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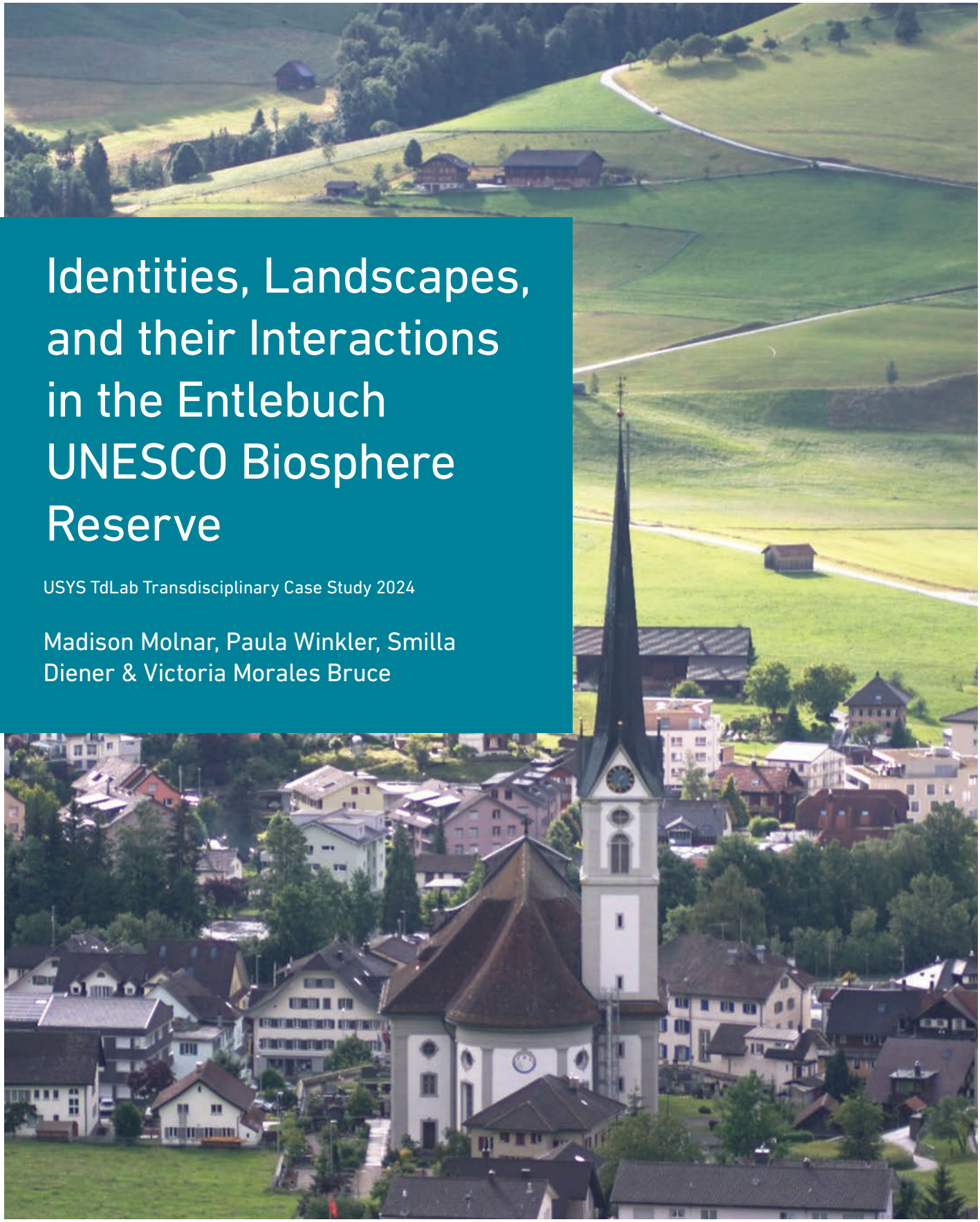

Identities, Landscapes, and their Interactions in the Entlebuch UNESCO Biosphere Reserve

USYS TdLab Transdisciplinary Case Study 2024

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Zürcher Hochschule der Künste
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Cultural Analysis

UNESCO BIOSPHÄRE ENTLEBUCH LUZERN SCHWEIZ

Imprint

Title	Identities, Landscapes, and their Interactions in the Entlebuch UNESCO Biosphere Reserve
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Layout and design	Sandro Bösch
Figures, photos	© 2024 USYS TdLab (if not otherwise specified)
Cover photo	The village of Schüpfheim (Photo by Paula Winkler)
Please cite as	Molnar, M., Winkler, P., Diener, S., & Morales Bruce, V. (2024). *Identities, Landscapes, and their Interactions in the Entlebuch UNESCO Biosphere Reserve.* Transdisciplinary Case Study 2024. ETH Zürich, USYS TdLab.

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Contents

Figures, Tables, and Abbreviations

BBZN	Berufsbildungszentrum Natur und Ernährung Luzern (Vocational Training Center for Nature and Nutrition)
TdCS	Transdisciplinary Case Study
TdLab	Transdisciplinarity Lab
UBE	Entlebuch UNESCO Biosphere Reserve
UNESCO	The United Nations Educational, Scientific and Cultural Organization
ZHdK	Zürcher Hochschule der Künste (Zürich University of the Arts)

1 Introduction

1.1 About Entlebuch

In the foothills of the Alps, the district of Entlebuch (German "Amt Entlebuch") located in the Canton of Lucerne is characterized by its rural charm and stunning natural landscapes. Home to approximately 17,000 residents across seven municipalities, the area is known for its active community life with a diverse assemblage of clubs and associations (Swiss Activities, n.d.). In 2001, the area was officially recognized as a UNESCO Biosphere after the concept was developed in the region and approved in community assemblies (UNESCO Biosphäre Entlebuch, n.d.-a; Coch, 2008). Entlebuch is unique not only in its founding, but also for the precious and internationally significant environments within its mountainous borders.

Figure 1
Landscape of Entlebuch's main valley (Source: UBE).

The landscape of Entlebuch is a diverse natural wonder featuring protected peatlands, impressive geological formations, and iconic rolling hills (Figure 1). The peatlands lie nestled between the pre-alpine hills, surrounding the visually striking Schratteflue mountain standing tall with cave-filled rock formations (UNESCO Biosphäre Entlebuch, n.d.-b). Peatland landscapes of national significance cover more than a quarter of the UBE's area, making Entlebuch unique in Switzerland for having the highest concentration of nationally protected peatlands within such a small region (Swiss Parks Network, n.d.). The peatlands are crucial for supporting local biodiversity and acting as natural water reservoirs (Figure 2). Overall, the biosphere reserve has 46 raised and transitional bogs as well as 68 fens of national importance (UNESCO Biosphäre Entlebuch, n.d.-c). Given the complexity of the environment in Entlebuch, it is important for UBE management to distinguish the land use permitted for each area, as the biosphere reserve must balance the needs of both the human and wildlife residents.

All UNESCO biosphere reserves consist of three zones (Figure 3). Valuable peatlands compose the UBE's protected core zone (8% of total area). Extensive land use, primarily alpine farming and selective forest management is allowed in the surrounding buffer zone (42%). Environmentally friendly economic growth such as sustainable agriculture, forestry and tourism is permitted and encouraged in the valley (transition area, 50%), where the majority of the region's residents live and work (UNESCO Biosphäre Entlebuch, n.d.-d; Coch, 2008). The main valley is a cultivated landscape with the central community of Schüpfheim and surrounding villages nestled along the river Kleine Emme. Individual farms lie within a mosaic of meadows, forests, and streams, creating a picturesque scene of rural life. Over 50% of the UBE's total area is under protection, showcasing the region's outstanding commitment to preserving its unique ecosystems while still addressing the needs of the people with its sustainable practices.

In 2011 UNESCO recognized Entlebuch as a model biosphere for the world, highlighting its exemplary professional management structures, successful project implementations, and wide variety of management fields. Entlebuch's journey to becoming Switzerland's first UNESCO Biosphere Reserve under UNESCO's Seville Strategy began with the 1987 approval of the Rothenthurm Initiative which established the legal framework for protecting the nation's peatlands (Swiss Commission for UNESCO, n.d.). Building on this momentum, the Entlebuch region took a visionary step by

Figure 2
ETH Zürich student on excursion to the restored peatlands in UBE (Photo: Paula Winkler).

establishing a UNESCO Biosphere Reserve, which was officially recognized in 2001. It was the first reserve in the world to be established through a public referendum or bottom-up process, reflecting the admirable participation and immense cooperation of the local community. It is especially known in the world network of biosphere reserves for its local products, the tight and diverse network with local actors, and its participative elements in management.

UNESCO biosphere reserves are more than just protected landscapes; they balance economic, ecological, cultural, and social values in close partnership with the local population (Knaus, 2017). In addition to its focus on biodiversity protection and assistance for local economies, regional development, tourism, education, and research, the UBE promotes a community culture. The UBE combines conservation, community involvement, and sustainable development in a way that the TdCS and Modelling Gaia courses can not only enhance, but learn from (Aalbu, 2022).

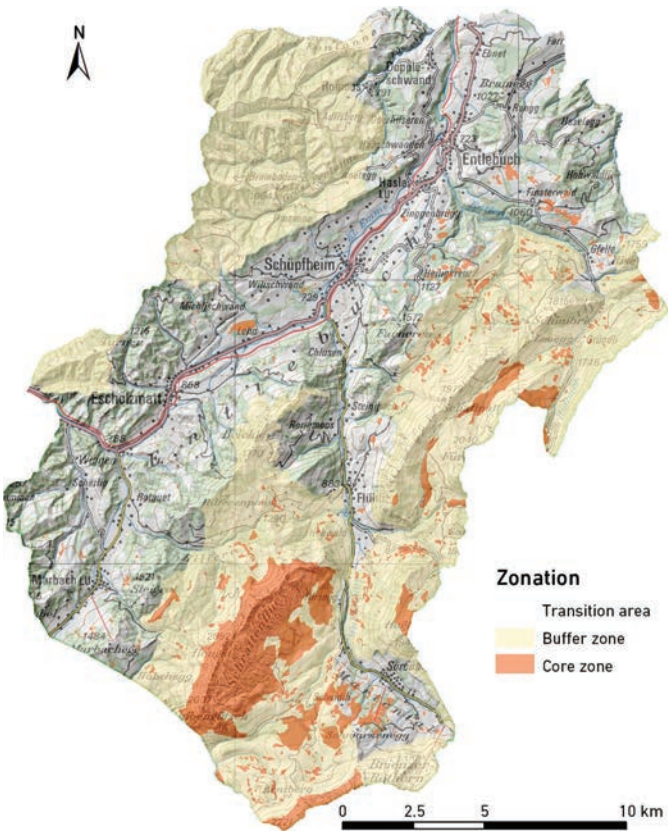


Figure 3
Zonation Map of the UBE (Source: UBE and Swisstopo).

1.2 About the Case Study

The Transdisciplinary Case Study (TdCS) is a course offered by the TdLab in the Department of Environmental Systems Science at ETH Zürich. The first course in the Entlebuch, completed in 2022, was loosely coordinated with the ZHdK Master in Transdisciplinary Studies. In contrast, the second iteration in 2024 was developed in close collaboration with the Zurich University of the Arts. The course brings together students from diverse backgrounds and disciplines to work on real-world problems (Figure 4). Transdisciplinary research draws from a breadth of disciplines to engage with local partners from the public, private, and civil sectors to create a multifaceted understanding of reality (Aalbu, 2022; Pohl et al., 2017). The curriculum for the TdCS is specifically designed to create a dynamic research and learning experience where the students themselves steer the process for the classroom. This independent teaching style encourages creativity and allows students to apply the knowledge they acquire at the university to a real-world context. In the TdCS 2024, four ETH lecturers and two ZHdK lecturers each with different and complementary academic backgrounds actively supported the students throughout the project.

Just like in 2022, the advisory group has provided the backbone for this year's course. The group consisted of 15 people from a multitude of backgrounds with different connections to the UBE (see Annex); their collective knowledge ensured that the projects carried out are relevant to the region and accurately followed the themes of Identity and Landscape. The advisors met before the start of the course to explore what the complex and multidimensional themes would address based on the local context. This resulted in two thematic blocks with multiple subcategories of perspectives which the students then expanded on with their respective studies. A few weeks into the course, the student groups from both ETH and ZHdK went to UBE to present their research projects to the advisory group. The advisory group provided critical and valuable feedback on the projects, which the students were then able to integrate into their process. Later, in autumn 2024 the advisory group reconvened to review the conclusions from the studies and discuss how they should be addressed in the UBE moving forward.

During the field weeks in June and July of 2024 the students worked diligently to collect and analyze data or create and modify media for a wide variety of projects built by and for the community. The project reached its culmination in the form of a final presentation event that took place in Schüpfheim on July 2nd, 2024. Here, the results from the four ETH Zürich research projects and the six ZHdK projects were presented to over a hundred people including local stakeholders, community members, and the advisory group (Figure 6). New this year, the presentations were given alongside students from the local Canton School Schüpfeim who presented their own innovative projects, making the event more exciting and inviting than ever.

Florian Knaus is a senior lecturer at ETH Zürich and the scientific coordinator of the Entlebuch UNESCO Biosphere Reserve. He is specialized in nature conservation, agriculture, and rural sustainable development.

Michael Stauffacher is an adjunct professor, senior researcher, and co-director of the TdLab at ETH Zürich. His research is always problem-oriented, whereby close collaboration with societal actors is of central importance.

Bianca Vienni-Baptista is the Group Leader of 'Cultural Studies of Science' and Lecturer in the ETH Zürich TdLab. She works in the field of anthropology of science, focusing on the study of collaborative knowledge production processes.

Juanita von Rothkirch u. Panthen Gómez has been a doctoral student at the USYS TdLab since November 2021. Her research focuses on understanding how decision makers' discourse and values influence the selection and execution of climate change mitigation strategies.

Irene Vögeli is an associated professor at ZHdK and co-head of the MA in Transdisciplinary Studies program. Trained as a designer and as an art and design theorist, she is specialized, among others, in art and science collaborations.

Patrick Müller is an associated professor at ZHdK and co-head of the MA in Transdisciplinary Studies program. With his background as a musician and degrees in the humanities, he is interested in aesthetic strategies used in societal contexts and the sciences, besides the arts.

The **Master of Arts in Transdisciplinary Studies program** at the department of Cultural Analysis at ZHdK invites art and design practitioners from diverse backgrounds to deepen their collaborative practices and to tackle real-world problems with the means of art and design. It gives their students the opportunity to work in a variety of contexts, namely in cooperation with science universities.

The **TdLab (Transdisciplinarity Lab)** in the department of Environmental Systems Science runs research and educational programs on inter- and transdisciplinary cooperation in the fields of sustainable development, involving not only experts from all backgrounds but also stakeholders and partners from practice.

Figure 4
The students and lecturers of the Transdisciplinary Case Study 2024.

1.3 Collaboration with the arts

In the 2024 TdCS, ETH Zürich students worked alongside students from ZHdK's Master in Transdisciplinary Studies program, who created their own imaginative and inspiring projects from the themes of Identity and Landscape. Throughout the semester, the ZHdK students met to exchange and develop their ideas under the guidance of ZHdK faculty Prof. Irene Vögeli and Prof. Patrick Müller. These lecturers from ZHdK closely collaborated with those from ETH Zürich to prepare and execute the course. This partnership between the two schools enabled students to transcend traditional boundaries between disciplines and create a more holistic understanding of the complex ideas at hand.

The kick-off day at ETH Zürich started with both classes together to make introductions, brainstorm ideas, and demonstrate the variety of skills and expertise each student brought to the table. On March 8th students from both schools stayed overnight in Entlebuch to attend presentations, meet the locals, explore the

Figure 5
Students working in Pfarreiheim (Photo: Mario Bielsa Torres).

environment, and work with each other on exercises. In one session, for example, students were tasked with organizing their photos into the categories of Identity and Landscape. Through much deliberation and philosophical debate, students discovered an intermingling and overlap of the two concepts that would become more significant as the case study progressed. Another exchange was coordinated at the ZHdK-campus Toni Areal where the ideas for the group projects were identified and solidified together. The ETH and ZHdK students also spent the second half of the two block weeks together, discussing and exchanging their progress and findings (Figure 5). Visitors were blown away by the ingenuity, originality, and technical expertise demonstrated by the ZHdK and ETH students in the final event. Together the students from both schools made incredible discoveries and created ingenious projects that will greatly benefit the UBE..

Figure 6
Impressions from the final event (Photos on left side: Florian Knaus; photos on right side: Paula Winkler).

2 ETH Projects

2.1 Agriculture of the Future

Chapter based on the works of Lorie Biderbost, Isolde Gerosa, Karia Kögler and Victoria Morales Bruce

Farming at the Entlebuch UNESCO Biosphere Reserve is an activity of central importance. The biosphere has 850 farms that are mainly family-run and tend to be small plots of land on sloped hills, typically around 15 to 20 hectares (see Figure 7). This intimate setting favours a family business model in which children grow up to take over the farm as older relatives become unable to work. These farms in UBE focus mainly on livestock and dairy with limited crop production serving only as a complementary activity (Tschachtli, 2024).

Figure 7
Entlebuch agricultural region (Photo: Victoria Morales Bruce).

The Swiss Climate Act's goal of net zero greenhouse gas emissions by 2050 has increased attention and pressure on certain sectors to become more environmentally sustainable (Federal Office for the Environment, 2023). Specifically, the Swiss agricultural sector is expected to decrease its current 6.4 million tons (Mt) of CO_2 emissions to 5 Mt by 2050. Such a goal would require a shift to more environmentally sustainable farming practices, an expectation that would be placed mainly in the next generation of farmers. Given this paradigm shift, it is important to garner insights on what sustainability means for young UBE farmers in order to understand the future trajectory of UBE farming.

2.1.1 The idea

As a UNESCO recognized biosphere reserve, Entlebuch is not only required to contribute to Sustainable Development Goals (SDG) but to portray itself as an international model for sustainable development. Considering Switzerland's national commitment to sustainability and UBE's ambitious goals, the research team saw both an opportunity and need to understand the perspectives on sustainable farming held by the students and recent graduates of the Vocational Training Center for Nature and Nutrition (Berufsbildungszentrum Natur und Ernährung Luzern, abbreviated as BBZN).

Globally, the study of farmers' perspectives on sustainable agriculture is limited. Specifically, in Switzerland there is a lack of direct studies on how young farmers perceive sustainability in their work. With this in mind, the following research question was established: What does sustainability in farming mean to current and recent students at the BBZN? By investigating these perspectives, the study also aimed to uncover potential gaps and challenges in the promotion of sustainable farming in Entlebuch. Additionally, the study sought to determine which of the three pillars of sustainability (environmental, social and economic) is most valued by the students.

2.1.2 The study

To gain insights into the perspectives of young farmers regarding the concept of sustainability in farming, its components, barriers, and potential gaps, the research team conducted qualitative interviews with students or recently graduated students of the BBZN. Ten interview participants (5 men and 5 women) between 20 and 30 years old, doing different type of farming and coming from different regions in Entlebuch participated in the study. They were enrolled in educational programs aimed at becoming farmers (Betriebsleiterschule [BLS], translated to Farm Management School, 8 participants) or a specialized course in becoming the farmer's wife (Bäuerinnenschule, 2 participants).

Results evidenced the central importance of practical aspects for the definition of sustainable farming by the interviewees. Young farmers used practical terms in their definition of sustainability in farming, particularly focusing on *Regionality*. Regionality in farming is an umbrella term defined by the research team referring to catering production according to the location, sourcing animal feed locally, and reducing transportation of supplies or sold goods. Topics outstanding during the interviews included further sustainable energy use (mainly from solar source), drag hose for manure handling and waste management (recycling and circularity), and social sustainability. Others, such as organic farming-with divided opinions regarding its importance in sustainability in farming-and extension of life of machinery appeared during the interviews as well. The practical examples and definitions given by the interview partners implied the consideration of the three pillars of sustainability: social, economic and environmental.

In addition, young farmers expressed their concerns and barriers regarding the application of sustainability in farming. The interviews indicated the existence of structural barriers, such as seclusion of the farms, high costs of cleaner machines and technology, large amount of paperwork and short time for implementation for new technologies.

Furthermore, young farmers expressed their feeling of a lack of connection between non-farmers and agriculture. It was communicated a feeling that people are not aware of the complexities tied to agriculture, how food is produced and the challenges imposed by agricultural policies aiming for sustainable solutions. It was also perceived that not all policies that take place have a positive environmental effect yet involve an investment and loss of control in how they perform farming.

2.1.3 Main takeaways

Students and recent graduates of BBZN perceive sustainability in farming as being rooted in practical applications, with particular emphasis on regionality (including food consumption and production), social sustainability (such as cultivating social relationships), manure handling by drag hose, sustainable energy use (primarily solar energy), and waste management. Even though the three-pillar concept including the environmental, social and economic pillars was not generally included by definition, practical examples indicated their consideration.

A core finding was the knowledge gap that farmers perceived between themselves and non-farmers. The gaps reported were mainly concerning topics of food production, consumption, and agricultural policies. One of the farmers expressed willingness and enthusiasm to collaborate with local schools and hold educational sessions for the children to help them connect with agriculture. Having thought about the problem in detail, the farmer explained how the school could come once a week and be given a small piece of land to run a gardening project. The proposal clearly demonstrates initiative and a willingness to solve the perceived problem of the knowledge gap. Findings indicate a clear lack of connection and trust between the interviewed sample and policy makers, evidencing a need of more communication to be considered for the elaboration of agricultural policies.

2.2 Chasing Snowflakes: Impact of Decreasing Snow Cover on Entlebuch

Chapter based on the works of Madison Molnar, Mario Bielsa Torres, Paula Winkler and Shiila Infriccioli

The UBE is a unique region where the economy, landscape, and society are closely connected to snow and winter tourism. Famous for being a local winter sports area, the region's tourism industry is deeply intertwined with cultural ties to snow activities and traditions. Over recent decades this region and the broader Alpine area have experienced significant reductions in snow, especially at lower altitudes. This has greater implications for UBE as low-lying snow sport areas are common. The ongoing decrease in snow cover is significant for the region's winter tourism activities and is reshaping the overall development of the landscape, identity, and community experience of Entlebuch.

2.2.1 The idea

The project's focus on snow cover was inspired from personal interest in the ecological and societal impacts of climate change, combined with insights from the advisory group. The advisors explained how in UBE the landscape and identity are closely intertwined to snowy winters, so a shift away from winter activities has profound implications for not only the economy but also the cultural heart of the community. While much research has focused on how a reduction in snow cover impacts the environment and economy, less is known about the cultural and social dimensions of this change. It is crucial to understand how decreasing snow cover impacts the experiences, perceptions, and adaptations of the community; especially regarding the Entlebuch winter tourism industry and its subsequent influence on the socio-economic dynamics of the entire UBE.

2.2.2 The study

This project used a multi-level approach, combining local perceptions from interviews with empirical knowledge from previous research to create a more comprehensive understanding of how the snow cover decrease affects Entlebuch. The goal was to assess the current situation and future outlooks for the Entlebuch community across four main topics: snow, tourism, identity, and ecosystem.

The literature review offered a foundational understanding of the environmental and social trends in the region, examining snow patterns, ecological changes, and the current and future impacts of climate change in Entlebuch and the Swiss Alps. Ten interviews were conducted to investigate local perceptions regarding decreasing snow cover with diverse stakeholders including farmers, ski instructors, tour guides, ski lift operators, and other societal actors.

The findings reveal a strong consensus among community members that over their lifetimes they have witnessed a decrease in snow cover. These interview findings are supported by data from nearby meteorological stations indicating a 46% reduction in average seasonal snow cover in Escholzmatt and a 43% reduction in Marbach between 1969-1981 and 1999-2024 (see Figure 8) (Meteo Swiss, 2024). The overall outlook from the participants was one of realism, acknowledging that things may change for the worse, but expressing resolve that people will be able to overcome it.

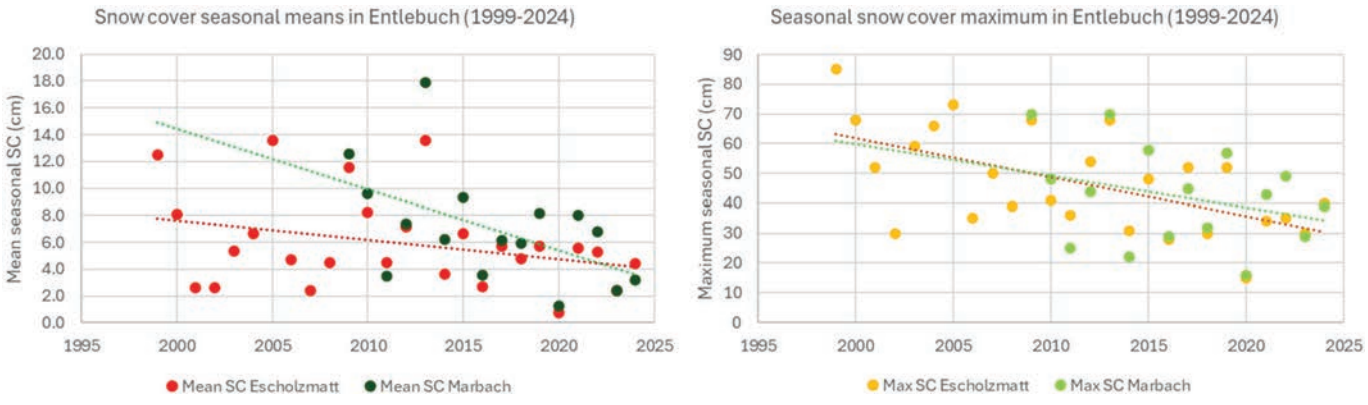


Figure 8
Mean and maximum seasonal (1/11-30/4) snow cover in region Entlebuch (Meteo Swiss).

The decrease in snow cover has already affected various winter activities, with the ski resorts in Entlebuch already feeling pressure to diversify offers, increase entertainment infrastructure, and rely on artificial snow production. Snow and winter sports are deeply ingrained in many aspects of Entlebuch's cultural identity, however, as snow cover decreases the emergence of new traditions and a shift in identity away from snow sports may occur. Discussions demonstrated a mixture of remorse for the snow loss, resolve for the ability of the community to adapt, and excitement for new opportunities. As for the ecosystem, climate change and human activities have already significantly altered the environment, pushing vegetation and wildlife to higher altitudes in pursuit of the colder conditions they have evolved for. Overall, specialized alpine species will struggle to the change in conditions while generalist species may benefit with expanded habitat ranges.

A visual platform was created to communicate the study's findings, presenting a plausible future scenario that integrates subjective perceptions, emotional impacts, and empirical data to facilitate a deeper understanding of anticipated landscape changes due to declining snow cover. The platform prototype shows the past, present, and future of Heiligkreuz through a series of images (Figure 9). First, a snow-covered Heiligkreuz highlights the traditional rural snow sports transportation methods of 1938. Then, a modern winter scene in 2013 shows advancements in infrastructure and urbanization. Finally, a projected image of 2075 envisions a dramatically altered winter landscape with non-snow activities and solar panels on rooftops. This vision signifies the potential move away from traditional winter sports and reflects the broader socio-economic changes from less snow cover.

2.2.3 Main takeaways

For centuries snow has played an important economic and cultural role in Entlebuch, one that will shift as snow cover decreases due to climate change. Land use at higher altitudes with more snow will need to balance the demands of agriculture, wildlife, and tourism, posing a challenge for future management that requires further study. Despite the changes, many within the community believe in their collective ability to adapt and often mention silver linings in their approach of the future. The emergence of new alternatives to winter sports, coupled with the inherent resilience of the Entlebuch community, offers promising opportunities to navigate this transition while preserving the unique identity of the UBE. This study echoes themes explored in chapter 3.3 Walking Dialogue: *sich verlandschaften-landscaping*, where a group of ZHdK students explore the concept of "being in a relationship" with the landscape. The intersection of landscape and identity is a crucial area of study, and ongoing examination of this overlap will be vital for understanding how the community can preserve its cultural essence while adapting to environmental changes.

Figure 9
A historical photograph (1938), still from amateur video (2013), and prediction for Heiligkreuz (2075).

2.3 Net Zero Energy System

Chapter based on the works of Juliette Galatoire, Indrajith Kamalanathan and Saskia Lichtin

According to the Intergovernmental Panel on Climate Change (2022), transitioning to a low-carbon and environmentally friendly energy system is vital for reducing greenhouse gas emissions and avoiding catastrophic climate change effects. As part of the Climate and Innovation Act accepted in June 2023, Switzerland has committed to achieving net zero greenhouse gas emissions by 2050 (Federal Office of the Environment, 2023).

Globally, the energy transition is accelerating, with renewable energies like hydropower, photovoltaics, and wind power proven to be economically viable alternatives to fossil fuels (see Figure 10). In the UBE, renewable energy is already a topic of high priority. The UBE has developed a Regional Energy and Climate Strategy (*Regionales Energie- und Klimaleitbild*) that aims for climate neutrality in the energy sector by 2050, with the goal of meeting 100% of energy demand through renewable sources by that time. The region also participates in the Swiss Federal Office of Energy's "Energy-Region" support program, which provides guidance on increasing renewable energy and improving energy efficiency (Federal Department of Foreign Affairs, n.d.; UNESCO Biosphäre Entlebuch, n.d.-e).

A regional development plan emphasizes sustainable energy consumption as a guiding principle for Entlebuch (UNESCO Biosphäre Entlebuch, n.d.-f). Across UBE municipalities, alternative heating and electricity strategies are actively being implemented, including three wind turbines, 512 photovoltaic installations, and plans for seven additional wind power stations along with expanded solar infrastructure. The region shows above-average acceptance of renewable energy technologies, highlighted by the unanimous approval of the first wind turbine in 2003 by the municipal assembly (Seitz, 2011; WindPowerAG, n.d.). Due to the UBE region's usual acceptance of renewable energies, their low support for the recent Climate and Innovation Act (with only 42.7% yes-votes) was surprising and prompted the research group to dive deeper into the possible underlying social dynamics behind net zero policy and implementation in the UBE.

Figure 10
Wind turbines in the Entlebuch (Source: UBE).

Net Zero: Climate target that aims for a substantial reduction in greenhouse gas emissions, ultimately seeking to leaving net zero anthropogenic emissions in the atmosphere. Due of the existence of unavoidable or very difficult emissions to avoid, these are offset by nature and other carbon dioxide removal measures. (Federal Office of the Environment, 2023).

2.3.1 The idea

Building on knowledge gained from an in-depth literature review, the group decided to create a workshop to help local stakeholders to identify and reduce the gaps between policy design and real-world outcomes. Other studies revealed that mismatches between planned policies and the actual participation of interest groups can lead to unsatisfactory results (Xexakis et al., 2020; Wachsmuth et al., 2023). To address this, the group sought to understand how local interest groups envisioned a net zero scenario and how this should be integrated into the implementation strategy. Despite the region's existing strategies, certifications, acceptance, and commitment towards an energy transition, it remained unclear how such a plan would be successfully implemented and scaled up. As a result, the research group aimed to reduce the knowledge gap concerning the implementation of net zero strategies in UBE and gather the perceptions of local interest groups regarding such a system. They formulated the research question, "What are the perceptions of local interest groups regarding a net-zero energy system in the Entlebuch UNESCO Biosphere Reserve?" to identify challenges and necessary actions for successful implementation.

2.3.2 The study

The research group conducted a workshop with members of local interest groups to explore their perceptions of a net zero energy system in a co-creation process. Thirteen participants representing various sectors that might benefit from or be affected by the energy transition, as well as policymakers, were involved. The participants covered different municipalities and came from a variety of sectors including tourism, agriculture, politics, production, NGOs, UBE management, and wood production. The in-depth discussions revolved around future visions, the needs for the transition, and concrete actions that can be taken to achieve net zero emissions from energy-related activities. Written notes and audio recordings from the workshop were analysed in a specific coding procedure where recurring ideas and highly relevant or debated topics were identified to create overarching themes. These themes were then written down on sticky notes, gathered on flip charts, and organised into thematic clusters in a kinaesthetic analysation process (see Figure 11).

There was a consensus that the biosphere provides an opportunity for the region to focus on local renewable energy production. They envisioned the usage of innovative and specific technologies like solar and wind energy for electricity along with combined heat and power plants for heat production. Economic viability was a central concern with a focus on investment security, ensuring a decent return, and avoiding any increase in electricity prices. In addition, potential economic opportunities under a transition scenario were projected, with the development of new and efficient

Figure 11
Identification of the thematic blocks.

businesses. To many, ensuring an effective and reliable energy supply was considered crucial. While most participants expect the transition to minimally impact their daily lives, some anticipate the need for reduced consumption, increased restrictions, and potential societal changes.

Collective responsibility across all actors in the region was recognised as necessary. Despite this, there was a perceived lack of top-down coordination from the UBE management and government. Participants expected authorities to provide infrastructure, coordinate efforts, engage with major energy consumers, provide information to the general public and, most importantly, lead the transition process. The ideas of compliance and responsibility were also considered, with some suggesting that guidelines and rules should be applied nationally, or even globally.

Additionally, participants overall requested systemic support in increasing public awareness and implementation, with varying needs demonstrated across the different interest groups regarding financial support and information. Participants highlighted the complexity of implementing a transition strategy, noting that it is difficult for companies or individuals to analyse the various options independently. They expressed a general need for consulting centres to provide reliable information for planning and designing their energy transition processes.

2.3.3 Main takeaways

The study showed that the local interest groups recognise and accept the net zero energy system goal for the region, acknowledging their roles and responsibilities while also recognising the complexity of the task at hand. Specifically, the transition will require businesses to contribute to renewable energy production within their facilities, increase energy efficiency, and decrease their net use of energy; necessitating support from policymakers and information for the public. Overall, four key conclusions for the UBE management were derived from the analysis and discussion of the workshop.

1. Increased communication with local interest groups can help policymakers understand important barriers and policy needs which can increase policy acceptance and success. Policymakers and the UBE Energy Forum are encouraged to consider integrating the local people's perspectives into their policymaking.
2. Using a transdisciplinary approach such as the workshop conducted is an effective means for understanding the local perceptions and priorities. Future replications of this co-creation process would be greatly beneficial for all parties.
3. The UBE's energy strategy needs to increase public awareness. Informing the public and businesses with up-to-date information will help people know and accept their responsibilities. Measures to increase compliance and fairness should be developed and communicated.
4. It will be crucial to provide information and counselling to businesses about potential financial situations and avenues for support. Ensuring economic viability for local businesses in the long-term through the support of the Canton or the federal government is necessary for a successful net zero energy system transition.

There is a clear request for more top-down coordination and guidance from the UBE management and governmental institutions. Members of the interest groups expressed a need for guidance and accompaniment on their path to sustainable energy management, citing challenges in independently evaluating the different options or measures. Participants also saw the potential of a net zero energy system to foster business development and elevate the region's standing as a model biosphere.

This co-creation process allowed the identification of perspectives, concerns, barriers, needs and expectations for the net zero strategy, serving as input for policymakers and the UBE Energy Forum. Based on these insights and by staying in close contact with affected and engaged interest groups, policymakers can accelerate the implementation of their planned strategies to achieve the region's development goals

2.4 Should I Stay or Should I Go?

Chapter based on the works of Carmen Affentranger, Livia Baumann, Dominic Becker and Sarah Rossetti

Effectively summarized by the Clash's song *Should I Stay or Should I Go?* (Jones et al., 1982), the topic of residential mobility—why people choose to stay, leave, or return— is crucial for understanding the development and composition of rural communities like Entlebuch. Between 1981 and 2015, Switzerland's population grew by around a third (31%) with the same trend being found in the Entlebuch region. Some municipalities like Doppleschwand (+57%) grew more than the Swiss average, while others like Marbach-Escholzmatt (+4%) grew substantially less or even shrunk like in Romoos (-5%) (Grossenbacher & Keller, 2017). In less populated areas, demographic changes can significantly impact the local economy, social structure, and overall sustainability. Rural regions are particularly vulnerable to a vicious cycle, where the departure of residents triggers further outmigration, as the loss of human capital diminishes the area's overall appeal (Kraft et al., 2004). The Entlebuch region, as a UNESCO biosphere, must balance conservation goals with sustainable development of the communities, and therefore it is essential to understand the migratory patterns of the residents to maintain environmental stewardship and economic viability.

2.4.1 The idea

While existing studies on residential mobility have investigated the motivations of highly qualified young people to leave or return to the cantons of Valais and Jura (Kraft et al., 2004; Rérat, 2014, 2016), there are currently no studies on how personal motivations influence migration decisions over the course of residents' lives. In addition, no study has looked at resident mobility in the Entlebuch region. Also new in this study was the consideration of both migration out of Entlebuch and migration back into the area.

The aim of the study was to investigate how identity, culture, emotions, and practical factors influence residential mobility decisions in the Entlebuch. By understanding these influences, deep insights into the migration decisions residents make can paint a clear picture about the region's push and pull factors - the factors attracting people to stay in or return to the region, but also the factors that push people away. Moreover, it may become apparent what groups in society are more or less likely to stay, leave or return. Entlebuch can then work on minimising the push factors and maximising the pull factors to ensure it stays a vital and attractive community for all residents.

2.4.2 The study

A mixed methods approach with a general survey (223 respondents) and individual interviews (12 interviewees) was used to evaluate migration tendencies and experiences of the residents.

Surveys

It needs to be noted that the survey showed a significant overrepresentation of participants in the 25–34 age group and people who identify as female, as well as an underrepresentation of participants aged 65 and older.

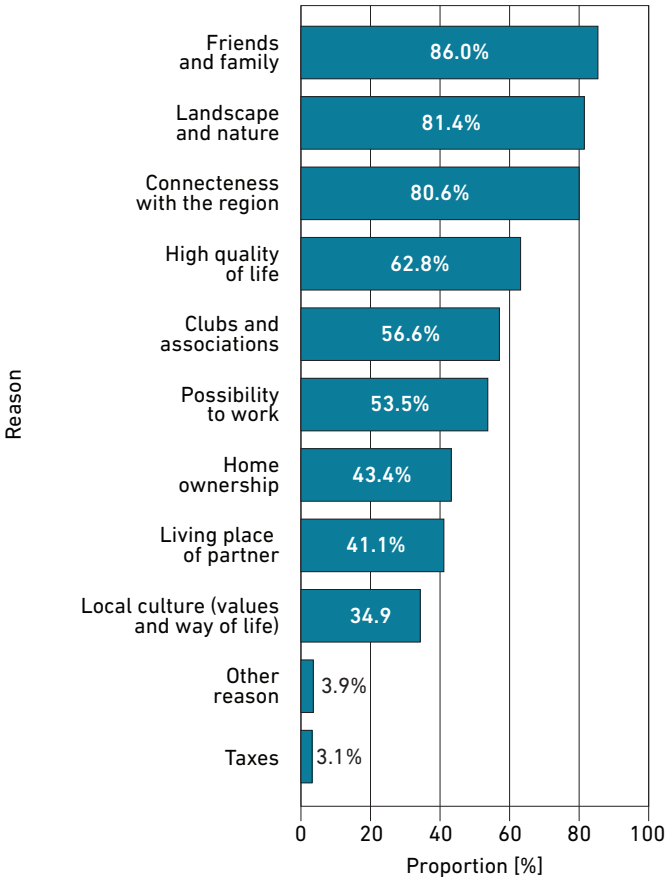


Figure 12
Reasons to Stay: Proportion of people who gave the respective reason (N = 129, Source: own data).

Group 1: those who never left the Entlebuch for longer than four years and plan to stay

The top reasons for staying, chosen by over 60% of participants, are Friends and Family (86%), Landscape and Nature (81.4%), and Connectedness with the Region (80.6%) (see Figure 12). High Quality of Life was selected by 62.8%. Additionally, 56.6% cited Clubs and Associations, and 53.5% named Work Possibilities.

Group 2: those who left the Entlebuch for at least four years and plan to stay away

The top reason for leaving was Work Possibilities (69.9%), followed by Desire for Change (44.7%), and Education Opportunities (38.8%) (see Figure 13). Other notable reasons included Residence of Partner (35.9%), Future Career Options (33%), Urban Living (29.1%), Cultural and Leisure Offerings (22.3%), and Accessibility (19.4%).

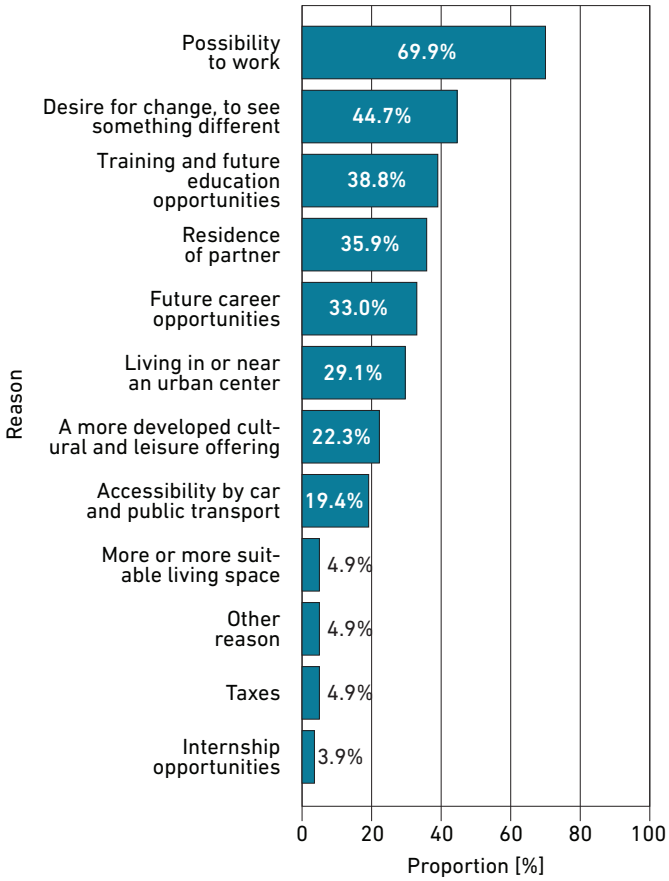


Figure 13
Reasons to Leave: Proportion of people who gave the respective reason (N = 103, Source: own data).

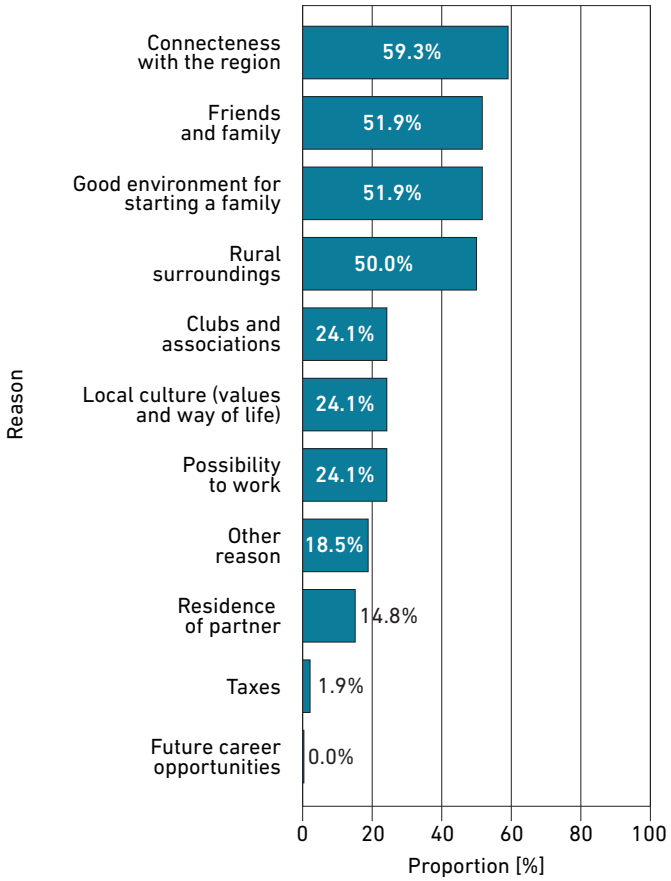


Figure 14
Reasons to Return: Proportion of people who gave the respective reason (N = 54, Source: own data).

Group 3: those who returned after being away for at least four years
The main reason to return was a sense of Connectedness with the Region (59.3%) (see Figure 14). Friends and Family, along with a Good Environment for Starting a Family, were each cited by 51.9%. Rural Surrounding were mentioned by 50%.

Interviews
Group 1: those who never left the Entlebuch for longer than four years and plan to stay
The four interviewees from Group 1 are characterized by a strong solidarity and connection to their home region and peers. They remained loyal to and appreciative of their roots, appearing grounded. Additionally, they all valued the personal, familial environment of Entlebuch, along with its numerous associations and beautiful nature. However, they did not confine themselves totally to Entlebuch; two lived outside the region at times, and two worked outside the Entlebuch for some periods.

Group 2: those who left the Entlebuch for at least four years and plan to stay away
This group of interviewees are characterized by a feeling of ambivalence about their home region. A dominant theme expressed by this group is that the Entlebuch is marked by a normative culture that is somewhat non-diverse and resistant to change. Many experienced this way of being too 'narrow" and struggled to find resonance, especially if their political identity leaned more to the left.

Group 3: those who returned after being away for at least four years
A common thread across each interview was the desire to see something new and explore. They appeared satisfied with their decision to move back to the Entlebuch, as they noted being able to quickly reintegrate. Having lived elsewhere, they still maintain connections to people and places outside the region. They point this out as a positive aspect, appreciating the broader perspective and relationships these connections provide.

"Tell me what an Entlebucher is"
Upon examining the differences between the three study groups it became clear that each group had a distinct perception on what Entlebuch was and what it meant to be an Entlebucher. Figure 15 below shows the terms and descriptors used by interviewees in each group.

2.4.3 Main takeaways

Survey and interview data indicate that strong social ties, particularly with friends and family, are a key reason residents choose to stay in Entlebuch. The region's natural beauty and quality of life also attract residents. However, the primary reason for leaving is a lack of job opportunities, especially among young people seeking diverse and flexible employment. The political climate and the desire for new experiences also greatly contribute to residents leaving.

Based on these findings, four main recommendations for Entlebuch and UBE management are:

1. Foster sustainable economic development and job creation by attracting businesses in sectors like eco-tourism, sustainable agriculture, and renewable energy.
2. Support flexible work opportunities to retain young workers.
3. Engage and retain youth by involving them in decision-making and addressing their specific needs, concerns, and ideas.
4. Enhance cultural attractions through diverse recreational attractions.

By addressing these main points, Entlebuch can improve resident retention, attract new residents, and ensure long-term vitality and sustainability of the region.

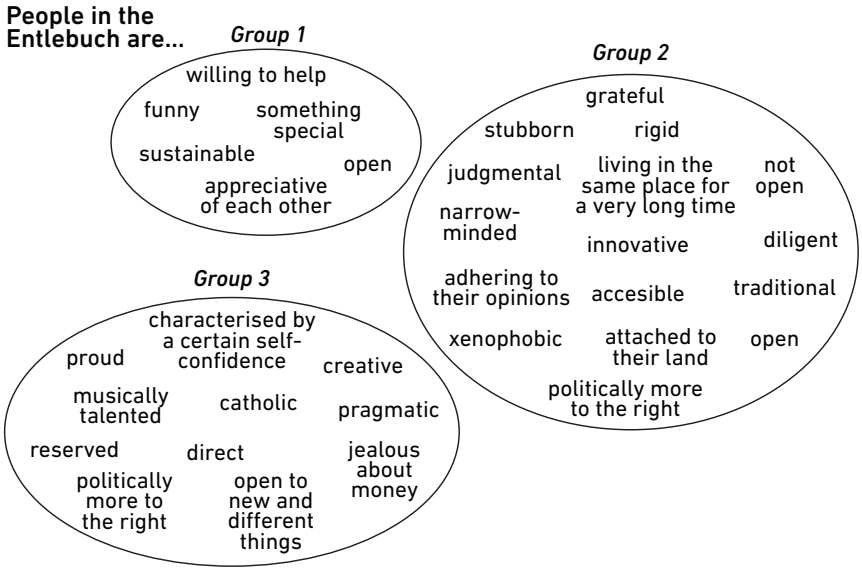


Figure 15
Perception of Group 1, Group 2 & Group 3 of people from the Entlebuch (Source: own data).

3 ZHdK Projects

3.1 Augmented Tour Guide: Entlebuch Myths & Legends App

What: App Mockup, Collection of local myths. Authors: Anna Lena Eggenberg, Tsz Hei Fung, Rahel Gamma, Charles Kwong

The 'Entlebuch Myths & Legends' app is an application that takes users on a fascinating journey through the mystical sagas and legends of the Entlebuch. With the help of augmented reality (AR), the app brings old local stories to life and enables users to experience the magical world of myths in a completely new way. The inspiration and extensive knowledge for this project came from Richard Portmann, a local legend teller ("Sagenerzähler").

To develop the concept, the group, consisting of Anna Lena Eggenberg, Tsz Hei Fung, Rahel Gamma and Charles Kwong, first went on a 'legend walk' with Portmann, then had conversations about oral history, took photos, recorded sounds of the environment, and made drawings illustrating the compiled stories.

The aim of the app is to translate the practice of oral tradition into a contemporary medium. Digitising and archiving these stories will ensure that they remain accessible for future generations. The app offers interactive experiences that allow users to interact directly with the stories and experience them in their environment, bringing traditional storytelling to life and making it tangible.

3.2 Video Installation: Touched by Gaia – Landscapes & Hand Shapes

What: Video installation with two film essays (10 min 46 sec). Authors: Daniel Riniker, Jonas Balmer

Theatre director Daniel Riniker and cultural anthropologist Jonas Balmer approached filmmaking in the context of this year's course. The result is a video installation with two video essays running in tandem. These document hand movements of interviewees and 'human imprints' in the immediate surroundings of Schüpfheim. In the juxtaposition of hands and the cultivated landscape, the work emphasises the mutual influence of the two.

The authors accompany the work with the following questions: What does your gaze linger on when you look at your surroundings? What sensory impressions guide your observations? What do you feel when you are touched by nature? How do you move and what traces do your movements leave behind? Is your body part of the discussion when talking about landscape? How do you influence each other in what you do – you and the environment in which you find yourself?

What results in a kind of audiovisual collage is a collection of impressions from the direct experience of how humans inscribe themselves into nature – and vice versa. The intention is to blur the 'lines of distinction' between the impact of humans on nature and the impact of nature on humans.

3.3 Walking Dialogue: sich verlandschaften – landscaping

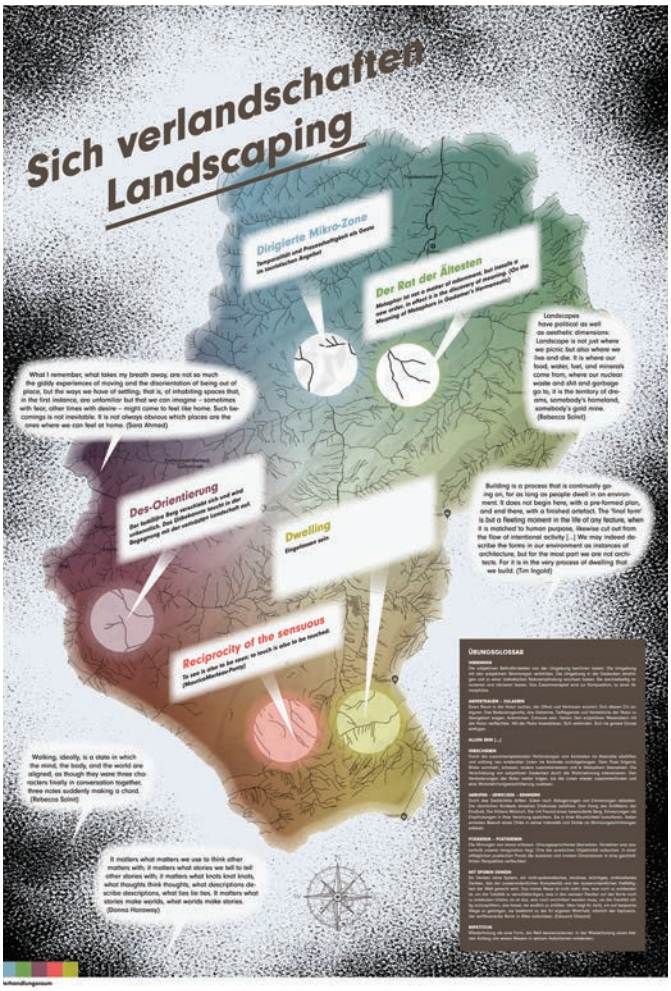
What: Walking dialogues, (counter) mapping, auditory recordings. Authors: Frédéric Bron, Judith Weidmann

"Landscapes are associated with a wide variety of interests and ideas. Ultimately, they are the result of continuous negotiation processes and differentiation through the various dimensions (scientific, cultural, economic, political, ecological, social, subjective, etc.) that affect the forms of representation and valuation of the respective landscapes. The Entlebuch landscape is a habitat, resource, leisure and recreational space and an economic factor," says the artist duo consisting of Frédéric Bron and Judith Weidmann. The experimental research intends to scrutinize and challenge the conditioned understandings of landscape and the ambiguities that are implicated.

As part of an overarching practice, they investigate "being in relationship" with the landscape by accompanying people who work with landscape (e.g. tourism professionals) to their own personal "access points" of the Entlebuch landscape.

The work thus consists of the journey to the "nature access point" and the conversation about the individual's relationship to the landscape. Cultural, economic and scientific views of landscapes are addressed, but the artists primary intention is to trace the 'aesthetic-sensual-affective' forms with which the people connect with (the) landscape(s). Along a guideline with themes like bodily experience, temporality or rituals the walking dialogue practice works out the observed or produced shifts in perception to make them tangible, sensible or legible. In doing so, the work reflects on possible rearrangement or reconfiguration of relationships with and within landscapes and how valuation of landscapes is being produced.

The conversations were conserved and edited as audio recordings and thus made accessible to an audience. The recordings are accompanied by a map that places what was discussed and insights gained from the conversations in a spatial context, provides quotes on the landscape and landscape experience and shall draft an expansion or counter gesture to maps based on geodetic data. It is accompanied by a glossary of actions such as 'shifting' or 'poeticising', which are intended to inspire people to put themselves in relation to their landscape.



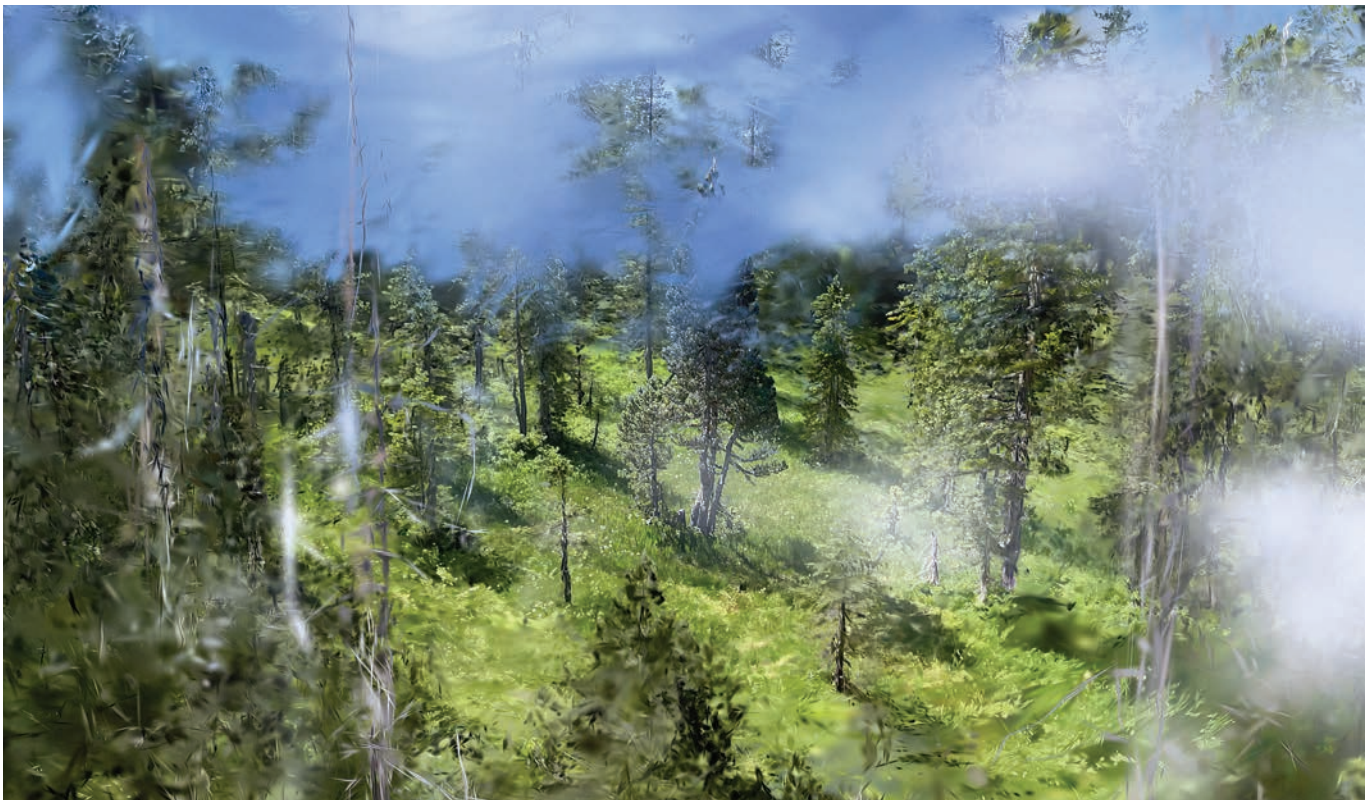
3.4 Multimedia Conservation of Peat landscape: Salwideli Asset Library

What: : Video Installation, 3D scans, audio, leaflet. Authors: Livia Zumofen, Smilla Diener, Marcel Rickli, Florian Amoser

How do you conserve something that is never still? The group, consisting of Livia Zumofen, Smilla Diener, Marcel Rickli and Florian Amoser, approached their project in Entlebuch with an interest in exploring the implications of conservation, specifically of peatlands. Their interest in "an entity that has been forming and transforming, degrading matter and storing molecules from ancient life, still in movement" resulted a speculative asset library of 3D models of plants from the Salwideli moor, 3D scans and visualisations of the surroundings, and spherical field audio recordings of the moor.

The collected, produced and composed material comes together in a film that was presented as an audio-visual installation and complemented by a text that linguistically portrays the moor. In this arrangement, the work synthesises the processes and voices in the moor and reproduces the space in a new location intended for close observation.

Consequently, the work is an assorted combination of different media and modes of reproducing a place (3D models, audio, language), which finds its form in the video installation. In principle though, the individual ‘assets libraries’ can be expanded indefinitely.



3.5 Installation: Best Friends Forever

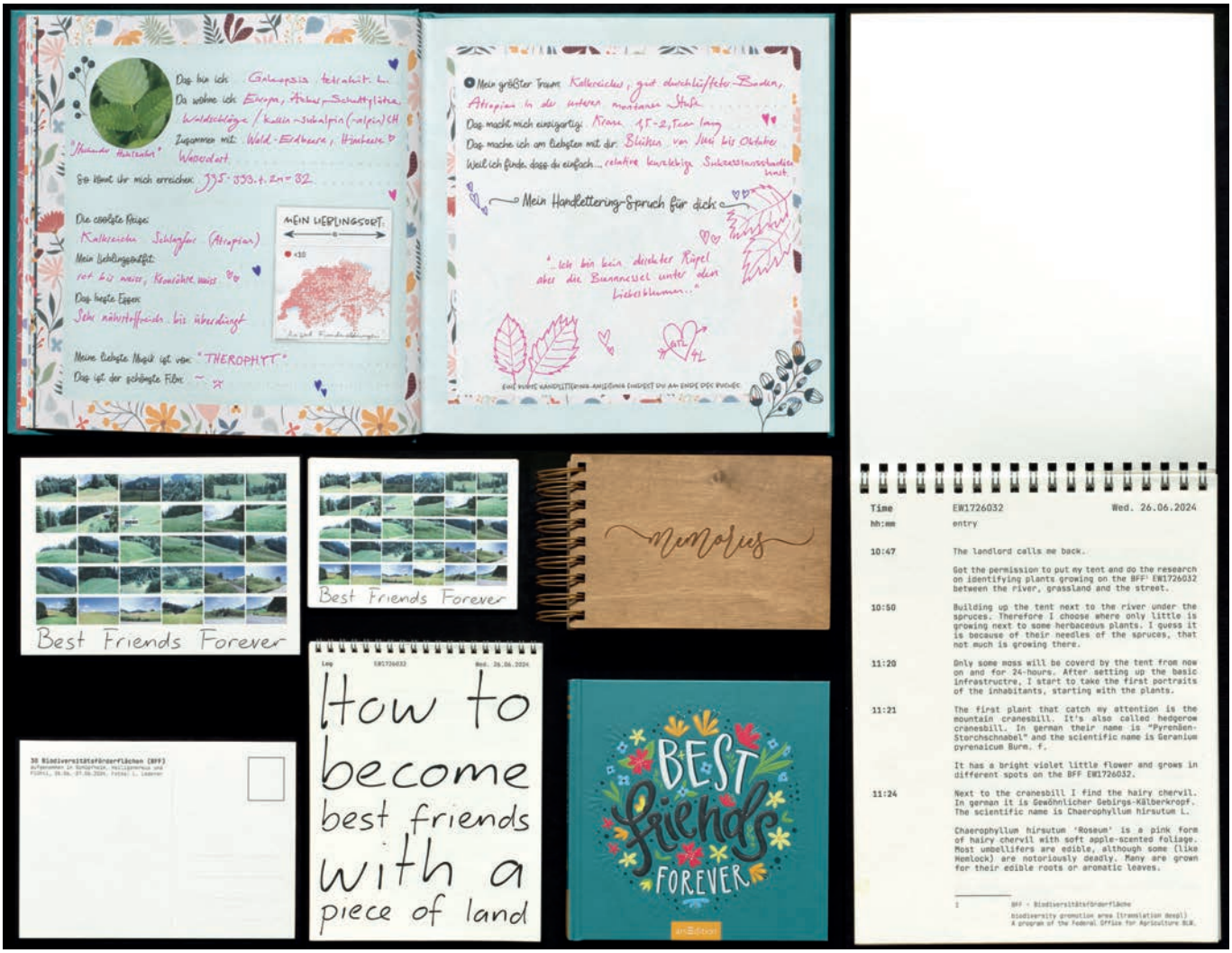
What: : Installation consisting of 3 books, 50 postcards, tent, sound. Author: Ludwig Lederer

Ludwig Lederer investigated in his field research on the biodiversity promotion areas in the Canton Luzern (Ger. "Biodiversitätsförderfläche; "BFF"). During the process, 30 "BFFs" were documented to approach the question on how nature can be understood as not only a backdrop of human activities (cf. James Lovelock, Bruno Latour) but instead how biodiversity promotion areas can be promoted beyond the cantonal borders. After investigating the variety of BFFs, postcards were designed in the style of "Neue Sachlichkeit" (Bernd und Hilla Becher) with images as an aesthetic representation of the identified areas. Afterwards one BFF was selected by the artist for the experiment of becoming "Best Friends Forever" (BFF) with a piece of land.

By linking the "Biodiversitätsförderfläche" to a friends' book for children with the title "Best Friends Forever," the artist is looking for a playful way to become affected by the environment with a light-hearted eye. During the experiment, the artist stayed 24 hours in the selected area and documented every step in a logbook. The aim of the experiment is to include the observer in environmental research within artistic methods and encounter non-human inhabitants in the area on a level perspective.

During the process, selected living organisms were identified with the help of a national data and information centre for Swiss flora and fauna and put into the friends' book by the help of other participants in the excursion.

The work consists of three books and 50 postcards. They are presented together inside a tent with sound recordings of the soil, the nearby forest, river, and road. The work invites visitors to experience a fictional relationship between humans and non-humans, playing with forms of anthropomorphism and animalism.



3.6 Explorations: Acer Pseudoplantanus/ On Ways To A Tree

What: Decision Tree, Map and Postcard Set. Author: Hannah Essler

Hannah Essler's work builds on the project she began two years ago in the same module under the title 'acer pseudoplantanus' or 'Kraftbaum Ernst'. The work deals with a sycamore maple that is several hundred years old, which stands below the Heiligkreuz pilgrimage church and is regarded as a 'place of strength' or 'strength tree' ("Kraftbaum").

The continuation of the project in 2024 goes in two directions. Firstly, in the form of a decision tree: the starting point for this was seven saplings of the strength tree grown from seeds, which the artist collected there on Easter Sunday and raised in Zürich. Interested in the promise of authenticity of the 'Echt Entlebuch' ("real Entlebuch") label, the artist asked herself what would happen if the saplings were to be labelled 'Echt Entlebuch' and the strength tree, as a legal entity, were to sell its offspring as products.

The second direction the artist has taken follows the question of what repeatedly walking along paths does to you. To this end, she has walked the Way of the Cross between Schüpfheim church and Heiligkreuz church several times, with her own variation – her final destination was always the tree of strength below Heiligkreuz church. She developed a map of this in three layers, the first depicting the path, the second the Stations of the Cross, and the third showing things that the artist noticed as she walked along, and which should make the map easier to read. The map is accompanied by a set of postcards with texts that are not orientated on the Stations of the Cross, but on the spaces in between. The text also emerged during or from the walk and sets out in search of the relationship between her and the plant, and what this means as a counter-narrative to the human-human relationship – or, on the Way of the Cross, the human-God relationship.

4 Connecting the studies

The overarching themes of this year's TdCS are *Identity* and *Landscape*, and the four different ETH studies, along with the ZHdK projects, demonstrate the wide range of possibilities in which these concepts can be explored. Through these investigations students often found that the distinction between *Identity* and *Landscape* can be hard to decipher, as in Entlebuch, the two concepts are deeply intertwined and become almost indistinguishable from one another. The residents of the UBE identify deeply with the environment around them, and their actions continuously shape the development of the landscape, both directly and indirectly. This interdependence makes the concepts of *Identity* and *Landscape* reflections of on another, as each is immeasurably involved in creating and maintaining the other. Each group explored this interplay in their projects and experienced this convergence firsthand.

For ETH, the first of the four groups researched the perceptions of young farmers to identify barriers and opportunities on how sustainability could be incorporated in UBE farming. They conducted interviews and found that young farmers understand sustainability in agriculture through practical applications, emphasizing regionality first, efficient resource management, potential use of renewal energy and the value of social sustainability. Additionally, the farmers identified a significant knowledge gap between themselves and non-farmers, expressing a desire for the public to better understand how demanding and challenging it is to incorporate sustainability into agriculture. This study optimizes the blend of *Identity* and *Landscape* as the farmers job is to tend the land and this job ends up shaping who they are, with both concepts threaded throughout all interviews.

The second ETH group decided to investigate how decreasing snow cover impacts the experiences, perceptions, and adaptations of the community, especially regarding the winter tourism. Interviews revealed a mix of remorse for snow loss and excitement for new opportunities, with community members expressing a commitment to adapt to changing environmental conditions. Reflections on the snowy landscape were often deeply personal with significant meaning attached to each memory, emphasizing how the landscape can shape one's life and identity.

The third ETH group aimed to reduce the knowledge gap concerning the implementation of net zero strategies through a workshop and evaluate the perceptions of local interest groups regarding such a system. The study found that local stakeholders support the goal but emphasize a need for economic viability, improved coordination, additional support, and greater top-down guidance. Landscape was the primary focus of the project, but the aspect of identity came into play when it came to the different actors assigning responsibility: Who creates these policies? Who enacts or enforces them? Who has the power to change or challenge them? In this way the identity of the actor is crucial for determining how they can develop the renewable energy system in the landscape.

The fourth and final ETH group sought to understand how identity, culture, emotions, and practical factors influence migration decisions in Entlebuch. Through a combination of surveys and interviews they discovered that in order to improve residential attraction or retention the UBE should focus on sustainable economic development, engaging youth in decision-making, and diversifying cultural attractions. Additionally, many interviews cited the landscape of Entlebuch as a reason for staying or returning, as the environment is something many residents are proud of and feel deeply connected with.

The projects of the ZHdK groups further demonstrate how the two overarching themes *Identity* (of the people living in the UBE) and *Landscape* (the environment in which they are immersed) are intertwined and entangled with each other. This is perhaps not surprising in an area where "landscape and nature" and a "good environment" are crucial reasons for people's decision to stay in or return to the Entlebuch, as one of the ETH groups has carved out. According to the approach of the ZHdK course entitled "Modelling Gaia," which focuses on Earth's habitability, it can be argued that the various ZHdK projects focus precisely on what landscape is identified with and to what extent individual identities are shaped by the environment, or "landscape themselves," as with the group *Walking Dialogues*.

The group *Touched by Gaia* literally explored, through the medium of video, how humans inscribe themselves into nature – but also what imprints the environment leaves on the human body; hands and landscapes seem to merge, the skin turns into a skinscape. In a similar but less speculative way, the group *sich verlandschaften* travelled to "nature access points" and discussed with local stakeholders their individual relationship to the landscape, how the valuation of landscapes is produced, and how identities can be reconfigured within landscapes. Nature-culture relations are often reflected in local narratives, so the *Entlebuch Myths & Legends App* group researched the mystical sagas and legends of the Entlebuch and created an interactive application that allows the user to experience these stories in the environment to which they relate. The two groups *Salwideli Asset Library* and *Best Friends Forever* went in the opposite direction, approaching the landscapes of a specific peat bog and of a biodiversity promotion area ('Biodiversitätsförderfläche'), respectively, and deriving narratives from this encounter, not without a touch of irony: how Entlebuch's identity-forming peatlands might be digitally conserved in the face of climate change and overtourism, or how one can make friends with a spot of land.

It might be observed that the ZHdK groups often focus on specific locations or phenomena in order to articulate this entanglement between identity and environment. For instance, the *Acer Pseudoplantanus* project does not concentrate on sycamore maples in general or on trees as a whole—an approach that might seem natural in a densely wooded region—but rather on a particular tree, the 'Kraftbaum' located below the Heiligkreuz church. The project enfolds counter-narratives to the human-human relationship, extending it with a more-than-human identity. Similarly, other projects do not focus on peatlands in general but rather on the 'Salwideli', or not on 'Biodiversitätsförderflächen' broadly, but on one very specific area. This focus on singularity is nonetheless imbued with a paradigmatic, world-explaining dimension, the exemplary may stand for the general. In the context of transdisciplinarity, these practices also raise questions about the stakeholders integrated into the exploration process: Can a tree or a peatland be more than just an object of study? Can it act as an agent, a partner?

Despite intense exchanges, students from ETH and ZHdK did not ultimately merge into the same project groups. However, the ongoing dialogue, questioning, and support between artistic and scientific approaches greatly strengthened the project conceptions, significantly influenced their development, and markedly enhanced the outcomes of the individual projects.

The connection to the landscape, whether through agriculture, tourism, or migration decisions, consistently emerged as a defining element of identity across all projects. Together, these studies weave a comprehensive narrative about the interplay between *Identity* and *Landscape* in Entlebuch. Each group, though focused on different aspects of the community and environment, ultimately contribute to a deeper understanding of how the landscape shapes the identity of its residents and, in turn, how these identities influence the future of the landscape in the UBE. The studies also illustrate the potential of the transdisciplinary approach, where different research fields and real-world actors come together in problem-solving providing a ground for innovative and creative research and creating a process of mutual learning between students, researchers, and the public. Given the limited data base and relatively low number of interviews, the studies may not reflect the full spectrum of perspectives and should not be viewed as representative of the entire region. Nevertheless, the studies provided insight into the diversity of connections between *Identity* and *Landscape* in the UBE as well as established a foundation for further research, collaboration, and ideas for management in Entlebuch.

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Thanks to

The students really succeeded in their work, for which I would like to thank them sincerely. It was a pleasure to see how committed and responsible the students were in dealing with this challenging topic.

Another thank you goes to the management of UBE, who supported our students as well as me time and again. Throughout the entire project, Florian Knaus actively helped the students, be it with ideas for content, contacts to all kinds of people in the region – without Florian, the case study would not have been possible.

I owe another big thank you to Dr. Bianca Vienni Baptista and Juanita von Rothkirch u. Panthen Gómez, who supported me so much in running this course. I am especially grateful to our partners from ZHdK, Prof. Irene Vögeli, Prof. Patrick Müller, who organized with us the whole case study, it was an extremely enriching experience. Together with their students, they made this case study a truly interdisciplinary experience. Our students further profited from some great inputs by our doctoral students Lorena Kuratle and Ariane Wenger.

We also benefited from great accommodation at the BBZN and a wonderful working space with professional kitchen at the Pfarreiheim Schüpfheim – the respective housekeepers and managers deserve a big thank you!

Such courses in the real world only work thanks to the great support of our advisory group, for which I would like to express my sincere thanks: Nadja Schöpfer, Karin Marbacher, Barbara Bieri, Ruedi Tschachtli, Thomas Berset, Hans Dieter Hess, Urs Felder, Stefan Bucher, Anton Rieger, Phil Hofstetter, Alexander Röösli, Hanspeter Staub, Christine Bouvard, Sabine Bucher, and Monika Zihlmann. I was extremely impressed by their commitment and enthusiasm for the Entlebuch and the UBE, but also for our case study.

I am grateful for the warm welcome and inspiring input by the mayor of Entlebuch Robi Vogel, the enthusiastic insights by Julia Schumacher and her class from the Kantonsschule Schüpfheim and the family Giger for their rich and touching insights into their relations to the Entlebuch. We had the great please to have the Kantonsschule Schüpfheim with us at the final event in Schüpfheim, which was a true highlight of the whole course, A big thank you to the rector, Thomas Berset, the teachers Fabian Glötzner and Lukas Hirschi and all their pupils.

Furthermore, I would like to thank all those in UBE who responded to surveys and interviews, participated actively in workshops, provided input and feedback to our research, and made this case study a truly impressive encounter in a lovely region of Switzerland.

The brochure is also meant to inform those in the region who could not be part of the project. The Entlebuch, the UBE, has been an impressive experience for me over the last three years, where I have been able to be on site time and time again. I have learnt a lot, gained diverse impressions and met great people. It is a great pleasure to see what a UNESCO biosphere can achieve, and I am convinced that the UBE will continue to be a role model for other regions in Switzerland and abroad.

Michael Stauffacher, responsible lecturer at ETH Zurich

Annex

A special thank you from the ETH student groups to the members of the advisory group (Table 1), who provided us with valuable insights and feedback before, during and after the project.

Table 1
Members of the local advisory group for the tdCS 2024.

Name	Origin / Function
Thomas Berset	Rector of Schüpfheim Cantonal School
Barbara Bieri	Hiking guide at "Bilder die Bleiben" and health expert at Spitex Sunnex, Escholzmatt
Christine Bouvard	Former mayor and former president of Verband Musikschulen Schweiz
Sabine Bucher	President of Sörenberg-Flühli-Tourism
Stefan Bucher	Head of the Wood Forum of the UBE and employee of a timber construction company
Urs Felder	Regional Forester Entlebuch, Department of Agriculture and Forestry, Canton of Lucerne
Hans Dieter Hess	Head of the Agriculture and Forestry Department, Canton of Lucerne
Phil Hofstetter	Drummer with Friedli und Fränz Kilbimusig, columnist and SRG contributor
Karin Marbacher	Singer and primary school teacher
Alexander Rösli	Social anthropologist, research assistant at BFH Zollikofen
Nadja Schöpfer	Co-director Entlebucher Kunstverein
Hanspeter Staub	Mayor and head of the culture department, municipality of Schüpfheim
Simone Stenger	Head of EntlebucherHaus (cultural centre and local museum)
Ruedi Tschachtli	Prorector of the Nature and Nutrition Vocational Training Centre in Schüpfheim
Monika Zihlmann	Co-director of "Sphäre", an innovation network for SMEs in the region

TdLab's Transdisciplinary Case Study 2024

The UNESCO Biosphere Entlebuch (UBE) is a region in the Swiss Canton of Lucerne. Recognized by UNESCO in 2001 for its valuable pre-alpine peatland and karst landscape, the UBE stands out not only for its unique geography but also as the first biosphere developed through a bottom-up process.

UBE's mission includes protecting biodiversity, supporting the local economy, promoting tourism and regional development, and fostering cultural growth. In collaboration with the Transdisciplinarity Lab (TdLab) at ETH Zürich and ZHdK's Master in Transdisciplinarity Studies program, a local advisory group selected the overarching theme for the 2024 Transdisciplinary Case Study (TdCS). This course addresses real-world issues and aims to deliver meaningful outcomes for the local community. The chosen theme for 2024 is *Identity and Landscape*, exploring how cultural aspects and the environment develop.

From February to July 2024, students from ETH Zürich and ZHdK researched these themes in their own individualized studies. ETH Zürich students conducted four distinct projects with the following focuses: (i) sustainability practices among local farmers, (ii) the impact of decreasing snow cover on community experiences and perceptions, and (iii) factors influencing migration decisions in Entlebuch. ZHdK students created 6 unique and inquisitive projects as the following: i. Augmented Tour Guide: Entlebuch Myths & Legends App; ii. Video Installation: Touched by Gaia – Landscapes & Hand Shapes; iii. Walking Dialogue: sich verlandschaften – landscaping; iv. Multimedia Conservation of Peat Landscape: Salwideli Asset Library; v. Installation: Best Friends Forever; and vi. Explorations: Acer Pseudoplantanus/On Ways To A Tree.

Throughout the course, an advisory group from Entlebuch played a crucial role in shaping the research themes, evaluating the process, and utilizing the findings. The projects involved collaboration across social sciences, natural sciences, and the arts to enhance understanding of the intersection between *Identity* and *Landscape*.

The diverse approaches and issues addressed in these projects highlight the effectiveness of a transdisciplinary approach, where various research fields and real-world actors collaborate to solve complex problems. The studies illustrate the multifaceted connections between *Identity* and *Landscape* in the UBE, laying the groundwork for future research, collaboration, and strategies for the region's development and preservation.

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