








RESEARCH ARTICLE

Exploring values, rules, and knowledge around traditional hunting in a rapidly developing society

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Handling Editor: Carla Morsello**Abstract**

1. Consideration of traditional practices of natural resource management in decision-making is crucial to meet the challenges of the world's intersecting sustainability crises. However, knowledge of the role that such practices play in developed societies is scant, especially in Europe.
2. This study investigates the persistence of traditional hunting practices in the context of the Faroe Islands. Specifically, it explores the values, rules, and knowledge in relation to traditional hunting practices that shape human–nature relationships.
3. Through 31 semi-structured interviews with active participants in mountain hare hunting, pilot whale hunting, and fulmar fowling, the study employs thematic content analysis to identify key themes and interrelations grounded in participant perspectives. Utilising the values-rules-knowledge (v-r-k) framework, which integrates diverse values, rules, and knowledge types, the study addresses the complex social-ecological challenges in the North Atlantic. These are characterized by rapid economic growth, geographic isolation, strong place attachment, and social-ecological vulnerabilities.
4. Our results show that while traditional practices are diminishing across Europe, they remain vibrant in the Faroe Islands. Yet, hunting has shifted from subsistence to a recreational activity, with relational values to nature and the local community becoming more important than instrumental values.
5. Our study demonstrates the important influence of the transmission of specific values, rules, and knowledge over time on hunting and ecosystem management practices, which extends existing scholarship on the motivational basis of hunting.

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KEYWORDS

cultural practices, Faroe Islands, hunting, local ecological knowledge, relational values, values-rules-knowledge framework

1 | INTRODUCTION

Throughout the world, there is a plethora of traditional practices of natural resource use that are based on diverse values of nature. Defined as those practices that have co-evolved in relation to local environmental fluctuations and are handed down over generations (Barthel et al., 2013b), traditional practices include for instance pastoralism, community-based forestry, and artisanal fishery. They provide time-tested solutions that address a broad range of ecosystem services (Hernández-Morcillo et al., 2018), most notably the twin goals of food security and stewardship of biodiversity (Barthel et al., 2013a). Traditional practices are materialised for example in localised plant and animal landraces, landscape features, oral and artistic traditions, and self-organised systems of rules (Barthel et al., 2013b). It is critically important to consider how traditional resource uses are expressed, promoted, or inhibited in different institutional contexts because they may offer insights into how to support just and sustainable futures elsewhere (Brondízio et al., 2021). More specifically, a perspective on traditional practices can enable local participation and thus increase the legitimacy of conservation.

This study focuses on the perception of values, rules, and knowledge that define traditional practices of natural resource use (Colloff et al., 2017). Values, rules, and knowledge together form the decision-context that determines the persistence or decline of certain practices. Values, rules, and knowledge have been assessed for instance in regard to safeguarding high-nature-value farming systems (Plieninger et al., 2023), supporting conservation of critically endangered ecosystems (Topp et al., 2022), and managing marine ecosystem services (Solomonsz et al., 2021). The interactions between values, rules, and knowledge come to the fore in traditional practices that were once common all over Europe (Lomba et al., 2023) and that have shaped diverse land- and seascapes that support human well-being through multiple pathways (Fagerholm et al., 2020). Examples include the establishment of cultivated drystone terraces (e.g. on the Aegean Islands of Greece), seasonal livestock grazing (e.g. in the Alps), livestock-centred agroforestry (e.g. the *dehesa* system of Spain), and small-scale fisheries (e.g. in Northern Norway) (Agnoletti & Emanuelli, 2016). Despite a growing appreciation of the social and ecological values of such traditional practices, many of them have disappeared in Europe's countryside as a result of economic and social changes (Plieninger et al., 2016).

Hunting is a natural resource management practice that can be viewed as a source of local and traditional knowledge. Knowledge can be expressed through hunting strategies, taxonomies used to describe wildlife, and preparation of hunted animals (Petriello &

Stronza, 2021). Equally, hunting practices are influenced by broad values, which refer to life goals and guiding principles that transcend contexts (Raymond et al., 2023). Broad values like biospheric, altruistic, or domination values shape norms (including informal and formal rules) about acceptable hunting practices (Ghasemi & Kyle, 2023). For example, individuals with strong domination values were found to have a negative personal environmental identity, and a positive association with hunting (Teel & Manfredo, 2010). Hunters who feel more connected to nature scored lower on domination values and were more likely to engage in conservation practices (Ghasemi & Kyle, 2022). Yet little is known about the components and modes of transmission of values, rules, knowledge, and hunting practices across different types of wildlife.

Most studies on hunting values have only considered the relationships between broad values, rules, and knowledge, and ignored specific values. In contrast to broad values, specific values are judgments regarding the importance of something in 'specific' contexts (Raymond et al., 2023). Knowledge systems shape both broad and specific values, as shown in studies on the effect of social learning and deliberation on values and behaviour (Raymond & Kenter, 2016). Yet the pathways between specific values, rules, and knowledge are less clear, particularly in hunting contexts.

The Faroe Islands are a group of islands in the North Atlantic, in which society is heavily dependent on local natural resources. Despite rapid economic growth and other societal developments, traditional hunting of wild animal resources has remained widespread, both on land and sea (Plieninger et al., 2018; Verbrugge et al., 2022). On the one hand, these traditional food provisioning practices may be understood as a form of 'quiet' social-ecological sustainability (i.e. as stewardship of natural resources to meet the needs of the present without threatening the availability of these resources for future generations, Bogadóttir, 2020) or of reconnecting people to nature. On the other hand, hunting activities include wild species (most notably, pilot whale, Fielding, 2010) that are strictly protected elsewhere in Europe and have therefore potential for conservation conflicts. This study argues that the Faroe Islands provide a unique case of how and why hunting practices based on subsistence and sharing persist in a Western and now affluent society. The overall aim of this study is to identify the values, rules, and knowledge associated with traditional hunting in the Faroe Islands. Our specific objectives are to: (a) analyse how the interplay of values, rules, and knowledge drives decision-making of hunting, (b) elicit the changes, opportunities, and threats that hunters perceive in regard to their practices. Based on qualitative interviews with local resource users, we compare perceptions on harvesting different types of wild animal resources: mountain hare hunting, pilot whale hunting, and fowling of fulmars.

2 | THEORETICAL FRAMEWORK: VALUES-RULES-KNOWLEDGE (V-R-K)

Elements of values, rules, and knowledge are closely interlinked (Colloff et al., 2018). Analysing these linkages allows for identification of key barriers and supporting conditions for pathways to societal change (Gorddard et al., 2016). The first pillar of the v-r-k framework, the multiple and diverse values of nature, has received much attention in recent research (Raymond et al., 2023). Specific values (which are in the focus of this study) are divided into instrumental, intrinsic, and relational values (Himes et al., 2023). Instrumental values include things important as a means to an end or to satisfy mainly human preferences. Intrinsic values include something's worth as an end in and of itself, something's value independent of reference to people as valuers. Relational values encapsulate the preferences, principles, and virtues associated with relationships between people and nature. They also include relations among people in nature (Chan et al., 2016). Dominant types include individual and collective identity, social cohesion, connection to place, and sacred values (Pratson et al., 2023).

Rules shaping human–nature relationships, the second pillar of the framework, can be formal (including legislation, treaties, and directives) and informal (including norms, practices, taboos, and habits) (Gorddard et al., 2016; Topp et al., 2022). In conservation, rules mostly refer to property regimes that regulate access and use of natural resources based on private, state-controlled, or common-property management (Chiaravallotti et al., 2021). Rules that shape robust governance of nature resources refer for instance to collective-choice arrangements, participatory monitoring, graduated sanctions defined by community members, and regulations corresponding to the needs and conditions of local communities (McGinnis & Ostrom, 1996). Rules comprise both an individual and an institutional scale that frequently interact with each other (Janssen & Ostrom, 2006).

Knowledge, the third pillar of the framework, may comprise local, indigenous, and scientific knowledge systems. The integration of these different knowledge types is critical for effective environmental governance (Hakkarainen et al., 2020). Recent studies highlighted how knowledge interactions improve environmental governance (Caniglia et al., 2021) and enable sustainability transformations (Chambers et al., 2021). Here, we are particularly interested in exploring how local knowledge systems are weaved together with scientific knowledge systems to inform policy and decision-making around traditional practices.

3 | METHODS

3.1 | Study area

The Faroe Islands, an autonomous territory of the Kingdom of Denmark, is a small archipelago in the middle of the North Atlantic located half-way between Scotland, Iceland, and

Norway, centred on 62°N and 7°W (Figure 1). The islands cover a total area of 1399 km² and the population was 54,440 in 2024. The islands' outer areas are characterised by spectacular, precipitous cliffs, and their inland areas comprise valleys, mountain ridges, and upland hills. The climate is principally oceanic, with a mean temperature of 4°C during the coldest months (January, February) and 11°C during the warmest month (July) (Cappelen & Laursen, 1998). The islands are subject to rapid tourism and aquaculture developments. Overnight visitor stays have grown more than 60% in 10 years (Statistics Faroe Islands, 2022). In 2021, roughly 83,000 tons of salmon farmed in aquaculture were exported at a value of approximately 600,000,000 € (Bjørndal & Mrdalo, 2023). GDP per capita ranks among the top 5% of countries worldwide, and material consumption levels are high compared to global and EU averages (Bogadóttir, 2024, forthcoming). However, the traditional land and resource management system of whale, seabird, and hare hunting as well as sheep grazing is ongoing.

3.2 | Hunting contexts

Mountain hare (*Lepus timidus*) was introduced to the Faroe Islands from Norway in 1855. The introduction was initiated by the authorities who believed that hare could provide a welcome food supplement to the Faroese people. Hare multiplied rapidly, and a hare hunting tradition started a few years later. Hare is found today on 15 of the 18 islands. The right to hunt hares is linked to land tenure, but regulated through national rules. The Faroese outfields are divided into 481 land lots, and hare hunting currently takes place in around 200–300 of these (Figure 2a) (Magnussen, 2019). Between 700 and 1200 people participate in hare hunting, corresponding to around 3%–6% of the total male population above 18 years. Between 2012 and 2023, the number of hunted hares was on average 6300 (Magnussen, 2024), corresponding roughly to one hare per every eight inhabitants.

Hunting of pilot whale (*Globicephala melas*) can be traced back to 13th century historical records. Pilot whale drives and killings were practised broadly in the Norse and North Atlantic region (in Shetland until the early 1900s and in New Foundland until the 1960s). The practice is known in the Faroe Islands as *grindadráp* (Figure 2b) and has attracted attention in global media since the 1980s. While international protests point to the barbarity of killing cetaceans, especially when not out of necessity, the Faroese authorities argues that the *grindadráp* is sustainable (Bogadóttir & Olsen, 2017). The pilot whale population in the eastern North Atlantic amounts to approximately 380,000 animals, with 100,000 in the area around the Faroe Islands. The annual catches of approximately 600 whales correspond roughly to 350 tons of whale meat and blubber or approximately 7 kg per capita (Statistics Faore Islands, 2019).

First reports of nesting of fulmar (*Fulmarus glacialis*) in the Faroes stem back to 1839, and fulmar hunting is therefore a relatively late

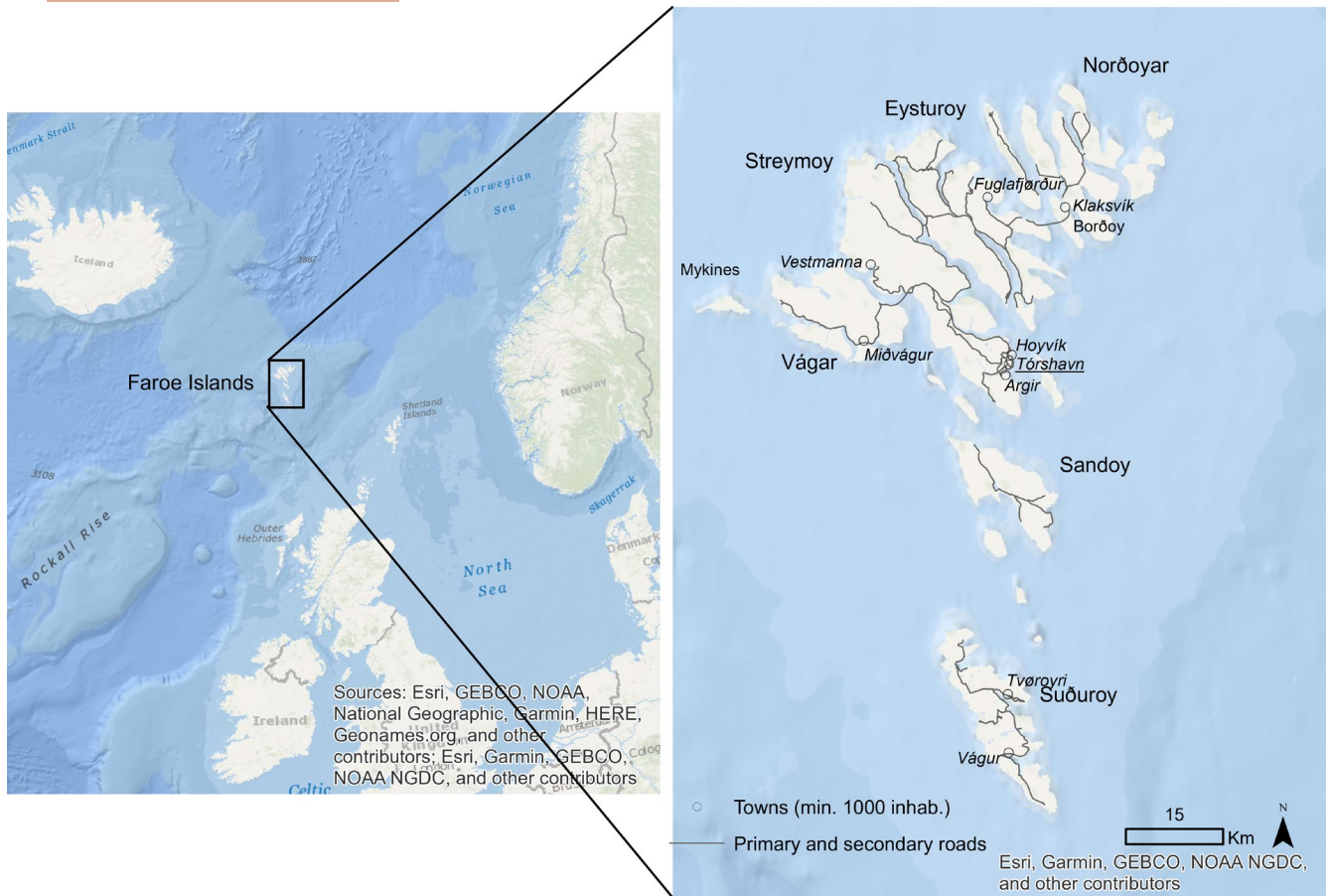


FIGURE 1 The Faroe Islands, located in the North Atlantic.



FIGURE 2 Traditional hunting practices in the Faroe Islands: (a) mountain hare (Photo: Harald Björgvin), (b) pilot whale, (c) fulmar.

phenomenon. However, harvesting of other seabird species, such as Atlantic puffins or common guillemots, has been practised since the settlement of the Faroes (Thorsteinnsson, 2008). As the abundance of many seabird species has declined dramatically during the past half century, harvesting has partly been restricted and in some cases temporarily banned or voluntarily abandoned (Bogadóttir, 2020). Seabirds and seabird eggs were previously an important part of the Faroese diet, especially on those islands that were known as *fug-lapláss*, 'bird-places'. Around 100,000 fulmars are caught per year (Sørensen et al., 2018). Generally, the right to hunt birds on land belongs to the landowner. In contrast, the right to hunt birds at sea is free. On land, adult fulmars and fulmar eggs are harvested from bird cliffs. In late summer, the young fulmars leave their nests. As the young fulmars sit in the sea and are not yet able to fly, they can easily be caught from a boat in this period. Most fulmars are caught in this way. The estimated annual catch corresponds to approximately two birds per capita (Figure 2c).

3.3 | Sampling

We conducted semi-structured interviews with individuals who regularly hunt hare, pilot whale, and/or fulmar. Interviewees were mainly approached and recruited through social media. An advertisement of our intent to interview local people about Faroese hunting practices and culture was posted on three Facebook sites: (1) 'Hare hunting in the Faroes' (*Haruskjóting í Føroyum*, private group of 3200 members), (2) 'Hunting of birds in the Faroes' (*Fuglaveiða í Føroyum*, private group of 2500 members), and (3) on the personal profile of one of the authors. Additionally, we sent inquiries to people who we knew to be hunters. All respondents who volunteered to be interviewed were men. We expected that approximately 10 interviews for each hunted species would allow for the full spectrum of hunters' perceptions. We finally selected 31 interviewees (those who had expressed interest in participating first), while another 15 were put on a waiting list. Each interview focused on the hunting of either hare, whale, or fulmar. However, most of the respondents participated in more than one type of hunting, with more than half (53%) participating in all three types of hunting. As there is no formal registration list of hunters, our advertising approach was the only possibility to recruit respondents. This approach may have led to a bias toward the views of those hunters that speak more openly about their practices. Some topics may be underrepresented in the interviews due to their sensitive nature (e.g. population harvesting numbers or informal community rules).

3.4 | Interviews

Our interviews sought to elicit respondents' perceptions of hunting (understood as the interpretation of information on the interactions between people and the natural environment, based on their lived

experiences, Scholte et al., 2015). Interviews were carried out covering the following themes: (1) background to hunting; (2) hunting practices; (3) specific values of hunting and motivations to hunt; (4) role of formal and informal rules and traditions; (5) role of local and expert knowledge; (6) broad values; (7) perceived changes, opportunities, and threats hunting is facing; and (8) personal characteristics (see interview guidelines in Supporting Information S1). Interviews were carried out by a field assistant between April and July 2023. Each interview lasted 30–60 min and was conducted in Faroese. Interviews were held in person at the interviewees' or interviewer's homes (19 interviews) and by phone (12 interviews). A systematic self-assessment provided by University of Kassel indicated that our survey should be performed in an ethically sensitive procedure (but the university's ethics committee did not require formal ethical approval). We did so by carefully selecting questions for our interview guideline, comprehensively training our field assistant, creating a trustful interview environment, and processing and storing all interview data in compliance with privacy rules. We obtained verbal consent before carrying out the interviews. We preferred verbal over written consent as some interviews were carried out by phone and as the latter appeared not in line with local habits in the Faroe Islands.

Respondent age ranged from 24 to 70 years (median: 46 years). Among the 31 respondents, 7 lived in the two major cities Tórshavn and Klaksvik and the remaining ones were distributed across 18 villages. They had lived in these places for between 2 months and 55 years (median: 32 years). Respondents worked in all sectors of society and 71% had a higher education degree. Among them were a managing director of a company, a carpenter, an engineer, an IT specialist, a navigator, an administrative secretary, workers in salmon farming, and a retiree. Nineteen respondents reported a family tradition of hunting (five for hare, seven for pilot whale, and seven for fulmar).

3.5 | Analyses

All interviews were audio-recorded and later transcribed and translated from Faroese into English. The interview guide is included in Appendix S1. We used thematic analysis (Braun & Clarke, 2006) to identify themes and sub-themes related to values, rules, and knowledge that were grounded in the language and ideas of the interview participants. We conducted our analysis iteratively, reading and familiarising ourselves with the transcripts, coding all content related to v-r-k, and clustering codes thematically with the use of MaxQDA software. To guide the open coding, we developed a coding scheme during a co-author workshop in August 2023. We first explored and coded responses and then discussed the views expressed in responses. Codes were later refined to support inter-rater reliability. For each individual code, we collated all data segments (instances of text) in which that code appeared in the dataset. Themes were generated by grouping codes together. Presence or absence of data was then recorded for each

TABLE 1 Values expressed by hare, pilot whale, and fulmar hunters ($n = 158$ individual codes).

Value type	Articulated themes	% of statements	Illustrative quote
Instrumental	Income/livelihoods	4.4%	'It is a source of making money'
	Local/natural/quality food	12.7%	'The food is local, organic, and you know where it comes from'
	Self-sustenance	10.8%	'It is rewarding for me that I am able to provide for myself'
Intrinsic	Responsibility for animals	5.7%	'I think that you should honour the animal that you kill, by eating'
	Ecosystem stewardship	3.8%	'There are so many hares, and they mate rapidly and they [hunters] have to regulate them, since hare affects the sheep and the outfield'
Relational	Being out in nature	8.2%	'You get exercise and fresh air'
	Excitement/happiness/enjoyment/pride	20.9%	'There is an excitement in going out to hunt and provide for yourself'
	Socialising/collaboration	9.5%	'You also have a nice time together with the others; it is also a social thing'
	Sports/competition	12.7%	'You get some adrenaline. It is the sport about it'
	Tradition/cultural heritage	11.4%	'It is very important that we maintain the tradition, which is unique in this world, no one else does this'

theme or subtheme. Predominance was not the sole measure of thematic significance; the importance of minority viewpoints was also considered.

4 | RESULTS

4.1 | Values

We assigned 158 individual codes to 10 articulated themes across the three value types (Table 1). The results are presented separately for hare, pilot whale, and fulmar below.

4.1.1 | Hare

For hare hunting, instrumental values were paramount. Respondents highlighted the provision of localised, healthy, natural, and high-quality food as important value of hunting: 'There are many who like the taste of hare. [...] If you are talking about ecological food, then there is not anything more ecological than the hare. She lives of the mountain grass, without any type of supplement'. The fact that hare hunting provides self-sustenance was mentioned as well, while income from selling did not play a role. Among the intrinsic values of hare hunting, responsibility for animal welfare was expressed. Hunting was framed as active stewardship for ecosystems, arguing that hare populations need regulation through hunting to avoid damage to the outfields and to protect grazing resources. Among the relational values, being out in the nature of the outfields was important: 'There are few people who have experienced

Faroese nature similar to the way that hare hunters and regular herders [...] do. It is a very special way of experiencing nature'. Being out in nature was related to special experiences: 'You hear the silence of nature, it is balsam for the soul. Especially when it snows. You only hear the crack of snow under your feet'. For respondents, the excitement, happiness, and pride of hunting mattered as well: 'It is quality of life. It is something that you look forward to and talk about'. At the same time, hare hunting was considered a sport and a social activity that requires collaboration. Respondents further emphasised hunting as a tradition and a cultural heritage that requires to be maintained.

4.1.2 | Pilot whale

Instrumental values of pilot whale hunting revolved around provision of 'special' food and sustenance: 'It is first and foremost for the food. Because we like pilot whale, and we also like to offer pilot whale meat and blubber when we have guests'. Intrinsic values were hardly mentioned in the interviews except for the imperative to avoid unnecessary suffering of the animals. Among the relational values, the pride of hunting dominated: 'I am proud of everything regarding pilot whale hunting. I feel proud that I know how to do it and that I can pass it on to my children'. One respondent described the unpredictability and focused attention of whale hunting as a particular value: 'Nowadays, where you run to all different kinds of things—you almost don't have time to live—so when there is a pilot whale hunt, it seems like the world comes to a halt in the Faroe Islands'. Social coherence was mentioned as a relational value: 'It is an activity that holds the village community together, especially in Suðuroy, where we have the home-portions, since every single one gets a

portion—also the elderly who cannot take part in hunting'. Whale hunting was also framed as an important tradition and heritage unique to the Faroes.

4.1.3 | Fulmar

The instrumental values of fulmar hunting centred on providing a special type of localised food: 'You eat a fulmar from the Faroe Islands, instead of eating a chicken from Brazil or elsewhere'. Respondents mentioned that fulmar was used for self-sustenance, but also appreciated for the income opportunities it provides. Intrinsic values were similar to those expressed for hare hunting, mainly regarding respect to and responsibility for animals. Aspects of ecosystem stewardship also appeared: 'The fulmar is a new population, and it has exploded and is everywhere on the islands; therefore, I think you should utilise it'. The pride of fulmar hunting was expressed frequently: 'Yes, most definitely. It is a part of what makes you feel like a Faroese and as a man. It is enjoyable and good, and also, I think it is healthy, it keeps you in fit shape, and you feel like you are young and alive'. Aspects of socialising and collaboration mainly referred to sharing the catch among collaborators and family, but were mentioned less than for hare and pilot whale. Hunting as sport appeared prominently in the statements too. Fulmar catching was also highlighted as a tradition that is valuable, but in danger of disappearing: 'It is an old tradition

that is something special. [...] to provide for yourself, there is a little honour in it'.

4.2 | Rules

Rules about hunting were defined either by the local community, by legislation, or by the media and wider public (Table 2).

4.2.1 | Hare

For hare hunting, informal community rules and traditions (so-called 'unwritten rules') stood out. Statements about safety issues were mentioned frequently, such as keeping a minimum distance between hunters, not to drink alcohol while hunting, and to carry guns safely. Other community rules were about obtaining permission for access to land by the respective farmer and about hunting only in those areas of the outfields that have been assigned to the hunter. Also, the management of hare populations was subject to some community rules, for instance in regard to the intensity or frequency of hunting ('You don't take more than you can eat'). One respondent specified a community rule that all hunters meet once a year to take care of the outfields by creating artificial hare caves ('harusetur'). The necessity to have a weapon licence and to respect the hunting season (from

TABLE 2 Hunting rules mentioned by respondents (n=87 individual codes).

Rules	Articulated themes	% of statements	Illustrative quote
Community	Access to land/sea for hunting	4.6%	'We always ask the farmer on the day before going'
	Safety	20.7%	'Safety. There is not any law for this, but: safety. You should not shoot, if you cannot see the background. If you are in doubt, then let the hare go, and you will see it on the next trip. It's mainly on safety, otherwise there are no rules'
	Seasonal/weather restrictions	5.7%	'It is very important to read and know about the tides'
	Other rules	3.4%	'We have not had any written rules. [...] You do your things as good as you can'
	Harvesting intensity	11.5%	'When you have been on a good trip, then you should let around 14 days pass, before going again'
	Sharing of harvest	9.2%	'Then after the hunt, when we have gotten some pilot whale meat and blubber home, then we give out. To the people in our closest family, and to pensionists - people that can't participate themselves'
Legal	Hygiene/processing	6.9%	'We today use disposable gloves and these good raincoats and chlorin, that is so to say our unwritten rule'
	Permission to hunt/safety	3.4%	'I don't think there are any laws or legislations apart from the licence to kill'
	Seasonal/weather restrictions	8.0%	'The time of the year is a restriction; otherwise, there are none'
	Killing methods	4.6%	'The whaling spear and the sharp hook that you stab with are not allowed anymore'
Public opinion/media	Hygiene/processing	2.2%	'Legislation? There isn't that much legislation. You only get recommendations in terms of hygiene and disposal'
	Killing methods	1.1%	'The media focus has been good, since it had made us develop better killing methods'

2 November to 31 December and not hunting on Sundays or after sunset) were the only legal rules mentioned. Public opinion and the media seemed not to set rules for or affect practices of hare hunting.

4.2.2 | Pilot whale

For pilot whale hunting, community rules were mainly developed around responsible harvesting and sharing of the hunt. One respondent expressed: *'That you should only go pilot whale hunting for the food, not just for killing. And that you should take everything up, and if the sheriff says that you have enough, then you have enough'*. Sharing was in part formally organised, by writing one's name up in a list after finishing the hunting. On the other hand, sharing whale products out of generosity was prominently mentioned (see quote in Table 2). Safety rules were also harnessed by traditions. These referred for instance to respecting the decisions of the local sheriff, safe handling of knives, and staying in safe distance when not participating in a hunt. Legal rules played a minor role, but some respondents highlighted provisions such as the prescribed use of the spinal lance and the blow-hook that allow for a quicker and less painful killing. Managing wild animal populations, for example by regulating harvest numbers, was not mentioned as a rule, although respondents highlighted principles of being mindful and not taking out more whales of the population than necessary.

4.2.3 | Fulmar

Community rules around fulmar catching affected safety, as for instance keeping safe distances between boats and choosing the right weather and tide conditions. They also highlighted respecting the birds: *'It is not just for fun. You need a certain kind of respect for the hunt and the animals you are hunting'*. This implied limiting fulmar catches: *'We should always be able to process the catch for the day. That is our rule. [...] When we are reaching a given amount of fulmar caught, we will stop and go home'*. Some respondents were observing population trends: *'What affects me in my hunting is if I see that there is a decline over a longer period, then I do not have any interest to continue hunting'*. Helping out each other was another

important community rule: *'Well, the tradition is that the family comes to help. If you want to get a portion, then you will have to participate'*. Respondents highlighted that land-based seabird catching (in cliffs) is included in individual land rights, enabling local communities to collectively decide to introduce restrictions or temporary bans on harvesting in their area. In contrast, legal rules appeared marginally, for instance regarding compulsory safety standards applied to boats (e.g. availability of life jackets) and recommendations for hygiene and waste disposal.

4.3 | Knowledge

Respondents mentioned six different pathways through which they had learned about hunting (Table 3).

4.3.1 | Hare

For hare hunters, the local community was the most important source of knowledge. In this category, respondents referred mostly to friends, but also to experienced and older men, locals, farmers, owners of the outfields, and other hunters. Family was another important provider of knowledge, mainly fathers, but also grandfathers, brothers, cousins, great uncles, and other relatives: *'I have it from my dad and my brothers; they are much older. So, it has come down that way'*. Other sources of knowledge were academia, and here a citizen science-based monitoring of hare hunting (a Facebook group run by the University of the Faroe Islands) was frequently mentioned as being useful. Books, magazines, and websites were other sources of knowledge, while consultation of government agencies and 'learning by doing' was mentioned by only one respondent respectively.

4.3.2 | Pilot whale

For pilot whale hunting, community and family were the most relevant sources of knowledge as well. For instance, one respondent named: *'[...]the men of Vágar who] taught me very well the what, where, and how. Thereby I became more confident in the pilot whale killing*

TABLE 3 Knowledge types highlighted by respondents ($n = 75$ individual codes).

Knowledge type	% of statements	Illustrative quote
Family	29.3%	'My father taught me to rappel, and my mother's husband taught me to do it by boat, I think around when I was sixteen'
Community	28.0%	'In the beginning, I asked the experienced men'
Government	10.7%	'I do use the governmental agencies, if there is something that I am in doubt about. Especially the laws, if there is a change and when you can hunt'
Media/Books	13.3%	'I have read quite many of them [hunting magazines], about shooting and the likes'
Academia	10.7%	'The only scientific information there is about hare hunting is the counting of hare hunting after each year, maybe with some stories from that year'
Experiential	8.0%	'You learn by doing'

since I believed that those men were the best at what they did and then I learned to do as they did it'. Government agencies, in particular veterinary officers, were cited prominently as well, especially regarding knowledge about formal regulations, the anatomy of the whales, and the use of the spinal lance. While learning by doing played a role, use of academic knowledge and knowledge from books and other media was not widespread among pilot whale hunters.

4.3.3 | Fulmar

For fulmar hunting, only few sources of knowledge were mentioned: 'It isn't that complicated. You just have to try it'. The community was important for learning about the right spots for fulmar catching. Media were mainly used for information on tides and weather forecast.

4.4 | Summary of findings across the three species

Figure 3 compares the frequency in which different types of values, rules, and knowledge were mentioned by the three groups of hunters. Across the v-r-k framework, the hunters spoke most frequently about hare hunting, while pilot whale and fulmar hunting appeared to a lesser extent. A clear exception in the data is pilot whale hunting that was primarily mentioned in relation to wider public and media discussion.

4.5 | Perceived changes, opportunities and threats

Respondents mentioned changes they observed in regard to population numbers, hunters' interest, and hunting practices. For hare, a

major observation was that the interest in hunting had decreased: 'I think that probably is the largest difference, that the interest is not as big as it used to be'. The decrease in hunting intensity has also come with a perceived decrease in hunting ambition: 'I do not feel the same level of competition between the young men today as it was in my day'. Respondents expressed that the younger generation had not grown up with the same hunting tradition. It was felt that hare hunting had changed to becoming a sport, not a necessity anymore, as people nowadays can buy food. Observed changes in hunting practices included more awareness of gun safety, more formalised registration of hunting and arrangements with landowners, changes in hunting seasons, and better equipment with hunting gear. Most respondents expected that hare hunting would remain largely the same in future, as this practice does not cause societal conflicts. However, some expected the trend of hunting becoming a sport to continue.

Participation in pilot whale hunting was felt to have increased over years, with younger people and women developing more interest. This was interpreted by some as a consequence of anti-whaling activism that had stimulated younger people's interest in whale hunting traditions. However, it was also stated that commitment to hunting had decreased in competition with other valued interests and activities in people's life (expressing a rules-values interlinkage): 'Twenty-five or more years ago, when people heard the signal for pilot whales, then you would let go of whatever you did, or the men would go for pilot whale hunting and the children got off from school. Today in contrast, people might say that they cannot go because they are working'. Consciousness and professionalism of whale hunting has grown, with much more awareness of preventing the suffering of animals, respondents highlighted. The introduction of more comprehensive formal rules (particularly regarding the way animals are killed) were considered a positive change. It was generally expected that pilot whale hunting will decline in the future. This was related to a greater

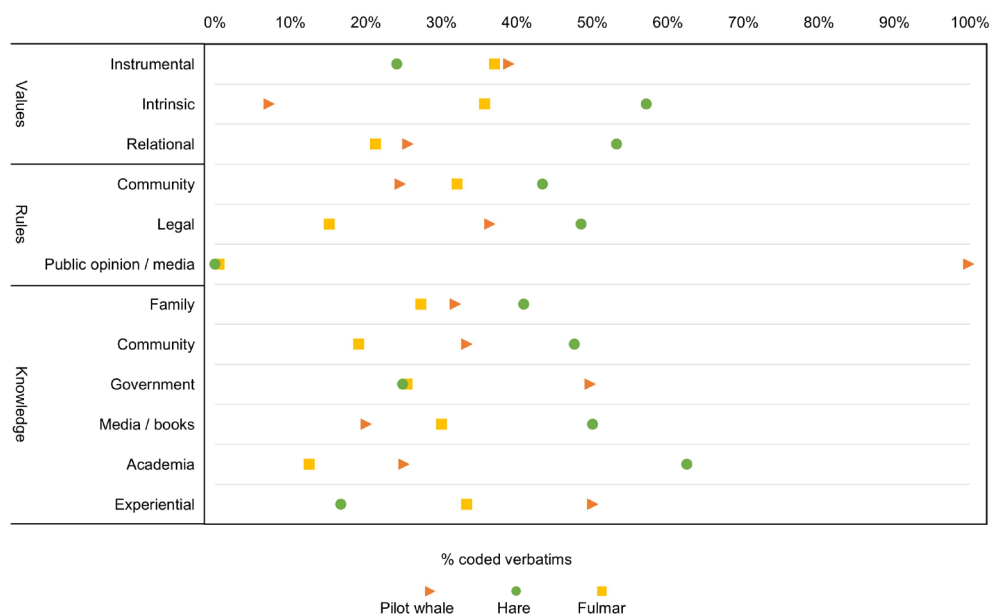


FIGURE 3 Summary of the frequencies of statements about values, rules, and knowledge.

awareness of health risks linked to consuming meat, blubber, and other whale parts that are increasingly polluted with contaminants such as mercury and organochlorine compounds, and to overall shifts in the dietary preferences of Faroese people (expressing values-knowledge linkages): *'I think that the pizza and chicken culture will eventually win over our traditional culture'*. Wishes for the future of whale hunting referred to technical aspects such as the selection of whaling bays, the management of visitors, and a more appropriate disposal of whale carcasses.

Perceptions of how fulmar populations had developed in the past were inconsistent. While one respondent expressed that *'there are no birds to shoot any longer'*, others felt that fulmar populations had increased. There was wide agreement that the number of fulmar hunters has strongly decreased over time: *'Every single boat in the village used to go hunting back in the days and there used to be much more fishing boats. But now, there are a lot less fishing boats'*. However, this was partly balanced by single hunters harvesting large quantities of fulmars for commercial purposes: *'There are also those who really go for it and try to make money. They can take some thousands'*. A major change in harvesting practices was that traditional wooden boats had been replaced by larger and faster modern boats, so that harvesting requires much less time today. Climbing ropes for cliff harvesting had also improved safety. Respondents did not expect major changes, though some indicated that changing public opinion of fulmar harvesting may exert influence in future: *'The last years you have heard people talking that it is sad that we kill the birds'*. Concerns that microplastics pollution may impair fulmar consumption were also expressed. Some respondents wished introduction of a quota system to regulate fulmar hunting and to reverse the trend back toward smaller and slower boats.

5 | DISCUSSION

Consideration of traditional practices of natural resource management in decision-making is crucial to meet the challenges of the world's intersecting sustainability crises (Brondizio et al., 2021). However, knowledge of the role that such practices play in developed societies is scant, especially in Europe (Hernández-Morcillo et al., 2014). Accordingly, this study was motivated by our interest in understanding the persistence of traditional hunting in affluent societies. Overall, our study demonstrated the important influence of the transmission of specific values, rules, and knowledge over time on hunting and ecosystem management practices, which extends existing scholarship on the motivational basis of hunting (e.g. Ghasemi & Kyle, 2022, 2023). Faroese hunters are increasingly appreciating relational values associated with hunting experiences, which is a point of departure from other studies which found that hunters are more traditionalist (i.e. embracing domination values and being less inclined to view wildlife as part of one's social community and deserving of rights and care, Liordos et al., 2023). In the following, we firstly interpret the identified sets of values, rules, and knowledge. Secondly, we explore how these are changing over time.

5.1 | Values, rules and knowledge around hunting

Our survey revealed a broad range of instrumental and relational (and to a lesser degree intrinsic) values that are motivating the persistence of hunting. While eating locally sourced food and generating food for subsistence was among the strongest instrumental values expressed, the provision of income mattered only to a small number of hunters, especially to fulmar hunters. In contrast, recreational and other relational values have increased in importance, indicating an overall trend from hunting for meeting basic needs toward hunting as a sport. Among the broad range of relational values, hunters particularly highlighted social relationships between people in nature, most notably aspects of collaboration and sharing. Connections from hunting to Faroese identity stood out. Similarly, fishing communities in Northern Norway link traditional practices primarily to values such as maintenance of identity, nurturing of skills, social cohesion, and acting meaningfully in one's local environment (Kaltenborn et al., 2017). The values we identified apply in broadly similar ways to all three types of hunting that we studied and may thus define the human-nature relationship of Faroese hunters in a wider sense (Bogadóttir, 2020). The evidence of closely coupled instrumental and relational values of Faroese hunters challenges the frequently expressed dichotomy between utilitarianism and mutualism. In line with the IPBES inspired plural values typology (Raymond et al., 2023), this indicates that many more differentiated—and often synergistic—values matter in the context of the Faroes. Such alignment may offer opportunities to incorporate non-instrumental values into decision-making (Mattijssen et al., 2020).

Although hare and pilot whale hunting are social activities that are carried out collectively, rather few formal hunting rules emerged from our interviews. Legal provisions apply to technical aspects of safety and hygiene, but hardly address any environmental issues (Bogadóttir & Olsen, 2017). Community rules were more present. These also referred to safety aspects, especially to organising collaboration during hunting, and emphasised the imperative of sharing the harvest among family or the community. Conservation aspects such as regulation of harvesting intensity or frequency appeared only sporadically and often emerged from local perceptions rather than fact-based knowledge on harvest and population development (a rules-knowledge interaction). Given that traditional societies have shaped a plethora of customary rules and taboos around use of wild resources around the world (Colding & Folke, 2001), we found relatively few formal and community rules in the Faroe Islands. While hare hunting rights are bound to land ownership, fowling of fulmars on the sea (and to a lesser degree pilot whale hunting) has the character of an unregulated open-access regime. In the social-ecological context of the Faroe Islands and their small human population, stricter management rules may not be required to sustain the relatively large and stable animal populations (Chiaravalloti et al., 2021). But given the proximity to the European Union and its strict protection of pilot whale and fulmar populations, such open-access regime may appear irresponsible.

Our interviews revealed how hunting practices are grounded in experiential knowledge (Fazey et al., 2006), transmitted by family and the local community much more than through academic or other types of formal knowledge. Although for instance the social organisation of whale hunting is knowledge-intensive, this knowledge appears to be mainly tacit and was not spelled out in much detail. At the same time, the widespread participatory monitoring of hare populations showed that local people are interested to combine traditional knowledge with modern monitoring approaches through citizen science tools (Danielsen et al., 2017).

5.2 | Changes over time

Our study demonstrated a remarkable persistence of traditional practices. While such practices often have been maintained due to poverty and lacking development options (Hartel et al., 2023), identity and social relations appear to be factors that have stabilised them in the process of economic development in the Faroe Islands. But despite this general persistence of hunting practices, our study revealed changes that appear typical for the transition of traditional practices and local knowledge in Europe (Hernández-Morcillo et al., 2014) and on other islands (Chertow et al., 2013). These changes included a general decrease in interest in and knowledge of hunting practices, particularly among young people. Hunting has also clearly shifted from a necessity to a recreational activity, with relational values to nature and the local community becoming more important than instrumental values. Remarkable in our study was the large homogeneity in terms of gender and ethnicity, with our respondents being purely male and of Faroese nationality. However, some respondents pointed out that hunting is increasingly being practised by new population groups such as women or immigrants. Formal regulations were generally more welcomed rather than rejected as a means to navigate such changes in local hunting cultures.

6 | CONCLUSIONS

How sustainable is traditional hunting on the land and seas in the Faroe Islands? Our study revealed how the interplay of values, rules, and knowledge drives decision-making of hunting in the Faroe Islands in three different hunting contexts. Faroese hunters perceive shifts in broad values of society and the way these shifts are influencing specific values of hunting as threats. General shifts toward biocentric worldviews, concerns with health risks, and lower interest in hunting are changing the specific values of hunting. For instance, broad utilitarian values are becoming more dominant in expressions on specific values of fulmar hunting, while such values appear more tabooed in hare and whale hunting. Our study also shows how these changes in specific values can be understood in relation to perceptions of knowledge, such as the inconsistencies in hunters' perceptions of population numbers of fulmar.

In comparison to hare and whale hunting, fulmar hunting does not include collective monitoring of catch sizes. Considering that conditional cooperation and mutual monitoring reinforce one another, awareness of values-rules-knowledge connections can be useful for supporting the incorporation of diverse values in resource management, for instance through collective participatory monitoring schemes. Understanding such interlinkages offers insights into how resource uses are promoted or inhibited, and how already existing and locally meaningful practices can be guided toward sustainability. However, while the values-rules-knowledge framework is useful for understanding the context within which decisions are made, it needs to be complemented by ecological information such as population data for a comprehensive assessment of the sustainability of traditional hunting practices.

AUTHOR CONTRIBUTIONS

Tobias Plieninger, Nora Fagerholm, Anton S. Olafsson, Christopher M. Raymond, and Laura N. H. Verbrugge conceived the ideas and designed the methodology. Eyðfinn Magnussen coordinated data collection, and Tobias Plieninger performed the data analysis. He also led the writing of the manuscript. All authors contributed to manuscript writing and revision and gave final approval for publication.

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CONFLICT OF INTEREST STATEMENT

Tobias Plieninger is a Lead Editor for *People and Nature*. Anton Stahl Olafsson is an Associate Editor for *People and Nature*. Neither were involved in the peer-review and decision-making process. The authors do not have any conflicts of interest regarding the article.

DATA AVAILABILITY STATEMENT

The study gathers qualitative data through 31 in-depth interviews. The data have not been archived publicly because participants were ensured that all research data would only be shared with the researchers pursuing this study. As the interviews include many place-specific informations and as the Faroe Islands have small population numbers, it is impossible to fully anonymize the transcripts.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Data S1: Script to be used for performing the 31 interviews.

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