Biocultural Innovation Through Cultural Entrepreneurship in Peripheral Europe: A Case Study of Traditional Herzegovinian Crafts

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Introduction:

This study conducted in Eastern Herzegovina examines the potential of traditional knowledge of rural and peripheral areas in sustainable development through a cultural economics and entrepreneurship perspective. The study focuses on three traditional crafts (*craft cheese making, stone masonry, and traditional weaving and embroidery*) embedded in the local environment as representations of biocultural innovation in action.

Through the three cases the study argues for a reevaluation of the role of rural and peripheral cultural and creative industries (CCI) in environmental protection, preservation of cultural heritage and social and economic development. Challenging contemporary notions of mainstream top-down approach to sustainability. It invites for an expansion of theory of CCI, rooting the sector in biocultural diversity theory asserts the interconnectedness and interdependence of biological and cultural diversity emphasizing the coevolution of environment and culture, and arguing for the integration of an expanded definition of biocultural innovation, incorporating also local and rural traditional knowledge pools and place-based solutions for local environmental and socio-cultural challenges, propelling the role of CCI in advancing sustainability (Maffi, 2007).

The study does this by researching the cases using an ethnographic method design (based on semi-structured interviews and observations during site and event visitations) and analyzing the collected data using a grounded theory (ref) approach. The research will be guided by the following research question: *How does the utilization of traditional rural knowledge in Herzegovina as biocultural innovation stimulate (cultural) entrepreneurship?* The collected data will therefore be processed into themes based on the RQ, one focusing on the biocultural innovation process and the second focusing on the (cultural) entrepreneurship process. The study will conclude with a thematic synthesis and a discussion of the findings.

Using this dual framework of biocultural innovation and cultural entrepreneurship, this study uses an ethnographic method design to analyze three traditional crafts in Eastern Herzegovina (craft cheese-making, stone masonry, and textile processing) as real expressions of biocultural assets in action. Semi-structured interviews and participatory observations with craft collectives (e.g., “Udruženje Proizvođača Gatačkog Kajmaka” and “Udruzenje Zena Vasila”) and independent stonemasons will aim to demonstrate how biocultural assets are used in practice, and how cultural entrepreneurship actively converts, conserves or constructs their sustainable value. A theory driven analysis based on this framework will thematically map these processes, addressing the research question.

Literature Review and Theoretical Framework:

The theoretical framework that will be established is based in the current debate of sustainability and CCI. The idea and concept of sustainability in the cultural and creative sector as applied today has grown to encompass not only environmental sustainability in regard to economic life but has also expanded to include areas of culture and society as reflected in the Sustainable Development Goals (SDG) set by the United Nations (n.d.). According to some authors, sustainability has become a "buzzword", with profit and nonprofit organizations alike incorporating the term in their operations, branding and advocacy in one way or another despite its actual use in practice or real impact (Scoones, 2007).

The Intersection of Culture and Sustainability

The intersection of culture, economics, and sustainability has emerged as a critical frontier in contemporary policy and academic discourse. Throsby (1995) laid the groundwork in his discussion on culturally sustainable development by proposing a systems-based framework that integrates cultural and economic systems, emphasizing the preservation of cultural capital, both tangible and intangible, as a pillar of intergenerational equity. Challenging classical economic models and advocating for holistic approaches to cultural wellbeing, Throsby (1995) bases this on principles of material/non-material well-being, intra- and intergenerational equity, and systemic interdependence. This perspective aligns with later debates on the role of the cultural sectors in the sustainable transition (Kagan, 2018) but also addresses the threat of cultural erosion in rural and peripheral contexts (Araya León et al., 2020; Imperiale et al., 2021). By framing culture as both a driver and a beneficiary of sustainability, Throsby (1995) provides a theoretical base for examining how cultural and creative industries (CCIs) can reconcile economic viability with ecological and social resilience.

Kegan (2018) builds upon previous research on the role of culture in sustainability and identifies 3 main ways art and culture can contribute to current social and environmental sustainability, 1) the arts foster sensitivity to interconnected systems through an aesthetics of complexity 2) art and culture through "artful sustainability research" have the potential to combine scientific rigor with creative inquiry to explore sustainable futures, which is further explored in Birsel et al. (2023) framework on art-science-technology collaborations. 3) providing a space of possibility for the arts and culture as drivers of sustainability through cultural institutions as hubs for experimenting with alternatives.

However, research in sustainability in the CCI is relatively new with research currently predominantly studying the effects of sustainability on CCI (Kovaite et. al, (2022). Kovaite et al. (2022) in their bibliometric analysis of 247 publications discovered a gap in the

literature addressing CCI as a driver of sustainable development and a gap in interdisciplinary integration between culture, environment and policy.

This gap in research concerning CCI as a driver of sustainable development also mirrors the marginal role of culture in sustainability policies, despite culture's centrality in human development, having a role in climate change, social and environmental challenges by determining value systems, identity building and being a motor for transformation (Kagan, 2018).

Building on the importance of culture for sustainability and its centrality in human development, the gap in interdisciplinary integration between culture and environment in CCI-sustainability literature, this study integrates biocultural diversity theory in its analysis of rural CCI. With the aim of exploring biocultural diversity as a new theoretical lens to understanding the place of CCI in sustainability, viewing the sector not as separate from the environment but an integral part of it. Adhering to the development in academic discourse, culture and arts as drivers of sustainable development but does so by arguing for a change in the way culture is understood.

Biocultural Diversity (A Theoretical Lens)

Biocultural diversity is the combined system of both biological and cultural diversity, it suggests that human culture is an integral part of the natural order, and that culture and biological diversity mutually reinforce each other – more biological diversity leads to more cultural diversity and vice versa. An important factor of the theory is that it does not exclude human culture from the natural world and rather advocates for sustainable interactions between the two (Dilts and Maffi, 2014). Culture therefore should not be seen as separate from the environment (biosphere) as argued in biocultural diversity theory, defined as the "web of life on earth" (Maffi, 2007). It is often referred to indigenous communities, but scholars have increasingly pointed out the importance of biocultural diversity in urban communities and settings.

Kagan (2018) argues that art and culture hold transformative potential for sustainability by fostering an "aesthetics of complexity" which integrates artistic inquiry with scientific knowledge systems to reimagine human-environment relationships. By starting to view culture as part of this "web of life" and an integral part of the environment/biosphere and not something foreign, the cultural sector as the part of the economy concerning culture and creativity is uniquely positioned to be a major driver of the sustainable transition and the regrowth of destroyed environments. This challenges classic conservation by centering indigenous and local knowledge not as static heritage, but as innovative systems adaptable to modern ecological crises (Polfus et al., 2017; Kovaite et al., 2022).

Not only through the potential mentioned by Kegan (2018) and Birsel et al. (2023) but by reimagining the human economy as an extension of our culture placed in the "web of life" of biocultural diversity theory.

The relevance of biocultural diversity is illustrated by Polfus et al. (2017) study on how Dene-caribou biocultural diversity shows how art can serve as a bridge between disciplines, knowledge systems, and cultural practices. By applying participatory visual methods (art) Polfus et al. (2017) managed to clarify complex genetic data for indigenous stakeholders as well as revitalized Dene language, stewardship practices, and place-based ecological knowledge. Art thus becomes a tool for both communication (translating science into culturally resonant forms) and empowerment (enabling communities to assert sovereignty over biodiversity management). These results align with Kagan's (2018) vision of cultural institutions as hubs for experimentation, where art-science collaborations both contribute to produce scientific knowledge and solutions while preserving cultural diversity. Therefore, CCI can utilize biocultural diversity frameworks to position itself from being merely affected by the move towards sustainability as discussed by Kovaite et al. (2022), towards becoming a catalyst for it, utilizing creativity, tradition, and science to address socio-ecological challenges.

Elands, et al (2019) argue for the potential of biocultural diversity frameworks in also addressing contemporary urban challenges, such as biodiversity loss and human disconnect from nature, and argue for the need in policies that embrace biocultural diversity and dynamic human-nature relationships. This shift from Indigenous to modern contexts requires a corresponding shift in focus from preservation to restoration. Therefore, modernized societies when addressing biocultural diversity focus primarily on creating new cultural norms and practices to stimulate biocultural diversity rather than focusing on its preservation (Elands and Koppen, 2012). However, their framework does not address the role nor potential of the cultural sector as a catalyst of sustainable development as discussed by Kegan (2018).

Elands and Koppen (2012) propose and add to the discussion by introducing the concept of biocultural creatives. The work of the "biocultural creative" therefore includes urban community gardens that experiment with alternative and traditional cultivation techniques and initiatives that pursue innovations in the realm of new cultural practices and understandings to bridge humans with the environment. While these efforts focus on fostering a connection between society, culture and environment through interdisciplinary collaborations with the final goal being environmental preservation this definition of biocultural creatives is not framed withing the broader cultural and creative sector.

This trend demonstrates a growing need to reframe the cultural sector from a bystander in the sustainable transition to a catalyst. Biocultural diversity theory frames culture in an

inseparable and mutually reinforcing relationship with the ecosystem, offering CCI a new lens to actualize this role whether through art-science collaborations, Indigenous knowledge integration or urban initiatives such as biocultural creatives.

Biocultural Innovation (From Indigenous to Rural Contexts)

New innovation frameworks have thus been created to address the growing potential and interest in biocultural diversity. Biocultural innovation based on the definition provided by Vassallo et al. (2023): *is the application of traditional knowledge to improve intergenerational wellbeing while minimizing the depletion of biocultural assets*. Biocultural assets which are central to biocultural innovation are characterized by their shared FPVI traits (Functionality, Potentiality, Vulnerability and Inseparability).

Theoretical Foundation of Biocultural Innovation: ***Functionality*** *represents direct benefits of biocultural assets such as traditional knowledge for example, indigenous medicines, carbon-sequestering farming*. ***Potentiality*** *signifies future innovation value such as undiscovered medicinal plants*. ***Vulnerability*** *is the threatened nature of biocultural assets such as cultural erosion, loss of traditional knowledge and biodiversity loss*. ***Inseparability*** *is the interdependence of biological and cultural diversity for example indigenous languages and local terms encode ecological knowledge (Polfus et al. 2017). Biocultural assets are identified to have innovation potential whose value can be* ***Conserved*** *(Protect assets),* ***Converted*** *(Unlock new value) and* ***Constructed*** *(Restore ecosystems and culture) (3C's) to solve socio-environmental challenges both local and global.)*.

Biocultural innovation is the innovation that occurs at the intersection between the biosphere and ethnosphere (Vassallo, et al 2023). Unlike other innovation domains (social innovation, grassroots innovation, sustainable innovation, etc.) biocultural innovation focuses on traditional knowledge as its main driver. It balances the pro-social and/or pro-environment character of other innovation domains that often disregard the entwinement of the ethnosphere and biosphere (Vassallo, et al 2023).

While Vassallo et al. (2023) rightly highlight the role of indigenous knowledge in biocultural innovation, it risks sidelining the potential of local traditional knowledge in modernized contexts, where cultural erosion and biodiversity loss are equally urgent. As argued by Cocks (2006), biocultural diversity can also be linked to local communities and not only indigenous communities, because sustainable exchanges between culture and the environment occur in a wider scope of communities. Hence, the global character and use of indigenous knowledge for global challenges as presented by Vassallo et al. (2023), although relevant, can be criticized for its strong indigenous focus, risking creating extractive dynamics where modern societies utilize traditional knowledge without reciprocal benefits to originating communities. Moreover, by overlooking rural traditions,

this definition of biocultural innovation misses the opportunity to apply biocultural innovation principles in deindustrialized regions where cultural erosion and economic decline intersect. By bridging Kagan's (2018) notion of art and culture in advancing sustainability and Vassallo's et al. (2023) biocultural innovation framework to also include traditional rural crafts adhering to bicultural diversity principles it enables us to address place-specific sustainability challenges.

This expanded definition is already applicable to contemporary cases as seen in McElwee & Gittins (2024) study on dry-stone walling applied in urban settings, here the rural craft functions as biocultural innovation by merging cultural heritage, ecological benefits, and rural craftsmanship. Not only preserving a traditional rural skill but also enhances biodiversity, mitigates soil erosion, and contributes to environmental resilience (McElwee & Gittins, 2024). By transporting this rural artisan craft into urban settings, the study highlights its potential to bridge urban-rural divides and evoke emotional connections to landscape and heritage, thereby reinforcing the cultural dimension of sustainable development aligning with Throsby's (1995) integration of economic and cultural systems. McElwee & Gittins (2024) case demonstrates the potential of rural biocultural practices to drive innovation while preserving cultural identity and ecological integrity.

Rural areas are therefore also sites of biocultural innovation due to their cultural and biological diversity, yet they remain paradoxically neglected in innovation policies (Naylor, 2007). The concentration of traditional knowledge in these regions, combined with their direct dependence on local ecosystems, creates unique conditions for place-based creative economies. Agro-tourism initiatives (Atterton & Ward, 2007), combining farming heritage with contemporary experimental offerings are examples of this. However, this is an example of rural innovation which characterizes the adaptability of rural communities to contemporary markets (Naylor, 2007). Biocultural innovation takes this a step further and embeds rural heritage and culture to their local ecological system framing rural culture as mutually reciprocal with the environment and not just market adaptable. For example, the use of dry-stone walling in urban settings (McElwee & Gittins, 2024) demonstrates how underutilizes rural practices can address modern sustainability challenges in urban areas while preserving cultural identity suggesting that rural areas are not just sites of economic adaptation but also possess biocultural assets and biocultural innovation potential.

Place-Based intervention and Craft (Cultural) Entrepreneurship

Peripheral and rural CCI present a unique opportunity to bridge sustainability and biocultural diversity, yet they remain understudied in both CCI and biocultural diversity literature which tend to prioritize urban or indigenous contexts. Place-based

interventions and approaches are tailored policies or programs made to address the specific cultural, economic, and ecological conditions of a locality, through community empowerment for the goal of sustainable development (Imperiale et al., 2021). Place-based specificity focuses on the utilization of local resources and assets such as local crafts entrepreneurship that is small scale, based on local skills and knowledge, often handmade and rooted in local heritage, can serve sustain both ecological and cultural capital Araya León et al. (2020).

As demonstrated in a study of CCI in peripheral regions focusing on Apulia and Western Greece (Imperiale et al., 2021), peripheral regions face structural challenges like undercapitalization and institutional neglect. By integrating Kagan's (2018) "aesthetics of complexity" with place-based approaches, peripheral CCI can redefine sustainability, not as a top-down imposition, but as interplay between culture, ecology, and local economies. This requires research that recognize rural and peripheral CCI not solely as static or adaptive to urban markets (as in rural innovation theory) but as active agents of biocultural renewal, fostering resilience in deindustrialized settings where outward migration to urban centers erodes communities.

Peripheral and rural CCI face place specific challenges that threaten its traditional knowledge and practices often caused by market pressures, outmigration and globalization (Imperiale et al., 2021). Handicrafts, arts, and crafts (HAC) characterized by their intergenerational transmission, place-based specificity and cultural identity meaning, as outlined in Araya León et al. (2020), show potential by bridging interdisciplinary collaboration and policy gaps complementing Kagan's (2018) vision of cultural sectors as hubs for sustainability innovation, while also addressing the marginalization of traditional knowledge highlighted by Vassallo et al. (2023). Location-based solutions, such as the "HAC TK" toolkit, demonstrating how rural and peripheral CCI can revive marginalized practices through education and entrepreneurship (León et al, 2020). Araya León et al. (2020) insights on the role of cultural entrepreneurship role in craft and cultural preservation and revival are situated within the broader discourse on biocultural innovation, offering a model for how traditional crafts can serve as both cultural preservation of identity and drivers of sustainable local economies. Suggesting the integration of biocultural diversity frameworks with sustainable cultural entrepreneurship. Which reinforces Imperiale et al., (2021) call for place-based interventions, in order to reposition peripheral CCI as key actors in the sustainability transition.

Smagina & Ludviga (2020) expand the discourse on craft entrepreneurship by exploring the diverse types of value created by craft entrepreneurs, extending beyond the traditional economic focus to include social, cultural, and transformational dimensions. They identify values ranging from materialistic (e.g., economic, environmental) to

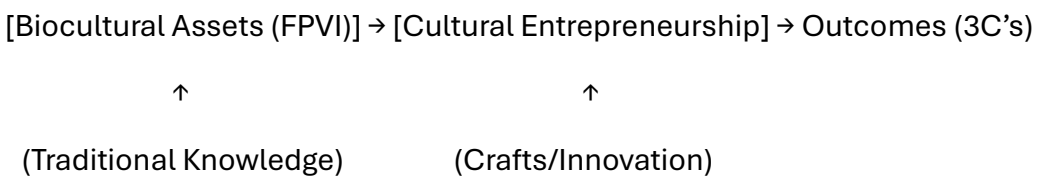
idealistic (e.g., aesthetic, symbolic, developmental), which demonstrate how craft entrepreneurship not only generates economic value but also contributes to cultural heritage preservation, environmental sustainability, community regeneration, and personal fulfillment. By categorizing these values, Smagina & Ludviga (2020) contribute to the understanding of the craft sector's impact. Through this the connection of traditional crafts and the environment (biocultural diversity) becomes evident with craft-based entrepreneurship having the potential in sustaining local ecosystems (environmental value), preserves intangible heritage (cultural value), and fosters community resilience (social value) while remaining economically viable (economic value).

In this study cultural entrepreneurship is defined using Mikić (2017) definition and explanation of rural cultural entrepreneurship in a culturally, socio-economic and geographically similar and close region to Herzegovina in Pirot, Serbia. Here, cultural entrepreneurship is defined from the perspective of protection and promotion of the diversity of cultural expressions. "*Cultural entrepreneurship, in this sense, can be seen as a set of activities, knowledge, skills and capacities that create cultural goods or services embodying or conveying cultural expressions*" (Mikić, 2017). Thus, cultural entrepreneurship rooted in traditional cultural expressions integrates traditional knowledge, processes, skills, and distinctive working methods that embody the socio-cultural identity and heritage of specific communities (Mikić, 2017) through which biocultural innovation is realized, translating these cultural expressions (biocultural assets) into economic activities (crafts). Cultural entrepreneurship in this context is defined by its intergenerational transmission of cultural practices, its deep-rooted socio-cultural significance for communities, its prevalence of family-run enterprises, and its foundation in specialized creative skills (Mikić, 2017). This family and intergenerational preservation of crafts inherently strengthens the Inseparability principle of biocultural innovation by anchoring cultural knowledge to local ecological systems. Though geographically different, both Mikić's (2017) and Araya León et al.'s (2020) demonstrate how the survival of traditional crafts depends on cultural entrepreneurship and how it is often leverage by rural communities presenting the universality and applicability of biocultural innovation on the study's particular case. Finally, cultural entrepreneurship in this study's theoretical framework adheres to Throsby's (1995) principles of intergenerational equity, ensuring commercialization does not erode biocultural assets' FPVI traits

Therefore, the theoretical framework that will be used in this study integrates two complementary frameworks discussed in the literature review to answer the research question: 1) biocultural innovation (which identifies traditional knowledge's socio-ecological value) and 2) crafts cultural entrepreneurship (which operationalizes this

knowledge economically), this study explores how rural CCI can drive sustainability without compromising biocultural assets.

Figure 1



Taking all this into consideration, Throsby's (1995) framework of culturally sustainable development remains relevant to the contemporary debates bridging discourses on cultural economics, biocultural diversity, and place-based innovation. Throsby's (1995) argument of cultural capital as a non-renewable resource aligns with the ideas of biocultural innovation (Vassallo et al., 2023), while his equity principles resonate with efforts to revitalize traditional crafts through entrepreneurship (Araya León et al., 2020) and participatory policy (Imperiale et al., 2021). The systemic interdependence aligns with Kagan's (2018) aesthetics of complexity and Elands & van Koppen (2012) biocultural creatives, collectively the literature advocates for the positioning of CCI as catalyst of the sustainable transition. Yet, as this review reveals, gaps persist in operationalizing these ideals, particularly in peripheral and rural regions where cultural erosion intersects with economic marginalization. This literature review therefore establishes the need for expanding biocultural innovation to include rural CCIs in modernized societies such as those in peripheral Europe. By integrating the discussed literature into a theoretical framework this study contributes to a more inclusive sustainability discourse, one that places peripheral communities as active actors in ecological and cultural renewal and protection.

Methodology:

This study employs an ethnographic research design combined with a theory driven approach to analyze how biocultural assets in Eastern Herzegovina are converted through biocultural innovation to stimulate cultural entrepreneurship. The Ethnographic method is particularly suited for this study as it allows for an in-depth analysis of biocultural assets and local cultural entrepreneurship within the socio-economic and environmental contexts of the region (Johnstone, 2007). Considering that biocultural innovation is the innovation domain that occurs at the intersection of the biosphere (natural environment) and ethnosphere (cultural systems), an ethnographic method allows for the observation and interpretation of the interactions between traditional crafts, local ecosystems, economies, and cultural identities.

Research Design

For this study the ethnographic method of data collection was chosen based on its complementarity with the biocultural innovation theoretical framework used in the study and its relevance in entrepreneurship research. This research uses Johnstone (2007) definition and discussion of the ethnographic method in entrepreneurship research in constructing the methodology. According to this, ethnography is more than just observation it also includes the immersion, participation, and an understanding from the insider's perspective by the researcher (Johnstone, 2007). The ethnographic method is defined as the study of people in their natural settings while capturing social meanings and ordinary activities and tends to have an unstructured and flexible approach to data collection. According to the definitions of an ethnographic research this study is small-scale and aims to provide a context-rich analysis. Additionally, unlike linear research designs that are structured based on a hypothesis, data collection and analysis, ethnographic designs tend to be iterative cycles of questioning, data collection, analysis, and refinement.

The Ethnographic method was chosen for this study due to its ability to provide contextual depth. Ethnography captures the real-life experiences of traditional craft practitioners in rural Herzegovina, allowing for the analysis of the relationship between biocultural innovation (Vassallo et al., 2023) and cultural entrepreneurship (Mikić, 2017). The ethnographic method is mainly used in cultural anthropology research which overlaps with context specific and rural cultural entrepreneurship as discussed by Mikić, (2017). Ethnography also provides flexibility to the research through its cyclical, iterative approach which aligns with the study's exploratory focus on emerging themes such as the use of biocultural assets for sustainability. Additionally, the researcher's familiarity and background in the region was also considered allowing for a level of cultural

embeddedness in the research as it provided contextual background to the social and cultural dynamics, corresponding with the definitions of an ethnographic method design. The insider perspective and existing network enhanced access and trust, allowing for additional insight in sensitive topics like traditional knowledge and cultural erosion and insight into economic and business practices.

This method is essential for the study of how biocultural innovation and cultural entrepreneurship occurs in Eastern Herzegovina because it captures the socially embedded character of these processes. As discussed by Johnstone (2007), entrepreneurship is about emergence, happening through the interactions between culture, environment, and economy. The cyclical approach allows for real-time observation of how crafts people balance between tradition and innovation in their business practices. Unlike static methods, ethnography reveals tacit knowledge transmitted through the intergenerational character of the rural cultural enterprise (Mikić, 2017) and institutional barriers, which aligns with the study's focus on biocultural innovation and its shared traits (FPVI). Therefore, by centering local voices, the chosen method aligns with the studies main notion that challenges top-down sustainability models and demonstrates how rural CCI actively construct alternatives. Here, it is argued that entrepreneurship is unique to a place and occurs differently depending on the cultural, economic and social context of a region or community. Thus, to uncover these unique characteristics and broaden the definition and understanding of entrepreneurship as a process it is argued for the broader implementation of ethnographic method in entrepreneurship research. The methodological framework used in this study adapts the ethnographic research cycle and is as follows:

1) Project Selection: Identification of the three traditional crafts as biocultural assets.
2) Data Collection: Semi-structured interviews, participant observation (site visits, craft demonstrations, event participations), and archival analysis (local news, policy docs).
3) Theory driven thematic analysis: Open, Axial and Selective coding of the collected data to identify the main and overarching themes.
4) Theoretical Saturation: Repeat the process using new data until no new themes are identified.

Context and Case Selection

The study was conducted in Eastern Herzegovina specifically in the Municipalities of Trebinje and Gacko. The local economy is based on energy production with a steady increase in tourism, specifically in Trebinje. Trebinje was recorded as one of two

municipalities in the RS entity of Bosnia and Herzegovina to have achieved any significant economic growth primarily due to this tourism increase and construction projects to meet this demand. The region is nevertheless experiencing outward migration from both skilled and unskilled labor and environmental degradation linked to the rise in construction projects and is with this rise in tourism risking cultural loss and commodification. Three traditional crafts were selected as case studies, each representing a broader CCI while also being linked to major polluting sectors. For this research three examples of cultural and creative industries were selected based on traditional and landscape dependent crafts of the region that are simultaneously representative of the three biggest cultural and creative industries (fashion, architecture and gastronomy) and are also tied to the biggest polluting industries (textile, construction and agriculture). The selected crafts also hold a degree of embeddedness in local ecosystems and experience varying socio-economic and policy marginalization despite their cultural and environmental value. The selection criteria prioritized accessibility, cultural significance, and relevance to sustainability debates as built upon in the literature review.

1) As a representation of the textile and fashion is the **"Udruzenje zena Vasila"** (4 members) a traditional clothing women's collective that produces traditionally inspired and organic and natural material clothing and accessories. The collective additionally works in heritage preservation specifically that of traditional weaving and embroidery practices.
2) As a representation of the gastronomy and food sector **"Udruzenje proizvodzaca Gatackog kajmaka"** (24 members) was chosen. This is a women's collective in traditional craft cheese making.
3) And as for the third case study representing the architecture and design sector, 4 **independent stonemasons and artisans** from the Trebinje area were included in the study (waiting for the 5th). Currently there is no stone processing and crafts collective or union operating in the area which is why for this case study stone masons and artisans were contacted individually and will be grouped in a single case.

Therefore, this study includes three CCI, two of which will be represented by one organization/collective each and one case study required contacting individual craftsmen. Each case presents a unique intersection of traditional knowledge, interactions with the environment, and cultural entrepreneurship. Allowing for a comparative analysis of how biocultural assets are preserved, converted, or constructed into additional value. The cases' diversity of organizational structure both collective (e.g., women's associations) and individual (e.g., independent stonemasons) models, provides additional insight into the different pathways for sustaining traditional crafts in modern economies.

Additionally, interviews with stakeholders and partners in market and policy were also included. For additional inquiry in projects on craft cheese conservation and product protection and branding interviews were conducted with a policy maker in food security in Mostar. Similarly for heritage conservation in traditional textile processing partners were consulted from the "Museum of Herzegovina" in Trebinje. This was motivated in order to observe the broader placement and role of the selected crafts in the local CCI.

Data Collection Methods

The research design for data collection consisted of semi-structured interviews, site and event visitations and observations as well as internet and local archives, news interviews and articles as supplements in context setting. The interviews were conducted fully in the Serbo-Croatian language and were transcribed using the digital online transcription tool ***TurboScribe*** in the original language with transcription mistakes being corrected manually by the author. The coding and themes were also conducted in the original language with the results being translated in English for the sake of the analysis. The original words were kept in brackets in the analysis for possible future reinterpretation.

1) **Semi-structured interviews** serve as the primary data source. Participants included: artisans (2 independent stone masons and 2 weavers from the Udruženje Žena Vasila collective) collective leaders ("Udruzenje Proizvodzaca Gatackog Kajmaka" collective leader), and local stakeholders in industry and policy (Museum of Herzegovina partners, Policymaker in Food Security and private stakeholder representative in architecture) to explore their perspectives on cultural preservation, economic challenges, and environmental practices. The interviews were based on the main research of the study and followed the following themes: FPVI traits for example, how functionality and vulnerability shape innovation and Entrepreneurial practices such as marketing strategies, organization structure, market mechanisms, etc. The interviews were structured in two parts: 1) concerning biocultural innovation in regard to the FPVI and 3C and 2) concerning the (cultural) entrepreneurial process.
2) To contextualize these narratives, **participant observation** were conducted during site visits to workshops and production facilities (4 stonemason private workshops and gallery)(the workshop of the "Udruženje Žena Vasila" collective)(Shared offices of "Udruzenje Proizvodzaca Gatackog Kajmaka" collective and a workshop and farm of one of their members), and cultural events ("Fine Wine" local Wine and Food Festival in the Trebinje Piaca in which "Udruzenje Proizvodzaca Gatackog Kajmaka" participated and "Night of Fortresses" Festival at the Museum of Herzegovina in Trebinje in which "Udruženje Žena Vasila" participated), enabling firsthand documentation of craft techniques, material sourcing, knowledge transmission, community interactions and

document tacit knowledge. These observations were written down into notes and personal audio voice recordings of the author.

3) **Primary and Secondary Literature**: To supplement the semi-structured interviews and observations policy and project documents provided by the participants were also included in the analysis. Secondary and tertiary sources such as archival research incorporating local historical records (access provided by the Museum of Herzegovina), policy documents, and online media reports were also included in order to trace the evolution of the selected crafts, monitor their institutional recognition and provide context.

This triangulation of methods interviews, observations, and primary and secondary literature analysis ensures a robust, nuanced description of how biocultural assets are utilized within Herzegovina's socio-economic and ecological systems, while adhering to the study's interpretivist philosophy by prioritizing depth, context, and participant voices. This is achieved through cross-checking interview data with observations and comparisons between artisan narratives and stakeholder perspectives.

Theory-driven thematic analysis (framework-based coding)

This research applies a theory driven thematic analysis to analyze how traditional knowledge in Herzegovina serves as a biocultural asset that stimulates cultural entrepreneurship. It integrates the collected data with the selected theoretical framework that aims to integrate biocultural innovation with rural cultural entrepreneurship that will guide coding and interpretation. The analysis begins with framework deductive based coding based on core principles of biocultural innovation such as shared FPVI shared traits, 3C's and rural cultural entrepreneurship core themes (cultural goods, traditional knowledge, practices, skills, family centered, intergenerational transmission). This is followed by axial coding which connects biocultural innovation (FPVI traits) with cultural entrepreneurship practices which will be finalized in a narrative integration. The analysis will therefore be conducted in the following steps:

1) The analysis begins with **open or framework-based coding**, through which interview transcripts, observation notes, and the literature materials are examined to identify and underline the mentioned biocultural innovation and rural cultural entrepreneurship concepts (FPVI, 3C, intergenerational transmission, cultural goods, services, traditional knowledge, skills, activities, etc.) and patterns, break down the data into codes.

2) This is followed by **axial coding** which is organizing the initial codes into broader categories or themes that reveal relationships between different aspects of biocultural innovation and cultural entrepreneurship. The data is analyzed to

identify relationships, overlaps, contradictions between theoretical concepts. This phase tests and elaborates on the framework's applicability to rural cultural entrepreneurship.

3) These findings are then synthesized into the studies main narrative that explains how the theoretical framework operates in practice, answering the research question of how traditional knowledge and biocultural innovation stimulates cultural entrepreneurship in Eastern Herzegovina.

Additionally, the study incorporates a constant comparative analysis, where findings are checked with new data and existing literature. This is done to test theory and refine it and ultimately identify commonalities such as shared challenges, practices and themes. The data was analyzed using the help of *Atlas.ti* qualitative software.

Validity and Reliability

The sample size used in this research might shed doubt on the findings, but it is important to note that the study prioritized an in-depth approach to the research and analysis over quantity of the samples and findings. Additionally, it is important to avoid over-generalization based on the findings, they are context-specific to Eastern Herzegovina but can also inform similar rural CCI studies.

The in-person research was conducted in a period of three weeks with an average visitation and interview intensity of one interview and visitation per two days, while the ethnographic method is characterized by long periods of time spent in observation and participation as a method of data collection. Nevertheless, this can be countered by the fact that the author is native to the region and is already immersed in the local socio-economic context of the region.

Ethical Considerations

Consent was gathered from all the participants before every interview, participants were also informed of the nature, topic and aims of the research. Awareness of cultural sensitivity was preserved at all times traditional knowledge was documented respectfully, avoiding extractive practices avoiding parachute research practices. The final research will be provided to the participants for their own use. Finally, it is important to note that the authors personal local network aided access to data but required reflexivity to avoid bias.

Analysis and Findings:

The analysis is guided by the following research question: *How does the utilization of traditional rural knowledge in Herzegovina as biocultural innovation stimulate (cultural) entrepreneurship?* The data was collected using the ethnographic method design that consisted of interviews (6 in total), observations from 5 site visits and 2 events and additional literature review from policy and project documents, online interviews and news articles and local academic literature. This data will be analyzed using a theory driven thematic analysis of the theoretical framework discussed above, therefore:

1) The data collected on the "Udruzenje Proizvodzaca Gatackog Kajmaka" case study is composed of 2 interviews; one conducted with the collective's management and the other with a policy partner from the department of food security of Bosnia and Herzegovina based in Mostar. Observations were recorded during one site visit at one of the member's workshop and farm and during an event ("Fine Wine" festival) in Trebinje. This case study also provided policy and project documents.
2) The data collected on the "Udruženje Žena Vasila" case study is comprised of 2 interviews conducted with the organizations leading members as well as notes from discussions with a partner representing the "Museum of Herzegovina". Observations were made during a site visit to the organizations workshop in Trebinje and an event "Night of Fortresses" Festival at the Museum of Herzegovina also organized in Trebinje.
3) Finally, for the stone masonry case study, 2 interviews were conducted with established stonemasons from the Trebinje Municipality and observations were recorded during 4 site visits.

The listed data will be processed individually by case, through the theory-driven approach discussed in the methodology. The findings will first be discussed individually by case (descriptive). Following which the findings will be categorized into themes based on the two theoretical lenses of the theoretical framework (explanatory sections). 1) Biocultural Innovation and 2) Cultural Entrepreneurship. After which the findings will be synthesized into a narrative and case comparison.

“Udruzenje Proizvodzaca Gatackog Kajmaka” and Craft Cheese Making

Overview

“Udruzenje Proizvodzaca Gatackog Kajmaka”: is a 26 member women’s collective in the Gacko Municipality. The organization is relatively new, its formation was initiated by the municipality and is part of a development plan that aims to protect the local traditional dairy products and provide additional economic opportunity to the majority rural population of the municipality. The collective has two permanent employees, the director and secretary, that operate the collective’s administration, external communication and provide technical support to the members. The headquarters are in the town center and the organization shares its offices with other agricultural collectives and unions in the municipality forming a cluster of organizational support for rural enterprise. The organization was successful in its initial goal of protecting and standardizing the production of the area’s original dairy product “gatacki kajmak is mjesine” (“Gacko cheese from skin sack”) on the national level through the label of product origin. Its current aim is the promotion of local dairy products both nationally and internationally and providing a system of technical and commercial support to its members.

The standardization of the production of the product and acquiring the legal label of product origin protection was conducted in a bottom-up process with the producers themselves participating and initiating it through the collective. The region’s authentic product “gatacki kajmak iz mjesine” is a type of fermented cream cheese/butter stored and fermented in sheep or goat skins. “Kajmak iz mjesine” is produced from local milk from the native cow breed “Gatacko Govedo” (Gacko cattle) which is traditionally kept and fed through seasonal migratory grazing practices in the overwhelmingly mountainous municipality (Perišić et al 2023). This is an inseparable factor of the production and craft process as expressed by the collectives President:

"The milk used to make this kaimak is predominantly the milk of our autochthonous breed, Gatačko cattle, only that breed is specific and the best for this region. We may be a little subjective, but it is the best breed of cattle."

About the Craft

Traditionally and historically the seasonal migratory movement of cattle is from the lowlands (Gacko) and enclosures in winter to the highlands and mountain peaks in summer (Katuni). These migratory paths have existed since at least the Middle Ages.

Therefore, the cattle serve as a key-stone species in the mountain ecosystem stimulating other forms of biodiversity. Because of this the milk used in production and therefore the product is of recognizable and unique quality. Currently all members of the collective excluding the administration also participate in animal husbandry and only use their own dairy in their production, herds range from 3 cows to the dozens.

"... these women of ours who produce (collective members), all have their own cattle. It's a grazing system. Those cattle are on the open for 6 to 8 months."

Figure 2

Native cattle "Gatacko govedo" in traditional open grazing

Note. From: Gatacko Cattle - Ark of taste, *Slow Food Foundation for Biodiversity*, https://www.fondazioneslowfood.com/en/ark-of-taste-slow-food/gatacko-cattle-breed/

The craft itself is therefore directly reliant on interactions between people and the environment with the quality of the finished product ultimately relying on this balance (Perišić et al 2023). The standardization initiative is a result of a greater regional process of standardizing authentic local products both in production and quality in order to create a "Herzegovinian brand" of authentic goods. The aim of this is to provide more opportunities for rural communities through access to more markets, connection with tourism and cultural and gastronomic heritage preservation and food security as stated by a policy partner managing the standardization and protection process:

"... to preserve these products, many of which were on the verge of extinction, their recipes, technology and production methods, and to somehow stimulate these producers to continue producing what their ancestors did."

"... and to a large extent it was (protection and standardization) was necessitated by the tourists who come and want exactly when they come to taste the area where they visited, and Herzegovina has a fairly significant share of its economy in tourism also"

The production and preservation process of “gatacki kajmak iz mjesine” is based on minimal industrial production having a low environmental impact with the craft being unchanged since the Middle Ages using primarily locally sourced materials for the tools used in the craft. This is reflected in the collective’s own attitude towards production and environment interactions, as stated by the collectives President when discussing the equipment and tools used in the craft:

"In general, everything is better, let's say, whatever we do, we make the best use of everything from our environment. Because all of it somehow happened by nature, so to speak. What is best for you, is right there with you. So, these wood tools, is mostly made of beech wood (škipi i kace i to - tools)."

The production of “gatacki kajmak iz mjesine” occurs only in the spring and summer time due to its reliance on outside temperature in its production, it is stored in sheep or goat hides allowing for its preservation of 3 months with minimum energy usage. The product has high cultural significance and daily use as a staple in the region, consumed either as is or used as an ingredient in other dishes (tie to the project). Of the 26 members, 15 are currently producing “gatacki kajmak iz mjesine” with others producing a variety of other local dairy products.

Collective Organization and Operation

Members are only women because of the traditional gender division of labor still predominant in the region and the craft is currently only taught and passed down within the family, characteristic of rural cultural entrepreneurship enterprise, the age range of the members is diverse with the organization putting active efforts to attract new and young members. The production and sale only occur within the homestead (cottage economy) with most sales being made at the “home door” apart from some local farmers markets and national and international fairs and festival sales. This is primarily due to the small supply because of the time frame of production and small number of producers as a vulnerable craft. Despite these supply shortages, demand for the product remains high due to its distinct quality. To manage these shortages, the collective uses its communication channels to redistribute sale opportunities, when some members cannot meet demand, customers are referred to others with surplus stock, coordinated by the collective’s administration.

The organization currently prioritizes marketing efforts, such as festivals, fairs, and media exposure and visits, participation is organized based on member availability. While the president has expressed challenges in getting members to attend, due to the collective consisting entirely of women from rural areas, many of whom face personal constraints, observations reported strong engagement from those who do participate. The volunteers who do attend these events interact positively with the public, effectively promoting the

product and generating a lot of public attention. Given the collective's nature, the high volunteer turnout is notable, demonstrating the members' commitment despite the logistical difficulties. This proactive engagement with promotion opportunities reflects the organizations struggles and strategy noted by the president:

"Today, it's all about marketing, unfortunately. If no one hears about it, you didn't do anything. You can make something in your own house, something small and it can be top-notch, but if no one has heard of you, you have nothing to gain… Now it's important for us to try to preserve that production, and if possible, expand it a little."

The collective can be classified as a social enterprise, providing women from rural communities with economic opportunity by preserving traditional crafts. Producers by joining the collective gain access to a network that fosters professional growth, commercial opportunities, and community support. One retired member spoke positively about the collective's impact, highlighting the opportunities it provides, including her daughter-in-law's, by opening doors to travel, festivals, fairs, and media exposure. Reflecting on her own past, she remarked: "My entire life passed staring at this mountain." Emphasize the importance of such an organization, offering women broader prospects through which they can engage with the wider region and internationally.

Biocultural Innovation Analysis

Biocultural innovation is based on recognizing biocultural assets and leveraging their potential through innovation in providing intergenerational wellbeing of local communities and the environment. Biocultural assets are identified by their shared FPVI traits, the traditional craft of Herzegovinian cheese making from the Gacko region involves all 4 through the various production processes and connection with the environment through migratory and free grazing herding.

Functionality

The functionality of traditional dairy production such as the "Gatacki Kajmak iz Mjesine" is seen in the economic and ecological interdependence between traditional practices and the local mountain environment. As mentioned, migratory grazing practices between the highlands in summer and lowlands and enclosure in winter maintain the local ecosystem, they have been a part of for hundreds of years. The native cow breeds the Gatacko govedo and Busa used for kajmak production in Herzegovina are a testament to the coevolution of human culture (in this case herding) and the biosphere with the cows being shorter in stature and adapted to the rocky and mountainous environment existing as keystone species in the ecosystem. This inseparability between the traditional breeds, traditional herding system and the environment is directly tied to economic value as

these systems and healthy environment translates into the distinct quality of the milk and the final product as mentioned earlier:

"The milk used for this kajmak comes predominantly from our native Gatačko cattle breed, which is uniquely suited to this region".

This statement exemplifies the place-based functionality of the craft, where biological and cultural systems are linked. The collective's success seen in the high demand for the product ultimately comes from this factor that gives the product its unique flavor which is tied to specific pastures (ecosystems) and herding traditions (local culture). Tying the flavor to specific pastures in branding demonstrates ecological knowledge systems in use for economic purposes in rural, non-Indigenous context, challenging previous notions about where biocultural innovation occurs.

Potentiality

The potentiality of these traditional crafts tied to herding such as craft "gatacki kajmak iz mjesine" and other dairy products is in the ability to bridge heritage and contemporary sustainability markets. While the primary goal of protecting and standardizing the craft and its unique production was successful the collective is now shifting its efforts to branding and marketing, due to its limited supply the collective is exploring alternative market niches and brand pasture biodiversity as a flavor terroir, leveraging ecological health as a market differentiator *("Tourists want to experience this landscape through taste") and ("Whatever that smaller production is, it must be of higher quality")*.

This aligns with Vassallo et al.'s (2023) "Convert" innovation pathway but diverges in its market-first approach with this Herzegovinian cheesemakers seek to harness markets to sustain traditional practices. The collective's aims to expand production while preserving the unique quality represents a rural model of biocultural innovation where ecological stewardship becomes a marketable asset. However, this potential is not fully realized in policy efforts currently focusing on product origin protection and standardization and overlook ecosystem-based labeling an opportunity that can incentivize landscape-level conservation viewing human participation in the environment and not absence as key to conservation.

Vulnerability

Traditional Herzegovinian cheese-making faces post-socialist and capitalist reintroduction rural depopulation and gendered labor gaps. The craft is therefore threatened by uncertain youth participation outmigration disrupts intergenerational transmission. High demand and seasonal availability of the product risks tourism driven commodification without reciprocity and loss of quality with the implementation of more industrial modes of production that can endanger both the traditional craft process, family transmission and the local ecosystem. Additionally, the collective's only women

members navigate double marginalization: as rural residents and as caregivers bound to homesteads which the president states cause difficulties in fair, festival and media engagement and participation. These factors demonstrate the vulnerability of rural crafts: demographic collapse, extractive tourism and commodification, and gendered mobility barriers. Current protections such as origin labels protect production processes and offer better mobility and market competitiveness for the remaining population and returnees, but ultimately basic goods and services for quality of life are lacking such as roads to villages and electricity which is necessary to maintain social and economic development and youth participation, the continuation of the craft and human participation in the ecosystem. This was amplified during the visit to the collectives' offices shared with other agricultural unions, one experienced herding union member protested (*"it's good that its beautiful up there but what good is it when there is no road to my village")*.

Inseparability

The inseparability of people, herding, and landscape in the production of "gatacki kajmak iz mejsine" is articulated through material metaphors and the nature of the craft. When the collective's director states, "Jer sve je to nekako priroda udesila," ("Because that's how nature arranged it"), she frames the production process as co-creation with the environment although rooted in pragmatic pastoralism rather than spiritual animism in indigenous communities. This approach manifests in the tools used, carved from local beech wood (bukva) and the sheepskin used in fermentation, these are technologies that embody and represent place. Even the product's seasonal limitation of only being produced in spring and summer reinforces an ecological tempo and entanglement with the environment. Here, inseparability not only represents the connection between the craft and the environment, but it is also entrepreneurial, locally sourced materials for tools and the production process contributes to the products quality and through local sourcing is economically competitive. Production in summer and spring not only abides by tradition but reduces energy usage in fermentation and limits the supply of premium quality without the quality being watered down by industrial and modern production of inferior quality.

Rural Cultural Entrepreneurship Analysis

Organizational Structure

The "Udruženje Proizvođača Gatačkog Kajmaka" can be classified as an example of rural organizational hybridity that combines formal collective structures with informal, family-based production and transmission. While the collective was initiated by municipal development plans, its product standardization and legal protection efforts were member-driven ("proizvođači su sami pokrenuli standardizaciju" "producers started the

standardization process themselves), demonstrating the bottom-up ownership of biocultural assets. The collective's dual nature as a policy-backed entity and a channel for tradition expressions of the producers enables access to national and international branding schemes while resisting full commodification. The president's stance *("Today everything is marketing... our goal is to preserve the production method*") shows this tension: formalization is a tool for survival against capitalist destruction of culture and environment. The success of this case suggests that rural CCI resilience might depend on negotiated partnerships between communities and institutions.

Gender Dynamics

The collective's gendered entrepreneurship demonstrates how women from rural areas leverage care labor, animal husbandry, homestead production, and intergenerational teaching into collective economic agency. The insight that all women own their own cattle "Women own their own cattle" emphasizes their roles as producers and the early mentioned role of ecological stewardship. Although constraints persist with limited mobility by caregiving duties resulting in difficulties convincing members to travel to fairs, these caregiving duties and role the women play in their everyday life translates into an advantage in public engagement skills, attitude and approach, with observations from a festival participation revealing high public engagement and overwhelming positive encounters resulting in the collective's relative success as evident by the high demand. These gains from media and public exposure combined with similar background, equal status in the collective and caregiver labor fosters cohesion and enable the collective to innovate in redistributive sale models. Through these festival participations, media exposure, national level protection and standardization initiatives the collective converts the domestic space into a platform for professionalization, offering women pathways beyond subsistence one that does not discard their care labor in the home, in animal husbandry, heritage and environment but one that leverages that talent and role for community and environmental resilience. This has the potential to redefines rural cultural entrepreneurship as care-centered enterprise, a dimension overlooked in market-focused analysis.

Figure 4

Festival stand of the "Udruzenje Proizvocdzaca Gatackog Kajmaka" during the "Fine Wine" Festival in Trebinje. Depicts care-labour as entrepreneurial.

Note. Perivate

Redistributive Entrepreneurship

As already emphasized due to supply shortages and high demand, the collective practices redistributive entrepreneurship practices. Sales are mostly made individually at the "house door" therefore in the cases when some members cannot meet demand, the collective redirects the consumers to others with surplus, creating a shared-market system that prioritizes equity over competition. This aligns with biocultural values, by capping production to seasonal and ecological limits (spring and summer) the collective resists scaling that could decouple craft from landscape and reduce the quality of the product which can affect all the producers. In contrast to this, their embrace of media exposure and festival participation ("Today everything depends on marketing") shows adaptability in order to amplify traditional knowledge. This reveals a complex

dynamic faced by rural CCI that suggests that market integration can sustain traditions, but only if mediated by shared ownership and community governance.

This case study as an example of rural biocultural innovation and rural cultural entrepreneurship in action is summarized by the words of a policy representative working closely with the collective in the protection initiatives:

"All in all, even greater importance is given to that product and those producers to preserve that human factor that influenced the quality of that product. These are the ways in which products depend mainly on the area where they are produced, on the climate, soil, vegetation, but also on the way in which people have done it for generations in that area."

This is the essence of biocultural diversity and of biocultural innovation and the role of rural cultural entrepreneurship. It is the role of preservation of cultural expressions and their utilization in not only value generation through tourism that can support those communities but the recognition of these expressions as part of the web of life that is biocultural diversity being a product and integral part of a local ecosystem and possessing place-based innovation potential.

Prerada Kamena “Kamenorezac” - Independent stone mason’s case study:

“A STONE BLOOMED IN A TREE

Bokić's sculptures

A stone blossomed in a tree

under the crystal of the Neretva Tears

a man's hand took it upon itself in rapture

to finish the work begun with the milk of the sun.

A stone blossomed in a tree

instead of a petal, a woman's chaste face breathes, dreams, pulsates an awakened form with a chisel that exposes it and touches me.

A stone blossomed in a tree

and a chirp flicker from a stone nest

see how man, tree and stone intertwine into a slender bridge from the hand to the stars.

Bosiljka Pušić, 1981. Mostar.” (Pušić, 1981)

Overview

This case examines the craft of stonemasonry in Herzegovina represented by 4 artisanal and commercial stone masons in the Trebinje municipality. The stone masonry craft or the profession of “kamenorezac” (stone cutter) as it is called is the craft of converting raw stone into artistic, spiritual and functional objects. The craft has an extensive history and tradition in Herzegovina that has naturally developed with the development of the first agricultural societies. It shares similar traditions and styles as other Adriatic and Mediterranean regions. Knowledge, skills and traditions are widely distributed amongst the population and predominantly amongst males. Due to the sheer abundance of stone, a tradition of self-reliance and cultural significance of stone majority of the population is to varying degrees familiar with the craft. Therefore, when discussing the craft it is important to consider its widespread distribution, shared ownership and community transmission. The 4 participants selected are examples of professionalized craftsmen that have perfected the craft and use their skills in both artistic and commercial action.

Historical and Environmental Context

Herzegovina's stonemasonry tradition is rooted in the region's Dinaric karstic terrain, where the abundance of stone and scarcity of other building materials such as wood and clay made stone the primary material for construction. The region naturally developed a stone masonry tradition both in art through sculptures, monuments and ornaments and through building and land management systems and practices. Traditionally land management and building followed the tradition of dry stone building common in the Mediterranean which structured the Herzegovinian landscape through livestock barriers, terraces, and land clearance for pastures through the construction of these barriers and terraces. Through the minimal processing of stone and no use of binders such as concrete it has minimal environmental impact and provides habitat for various animals and plants species through microhabitats in its crevices enhancing biodiversity. More artistic stone working methods have traditionally been used in architecture primarily of religious buildings for ornaments and monuments such as the "steci" (medieval burials) depicting natural and religious symbolism, this tradition has continued into contemporary sculptures, sustaining a lineage of craftsmanship that merges utility with aesthetics.

Figure 4

Local dry-stone walling from the village Turmenti near Trebinje

Note. Private

About the Craft

The tradition continues to this day with a varying degree of innovation and incorporation of modern technology in the process depending on the individual stonemason. This specifically refers to the use of traditional tools in the artistic process, which remains integral to the craft, as emphasized by one of the craftsmen interviewed, the traditional techniques are the foundation of the craft:

"...the very beginnings, as I am begun, they start with some spice (tool) and hammer, to feel that stone, to feel how it works, to see its hardness, to see its soul."

This use of the words "seeing the stone's soul," represents the cultural significance and resistance to full mechanization and a kinship between the stonemason and stone (environment). The included poem "U Drvetu Procvetao Kamen" demonstrates the material kinship between stone, wood, and human creativity as co-dependent framing nature-culture ties through practical artistry.

The 4 stonemasons were consulted in varying degrees. They balance between commercial work that includes building and house interiors and exteriors, private monuments, etc. Artisanal work is both commissioned and private work for own collections and includes public monuments, religious ornaments and decor and smaller pieces such as instruments (stone), abstract art and other objects. Additionally, to balancing this commercial and artistic work the practitioners are faced with challenges in balancing tradition skills and modern methods caused by economic pressures favoring faster production times this is primarily in commercial projects, but it has increasingly occurred in artisanal work as well. Despite these market pressures favoring mechanized efficiency, practitioners emphasize the irreplaceability of traditional hand tools, špica (point chisel) and mace (hammer) and the traditional method of carving in understanding the stone's "soul" and providing a quality final product. Heavy reliance on traditional skills, practices and knowledge remains with the crafts practitioners emphasizing how modern tools are selectively adopted highlighting a tension between economic pragmatism and craft authenticity and nature:

"When you start to do something that before us our ancestors did with a pickaxe and a mace, they fought, they struggled, and then you buy a machine, so when you do this kind of work, and you already know how it goes (the foundations). So, you can't actually replace... Well, can't replace the hand."

Nevertheless these market pressures are severe and by all accounts the craft experiencing changes and uncertainties associated with rural and peripheral communities and their crafts such as outward migration by the local population, market competition from export countries, changes in market dynamics caused by better logistics, communication and technologies leading to an increase in the reliance on imported and modern equipment and technology to remain competitive particularly in

commercial projects. Moreover, there is a pronounced divide and challenges between the different areas of processing from material extraction to craft with some participants opting to work with imported material due to insecurities with local material supply caused by the lack of technical development in that part of the process insufficient for some modern commissions. Most of them also stressed the difference in pay ration between material extraction and material processing with extraction being more profitable. Nevertheless, the craft is in a particular situation with high demand but relatively low and shrinking supply.

Figure 5

Commercial use of stone in building, "Vila Lastva" near Trebinje

Note. Private

The 4 craft enterprises included in this case study, like other CCI rural enterprises, are primarily organized within the family. All craft enterprises included in this study were organized in one way or another within the family, either with the workshop and creative space being directly incorporated in the family home or with multiple family members involved in the craft. With the knowledge and skills of the craft most often being inherited in the family and transferred from one generation to another as well as transmission occurring in the community.

Local Style

While the traditional and more commercial styles whether Byzantine, Ottoman or native inspired or modern remain culturally and economically significant. There is an emerging style unique to the Dinaric karst, one that is not only human made but rather a co-production between the ethnosphere, geosphere and biosphere. This style although a product of the practitioner's creativity it also represents a wider cultural admiration and use of raw stones for aesthetic and structural use, a practice that combines functionality and a cultural affinity to the landscape. The style preserves the stone's natural state as an aesthetic virtue. This attitude towards the raw material is not only evident in the work of the craft practitioners but is an integral part of the landscape, biodiversity and local culture, which is summaries in Pušić's "stone blossoming in wood," poem. Suggesting an ecological sensitivity ripe for innovation in sustainable architecture. This biocultural asset is underutilized, and currently there has been little to no policy support in fostering this biocultural innovation. Although having great potential and being applicable to all the 3C's through its traditional use. For example, in sustainable architecture and sustainable land management.

Figure 6

Local wood – stone fusion aesthetic in a restaurant in Mosko near Trebinje

Note. Private

Biocultural Innovation Analysis

Figure 7

Herzegovinian stone in its natural state in Trebinje, image depicts how biodiversity thrives with the raw material

Note. Private

Functionality

In an age where public art and architecture contributes to a significant part of global CO2 emissions and land, water and biosphere degradation through the construction industry traditional architecture and construction models that utilities raw and local materials prove not only functionality through the minimization of damage through local and less sourcing but often they are products of the interactions between local cultures and environments that have developed in symbiosis over generations. This is a well-known characteristic of local dry-stone building a UNESCO-recognized Mediterranean building method, which prevents soil erosion and offers microhabitats for lizards, herbs, and insects. Artistic and commercial innovations through more refined stone masonry provide functionality of uplifting the often-rigid looking drystone walls and contribute to their continued relevance in a market-oriented society. This brings back McElwee & Gittins' (2024) findings on dry-stone ecology and evoke emotional connections to landscape and heritage and emphasizes a rural-artistic dimension, contemporary works such as Bokić's stone-wood fusions and Gallery together with Aleksic's use of mountain

stone in his workshop demonstrate how this stone work tradition can be taken further and demonstrate how stone craftsmanship can develop new cultural and aesthetic approaches that enhance biodiversity aesthetically and functionally. Considering the local construction boom in Trebinje local stone building requires minimal processing unlike industrial construction a sustainability practice overlooked by policymakers.

Figure 8

Stonemason Aleksic workshop in Mostaci in Trebinje depicting the use of raw stone in structure and aesthetics, as visible in the picture the raw stone wall despite being in a workshop with machinery is supporting biodiversity, compared against the concrete walls on the side

Note. Private

Potentiality

The craft's potential lies in its underutilized role in sustainable architecture. While craft practitioners acknowledge demand for traditional methods ("Stari zanat se vraća u izgradnju"—"The old craft is returning to construction"), innovation is stifled by market demands for mass construction of vacation housing made from industrial materials. Buildings like "Galerija Bokić" where raw stone co-produced with the eroding forces of

nature serves as an aesthetic example of how biocultural assets could redefine green building and produce a recognizable modern regional architectural style that enables plant, fungal and animal life integration and reinforce the local cultural identity. This practice is also seen in Aleksic's workshop, (there are 5 surfaces in the workshop yet only the raw stone supports biodiversity). This can be recognized not only in the work of these established stone masons but is also widespread through the use of raw stone for structural and aesthetic purposes by the community in private and public work and projects. Art in this case does not just serve an aesthetic purpose but helps imagine new ways of building, impacting not only the local culture but also serving as a catalyst of environmental sustainability. Helping construct, new value that can both ensure cultural and biological wellbeing, basically raw stone from this region is naturally aesthetic, it supports life through its cracks and shapes as seen through Bokic's art incorporating organic material such as wood with stone, through the gallery it helps imagine and construct new urban and rural ecosystems integrating human culture and other forms of life.

Figure 9 and 10

"Galerija Bokic" in Trebinje depicting raw and naturally shaped stone used in aesthetics and building

Note. Private

Similarly, artisan Aleksic uses the craft to merge oral and musical heritage and landscape through creating stone gusle (traditional instrument) an example of converting

biocultural assets into additional value for the community integrating heritage and landscape creating new cultural-economical value. These applications of the craft hold great innovation potential but remain yet to be recognized by policy as an area for development or preservation despite the high demand as stated by one of the participants:

“Because that job, the old craft is returning, in construction in Trebinje. There is no building in Trebinje that does not have stone on the house, on the fence, (12:26) in the house, (12:29) this or that.”

Vulnerability

The craft is experiencing threats associated with rural cultures and communities with youth outmigration, competition from imported stone and a lack of institutional support through craft education being the main challenges. Establishing educational programs for the craft would help streamlining the transfer of traditional knowledge from experienced craftsmen to aspiring ones. Helping the preservation of the craft and through the incorporation of education on land management through and the environmental role of the craft, education can preserve the crafts link and role in the environment. As emphasized by one of the stonemasons:

"If it works, a school should be opened, in Herzegovina it should. To learn that craft, so that the craft does not die out. And there is potential to make a living from it nice, nice living, whoever wants to work."

Enhancing economic and social opportunities through craft preservation and positioning craftsmanship as a viable modern profession. Ensuring a more resilient rural community is one not severed from its environment but connected. Enhancing the competitiveness and importance of Herzegovinian stone masonry not just as a building style but an example of environmental engineering mitigating the threats of globalized market pressures that erode local value chains and generational traditional knowledge transmission and skills.

Inseparability

The poem "U Drvetu Procvetao Kamen" ("Stone Blooming in Wood") on the front page of the Bokic Gallery online communication platform encapsulates the inseparability of stone, wood, and human creativity as co-dependent ("man, wood, and stone intertwine"). The participants in the interviews multiple times hint towards a practical kinship with mentions of the stone’s "duša" (soul) when hand-carving. Such idioms reveal a worldview where culture and nature are collaborators and not separate

from one another. With even technological innovations and mechanization being conservatively and critically implemented to preserve this bond ("You can't replace the hand"). This kinship and inseparability also manifest in the plant life which is adapted to grow in the gaps and cracks of stones, and they do not differentiate between human processed or natural, on the other hand this plant life cannot grow on industrial build objects.

Rural Cultural Entrepreneurship Analysis

Stonemasons in Trebinje balances between commercial and artistic work using the cultural value of the craft products to increase commercial success. This commercial success ultimately sustains both the continuation of the craft and the enterprise. Stonemasons thus must find a balance between the commercial and mechanized work and their artistic traditional work leading to a negotiation of implementing modernity in the craft. The interviewees state that they utilities modern equipment but it cannot replace the final finishing done by hand and the importance of traditional processing in learning with a strong emphasis on experiencing the ancestral process to understand the nature of the stone and the craft:

"When you start to do something that before us our ancestors did with a pick and a mace, they fought, they struggled, and then you buy a machine, you do this kind of work, you already know how it goes."

Similarly, the demand for local stone in commissions with both local and diaspora customers preferring local stone due to the emotional connection. This is also active in construction with local stone particularly from Bileca (30km north of Trebinje) being the most popular. The interviewees emphasize*: "nema objekta u Trebinju bez kamena"* - "there is no building in Trebinje without stone" demonstrates how market trends caused by emotional connections to landscape reinforce, rather than erode, biocultural assets. This frames cultural heritage as a competitive asset because of its biocultural embeddedness.

This case study demonstrates the role rural cultural entrepreneurship as both a manifestation and catalyst of biocultural innovation. There are important overlaps between the definition of Mikic (2017) of rural cultural entrepreneurship and the shared traits of biocultural assets, rural cultural entrepreneurship as the activities, expressions, knowledge and skills of a community in this case stone carving is a biocultural asset. This case makes it clear that entrepreneurial activities transform biocultural assets in this case traditional stonework processes (knowledge, skills, activities) are the very mechanism through which the 3C's of biocultural innovation (Conservation, Conversion and Construction) are realized through commercial and artistic activities. Ultimately, this case positions rural cultural entrepreneurship as an enabler of biocultural innovation in

rural and peripheral areas. Leveraging biocultural assets through market mechanisms that in assisted by policy interventions has the potential to stimulate ecological stewardship, cultural preservation and economic resilience in a self-reinforcing system. Suggesting that rural cultural entrepreneurship sustains biocultural systems through its rootedness and adherence to traditional practice while innovating within contemporary economic realities. As seen in the case's analysis of its FPVI traits, it shows how rural communities sustain through balancing tradition and modernity (market mechanisms, modern equipment, etc).

“Udruzenje zena Vasila” Collective and Traditional Textiles and Fashion:

Overview

“Udruzenje zena Vasila” is a traditional fashion and textile women’s collective located in Trebinje. The organization balances between heritage preservation work in craft education, garment reconstruction and more commercial work in traditional garment, accessories and other handicrafts and trinket sales through commission, in shop and outsourcing to souvenir shops. The collective has 4 permanent members and maintains a network of amateur craft practitioners through its educational program and past members. The organization was formed 18 years ago through a foreign investment program to preserve the traditional craft and has since remained independent, operating as a standard cultural and creative enterprise, financed primarily from sales and some cultural policy funding both national and international.

About the craft

As a heritage craft it is deeply entangled with the local environment, in the past almost all of Herzegovina’s population was rural and therefore most of the clothing and accessories were produced at home and almost always by women. The craft was therefore also closely linked to herding and agriculture and the local biodiversity from material sourcing, color availability, as most dyes came from the environment as well as serving as a source of artistic inspiration. This tradition resonates with the collectives’ members as stated by the collective’s president:

"They were tied to nature, they had their own sheep, they did everything that concerned them, they cut wool, combed, spun, dyed. What did they dye with? They dyed from our natural grasses. So, again, tied to nature."

This statement encapsulates biocultural diversity with nature enforcing and determining the cultural practices and expressions. Which is recognized by the members, and serves as a driver of maintaining the craft, they through the craft seek to reconnect not only to their ancestors but also to their environment:

"And then we realized, when our women (ancestors) could do that, a Herzegovina (woman), and all the women of that time, in the past, made those patterns, they took some shapes from the steča (ancient tombstones) ... It means that those women were tied to nature, to God. The brain worked, it gave strength, and that power, to create something like that, a pattern, a fine shape... So, realizing that we have become even stronger, we have even more strength"

Figure 11

Traditional embroidery depicting local flora – Bozur

Note. Picture provided by “Udruzenje Zena Vasila

The collective has so far managed to preserve the traditional craft through private and public commissions. They have preserved and revived many of the traditional methods of weaving, embroidery, crocheting and sewing, color combinations, use of textiles and other elements of the traditional production. But they recognize that to fully revive their craft connections with local material sourcing need to be revived, this will enable the reconstruction of traditional fabrics ensuring authenticity, but it will also reinforce the connection between the craft and the local ecosystem. This is a project in its inception with the first consultations taking place between locals from the municipality of Berkovici and the collective. As well as visits to sibling organizations in other countries that incorporate entire supply chain, from herding to processing of wool to coloring to weaving to sale. This is an example of biocultural innovation at its inception demonstrating how local creativity motivated by reviving biocultural links can enhance economic opportunity in rural areas:

"That could fit in when this natural wool would be harvested. Because we would have enough wool. And people now, I checked, in Berković everyone throws away their wool. Everyone. There. That's one piece of information for you. Some project with the natural wool, that would be the best... Women all over Berković, they all know how to knit... They are women who go out for a day and knit, and they were always like that. (10:07) And there is nothing they do not know how to make. And they weave, and they do it all at home...”

This is an active call to utilize rural products that are not competitive in the global market due to the lack of infrastructure and quantity, through biocultural innovation such as connecting traditional fashion with its original material creates value to use the local material previously non desired demonstrating the potential of biocultural assets. Therefore, it is an attempt to convert value from a discarded material through the traditional craft. Example of the intertwined and overlapping character of biocultural innovation and entrepreneurship in rural areas.

"There are more women who might be able to join that network to spread the network of that craft. Every village, every place, every city has something of its own. It's all ours, you know."

Figure 12

Katun iznad Trnovačkog jezera (Katun over the Trnovacko Lake)

Note*: Katun at the border between Bosnia and Herzegovina and Montenegro – close to Gacko, it is the traditional seasonal migratory practice in the region of moving animals to the highlands*

Note. ***Katun iznad Trnovačkog jezera*** From: *Istraživačka avantura u Nacionalnom parku Sutjeska i okolini,* Author: Biljana, Sourced: https://biljana.photography/en/nacionalni-park-sutjeska-istrazivacka-avantura/)

Biocultural Innovation Analysis

Biocultural diversity through biocultural innovation and cultural entrepreneurship serves as an asset for sustainable economic and social development. Basically, by expanding the supply chain to connect sheep herders with the traditional craft not only does it reconnect two parts of the traditional economy and generate cultural value but it also creates opportunities for the two parts of production of a traditional garment to mutually support each other both economically and socially seeing that as of currently herders throw away their wool and the "Vasila" collective uses primarily imported materials. This network of herders and the crafts practitioners therefore will help conserve both the traditional tie of the craft with the environment but also the local ecosystem by providing herders with additional incentive in maintaining their herding practices.

Bjeloglavi Sup exhibition as an example of a cultural institution acting as a catalyst for environmental advocacy and education. But is a perfect example of the connectedness of the cultural sector and environment. Bjeloglavi Sup is a key stone species, its numbers were decimated due to reduction in rural agricultural activity, particularly in herding (Spevec, 2021). There is some meaning in the collective organizing embroidery workshops in an exhibition of endangered wildlife while aiming to reconnect with the traditional links between the craft and nature through connecting with herders. This is an example of cultural storytelling an innovation that ties an endangered key stone species, the Bjeloglavi Sup to the craft, demonstrating how traditional crafts can be tools for environmental education fostering the connection between culture and environment. Collaborations like these show the potential how textiles and fashion can bridge heritage with sustainability.

This claim therefore not only does it embody biocultural innovation and the entrepreneurial process in action in this case they are overlapping but it also embodies biocultural diversity, "every village, every place, every town has something unique" which applies to both the cultural and biological diversity in Herzegovina. This statement also presents the potential for the development of rural entrepreneurship.

Figure 13

Belogolavi sup čuvar prirode

Note: *"Bjeloglavi Sup" is a scavenger bird described as "natures cleaner" now extinct in Herzegovina*

Note. Special Nature Reserve "Uvac" "Белоглави суп - галерија фотографија" *from* https://www.uvac.org.rs/beloglavi-sup

Functionality

The collective's new mission to expand preservation of traditional textiles and fashion to also include herding and sourcing through traditional wool processing and natural and authentic dyeing, historically dependent on local biodiversity. By connecting with herders from Berkovici they are restoring the link between craft and ecosystem services. The creation of this network that restores the traditional production chain and native economy embeds the functionality of the craft as an economic asset with potential for tourism development. This is functionality through entrepreneurship driven by opportunities brought by the tourism increase, maintaining the traditional process as an asset in entrepreneurship in tourism.

"Let's say a project is revived, sheep are sheared, and all the work that goes with it, that would be interesting for tourism and to look at it would be interesting to know what and how and in what way you get that item of clothing, sweater, I don't know everything, not everything is knitted."

Potentiality

The potential of the biocultural asset is in its entrepreneurial potential to not save discarded wool and convert it into a cultural good through the collectives proposed network creating a circular economy that adds value to a marginalized traditional practice and benefits both herders and artisans. There is additionally potential to expand this network to other municipalities such as Gacko and Nevesinje. Here economic, cultural and environmental preservation potential overlap.

"But, for the most part, they would knit for sure. And that means, we are already expanding regionally, and we are enriching the villages, right? And it could also be Gacko, Nevesnje could also, if they have sheep. Right? And that means, they would bring that wool if she was in Berkovići (10:29) or anywhere like that."

Vulnerability

The craft faces threats from the persistence of this severance between socio-ecological ties. Due to this imported and synthetic materials have become common in the craft and it ultimately affects its final quality which can translate to poor market competition on which the crafts survival and broader adoption is based on. This has eroded the Inseparability that once defined Herzegovinian textiles as previously mentioned. The craft is also facing challenges caused by rural depopulation. While the collective maintains the craft through educational programs these participants are not permanently or economically engaged with the craft. The depopulation also threatens to change the broader ecosystem with the decline of herders threatening the complete loss of the link between craft and environment through herding. The craft therefore is faced with a dual fragility requiring urgent recognition by policy development programs:

"So, it would be very good for us, and also for that place so that people would get a job, do those jobs with the help of some project."

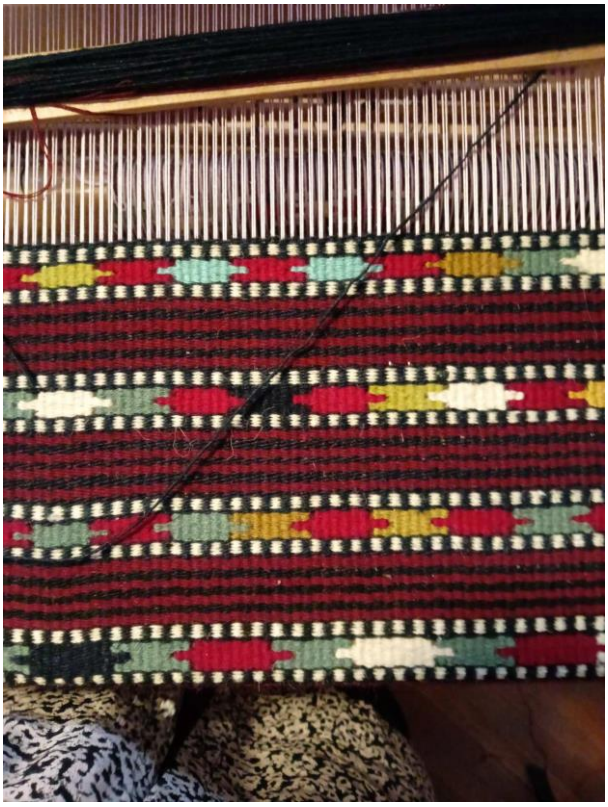
Inseparability

The inseparability of the craft with environment cannot be understated. Inseparability is continuously present through both practice and narrative, when members describe the work of their ancestors as being "vezane za prirodu i Boga" (bound to nature and God) with artistic and material expression being a product of the environment either through inspirations of motifs from stećci (medieval tombstones) and local flora or color choice and sourcing from the local ecosystem. Therefore, this embeddedness is not only persistent in the nature of the craft or the collective's narrative but materialized in the commitment to reviving traditional wool processing and reintegrating it into the craft reconnecting culture and ecology. This is also evident in the collectives' modern adaptations (fashion shows) and business activity, insisting on regional specificity, an

example of how the inseparability of biocultural assets can prove relevant in commercial contexts.

Figure 14

Traditional weaving and color combinations made from wool



Note. *Picture provided by the "Udruzenje Zena Vasila"*

Rural Cultural Entrepreneurship Analysis

The cultural entrepreneurship practices and activities of the collective are broad, efforts are oriented towards marketing the organization, its work and preservation efforts through the educational program. The organization maintains close ties with the Museum of Herzegovina primarily for practical reasons as a stronger and more established institution. The collective regularly participates in Museum events and activities and hosts programs in Museum spaces. It aims to boost its visibility through organizing its own fashion show organized in collaboration with the educational program participants and the Museum. The collective has previous experience in similar projects and has already participated in fashion shows initiatives organized on the national level in collaboration with other traditional fashion collectives (from Bosnia) and local Trebinje designers, this project although successful in adapting traditional elements with modern fashion and connecting local crafts with local designers was not a positive experience

and failed in preventing cultural appropriation and proper recognition of the origin of traditional knowledge. This showcases the challenges in some projects attempting to adapt traditional crafts to contemporary markets. A major driver of entrepreneurial activity is tourism, the collective produces a standardized set of traditional products that it offers to tourists and the diaspora. Particularly the authentic character specifically to the region.

"Because foreigners, everyone buys, especially our diaspora, they all want to have opanak (traditional shoe). You know, but our opanak (Herzegovinian), it's our tradition. It's not the same Serbian and our opanak."

Adaptability in this case to tourism demands is a common factor in rural cultural entrepreneurship. This adaptation is in the format of partnering with other crafts such as traditional shoemakers (opanke) to generate more visibility in the public and advocate for policy recognition. Leveraging the biocultural assets for entrepreneurship but through heavy reliance on tourism.

"He who works, should work. We now have so much experience to plan, we don't need much, maybe some small idea, but we know what we can do. That would be very nice."

"Wool processing would also be the same. If it was done, advertising, so there would be advertisements. Every foreigner would want to come there and see how it is produced. Everyone would buy something. And all those women in the village know how to knit."

The collective's entrepreneurship strategy overlaps with biocultural innovation's 3C's. Through its central conservation mission of preserving traditional weaving, embroidery and sowing and enhancing the authenticity the collective aims to preserve the inseparability of the textile and fashion tradition, ensuring these cultural expressions and activities remain linked to biodiversity. These efforts to address the vulnerability, functionality and potentiality and inseparability of the craft (all parts of the supply chain) as a biocultural asset aligns with biocultural innovations to conserve but in rural context this is also motivated by an economic factor. This economic incentive, expressed through entrepreneurship views biocultural assets as competitive in a capitalist market system. Preservation is therefore embedded in economic activity as the only way to adapt in a peripheral and rural region (providing women in villages with economic incentive to process discarded wool thus sustaining both herding activities and craft authenticity).

Conversion is presented in the collective's strategy to unlock new value from undervalued biocultural assets. Identifying and marketing the discarded wool, its processing and its final products to offering those traditional expressions to tourists as an authentic experience *("every foreigner would want to come and see how it is made")* converts an undervalued and discarded material into an exclusive and authentic product accompanied by cultural storytelling. Increasing the overall ecological and cultural value of the craft. The crafts history and nature as a craft of shared ownership that has

developed from the inseparable interactions between culture and environment now through collaborations with the museum is positioned to convert the craft into environmental advocacy tying the motifs and artistic expressions through textiles to the local landscapes, both through tradition ("and all the women of that time, in the past, made those patterns, they took some shapes from the steča... It means that the woman was connected to nature") and innovation *(through the Bjeloglavi Sup exhibitions - innovation)*.

Through entrepreneurship the collective also aims to construct through its evident mission to rebuild broken biocultural networks, showcasing how the traditional economy is not only a part but also overlapping with biocultural networks. This reiterates the need for new ways of understanding the role of human culture in conservation, challenging the notion that conservation is only possible through the absence of humans, this takes it a step further and argues for the reevaluation of some traditional economic systems in maintaining ecosystems, although this requires further research. By reviving wool processing and the socio-economic fabric connecting herding, coloring and weaving it creates job opportunities in areas facing depopulation while reinforcing inseparability.

Theoretical Synthesis and Case Comparison:

Table 1.

Biocultural Assets (FPVI traits) across cases:

Trait	Craft Cheese-Making	Stone Masonry	Textile Processing
Functionality	Migratory grazing sustains ecosystems; native cattle breeds and season-based production ensure product quality, exclusivity and sustainability.	Availability of stone and processing tradition offers accessible and sustainable building, dry-stone walls prevent erosion, artistic stonework preserves cultural heritage and aesthetics embedded in the local landscape.	Traditional wool processing and natural dyes link craft to local biodiversity while offering herders diversification opportunities and the collective affordable and authentic material
Potentiality	EU market expansion, pasture-based branding that includes environmental health as a characteristic, Ecosystem engineering through upscaling and exporting traditional herding practices	Human-nature co-creation has potential in innovations in green architecture, ecological art (e.g., stone-wood fusion sculptures) and heritage made from stone has potential for ecocultural storytelling (gusle).	Herder-craft network potential in rural social and circular economy development, eco-textile innovation, increase in sheep flocks and traditional herding can increase biodiversity (Bjeloglavi Sup).
Vulnerability	Rural depopulation and demographic decline, gendered labor gaps, market pressures for industrialization of products caused by high demand and tourism.	Rural depopulation, youth disinterest, market demands for fast productions from imported stone risk cultural dilution, lack of institutional support in urban building projects.	Rural depopulation, cultural appropriation and dependence on imported material can dilute authenticity, severed herding-craft links.

Trait	Craft Cheese-Making	Stone Masonry	Textile Processing
Inseparability	Herding and pasture health interdependence reflecting on product quality. Landscape based tools and seasonal production cycle ("nature arranged it").	Cultural significance through narratives such as stone's "soul" "stone blooms from wood" and ancestral anecdotes frame stonework as co-creator with nature. Stone building ability to foster life compared to industrial building.	Motifs inspired by stećci (medieval tombstones) and native flora and fauna; color combinations tied to local ecosystem. Traditional herding tied to biodiversity (Bjeloglavi Sup).

All cases exhibit similar FPVI dynamics with strong inseparability rooted in landscape and the local biodiversity with some crafts either directly or indirectly exhibiting a culture-nature interdependence (kajmak production is directly tied to pasture health and pasture health is tied to sustainable traditional grazing) (traditional textiles are tied to traditional sheep herding on which Bjeloglavi Sup relies on). The cases furthermore share the same vulnerability with rural depopulation and market pressures causing cultural dilution and loss being the main shared threats.

All 3 cases display a narrative of a strong connection with ancestral practices and aim to continue them. The practices or the crafts are local cultural expressions that people in Herzegovina have practiced for generations with records for all cases leading to at least the Middle Ages. Thus, the selected crafts are part of the collective cultural heritage and has a shared ownership character. 70 years ago, an overwhelming majority of the population was rural, and almost all people today still maintain strong ties with their ancestral homes regularly moving between town and village.

Table 2.

Cultural Entrepreneurship and Mechanism of Value Creation (3C's):

Pathway	Cheese-Making	Stone Masonry	Textile Processing
Conserve	Product origin certification and legal recognition; collective ownership of craft protects traditional methods.	Hand-tool preservation and intergenerational apprenticeship models resist mechanization. Advocacy for policy recognition in education	Education programs help revive traditional textile processing techniques. Connecting with herders helps conserve the crafts authenticity and connection to the landscape
Convert	Pasture biodiversity tied to milk and product quality in branding.	Converting traditional skills and knowledge in commercial services that fund artisanal work; market demand for the traditional style due to emotional connection to landscape.	Discarder wool is converted into an authentic local product, Incentivizing locals to process their own wool converts traditional knowledge into a marketable good for tourists.
Construct	Revived migratory grazing systems enhancing biodiversity.	Raw stone use in functional and aesthetic projects help construct microecosystems and reimagine the materials use.	Reviving herder-artisan networks through a circular economy model promotes herd growth that helps biodiversity and reintroduction of locally extinct animals. Biocultural and storytelling through education program

All cases therefore exhibit a type of negotiated commercialization and modernization of their respective craft without compromising on the traditional landscape connection between nature and craft. These cultural enterprises actively leverage this environmental link to their advantage as a marketable good or service, whether through artistic expression aiming to produce something unique to the region or using the traditional process and biocultural assets as functionally competitive.

Case Reflection

“Udruzenje Proizvodzaca Gatackog Kajmaka” is a municipality supported collective/union representing the producers of the traditional dairy products of the area, who’s production is structured around the home and is run by women who own their entire supply chain from cattle herding, dairy processing and sale. The collective puts efforts in preserving the craft and promoting it on fairs, festivals and media.

The stonemasonry case study exhibited more individual organization, and male dominated, the craft persists throughout the population but a selective few choose to specialize in the craft and produce both artistic and commercial goods and services. These stonemasons balance between tradition and modernity selectively modernizing where market pressures demand but also resist due to their own and the customers emotional connection to the traditional work and aesthetic.

“Udruzenje Zena Vasila” is also a women collective, their work is in the preservation of traditional textile and fashion crafts authentic to the region, they are deeply embedded in the cultural sector of the area and regularly collaborate with others in the sector such as the Museum. They, like, “Udruzenje Proizvodzaca Gatackog Kajmaka” primarily focused on preservation but is now aiming to expand in marketing and the supply chain, with plans to create a broader network connecting raw material sourcing through sheep herders in the Berkovic municipality to provide a better quality and more authentic product and revive a lost link between the cra”t an’ the environment.

Cross-case Themes

Rural Organizational Hybridity

The cases show a combination of formal-informal organizational structures. The “Udruzenje Proizvodzaca Gatackog Kajmaka” collective, while municipality initiated and supported, maintains a bottom-up approach where producers drive standardization efforts and entrepreneurial activity through market access sharing and festival engagement. Similarly, “Udruzenje Zena Vasila” operates independently despite having origins in heritage preservation programs and sporadic institutional support from the municipality and the museum, strategically partnering to amplify its reach. In contrast, stonemasons work primarily as individuals or through family enterprise, with some sporadic institutional support mainly through public commissions for art and construction, the stone masonry case also exhibited more market integration with no major steps towards formal preservation of the craft. This hybridization demonstrates how rural cultural enterprise are initiated, through institutional and place-based frameworks that balance between the formality of institutions and local agency and

approaches. Nevertheless, policy and structural neglect persist with basic infrastructures often lacking hindering potential, such as education programs for stonemasonry, basic goods and services in rural areas such as roads and electricity hindering intergenerational transmission.

Biocultural Inseparability as Market Strategy

All cases demonstrate a use of landscape connection as a market differentiator: Cheese-makers tie flavor to pasture health, native cattle breeds and traditional and organic grazing systems. Stonemasons capitalize on the emotional connection to landscape and the traditional aesthetic demand in commercial commissions. The textile collective focuses on the authenticity of a garment and its connection to the landscape wanting to expand to local material sourcing and natural dyes for traditional motifs inspired by the landscape. This landscape and environment connected branding is often accompanied by eco-cultural storytelling such as the "stone blooming in wood" poem in stone art or exhibitions linking culture to endangered species such as the Bjeloglavi Sup framing tradition as inherently sustainable. By integrating ecological and cultural narratives into their products, these crafts appeal to rising tourism, home-sick diaspora and local markets while directly and indirectly reinforcing biocultural values.

Gender & Care-Centered Entrepreneurship

There are differences between the cases in terms of organization and entrepreneurial approach shaped by the gender dynamics and a traditional division of labor. Women-led collectives (cheese/textiles) translate domestic care labor such as animal husbandry, homestead production, and intergenerational teaching into entrepreneurial action and collective economic agency, for example, through market access sharing through a distributive sale system, warm public engagement in festivals or free embroidery and craft classes. Although care labor also limits participation and market access as seen in festival and organizing challenges. In contrast, male dominated crafts stonemasonry is primarily individual, or family based, and knowledge and skills are passed through family and community networks, it also exhibits a higher degree of market integration and engagement. These cross-case emphasis on gendered craft division and differences in approach demonstrates how rural cultural entrepreneurship both challenge and reproduce gendered labor.

Synthesis of Analysis

Biocultural Innovation in rural CCI

The analysis suggests that there are considerable overlaps between biocultural assets and the definition of rural cultural entrepreneurship by Mikic (2017) (cultural expressions, activities, knowledge, etc.). "*Cultural entrepreneurship, in this sense, can be seen as a set of activities, knowledge, skills and capacities that create cultural goods or services embodying or conveying cultural expressions*" (Mikić, 2017). These cultural expressions are deeply entrenched in the local landscape and thus often merge with the definition of shared FPVI traits. The traditions, practices, knowledge and activities discussed in the cases therefore present a pool of biocultural assets that through entrepreneurial action following biocultural innovation pathways (3C's), fosters community and environment resilience. Creating value through the 3C's is entrepreneurship. FPVI traits thus present a competitive asset that can through biocultural innovation (3C's) translate into entrepreneurial action. These crafts derive their unique value from their inseparability with the landscape, this interdependence and coevolution between culture and ecosystems manifests in the importance of native cattle breeds and pasture health in cheese-making, raw stone aesthetics in masonry, or landscape inspired motifs in embroidery. These cultural entrepreneurs further build on this by identifying the potentiality of their crafts/practices/knowledge (biocultural asset) in entrepreneurship, through which they either convert, construct or conserve and create new value, whether it's creating herder-artisan networks for a more authentic garment, creating art that integrates heritage and landscape through stonemasonry or standardizing production to seasonal and traditional limits despite market pressures. Demonstrating how ecological functionality can become a competitive advantage. This means that these entrepreneurial activities cannot be separated from their landscape and ecological embeddedness, the cultural expressions they commercialize are themselves manifestations of biocultural diversity.

However, these enterprises are threatened by rural specific vulnerabilities such as depopulation and market pressures that can dilute or lead to the loss of these biocultural assets which requires place specific interventions to sustain their continuation such as education in stonemasonry and traditional textiles and fashion or pasture and tradition-based branding for cheesemakers. The findings ultimately suggest that biocultural innovation in rural contexts succeeds when it aligns traditional cultural and environmental knowledge and practices with contemporary market opportunities. Creating value that benefits the local economy, community and ecosystem.

Cultural entrepreneurship as biocultural stewardship

Taking the role of biocultural innovation in rural cultural entrepreneurship into account. The discussed cases position cultural entrepreneurship as an act of biocultural stewardship that is simultaneously market integrated. This is operationalized through the conserve, construct and convert pathways of biocultural innovation. Conserving is manifested through the protection of traditional processes via legal and organizational structures ensuring both collective ownership and market protection (cheesemakers collective). Constructing is expressed through reviving socio-ecological and economic networks between herders, artisans and local wildlife (Bjeloglavi Sup). Converting occurs through the promotion and branding of cultural and landscape ties for tourism (all cases). Cultural entrepreneurship as biocultural stewardship thus demonstrates how entrepreneurial activities in this case in rural areas can simultaneously preserve cultural heritage, promote biodiversity, and provide economic benefit if rooted in biocultural assets. Therefore, by integrating biocultural diversity theory in cultural economics and entrepreneurship research this study offers a framework for analyzing rural cultural enterprise where economic and environmental goals are often mutually reinforcing.

Cultural entrepreneurship is therefore a form of ecological governance where entrepreneurial activities directly reinforce the FPVI traits of biocultural assets. Implying that rural CCI cannot be "scaled" like urban creative industries without disrupting biocultural feedback loops. Therefore, policies in rural cultural or environmental preservation must view culture and environment as mutually reinforcing and support place based creative and cultural enterprise helping alleviate market pressures threatening both cultural loss and environmental degradation. And foster the emergence of rural cultural enterprise that embed ecological costs in their business model as active stewards of biocultural capital. These place-based interventions will not only ensure local community and ecological resilience and sustainable development in marginalized regions but also foster rural biocultural innovation applicable in global and urban challenges and contexts.

Discussion and Conclusion

Answering the research question

This study aimed to answer *how the utilization of traditional rural knowledge in Herzegovina as biocultural innovation stimulates cultural entrepreneurship?* The findings suggest that traditional crafts such as cheesemaking, stonemasonry and traditional textiles and fashion function as biocultural assets possessing both entrepreneurial and environmental value. Rural cultural entrepreneurship by operationalizing these assets through the 3C (conserve, construct, convert) pathways is a catalyst of biocultural innovation. Entrepreneurship activities in this study are revealed to not only sustain traditional practices, knowledge, skills and local landscapes but also hold potential in reviving lost culture-nature links, participate in ecosystem and even bring back locally extinct species. Reflecting both Vassallo et al. (2023) intergenerational wellbeing and Mikic (2017) rural cultural entrepreneurship model for the preservation of cultural expressions.

Thus, here traditional knowledge serves as a competitive asset, its inseparability with landscape allows entrepreneurs to innovate while preserving biocultural diversity. This challenges both notions of rural development as top-down process with rural communities possessing little innovation potential and notions framing the absence of human culture as the only pathway to biodiversity conservation. Finally, this embeds entrepreneurship as not only an economic process that generates economic value but one that integrates and fosters cultural, environmental, social and economic ties and resilience. Rural landscapes and communities therefore present a significant pool of innovation resources and potential.

Theoretical Implications

The findings expand biocultural innovation theory to also include rural and peripheral areas in modernized contexts and not only indigenous. It does this by applying the shared traits of biocultural assets (FPVI) on traditional crafts in Herzegovina. The analysis suggests applicability of (FPVI) theoretical framework on traditional craft activities, practices, knowledge, goods and services. Following this the study examined the role of cultural entrepreneurship in rural biocultural innovation. The results show clear overlap between entrepreneurial activities and biocultural innovation pathways (3C's). The cases demonstrate how rural cultural entrepreneurship directly operationalizes the 3C's (Conserve, Construct and Convert) and creates both economic, cultural and environmental value. Therefore, it is argued that these entrepreneurs engage in activities

that both promote and preserve cultural expressions, inseparable from their landscape. This provides a real-life application of biocultural innovation in action that frames the 3C's as economic practice realized through cultural entrepreneurship serving as an example for policy makers and future research. Ultimately this study shows that rural cultural entrepreneurship is a mechanism that actualizes the 3C's into action. The discussed cases demonstrate how entrepreneurship when rooted in biocultural assets can provide place-based solutions that have the potential for providing economic opportunity, cultural preservation and ecological protection and restoration. Therefore, this study argues that rural cultural entrepreneurship can serve as biocultural stewardship simultaneously preserving and restoring cultural heritage and biodiversity while being market integrated and providing economic benefit.

Limitations

This study argues for place specific research and interventions therefore there is a degree of geographic specificity associated to the research, biocultural assets and entrepreneurship might be expressed differently in other contexts, depending on demography, geography, degree of environmental degradation, politics, socio-economic development and the very nature of biocultural assets of the landscape. Thus, the findings are linked to the Herzegovinian context, although due to the universal nature of biocultural innovation (FPVI, 3C's) and cultural entrepreneurship the framework used, and the findings might also be applicable elsewhere.

Additionally, the sample size used in this analysis was relatively small. Sample size was compensated with the geographical embeddedness of the author, this was primarily due to time constraints with the period of data collection. Future expansion to the research should aim to incorporate more stakeholders and craft practitioners to paint a better picture on the topic. Moreover, quantifiable evidence of these specific culture-nature interdependence of the crafts could have provided exact data enabling the understanding of the full extent of cultural entrepreneurship's impact on biodiversity. Providing quantifiably evidence on the notion of cultural entrepreneurship as biocultural stewardship. The results of this study were therefore formulated based on interviews with crafts practitioners, institutional stakeholders while being guided by biocultural diversity principles and peer-reviewed studies showing evidence of culture-nature interdependence of the same or similar crafts in similar and neighboring regions sharing the same cultural heritage. This study maintained a position of innovation and entrepreneurship scholarship tying case studies of craft entrepreneurship with biocultural innovation and not exact craft-biodiversity quantified data.

Furthermore, there were additional constraints in data collection, many crafts practitioners did not directly concern themselves with biodiversity nor could they provide

specific examples of nature-craft inseparability despite there being clear evidence of the connection, stone masons drew a clear line between material extraction and processing. In the craft cheese case study participants did not provide pinpoint examples of how their cattle crazing patterns impacts biodiversity despite evidence. Crafts and practices were often simply tied to ancestors and their interactions with the environment and how they intend to continue this heritage. Although this might also signal limitations in the interview design. Nevertheless, based on the data gathered applicability with and insights into biocultural innovation theory and rural cultural entrepreneurship were still possible.

Practical and Policy Insight

Despite their potential rural cultural enterprise face systemic challenges caused by rural depopulation, market pressures and competitions from core economic regions. Therefore, this study insists on the recognition of rural cultural enterprise as not only having a role in cultural preservation as discussed by Mikic (2017) but also provide environmental services that combat biodiversity loss. Landscape also provides opportunities in economic development through tourism but also innovations made through biocultural innovation can also provide place specific sustainability solutions (raw stone and biodiversity construction) but also provide a platform for culture-nature reintegration through cultural storytelling and landscape embedded aesthetics. This requires the identifying of biocultural assets and creating the necessary infrastructure that will enable biocultural innovation, such as the proposed stone masonry school and artisan-herder network that formalize the link between cultural expressions and environmental stewardship. Interventions should therefore be made in integrating the 3C's in cultural and creative enterprise and support already existing cases. For example, the proposed stonemasonry education should aim to include both artistry and land management through the craft, eco-labeling that ties products (fashion/cheese) to biodiversity (ensuring positive grazing impact) and promote revival of traditional supply chains supporting culture-nature interdependence.

Future research should be dedicated to mapping biocultural assets and the cultural enterprise and entrepreneurs acting as biocultural stewards. Additionally, the applicability of the notion of rural cultural entrepreneurship or cultural entrepreneurship in general serving as biocultural stewards should be further assessed by applying it to other contexts and rural regions. Finally, research on scalability of such enterprise and organizations should be further researched to monitor their long-term economic sustainability.

References

United Nations. (n.d.). *The 17 Sustainable Development Goals*. United Nations Department of Economic and Social Affairs. Retrieved [insert date], from https://sdgs.un.org/goals

Scoones, I. (2007). Sustainability. *Development in practice*, *17*(4-5), 589-596.

Throsby, D. (1995). Culture, economics and sustainability. *Journal of Cultural economics*, *19*, 199-206.

Kovaitė, K., Šūmakaris, P., & Korsakienė, R. (2022). Sustainability in creative and cultural industries: a bibliometric analysis. *Creativity Studies*, *15*(1), 278-298.

Kagan, S. (2018). Culture and the arts in sustainable development: Rethinking sustainability research. In *Cultural Sustainability* (pp. 127-139). Routledge.

Birsel, Z., Marques, L., & Loots, E. (2023). Daring to disentangle: towards a framework for art-science-technology collaborations. *Interdisciplinary science reviews*, *48*(1), 109-128.

Maffi, L. (2007). Biocultural diversity and sustainability. *The SAGE handbook of environment and society*, 267-278.

Dilts O., Maffi, L. (2014). Biocultural Diversity Toolkit, *Terralingua*.

Elands, B. H., Vierikko, K., Andersson, E., Fischer, L. K., Goncalves, P., Haase, D., ... & Wiersum, K. F. (2019). Biocultural diversity: A novel concept to assess human-nature interrelations, nature conservation and stewardship in cities. *Urban Forestry & Urban Greening*, *40*, 29-34.

Elands, B. H., & van Koppen, C. K. (2012). Biocultural diversity in the Netherlands: from ecologically noble savages towards biocultural creatives. In *Forest-people interfaces* (pp. 181-193). Wageningen Academic.

Vassallo, J. P., Banerjee, S., & Prabhu, J. C. (n.d.). Biocultural innovation: Innovating at the intersection of the biosphere and ethnosphere. *Journal of Product Innovation Management*. https://doi.org/10.1111/jpim.12669

Cocks, M. (2006). Biocultural diversity: moving beyond the realm of 'indigenous' and 'local' people. *Human Ecology*, *34*(2), 185-200.

Polfus, J. L., D. Simmons, M. Neyelle, W. Bayha, F. Andrew, L. Andrew, B. G. Merkle, K. Rice, and M. Manseau. 2017. Creative convergence: exploring biocultural diversity through art. Ecology and Society 22(2):4. https://doi.org/10.5751/ES-08711-220204

McElwee, G., & Gittins, P. (2024). Dry stone walling. Rural artisan enterprise in the urban economy. *Journal of Rural Studies*, *105*, 103179.

Imperiale, F., Fasiello, R., & Adamo, S. (2021). Sustainability determinants of cultural and creative industries in peripheral areas. *Journal of Risk and Financial Management*, *14*(9), 438.

Leon, M. J. A., Torres, I., & Ramírez, F. (2020). Arts and Crafts: For the Promotion of an Ecosystem of Culture, Knowledge, and Entrepreneurship. *The International Journal of Interdisciplinary Cultural Studies*, *15*(1), 1.

Naylor, R. (2007). Creative Industries and Rural Innovation, *Burns Owen Partnership*, *Rural Innovation*. *Chapter 4*.

Atterton J., and Ward N. (2007). Diversification and Innovation in Traditional Land-Based Industries, *Centre for Rural Economy, Newcastle University, Exploration* 01: *Rural Innovation*. *Chapter 2*.

Smagina, A., & Ludviga, I. (2020, June). Craft entrepreneurship and created value. In *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)* (Vol. 13, pp. 359-365).

Mikić, H. (2017). Cultural entrepreneurship and rural development: Case study of Pirot, Serbia. In *Entrepreneurship in culture and creative industries: Perspectives from companies and regions* (pp. 245-263). Cham: Springer International Publishing.

Johnstone, B. A. (2007). Ethnographic methods in entrepreneurship research. In *Handbook of qualitative research methods in entrepreneurship*. Edward Elgar Publishing.

Johnstone, B. A. (2007). Ethnographic methods in entrepreneurship research. In *Handbook of qualitative research methods in entrepreneurship*. Edward Elgar Publishing.

Birks, M., & Mills, J. (2015). *Grounded theory: A practical guide*. Sage.

Perišić, P., Mekić, C., Stepić, S., Ignjatović A., Mihajlović, N. (2023). *ZNAČAJ AUTOHTONIH RASA I NJIHOVE KONZERVACIJE* U ISKORIŠĆAVANJU PLANINSKIH PREDELA / THE IMPORTANCE OF AUTOCHTHONOUS BREEDS AND THEIR CONSERVATION IN USING MOUNTAIN REGIONS*. Poljoprivredni fakultet Univerziteta u Beogradu, Zemun. UDC: 636.083.314:1f(=1-81)+591.615 https://eprints.uklo.edu.mk/id/eprint/8751/1/Dimitrovgrad_23.pdf#page=141

Maffi, L. (2007). Biocultural diversity and sustainability. *The SAGE handbook of environment and society*, 267-278.

Spevec, D. (2021). *UTJECAJ LJUDSKIH DJELATNOSTI NA BROJNOST BJELOGLAVOG SUPA U REPUBLICI HRVATSKOJ* (Doctoral dissertation, Karlovac University of Applied Sciences. Department of Wildlife Management and Nature Conservation).

Pušić, B. (1981). *U DRVETU PROCVETAO KAMEN. From "Umetnicka Galerija Bokic"* **https://galerijabokic.com/**

Pictures:

Note. "*Katun iznad Trnovačkog jezera"* From: *Istraživačka avantura u Nacionalnom parku Sutjeska i okolini,* Author: Biljana, Sourced: **https://biljana.photography/en/nacionalni-park-sutjeska-istrazivacka-avantura/**)

Note. Special Nature Reserve "Uvac" "Белоглави суп - галерија фотографија" *from https://www.uvac.org.rs/beloglavi-sup*

Note. From: Gatacko Cattle - Ark of taste, *Slow Food Foundation for Biodiversity*, https://www.fondazioneslowfood.com/en/ark-of-taste-slow-food/gatacko-cattle-breed/

Additional:

Koltsida, A., Loots, E., Mol, M., & De Wit, W. (Eds.) (2022). Craft Entrepreneurship: A collection of cases around the world.

Al-Hagla, K. S. (2005). Cultural sustainability: an asset of cultural tourism industry. *Work. Pap*, *6*, 6-12.

Akmadzic, Vlaho & Vrdoljak, Anton & Zelenika, Marko. (2018). Osvrt na nazivlje tradicijskih alata u obradi kamena na području Hercegovine. E-Zbornik elektronički zbornik radova Građevinskog fakulteta. 8. 1-6.

Zwitter, Ž., Fuerst-Bjeliš, B., Mrgić, J., Petrić, H., & Zorn, M. (2024). The Dinaric Karst in Environmental History Perspective: Conclusions, Contextualisations, and Outlook. In *Environmental Histories of the Dinaric Karst* (pp. 439-466). Cham: Springer International Publishing.

Appendix:

Original Quotes:

“Mleko koje se koristi za dobijenje ovog kaimaka je pretežno mleko naše auktohtone pasmine, Gatačkog goveče, samo ta pasmina je specifična i za ovo podnevlje najbolja. Mi smo ovako možda malo i subjektivni, ali najbolja rasta za goveda.”

“... ove naše žene što proizvode, sve imaju svoja goveda. To je sistem ispaše. Ta goveda su od 6 do 8 meseci na paši.”

“... da se ti proizvodi koji su, mnogih bili i pred udumiranje, da se sačuvaju njihova receptura i tehnologija i način proizvodnja i da se na neki način stimulišu ti proizvođači da nastave proizvoditi to što su radili njihovi preci.”

“... a u velikom mjeru je to mi je dopranijeli i turisti koji dolaze i žele upravo kada dođu da preko krane i osjete to područje gdje su posjetili, a Hrcegovina je prilično značajan udio u njenoj privedi ima i turizam”

“Uglavnom je to, sve je bolja, recimo, bilo što da radimo, najbolje koristimo sve iz našeg okruženja. Jer sve je to nekako priroda udesila, da kažemo. Ono što je za tebe, najbolje, nalazi se tu kod tebe. Tako da i ovo drvo, uglavnom mi to se pravi od bukovog drveta. I škipi i kace i to.”

“Danas je sve u marketingu, nažalost. Ako se ne čuje, ništa nisi radio. Možeš ti nešto praviti u kuci svoj, nešto sitno i nek to bude vrhnosko, ali ako niko nije čuo za tebe, nemaš ništa od toga... Sad nam je bitno da pokušamo da očuvamo tu proizvodnju, i ako je moguće, proširiti je malo.”

“U svem ostalom, čak i što veći značaj daje i tom proizvodu i tim proizvođačima da se sačuva taj ljudski faktor koji je uticao na kvalitije tog proizvoda. To su način proizvode koje uglavnom zavise od područja gdje se proizvode, od klime, zemljišta, vegetacije, ali i od načina na koji su ljudi generacijama to radili u tom je kraju.”

Stonemasonry quotes:

“U DRVETU PROCVETAO KAMEN

Bokićeve skulpture

U drvetu procvetao kamen
pod kristalom Neretvljanske suze
ruka čoveka na sebe zaneseno uze
da okonča mlekom sunca započeto delo.

U drvetu procvetao kamen
umesto laticom, čednim licem žene diše, sanja, pulsira probuđeni oblik dletom što ga obnažuje i dotiče mene.

U drvetu procvetao kamen
i treperi cvrkut iz kamenog gnezda
gle kako se čovek i drvo i kamen prepliću u vitak most od ruke do zvezda.

Bosiljka Pušić, 1981. Mostar."

"...sami početak podljeh, kako sam ja počinju od neke špice i mace, da osjeti taj kamen, kako se radi, da vidi njegovu trdoću, da vidi njegovu dušu."

"Kad krenete od nečega što su prije naše stvari (5:16) radili špicom i macom, (5:18) borili se, mučili se, (5:19) i onda posle kupiš neku mašinu, (5:23) ovakšaš poslo, (5:25) a već znaš vam kako to ide. (5:27) Znači, ne možeš zapravo zamijeniti... (5:30) Pa znaš kako ništa imaš zamijeniti ruku."

"Jer sve, taj posao, (12:17) stari zanad se vraća (12:18) u izgradnju, brđevine, utrebnju. (12:21) Znači nema objekta u trebnju (12:22) koji nema krcevne, koji nemaš (12:25) kamena na kući, na posadi, (12:26) u kući, (12:29) ono ili tako."

"Ako ide, treba škola se otvori, (9:22) treba se otvori Hercegovina. (9:24) Da se uči taj zanat, (9:26) da ne bi izumrao taj zanat. (9:28) A ima potencijala da se od toga živi (9:30) fino, lijepo se živi, (9:32) ko hoće da radi."

Textiles quotes:

"Са природом су биле везани, имале су своје овце, радиле, значи, све што се миће, шишали, чешљали, испредали, бојили. Чиме су бојили? Бојили су од наши трава, природни. Значи, опет везани, за природу."

"И онда смо сватли, кад је наша жена могла то, једна херцеговка, и све жене тога, прошлог времена, су правле те шаре, са стечака су узимале неке облике... Значи, да је жена била везана са природом, за Богом. Мозак је радио, давао је снагу, и ту моћ, да тако нешто створи, једну шару, једну фину слику... Тако да смо ми још више ојачали, још више имамо снаге"

"To bi se moglo uklopiti kad se je napravila ova priroda vune. Jer bi imali dovoljno vune. A ljudi sad, ispitala sam, u Berkovićima svi bacaju vunu. Svi. Eto. To ti je jedna informacija. (8:22) Možda neki projekt kad ti bude priroda vune, (8:25) to bi najjako bilo... Žene sve tamo po Berkoviću, (9:59) one sve znaju plesti... One su žene koje ida na dan ili pletu (10:05) i uvijek su pleni. (10:07) I nema šta ne znaju ples'. (10:08) I tkaju, i pletu, i sve kući to radi...."

"Ima još žena koje bi možda mogli u tu neku mrežu (3:54) da se širi mreža toga zanatva. (4:00) Svako selo, svako mjesto, svaki grad ima nešto svoje. (4:05) To je sve naše, znaš."

“Recimo da se neki projekat oživi, ovce se ošišaju, pa šta se sve radi, (11:10) pa to bi bio i zanimljivo turistički i da se pogleda to bi bilo zanimljivo (11:15) da se zna od čega i kako i na koji način ti dođeš do onog (11:21) odjevnog predmeta, džempera, ne znam sve šta, sve se ne isplete.”

“Ali, uglavnom, plele bi sigurno. (10:14) I znači to bi, eto ga, (10:16) već regionalno proširujemo (10:17) i sela bogatimo, jel tako? (10:20) I kako tako, moglo bi i Gackom, (10:22) mogle bi i Nevesnje, ako imaju ovce. (10:24) Jel tako? (10:25) I znači, dovozili bi tu vunu (10:27) ako bi bila u Berkovićima (10:29) ili bilo gdje tako.”

“Tako da bi to bilo jako dobro i za nas, a i tamo za to mjesto (11:34) da bi ljudi se zaposlali, radili te poslove uz pomoć nekog projekta.”

“Jer stranci, sva kupuje, pogotovo naša diaspora, oni svi hoće opanak da imaju. (0:36) Znaš, tako da je to naše opanak, to je naša tradicija. (0:42) Nije isti srbijanski i naš opanak.”

“Onaj ko radi, treba da radi. (3:31) Mi imamo toliko sad iskustva da isplaniramo, (3:36) ne treba nam puno, možda neku malu ideju, (3:41) ali mi znamo šta možemo. (3:44) To bi jako lijepo bilo.”

“Tako isto bi bila i prerada vune. (9:23) Kada bi se to radilo, (9:25) reklama, da bi se bile reklame. (9:28) Svaki bi ti stranac došao tamo i da vidi (9:31) kako se proizvodi. (9:33) Svaki bi kupio nešto od toga. (9:37) A te žene sve na selu znaju ples.”

Declaration Page: Use of Generative AI Tools in Course Assignments

Student Information

Name: Todor Milovic

Student ID: 611829

Course Name: Master Thesis

Instructor Name: Ellen Loots

Assignment Title: Master Thesis Final Version

Date: 13.06.2025.

Declaration:

Acknowledgment of Generative AI Tools

I acknowledge that I am aware of the existence and functionality of generative artificial intelligence (AI) tools, which are capable of producing content such as text, images, and other creative works with limited user input.

GenAI use could include, but is not limited to:

- Generated content (e.g., ChatGPT, DeepSeek, Quillbot)

- Writing improvements, including grammar and spelling corrections (e.g., Grammarly)

- Language translation (e.g., DeepL)

- Research task assistance (e.g., finding survey scales, qualitative coding, debugging code, Gemini Deep Research)

- Using GenAI as a search engine tool to find academic articles or books. (e.g. Perplexity AI)

-

For any GenAI task, 1) it must be permitted by the course and 2) you are responsible for verifying the accuracy of the outputs used in any submission. Improper use of sources obtained from GenAI could constitute academic fraud.

Also, 3) the requested prompts/logs (under Extent of AI Usage below) may be either screenshots or textual copies. The appendix can be included as part of the main submission or submitted as a separate document. Check with your lecturer.

I declare that I have used generative AI tools, specifically DeepSeek and TurboScibe in the process of creating parts or components of my course assignment. The purpose of using these tools was to aid in generating content or assisting with specific aspects of the assignment.

Extent of AI Usage

I confirm that while I utilized generative AI tools to aid in content creation, the majority of the intellectual effort, creative input, and decision-making involved in completing the assignment were undertaken by me.

I ☐ I declare that I have NOT used any generative AI tools and that the assignment concerned is my original work. Signature: [digital signature] Date of Signature: [Date of Submission]

have enclosed the prompts/logging of my GenAI tool use in an appendix.

Ethical and Academic Integrity I understand the ethical implications and academic integrity concerns related to the use of AI tools in coursework. I assure that the AI-generated content was used responsibly, and any content derived from these tools has been appropriately cited and attributed according to the guidelines provided by the instructor and the course. I have taken necessary steps to distinguish between my original work and the AI-generated contributions. Any direct quotations, paraphrased content, or other forms of AI-generated material have been properly referenced in accordance with academic conventions. By signing this declaration, I affirm that this declaration is accurate and truthful. I take full responsibility for the integrity of my assignment and am prepared to discuss and explain the role of generative AI tools in my creative process if required by the instructor or the Examination Board. I further affirm that I have used generative AI tools in accordance with ethical standards and academic integrity expectations.

Signature: Todor Milovic Date of Signature: 13.06.2025