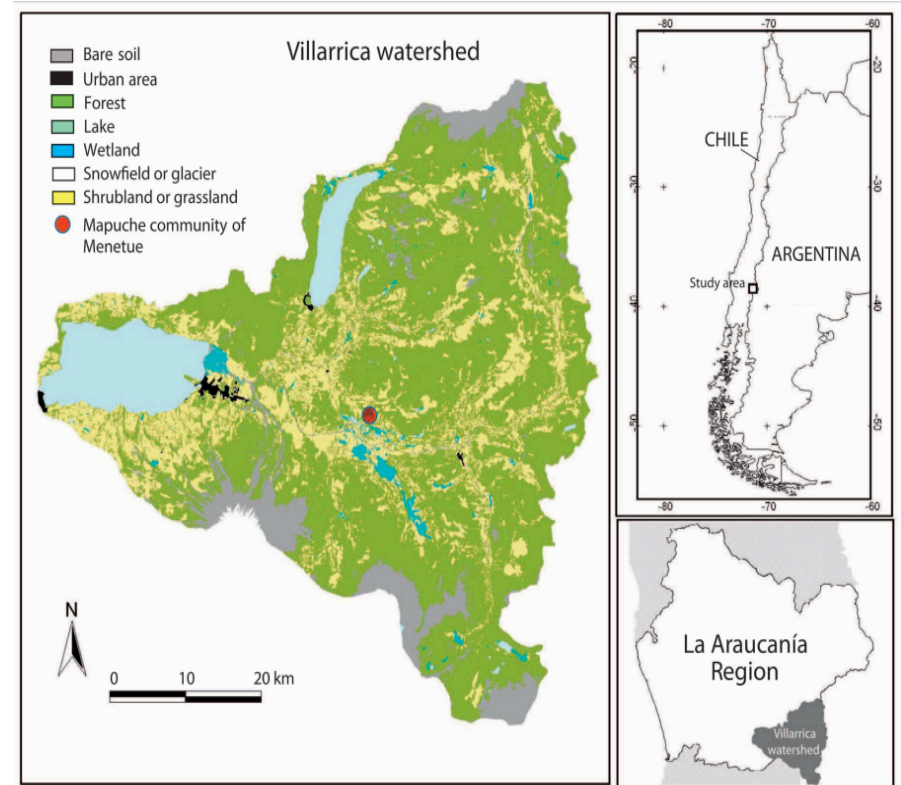
- (1) assets available to people;
 - (2) flexibility and ability to change;
 - (3) ability to organize and act collectively at different scales;
 - (4) ability to learn in order to recognize, to frame and to respond to change;
 - (5) a baggage of socio-cognitive constructs, and
 - (6) the agency (power and freedom) to apply the previous elements.
- (Cinner & Barnes 2019).

Region of study

Andean zone of the La Araucanía Region of southern Chile. The climate is temperate, with a mean annual precipitation 2000 mm.

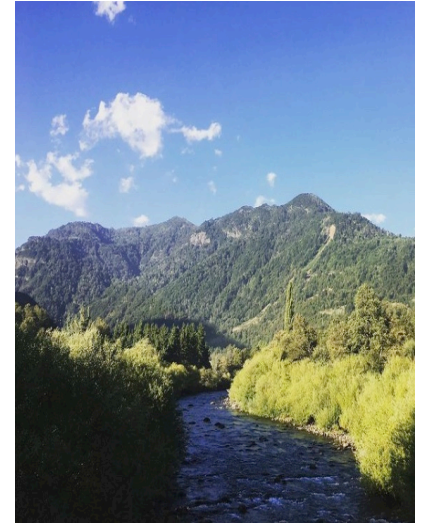
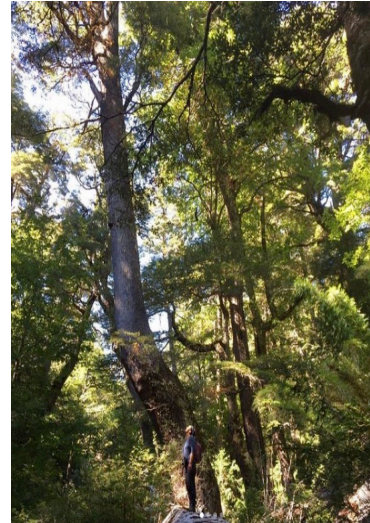
Elevations range from 300 to 2850 masl, with mountainous topography.

Microclimates and crop diversity.



Deciduous forests

- Deciduous forests dominated by *Nothofagus obliqua* at lower altitudes and mixed deciduous with conifer forests at higher altitudes.
- At high elevations, dominated by *Araucaria araucana* and *Nothofagus pumilio*.
- Temperate forests cover about 29% (908,501 ha) of the La Araucania Region.



Agrobiodiversity: 190
varieties of traditional
seeds for La Araucanía.

Chilli

Peas

Buckwheat

Chickpeas

Broadbean

“Kawella” (Barley)

Flaxseed

Kinwa

Corn

Beans

Leek

Tomato

Wheat

Pumpkin



Methods

Seed diversity

- 80 structured interviews, exploring the seed diversity and local knowledge related to it. Snowball sampling.

Biocultural memory related to food

- Ethnography, focus groups and trafkintu (seed and knowledge exchange in two localities within the gradient from the city to the national reserves.
- Prior informed consent.
- Coding of notes and interviews and triangulation.

Indicators of social-ecological resilience en La Araucanía

- Biodiversity as an asset:

“We consume the peas and beans while they are green, we don’t cook them. In the chakra I have pumpkin, Mapuche corn, and *hallao*, *señorita* and *pallar* beans. In the homegarden, I cultivate the *sinhila* bean and the *pastelillo* lettuce, this seed comes from my mother, it is an old lettuce, I have not lost it” (NC, PCasas, 07/01/2019).



Flexibility and ability to change





Ability to organize and act collectively at different scales



Ability to learn in order to recognize,
to frame and to respond to change



A baggage of socio-cognitive constructs



The agency (power and freedom) to apply the previous elements



Drivers of change

- Historic symbolic violence towards native foods.
- Institutional pressures for rural specialization.
- Processes of cultural assimilation such as agro-ecosystems and diet homogenization.
- Structural threats towards the diversity and free flow of native seeds.

Transitions in the foodscape



Agriculture and food preparation as biocultural resistance



Final remarks

- Social-ecological resilience in the territory secures the household provision of culturally appropriate food, not available in the market.
- Exchange networks based on reciprocity and diversity of productive activities sustain diversity and networks that have survived and renewed themselves through time, both are very dynamic.
- There are increasing concerns about the quality of the soils, the amount of water and the detrimental effects of purchased seeds in the local memory about seed production and changes in taste perceptions in local children.

- Drivers of change are not sporadic events, there is a constant attack towards family agriculture rather than supporting it, threatening the human right of access to food.
- In front of this problematic, keeping the diversity of native seeds, wild foods and local preparations based on their biocultural memory and reciprocity networks constitutes an element of everyday resistance.
- The elements of social-ecological resilience are thus considered a form of resistance shown and displayed in local homegardens, kitchens and reciprocity networks.
- Biocultural memory gives continuity to the practice and transmission and thus, is key for this resilience-resistance dynamic.