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**Article 4**

## Designing from coexisting worlds: Methodologies situated in transhumant contexts

### Designer à partir de mondes coexistants: Méthodologies situées dans des contextes transhumants

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## Designing from coexisting worlds: Methodologies situated in transhumant contexts

## Designer à partir de mondes coexistants : Méthodologies situées dans des contextes transhumants

 **Sepúlveda Alejandra**, Designer, Director of Fundación Madrugada, [alejandra@madrugada.cl](mailto:alejandra@madrugada.cl)

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### Abstract

The objective of this article is to present a situated methodological proposal on a five-year observational study with muleteer communities in the Laguna Laja-Huemules Biological Corridor of Niblinto, in Chile. Through exploratory and immersive field research, a toolkit was designed to observe mountain trips and summer stays, which link design, craftsmanship, and the social sciences. The concatenated methodologies for systematization and interpretation were contextual observation, initial cataloging, analysis matrix, and community validation. From the perspective of design as a situated practice, this study proposes a methodological framework through which these transhumant experiences can be understood as worlds that coexist with nature and temporalities, facing predominant narratives of social industrialization and universalization of time. Finally, this set of adapted and contextualized tools was tested, demonstrating a strong affective, territorial, and collective memory bond that represents a tangible and intangible, familial and timeless heritage, as a living process. This study contributes to the current debate on design as a means of transmitting knowledge rooted in local communities and their specific contexts.

**Keywords** : Contextual design ; Methodology; Transhumance ; Coexistence ; Temporalities.

### Résumé

L'objectif de cet article est de présenter une proposition méthodologique située, issue d'une étude de cinq ans menés auprès de communautés de muletiers dans le corridor biologique Laguna Laja-Huemules de Niblinto, au Chili. À travers une recherche de terrain exploratoire et immersive, une boîte à outils a été conçue pour observer les déplacements en montagne et les séjours estivaux, articulant le design, l'artisanat et les sciences sociales. Les méthodologies articulées pour la systématisation et l'interprétation comprennent l'observation contextuelle, le catalogue initial, la matrice d'analyse et la validation communautaire. Du point de vue du design en tant que pratique située, cette étude propose un cadre méthodologique à partir duquel ces expériences transhumantes peuvent être comprises comme des mondes qui coexistent avec la nature et les temporalités, en tension avec les récits dominants d'industrialisation sociale et d'universalisation du temps. Enfin, cet ensemble d'outils adaptés et contextualisés a été mis à l'épreuve, démontrant un fort lien affectif, territorial et de mémoire collective, qui représente un patrimoine à la fois tangible et intangible, familial et intemporal, comme un processus vivant. Cette étude apporte sa contribution au débat actuel sur le design en tant que vecteur de transmission des savoirs ancrés dans les communautés locales et leurs contextes spécifiques.

**Mots-clés** : Design contextuel ; Méthodologie ; Transhumance ; Coexistence ; Temporalités.

## 1. Introduction



In various mountain ranges around the world, ways of life remain that are intrinsically linked to seasonal cycles; it is within this context that the semi-nomadic practice of transhumant grazing takes place, and this geographical determinism shapes the very concept of livestock mobility from the outset (Antón, 2000).

Despite being a living tradition and a practice in constant flux across regions, the seasonal herding of muleteers remains largely underexplored within design research and practice. In this context, transhumance can be understood as the practice of certain human groups of moving their residence on a regular and traditional basis in response to seasonal changes in the availability of natural resources (Davis, 1963). A way of life characterized by the frequent movement of the human group with their livestock (Zuñiga & Bengoa, 2005), in search of high-altitude pastures in mountain ecosystems that shape the biocultural identity of the herding communities.

In Chile, this practice takes place within specific mountain ecologies shaped by the Andes range. This landscape supports transhumance and a nomadic economy, which, for this study, is framed within the so-called Huemules de Niblinto-Laguna Laja Biological Corridor; situated between 36° 20' and 37° 40' South Latitude and 71° 07' and 71° 40' West Longitude, in the northern part of Patagonia within the Valdivian Temperate Forests Ecoregion of Chile, bordering the town of San Fabián de Alico to the north and the municipality of Antuco to the south. For the purposes of analyzing the social fabric of the herding communities, three sub-zones have been established for this study: Antuco (summer pastures of Pichachén and Petronquines), Coihueco (summer pastures of Atacalco and Diguillín), and San Fabián (summer pastures of Pichirincón, Monroy, and Valle Hermoso).

It is within this landscape that movements occur between grasslands and floodplains across various mountain summer pastures, spaces that define the occupation of the territorial environment (Araya et al., 2019). These locations are known to the herders and are not chosen at random (Zuñiga & Bengoa, 2005). Toward the early months of autumn, when temperatures begin to drop, the gradual return to winter quarters begins, during which the livestock remains near the dwellings and is fed annually produced alfalfa (Araya et al., 2019). The nomadic practice of the herders is linked to subsistence models based on autonomy and continuous learning about the environment; it is here that their expertise in the mountains—understood as their knowledge and understanding of the mountain ranges—fully comes to the fore (Razeto et al., 2022). In this context, adverse to human life, the journey teaches transhumant herders about their limitations and possibilities, instilling in them confidence or fear. When contingencies overwhelm them, they turn to divine protection (Benedetti, 2020). Of particular interest to this research is the development of material technologies and artisanal techniques that support safe journeys through hostile landscapes. These practices combine the design of clothing and objects with the sustenance of both muleteers and the animals they accompany, which are also recognized as symbols of community identity (Baros, 2019). In this regard, this article invites an exploration of the intersections among design, craftsmanship, and the social sciences, which informs a proposal for an applicable, contextualizable methodology for interpreting firsthand, real transhumant experiences. The study addresses the following research question: How can a situated and interdisciplinary methodological framework be developed to interpret transhumant experiences in mountain environments? Accordingly, the objective of this



article is to develop and apply a situated methodological proposal based on immersive fieldwork with muleteer communities.

Firstly, understanding the variety and complexity of open territories involves recognizing both coexistence with what is available in nature and living in harmony with the seasons and their changes. It is a way of « learning » as you go, because, as Di Meo (1999) argues, habitable and social spaces in turn constitute the substrate of a broader, more conceptual and imaginative lived space. Understood in this way, lived space paves the way for territoriality and territory. Along the same lines, Certeau (1988, p. 117) has commented that every place is a « practiced space, which depends both on its constituent material factors or those used there, and on multiple symbolic interactions in constant change. In other words, each territory is a set of direct relationships and imaginary references whose identity is constantly changing, yet maintains continuity (Greimas, 1980). This understanding of lived and practiced space informs the need for methodological approaches capable of engaging in these dynamic and relational territorial conditions.

Operationally, it should be noted that interdisciplinary dialogue between design and heritage practice provides a privileged position from which to perceive the sensitive connections among the technical, emotional, territorial, and historical aspects of various social phenomena, such as those addressed in this work. The intersection of these approaches enables a deeper understanding of the sensory and relational dimensions through which humans engage with nature in more-than-human narratives of inhabiting places. These narratives represent experiences of ecological sovereignty and, in turn, constitute part of the biocultural memory that sustains the various territories and their communities (Toledo & Barrera-Bassols, 2008).

The concept of « situated design » precisely has to do with the fact that design processes occur in particular situations and are carried out from immersed positions (Suchman, 1987; Haraway, 1988). This logic of design as a toolbox of appropriate tools adapted to circumstances and environments allows for the reconfiguration of linear-temporal paradigms taught by the current global order of a single world (Escobar, 2015), which is central to the methodological approach developed in this study.

For this type of research, the construction of analytical methodologies for dynamic contexts does not usually follow closed manuals but rather involves processes of critical adaptation that require professional maturity (Lawson & Dorst, 2013). It is also useful to consider the use of tools that require a link with other disciplines, such as the social sciences or craftsmanship. This is a quality that methodologies close to the field of design should possess, in their most functional and adaptable sense. Within this perspective, design can be understood as a practice that creates and sustains environments for multiple forms of life (Weller et al., 2019), incorporating the cross-cutting nature of considering points of contact and intersections between different disciplines. Each discipline contributes its own problems, concepts, and research methods (Gutiérrez, 2021). On the one hand, connections with the social sciences provide a basis for understanding individuals and their communities. On the other hand, proximity to craftsmanship offers an understanding of the technical creativity behind the construction or transformation of useful artifacts that people need to inhabit their contexts and interact in and with them.

Human understanding of the environment depends on everyday cultural practices of representation that enable people to know, behave, and communicate, as well as giving





substance to the idea of shared belonging to a place (Hall, 1997). Therefore, the application of different situated research methodologies concerns ways of understanding the world and social relations in each specific context (Magendzo, 2005). Based on Frayling's (1993) approaches to design studies, it is feasible to complement this type of documentary and operational analysis with contextual analysis. There are transdisciplinary methodologies that are configured in design, for design, and through design (Frayling, 1993), which can support the aims of this study. This study interprets the histories, movements, and environments of nomadic worlds through their actors and the objects that accompany them on their journey, from a practical and flexible perspective. Situated and coexisting in their active environments. This perspective supports the development of a situated and adaptable methodological framework capable of engaging with the specificities of transhumant practices.

To operationalize this framework, the study draws on the following key concepts:

- **Situated methodology:** A study process that allows actions to be understood as a product of physical and historical background, in which knowledge and practices are articulated with artifacts, spaces, and traditions that are part of a way of life (Sandoval, 2013). As such, it can be multifactorial and variable.
- **Muleteer:** A person who carries out the work of transporting, herding, guiding, and moving livestock for the seasonal use of environmental resources (Araya, 2019). It is also defined as a person who drives pack animals (Muzlera & Salomón, 2025).
- **Transhumance:** A form of semi-nomadism that involves a direct relationship with seasonal changes in the environment. In other words, it defines the seasonal movement of livestock to summer grazing areas or areas with summer fodder (Zúñiga & Bengoa, 2005).
- **Coexistence:** A pluriversal way of inhabiting the world, in which multiple modes of existence, knowledge, and territories sustain each other without being subsumed under a single cultural or economic logic. The promotion and maintenance of articulated worlds imply a certain resistance and defense of territories against homogenization (Escobar, 2019).
- **Temporality:** Interpretations we make of slow and faster rhythms, economic inequalities, different everyday objectifications, and, at the same time, different perceptions of processes and phenomena. In other words, the readings we make of the rhythms of nature and society (Saquet, 2015).

Within this theoretical-applied framework, the article presents a set of tools adapted and contextualized for the observation of mountain routes and summer grazing areas. Structured in four phases—observation in context, initial cataloging, analysis matrix, and community validation—the proposed methodological chain supports the systematization and interpretation of data obtained through exploratory and immersive fieldwork.

The toolkit was not only custom-designed but also tested *in situ*, revealing the influence of emotional, territorial, and collective memory dimensions and highlighting transhumance as both concrete and abstract heritage, in virtuous dialogue and transformation with nature, within ongoing interactions that challenge standardized temporal and formal frameworks.

In sum, the article is structured as follows: after the theoretical and conceptual framework outlined in this introduction, the materials and methods are presented, followed by the study's results, and, finally, the findings are discussed, and conclusions are drawn.

## 2. Materials and methods:

Between 2021 and 2025, an exploratory and immersive analysis was conducted in the Laguna Laja-Huemules de Niblinto Biological Corridor (Figure 1). For this study, the methodology was applied to 20 shepherds, selected on the basis of their level of involvement in the community, their interest in participating and their membership of families with a history of passing down the trade of muleteer from one generation to the next, all with the aim of characterizing the artefacts and routes observed in the field. Through the creation of an archival and narrative record, a catalog was developed for use in new contemporary practices that integrate design, craftsmanship, and the social sciences. This research, which has been shared and synthesized by its authors (Sepulveda & Bahamonde, 2024), served as the basis for the study presented in this article, whose purpose focuses primarily on the processes of constructing, managing, and adapting analytical methods for this specific type of case.



**Figure 1.** Fieldwork in the Pichachén summer stay with the mule driver Sergio Jara, Central Andes, Chile, 2022. Source: Personal archive. Photography: Gino Zavala.

In the accompanying muleteer community, a profound sense of life in relation to and coexistence with the environment was observed (Escobar, 2019), which challenged conventional methodologies and demanded the exercise of situated methodologies (Sandoval, 2013). It is recognized that the most common research methods from classical design fragment interrelationships by establishing narratives that often neglect the multiple interconnections between human and non-human times (Pschetza et al., 2024). For this reason, the tools applied here sought direct exploratory recognition that would also engage with the affective dimension (Sepulveda & Bahamonde, 2024) and with non-linear times established by the meaning acquired by certain objects and routes inherited by generations bearing a sensitive history and a lineage of which the mule driver is a part (Saquet, 2015). This intricate relationship offers possibilities for immersion in cycles that flow with the



landscape and collective memories, understood as an awareness of the past that is shared by a group of individuals and as a set of collective representations (Halbwachs, 1950).

In developing the methodological proposal for this study, approaches from disciplines such as the social sciences were specifically integrated, recognizing that to understand non-hegemonic times, one must begin by designing with life at the center. This perspective involves broadening our view to understand individuals and society as part of the network of living nature and projecting them from there (González Molina & De Andrea, 2025). In addition, the importance of the craftsmanship frequently found in transhumance practices was revealed as a creative and diligent exercise, closely linked to the transits and pauses in the herders' field experience.

The fieldwork was conducted in accordance with ethical procedures, including an informed consent form that affirmed the community's voluntary participation and the study's independence from the community. Contact with the participating muleteers was established through the coordination of local networks of trust to foster collaborative relationships and engagement in harmony with the dynamics of the territory.

The following is a summary of the study route, which was structured using four interlinked methodological tools:

- **Observation in context:** First-person accompaniment of a mule driver on a grazing route. For this approach, priority was given to a passive observation model, in which the researcher remained present, taking care not to interrupt the usual flow of activity.
- **Initial cataloging:** Photographic record under the question « What do you take with you on your journey? », organized into two categories: clothing and objects. From this survey, 20 artifacts were identified, based on the objectual and functional recognition of the experience.
- **Analysis matrix:** Project organization and interpretation that considers and integrates three dimensions for each of the objects studied, from their formal understanding to their cultural significance. These are: general characterization, technical specifications, and emotional connections.
- **Validation with the community:** Review with the mule driver community along the « Ruta del Arriero (Mule Driver Route) », which confirmed the use of the artifacts during the journey to the summer pastures. Thus, the five stages of the journey were geolocated and identified: planning, preparation, journey, rest, and arrival.

In short, this methodological proposal, designed to explore contexts of « other times », was applied directly and flexibly in case study. The process yielded results limited to each tool in the process, but in a correlative and codependent manner for each step achieved, as detailed, method by method, in the following section.

### **3. Results**

#### **3.1 Contextual observation**

Contextual observation is based on the proposal by Catalunya (n.d.), who conceives it as an initial research technique in the design process, as a situated methodology focused on the user and their context of action. For this first approach to the environment examined in this study, the passive observation model (Prieto & Araque, 2006) was adopted as a specific reference, in which the participant is asked to act as if the researcher were not present, avoiding any alteration of their natural conditions. This non-invasive approach





allows the subject of study to be observed in their usual environment; in this particular case, following a mule driver on his route through nature (Table 1).

To apply this tool, the research objectives were adapted by formulating sequential questions that guided the field analysis, and by establishing limits and openings in an unpredictable context such as the Chilean mountain range.

**Table 1.** Tools for observation in context.

|                                               |                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Planning</b>                               | How is the route planned? What aspects are considered when planning it? What are the animals' requirements (in terms of objects)? What are the mule driver's requirements?                                                                                                                                                                                                                    |
| <b>Preparation of the route and the horse</b> | How long does it take the mule driver to saddle up and prepare the objects? How does the choice of objects, pieces, artifacts, and tools relate to the chosen route? Where were the objects stored? How is the weather observed?                                                                                                                                                              |
| <b>Route</b>                                  | What is the route like? Is the journey peaceful or interrupted? Is the route isolated, or does it pass through other human settlements? How does the mule driver interact with the animals? What role do the horse, mule, and dog play during the journey? What objects or artifacts does the mule driver use during the journey? Are they close at hand, or does he have to search for them? |
| <b>Rest periods</b>                           | How are the objects cared for? Are they kept in a special bag, case, or pouch?                                                                                                                                                                                                                                                                                                                |
| <b>Troubleshooting</b>                        | What kind of difficulties must the mule driver face along the way? Can he overcome them using his objects? How? How much effort does this require?                                                                                                                                                                                                                                            |

In sum, this initial stage was carried out along a route previously mapped out by the mule driver (Figure 2), accompanied by essential beings to them, such as dogs and horses. The muleteer's interaction with the environment triggered the first findings on cosmo-science (Melgarejo et al., n.d.), which reveal the ecological sovereignty underlying this type of experience.



**Figure 2.** Observation in context with the mule driver Manuel Almuna, Central Andes, Chile, 2021. Source: Personal archive. Photography: Álvaro Hernández.

### 3.2 Initial cataloging

Secondly, the initial cataloguing matrix is presented as a device for organising the findings from the previous stage. It establishes criteria for defining artefacts considered essential to the journey and to breaks in grazing (Table 2).

Along with cataloging, this tool supports understanding of a social phenomenon, such as the Chilean case study, through observation, long-standing knowledge, and practices, which, to date, are mainly based on experience (Agamben, 2007). Quoting Guber (2004, p. 37), such components allow us to « detect the meaning of practices and notions within the web of relationships that subjects present in the context of everyday life [...] ».

**Table 2.** Initial cataloging matrix.

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| <b>Hat</b>       | Protection from the sun.                                                                              |
| <b>Gaiters</b>   | Protection from the wind.                                                                             |
| <b>Stirrups</b>  | Protection for the stirrup.                                                                           |
| <b>Cinch</b>     | Strap securing the saddle to the horse's underside, ensuring its fit and protecting the horse's back. |
| <b>Saddlebag</b> | Container for transporting objects.                                                                   |
| <b>Reins</b>     | Rope used to guide the horse.                                                                         |
| <b>Noseband</b>  | Horse bridle.                                                                                         |

|                                   |                                                                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Horseshoe</b>                  | Metal pieces are used to protect the horse's hoof.                                                                                       |
| <b><i>Pelero</i></b>              | Small blanket placed under the saddle or pack, over a soft cloth or fleece blanket.                                                      |
| <b><i>Pegual and presilla</i></b> | Strap with rings to protect animals caught with lasso or to transport heavy objects; includes rings for attaching and securing the load. |
| <b><i>Maneador</i></b>            | Element used to hold the horse from the bridle.                                                                                          |
| <b>Sheep's <i>pellón</i></b>      | Sheepskin cushion for long rides.                                                                                                        |
| <b><i>Viciera</i></b>             | Bag for transporting food, made by the muleteer's partner.                                                                               |
| <b>Lasso rope</b>                 | Rope for lassoing or tying, made of braided leather.                                                                                     |
| <b>Pocket knife</b>               | Multi-purpose folding knife.                                                                                                             |
| <b>Lariat</b>                     | Rope used to tie the <i>chiguäs</i> to the mules.                                                                                        |
| <b><i>Chiguäs</i></b>             | Sacks used to hold the cargo.                                                                                                            |
| <b>Mate cup</b>                   | Earthenware mug and metal straw for drinking <i>mate</i> .                                                                               |
| <b>Wood-handled knife</b>         | Handcrafted knife made by the muleteer.                                                                                                  |
| <b><i>Avio</i></b>                | Wooden and leather pack saddle placed on the cargo horse.                                                                                |

This classification enabled the identification and systematization of a mule driver's kit comprising 20 artifacts, opening a dialogue on the material and immaterial aspects of each object. It also led to the conclusion that the various objects catalogued were not created with commercial demands in mind, but rather with human needs in a family environment, laden with quite specific, non-linear memories.

### 3.3 Analysis matrix

In order to examine each artefact and its file in greater depth, with a view to systematizing the information gathered using the aforementioned methodologies, the third stage focused on the attributes of the 20 identified artefacts. All of these were examined from three dimensions using the semi-structured interview tool (Table 4): a general characterization form; a technical analysis framework that examines material, formal and interactive qualities; and the observation of the affective — and sociocultural — elements related to their contexts of use (Table 3).

As Alonso (2016, p. 43) argues, this type of analysis involves the « ability of objects to produce unexpected emotional effects based on the multisensory relationship with them and the stories that can be told along with them ».

**Table 3.** General, technical, and affective characterization matrix.




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**General characterization sheet**


---

|                       |                                                                |
|-----------------------|----------------------------------------------------------------|
| <b>Image</b>          | Close-up photographs of the object.                            |
| <b>Name</b>           | Name of the object.                                            |
| <b>Property</b>       | Identification of who owns the object.                         |
| <b>Classification</b> | Type defined as clothing, artefact, or tool.                   |
| <b>Author</b>         | Who created the object.                                        |
| <b>Dimensions</b>     | Object measurements.                                           |
| <b>Weight</b>         | Measurement of the object in kilograms.                        |
| <b>Materials</b>      | Materialities that make up the object.                         |
| <b>Techniques</b>     | Artisanal processes involved in the manufacture of the object. |
| <b>Finishes</b>       | Final aesthetic modifications.                                 |
| <b>Price</b>          | Acquisition cost in Chilean pesos CLP.                         |
| <b>Packaging</b>      | Element that protects the object when not in use.              |
| <b>Declared use</b>   | Use of the object by agreed definition.                        |
| <b>Ergonomics</b>     | Optimal interaction between an object and a person or animal.  |
| <b>Intuitive use</b>  | Immediate perception of its use.                               |
| <b>Description</b>    | Explanation in words of the characteristics of the object.     |

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**Technical components sheet (analysis with artisan/designer peers)**


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|                         |                                                              |
|-------------------------|--------------------------------------------------------------|
| <b>Water resistance</b> | Property that prevents water from entering the object.       |
| <b>Breathability</b>    | Ability of the material to expel moisture.                   |
| <b>Comfort</b>          | Characteristics of the object that facilitate its use.       |
| <b>Mobility</b>         | Property of the object that allows it to be moved.           |
| <b>Compactness</b>      | The object's ability to reduce its volume when stored.       |
| <b>Durability</b>       | The materials' ability to increase the object's useful life. |
| <b>Traction</b>         | The material's ability to resist drag force.                 |

---





|                                                    |                                                                |
|----------------------------------------------------|----------------------------------------------------------------|
| <b>Abrasion resistance</b>                         | The materials' resistance to wear and tear.                    |
| <b>Thermal composition</b>                         | The material's properties in reaction to temperature.          |
| <b>Maintenance</b>                                 | Procedures for preserving the object.                          |
| <b>Essentiality</b>                                | Importance in selection and use.                               |
| <b>Affective components sheet (invisible line)</b> |                                                                |
| <b>Origin</b>                                      | Place, community, or tradition that gives rise to the object.  |
| <b>Traceability</b>                                | The object's history over time.                                |
| <b>Emotional appreciation</b>                      | Emotional significance attributed to each object.              |
| <b>Attachment</b>                                  | Connection to the object.                                      |
| <b>Related stories</b>                             | Memories contained in the object.                              |
| <b>Social value</b>                                | Social prestige of the object.                                 |
| <b>Non utilitarian use</b>                         | Different uses that the object acquires.                       |
| <b>Aesthetic appreciation</b>                      | Appreciation related to the evaluation of the object's beauty. |
| <b>Precedents</b>                                  | Cataloging of objects that existed prior to the object.        |
| <b>Care</b>                                        | Maintenance of the object.                                     |

The success of this characterization requires a departure from contemporary design paradigms, entering the timeless dimension of the persistent use of techniques and materials sourced from the environment. In a circular link, which normally includes chains of extraction, preparation, and manufacture, specially learned or devised through a nomadic life.

### **3.4 Community validation**

The fourth phase of the chain corresponds to community validation, which provides an opportunity to reflect on the process, the results, and the interaction with stakeholders, in order to frame a format for action that can continue to evolve and be replicated for more effective intervention (Fassi et al., 2013). This is a closing stage that aims to present the findings obtained thanks to the three previous tools, using language that makes sense to the key players in the field study. To this end, the information gathered so far was organized, assuming that the objects « come to life » along the route and, therefore, without the environment, they would become artifacts without use.

In this regard, a face-to-face meeting was held with the community of mule drivers, during which a didactic dialogue was held on the findings of the previous stages (Figure 3).



**Figure 3.** Validation meeting with the community, San Fabián, Chile, 2025. Source: Personal archive. Photograph: Gino Zavala.

This collaborative exercise revealed two major stages of transhumance: the journey to the summer pastures and the establishment of the grazing post. In between, the journey was classified into essential steps: planning, saddling, preparation, herding, and arrival. The transdisciplinary approach and dialogue with the herding community resulted in a quadrant structure that compiled the interviewees' views on the five steps of the journey, using the artifacts defined above in three layers: interaction, obstacles, and efficiency of use (Table 4).

**Table 4.** Findings validation.

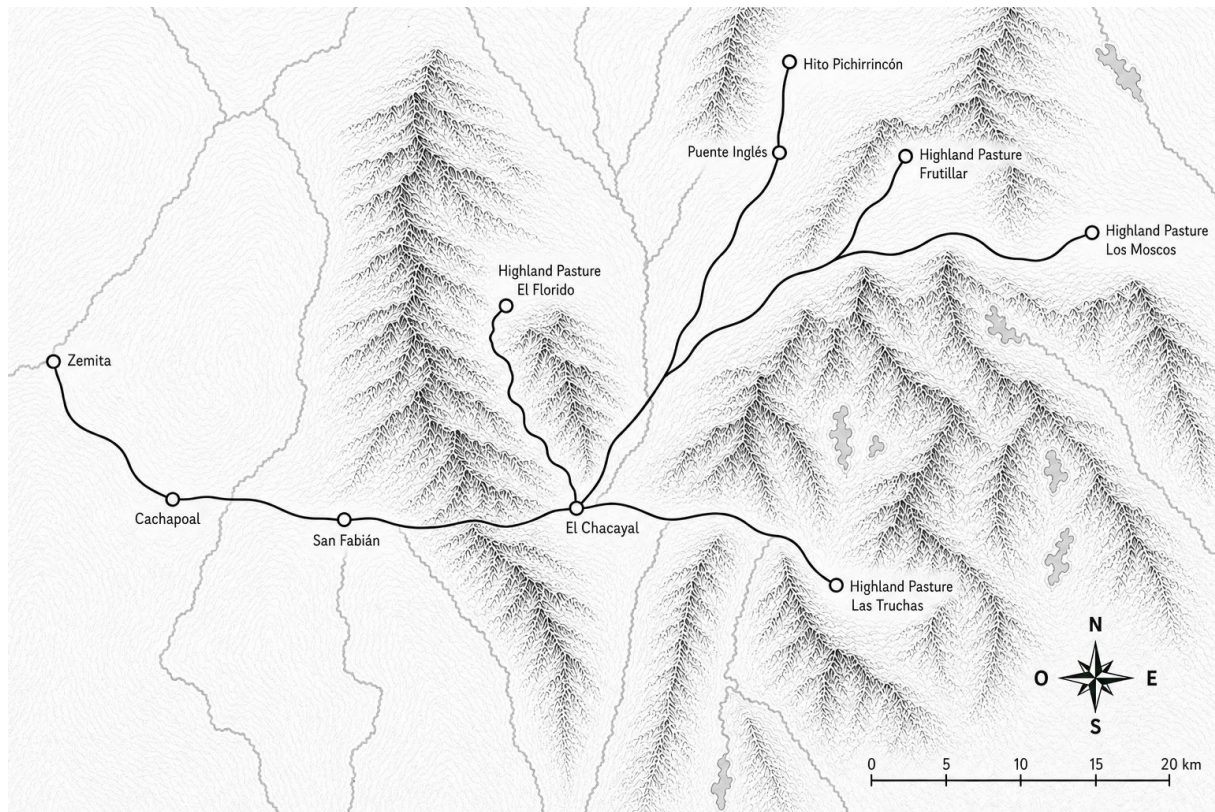
|                    | Plan                                                                                     | Saddle up                                                                                                                                      | Prepare                                                                                                                         | Drive the herd                                                                                 | Arrive                                                                                                                |
|--------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Interaction</b> | « Manual work is best done by oneself, because it turns out well. »<br><br>Miguel Almuna | « I won't waste a minute getting on my horse. If you want, we can go there and try it out so they can't say it's a lie. »<br><br>Toribio López | « Sometimes, when you don't go to the mountains very often, you carry your handmade saddlebags with you. »<br><br>Toribio López | « The lasso technique is essential up there for when an animal escapes. »<br><br>Miguel Almuna | « At that time, there were no summer pastures, so they lived in a <i>chenque</i> , under a cave. »<br><br>Sergio Jara |



|                          |                                                                                                                                     |                                                                                                                                                                             |                                                                                                                                                                                                 |                                                                                                                                                                                           |                                                                                                                                                                      |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Obstacles</b>         | « Horseshoes must be put on the horse days before starting the journey, or they will damage their hooves. »<br><br>Ramón Valenzuela | « Sometimes when you don't go away for a long time, you carry the saddlebag. When you go away for many days, you carry your load in <i>chigüas</i> . »<br><br>Toribio López | « You have a quiet breakfast and know what you have to do. And you know how far you're going to go that day and come back. »<br><br>Francisco Hermosilla                                        | « When it rains really hard, the water starts to run down, obviously getting through the gaiters, and you can't continue. »<br><br>Yeison Maureira                                        | « Generally, you have to do everything yourself, since when you're in the mountains, you don't get help from anyone. »<br><br>Daniel Medrano                         |
| <b>Efficiency of use</b> | « Horse tack matters. It's not expensive, but you can't just find it anywhere — and it's really useful. »<br><br>Javier Sepúlveda   | « Yes, well, the girth has to be in good condition, because if it breaks, you'll fall off with the whole saddle. »<br><br>Daniel Medrano                                    | « Knee pads don't last long; they need to be replaced because they wear out over time and with snow... this season we had to go and find all the animals in the snow... »<br><br>Daniel Medrano | « I have another hat called a <i>panza e' burro</i> [...] this is the one the mule driver wears in the monuments [...] it provides a lot of shade for the face. »<br><br>Javier Sepúlveda | « And these are the straps we use in case something breaks. We always carry one with us as a precaution. This one is made of animal leather. »<br><br>Daniel Medrano |

In addition, a geographical map of the territory (Figure 4), was used to relate it to this matrix. The purpose of incorporating the map was to generate a related link, understanding that, as Dowling (2023) pointed out, the vital encounter with the rugged mountain nature occurs through a deep knowledge of the mountain range's geography and nature, rooted in their own identity for hundreds of years. In other words, representing the physical location to which the participants are accustomed, in order to achieve an evocative and emotional connection to their herding experiences.





**Figure 4.** Map of routes made with the community of muleteers, San Fabián, Chile, 2025.  
Source: Developed by the author.

In the end, the trail reveals itself as a way to learn everything a muleteer knows; it is there that he brings all his knowledge to life, living in coexistence with the environment, revealing the connection between humans and nature in the mountains.

#### 4. Findings and conclusions

The design and testing of the methodological kit in rural communities along the Chilean mountain corridor yielded results that bring together material and immaterial dimensions through the analysis of objects and routes observed during fieldwork, along with the knowledge, emotions, and temporalities acquired through interaction with the community (Sepúlveda and Bahamonde, 2024).

Through these interdisciplinary and combined tools, a door opens to emotional memories that allow for immersion in coexisting ways of life that recognize, for example, the presence of hierarchies in the environment: wild animals, domestic animals, the mountain and its imposing presence, the climate, and the cosmos, among others. In traditional, standardized design, it is common to consider different scenarios; however, as Manzini (2015) proposes, these situations require the design expert to also play the role of mediator and facilitator to conceive scenarios that both trigger and fuel social debate.

This methodological chain also highlights relational elements, such as narratives associated with the landscape, objects, and family lineage. These elements trace back to a past that still persists, confirming that many of these pastoral practices do not arise from market-imposed needs and that the artifacts are not commercialized through formal channels but are instead





integrated into a network of trust and affection. This is particularly true of the *pelero*, an equestrian textile acquired through informal exchange or barter between indigenous communities and settlers. Analysis of the matrix (Table 3) showed that all 20 muleteers interviewed acknowledged maintaining an emotional connection to this textile. Of these, 12 highlighted its cultural and symbolic value linked to the craft and the region; 5 described it as a practical object with great aesthetic and regional value; and 3 associated it with family memories and emotions linked to the women of the clan who were engaged in weaving. This perspective highlights that community affection and care are fundamental to mountain life, as they sustain both people and practices through networks of collective support; and these collective forms of support contrast with the fragmented dynamics of contemporary life. However, the participants themselves express concern about the lack of generational renewal, which threatens the continuity of this living knowledge, putting at risk practices and memories accumulated over generations.

At the end of the process, it is necessary, first and foremost, to examine the perceived differences between what had been planned and what actually happened. This example required the researcher to be flexible with methods that account for this non-universal timeframe, in which the sun and the seasons influence the bonds between the communities under study, altering expectations and plans to adapt to new temporal insights. Thus, the four research tools were adjusted and optimized to fulfill their intended functions during use. As part of the integrated toolkit, these tools facilitated an understanding of the networks of identity, customs, and memories that underpin local transhumant life to this day. In practical terms, they guided flexible exercises in recognition, naming, cataloging, and dialogue around local experiences from a situated and collaborative perspective.

However, as previously noted, the application of analytical tools is not immediate. It requires preliminary steps, such as the standardization of language, which can only occur through a mediator or via prior research to understand the different cultural frameworks and the ability to adapt to new rhythms that do not conform to the hegemonic calendar or to the fixed schedules available. Therefore, it is argued that, rather than a replicable methodology, this is a basic observational structure open to modifications in its application depending on the manifest and symbolic riches of each territory. For example, the final validation tool had to be adapted from quadrants of findings to a geographic map, positioning interview excerpts at landmarks along the route, thereby bringing the language closer to the community. From this perspective, it is evident that the practice of design itself, when approached in an integrated way, proved suitable for embracing these worlds and participating in them, understanding them as independent and open systems of knowledge. The experience suggests that design has the capacity to converge with transdisciplinary approaches grounded in sensitive observation of the rural context. In this case, design combines naturally with craftsmanship and the social sciences. This point is fundamental, given that these tools serve as mechanisms that expand knowledge through a dialogue seeking the horizontal nature of knowledge, where design itself acts as an observer of new worlds.

Finally, it is worth reflecting on the possibilities of replicating this methodology in other contexts. This would likely require an understanding of the differences and similarities among transhumant communities across the world. In this regard, based on the dialogue held at the most recent International Mountain Conference (IMC, 2025), it is possible to



observe certain common patterns across different experiences and locations, such as the seasonal nature of the practice, linked to the migration to high-mountain pastures during the summer months; concerns about the loss of knowledge transmission to younger generations; and the influence of climate change.

The limitations of this study lie precisely in its geographic scope, the number of participants, and its limited duration. Nevertheless, the methodological proposal constitutes a pilot model with the potential to be adapted to other rural contexts, provided that the capabilities of each study—and of its designers and analysts—to identify tangible and intangible heritage through direct experiences with different communities of muleteers or similar groups are evaluated.

Additionally, the perspectives of this initial proposal could be extended to future applications of the kit, thereby improving cultural, educational, or procedural policies. Above all, this would be achieved by thinking about, applying, and experimenting with design in situated contexts of coexistence, such as Chilean transhumance.

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### **Conflict of interests**

The authors declare that there are no conflicts of interest.

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