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# Local Responses to Climate Change Impact on Intangible Cultural Heritage in Poland

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**ABSTRACT:** Tradition and intangible cultural heritage help local communities cope with the uncertainty through familiar and repetitive actions. What if it all depends on variable and unstable factors? This paper presents an anthropological approach to the impact of climate change on local practices towards intangible cultural heritage based on human-environment interactions. The author presents early results of an ongoing research project. By drawing on ethnographic data, this article explores the implications of declining snow resources, alterations in the vegetation cycle and hydrological drought on the traditions of winter horse-drawn carriage races, Corpus Christi flower carpets and wickerwork. Based on the notions of ethnoclimatology and anthropology of weather, the text draws attention to local perceptions of climate change and potential methods of safeguarding tradition in times of uncertainty. It serves as an outline of a possible way of thinking about the relationship between climate change and intangible cultural heritage.

**KEYWORDS:** Ethnoclimatology, climate ethnography, anthropology of weather, intangible cultural heritage

## 1. Introduction

In scientific literature, threats of the effects of a climate crisis – floods, extreme meteorological phenomena, desertification, the thawing of permafrost – are discussed mainly in relation to monuments, buildings, and architectural complexes of high cultural and historical importance (Gruber 2011; Bernecker 2014; Ringbeck 2014; Gomez-Heras, McCabe 2015; Jigyasu 2020). However, these considerations are still insufficient in the context of intangible cultural heritage (ICH), understood by the 2003 UNESCO Convention for the Safeguarding

of the Intangible Cultural Heritage as a set of practices, ideas, messages, knowledge, and skills reproduced by subsequent depositaries who, by so doing, gain a sense of a specific identity. Until a few years ago, the UNESCO document was not adapted to the threat or consequences of a climate catastrophe on ICH (Bernecker 2014: 207). In June 2008, The General Assembly of the State Parties to the Convention adopted the Operational Directives for the first time, and amended them in two-year intervals through 2022. Environmental sustainability, including the issue of climate change and resilience, was addressed by the General Assembly during its sixth session in 2016:

States Parties shall endeavour to recognize the potential and actual environmental impacts of intangible cultural heritage practices and safeguarding activities, with particular attention to the possible consequences of their intensification (UNESCO 2022: 92).

States Parties shall endeavour to ensure recognition of, respect for and enhancement of knowledge and practices concerning geoscience, particularly the climate, and harness their potential to contribute to the reduction of risk, recovery from natural disasters, particularly through the strengthening of social cohesion and mitigation of climate change impacts (UNESCO 2022: 93).

I understand the climate crisis not only as a global increase in temperatures (global warming, greenhouse effect) but also as changes in regional climate characteristics (humidity, precipitation, wind, growing season) and more frequent extreme weather events, which have biophysical and economic, as well as social consequences (Jigyasu 2020: 93). Following the reports of the Intergovernmental Panel on Climate Change, I also assume that the increase in greenhouse gas concentration levels is the result of human activity (IPCC 2023: 4).

The following paper provides an overview of the assumptions and early results of ongoing research<sup>1</sup> on the relationship between climate change and the practice of intangible cultural heritage in several cases in Poland. Through the examples of winter horse-drawn sleigh races, Corpus Christi flower carpets and wickerwork, I shall portray the consequences of low snow resources, shifts in the vegetation cycle and hydrological drought for the practice of traditions, people's beliefs about climate change, and possible ways to protect heritage in times of uncertainty. The text aims to reflect on the connections between the safeguarding of intangible cultural heritage and mitigating the effects of the climate crisis. The pilot study concerns seven customs related to

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1 *Project Analysis of the Relation Between Anthropogenic Climate Change and Local Practices towards the Intangible Cultural Heritage*, funded by the Polish National Science Center (Ref. DEC-2022/06/X/HS2/00741).

the growing season, annual snow detention and water access and examines local responses to human-induced environmental change that affect the practice of ICH, bottom-up strategies of resilience to natural hazards and developing solution-oriented pathways to achieve heritage-environmental sustainability in the times of uncertainty. My aim is to explore local way of perceiving, explaining, and reacting to the global change (Rojas Blanco 2006; Milton 2008; Krauss 2009).

Between 2018 and 2020, I was a member of research teams in a number of projects focused on studying ICH, and then, for the first time, I observed the impact of climate change on local practices in relation to heritage.

In the project *Documentation of The Intangible Cultural Heritage of the Northern Counties Villages of the Wielkopolskie Voivodeship*<sup>2</sup> I led a research team conducting ethnographic field research in the Złotów county in the Wielkopolskie Voivodeship. The research subjects were issues in the field of toponomastics, ethnonyms, traditional religious and secular ceremonies, family, rural and municipal celebrations, traditional crafts, and oral traditions. Two years later, I joined a research team running research in Spycimierz (Uniejów municipality, Łódź Voivodeship) as a part of the project *Corpus Christi Procession including Traditional Floral Carpets in Spycimierz – Protection and Strengthening of Tradition*, financed by the Ministry of Culture and National Heritage from the Culture Promotion Fund, and led by Professor Katarzyna Smyk Ph.D., of the Maria Skłodowska-Curie University. The aim of the study was to devise a safeguarding program for the Corpus Christi Procession including traditional floral carpets in Spycimierz.

Both of the above-mentioned projects, although not aimed at analyzing the impact of anthropogenic climate change on the local heritage practice, demonstrated reshaping of practices based on human-environment relations, that is, included in annual rituals that require specific meteorological conditions and natural resources. The empirical material collected during ethnographic interviews in Złotów county showed such a transformation. This phenomenon, requiring specific meteorological conditions, namely, heavy snowfall and adequate snow cover, was adapted to the snowless winters, that is, vehicles used for moving on snow were replaced with wheeled ones. An excerpt from an interview with a resident reads as follows:

[On the 6th of December] we light a Christmas tree in the square near the health center [...] [Here] come Santa Clauses, who drive others. When it snowed, there was a sledge. And now there is no [snow], and we go in a two-wheeler or some kind of carriage, drive up, ring the bells, then play, sing Christmas carols and then give presents. Every child who

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2 Project financed by the Ministry of Culture and National Heritage, carried by Wojciech Mielewczyk, Ph.D., from the National Museum of Agriculture and Agricultural-Food Industry in Szreniawa (contract no. 02564/18/FPK/DIK of 21 September 2018).

comes to us [on 6th of December] gets a gift. All children from the local community receive a gift. And then [we go to] the Polish House. If there is no snow.

Qualitative data (the interviewees' narratives) also indicated changes in the frequency and intensity of extreme weather events (heavy rains and storms). Research into the flower carpets tradition in Spycimierz showed the impact of hydrological drought and the shift in the growing season on the availability of natural resources necessary to practice the custom. Due to the difficulties in obtaining fresh flowers, which I called flower shortage, the local community sought alternatives and used artificial plants, plastic caps or colored sand. Ethnographic interviews also indicated that part of the local community buys plants from flower wholesalers, and have to travel even several dozen kilometers to get them (leaving a larger carbon footprint). The exact words one resident told me were:

Flowers also depend on the time of year because now it's harder [to get] flowers. Because it all blooms earlier and [on the festival day] there is basically nothing. It is harder to get these flowers and people try with something else, e.g. sand – they color it in different colors, or cut grass. In the past it was all flowers.

These observations enabled me to outline the current research problem and case studies. I believe that the emergence of threads that link ICH with climate change in research that did not specifically cover this issue confirms the extent of this phenomenon and the urgency to explore it. Which forms of intangible cultural heritage in Poland rely on the human-environment relationship? How to explore human interactions with heritage in times of uncertainty from an anthropological perspective? What are the benefits of studying intangible cultural heritage in the context of climate change? My research aims to provide a new example to fill the gap between climate crisis and alterations of ICH – the local way of perceiving, explaining, and reacting to the global change (Rojas Blanco 2006; Milton 2008; Krauss 2009; Gruber 2011; Jigyasu 2020).

## **2. Research Area**

The sites of ethnographic research are seven phenomena enlisted in the Polish National List of Intangible Cultural Heritage, selected due to their correlation with the natural environment (Tab. 1). Several more heritage expressions which could be covered by a similar study were listed while writing this article. Each of these phenomena is related to the environment through water, snow or plants.

Entry year	Title	Feature
2014	Rafting traditions in Ulanów	based on the surface water level (the San river)
2017	<i>Kumoterki</i> Races	requiring specific weather conditions (heavy snowfall, temperatures below zero)
2017	<i>Kablęcok</i> basket weaving skills in Lucimia	related to the growing season and plants (various species of willow)
2018	Willow weaving in Poland	related to the growing season and plants (various species of willow)
2018	Corpus Christi Procession with traditional floral carpets in Spycimierz	related to the growing season and plants (various species of perennials)
2020	Sowing hearts and crosses in the fields near Strzelce Opolskie	related to the growing season and plants (crops)
2020	Corpus Christi Procession in Klucz, Olszowa, Zalesie Śląskie, and Zimna Wódka	related to the growing season and plants (various species of perennials)

**Tab. 1.** Forms of ICH based on the human-environment relationship in Poland (chronological order)

### 2.1. *Kumoterki* Races

*Kumoterki* is a competition for two-person teams (consisting of a man and a woman) racing on a snow track horse-drawn sleighs (the *kumoterki* of the race name) typical for the Podhale region in Poland, dating back to the early 19th century. The sleigh is made of wood from local tree species and decorated with the regional art of woodcarving. Its seat is padded with straw or hay and a checkered blanket with tassels. As the sleigh was used as a means of transport, primarily for the parade ride to the church on the day of the child's baptism, its name comes from a local expression meaning godparents. The races take place during the Carnival (from mid-January to the end of February) in seven locations: Biały Dunajec, Bukowina Tatrzańska, Kościelisko, Ludźmierz, Poronin, Szaflary and Zakopane. Competitors race along a track of 800 to 1400 meters in length. The driver (male) is responsible for the horse's track, while the passenger (female) stabilizes the carriage when it turns. As the track curves, when the sled tilts and one skid is pulled off the ground, she must step one foot outside the sled and try to set it back on track. The custom entered the Polish National List of ICH in 2017<sup>3</sup>. The event attracts not only members of the local community, but also many tourists. The background for the races consists of foodtrucks, toy stalls, festive music and hot sausages. One can take a photo with people in folk costumes and buy a helium-filled balloon in the shape of a favourite cartoon character. However, for the races to take place, certain technical and weather conditions should be met. These are,

3 General information about the entries comes from the website of the National Institute of Cultural Heritage of Poland (2024).

in particular, frozen ground and snow cover, the latter approximately 20-50 cm thick. Only this way the heavy horses, sleigh and two people inside can move safely on the track. In 2019, abnormally high temperatures triggered thawing, which resulted in competitors having to race in mud.

## 2.2. Sowing Hearts and Crosses

The sowing of hearts and crosses in the fields near Strzelce Opolskie was entered into the national register of ICH in 2020. The custom, also known as the Crosses for *Ponboczek* or grain crop crosses, has a strong connection with farmers' religiousness and its essence is that during the autumn or spring grain crop sowing, farmers draw a symbol of a cross or heart with a cross on its end on the ground. Grain is sown in the groove thus made – it is usually barley or rye. These signs are to ensure a good harvest for sowers and protect the crop from destruction. Each practicing family passes the memory of the symbolic sowing down through many generations, and all its members, regardless of age and gender, take part in the ritual. One of the perils that the symbols placed on the ground are meant to protect against is agricultural drought.

According to the definition set out in the Act of 7 July 2005 on the insurance of agricultural crops and livestock, Agricultural Drought (AD) means damage caused by the occurrence in any sixty-day period from 21 March to 30 September in a given year of a climatic water balance (CWB) below a certain value for individual species or crop groups and soil categories. AD occurs when the calculated CWB values for a municipality are lower than the critical values of the CWB specified in the Regulation of the Minister of Agriculture and Rural Development of 11 April 2019 (Journal of Laws of 2019, item 739) on the Value of the CWB for Individual Groups and Species of Crops and Soils. As reported by the Polish Agricultural Drought Monitoring System, in case of spring grain crops 38.17% of the farming areas was at risk. The most difficult of the last 5 years was 2018, when the drought covered more than 70% of the entire country. AD results in the root systems of crops having access to less water than recommended. Although it is not the only factor that jeopardises agricultural crops (other examples are extreme weather phenomena such as hail storms and flooding), AD emerged in interviews with wicker makers most frequently.

Agricultural drought means that the root systems of crop plants have access to less water than recommended. Water scarcity results in poor crop yields, which, in turn, lead to an increase in the prices of basic food products. The extreme climatic events list included in the IMGW-PIB Report: *Climate of Poland* (IMGW-PIB 2022) contains information on, among other things, a nationwide drought in March and October, a four-day heatwave in June, and an extreme heatwave in July, with the average air temperature that month being 20.9°C, the third highest since 1951 (the second highest in the 21st century). However, drought is not the only threat of a climatic origin to agricultural crops; other examples are extreme weather phenomena such as hail storms and flooding.

Climate changes, higher average temperatures and mild winters, above all, are conducive to the migration and acclimatization of new organisms harmful for certain plants and crops in Poland. Boxwood, for example, is an evergreen shrub used in various religious practices such as Easter palms or Easter baskets (Skonieczna-Gawlik 2015). Because of its longevity, it symbolizes immortality, resurrection and life. What endangers it is *Cydalima perspectalis*, or the box tree moth – an invasive species that spread in Europe in the early 2000s due to global warming (Oltean et al. 2017). The larvae mostly feed on the leaves, but also bark, of the *Buxus* species. When the number of larvae is huge, they can cause deflorations and, in the end, the withering and death of plants (Geci et. al. 2020).

### 2.3. Kabłącok Basket Weaving Skills

The skill of wickerwork or willow weaving occurs in 4 traditions inscribed on Polish list of ICH. The first of these, *Kabłącok* basket weaving skills in Lucimia, entered the list in 2017. A year later, it was followed by *Willow weaving* in Poland. Efforts related to the entries were made by the Polish National Association of Basketmakers and Willow Weavers, whose members make utility goods (shopping baskets, furniture, trunks), products made at customers' special request, as well as artistic spatial and architectural forms (outdoor sculptures). In 2023, two more phenomena (*Wicker basket* from Ciężkowice and *Wickerwork* in Opole Silesia), were included. Currently, the wickerwork community is applying for inclusion on the UNESCO Representative List of the ICH of Humanity. These entries, apart from willow weaving, also include verbal folklore formed around it, a set of activities related to the cultivation and maintenance of home plantations and natural stands, the felling and storage of plaiting material, and the sale of ready-made products. Four entries on willow weaving suggest the great importance of willow in the Polish cultural landscape, which is confirmed by publications on its symbolism (Drabik 1990; Ołędzki 1994; Pieńczak, Kłodnicki 2002). Young shoots, as the basic ingredient of an Easter palm, were an important element of spring rituals used in many magical practices (Kolberg 1962: 274-288; 1963: 132-141).

The skill of weaving a *kabłącok* basket in Lucimia (a village in the Mazowieckie Voivodeship, Zwoleń county, Przyłęk municipality) entered the National ICH List in 2017. Thanks to its design (flat back and rounded sides), the unique basket can be carried on one's hip or placed against a wall. It is made by *kosycarze* from unbarked willow, using the cross-ribbed technique. *Kabłącok*, also known as *kartoflok*, *jabłok*, and *łupiniok*, is intended for storing and transporting vegetables, activities related to digging potatoes, making everyday purchases, as well as for organizing garden plants. The entry, apart from willow weaving, also includes verbal folklore formed around it, a set of activities related to the cultivation and maintenance of home plantations and natural stands, the felling and storage of plaiting material, and the sale of ready-made products. Not only does the basket's production involve



practicing the local ICH, but it also serves as a source of additional income, especially for the elderly, who supplement their retirement or disability pension in this way.

A confirmation of the supportive nature of basketry can be found in the literature from the end of the 19th century:

This type of industry, managed properly, may in time bloom as a new source of prosperity for the people, providing easy income where, after working the land, there are still enough hands to work (Nowicki 1884: 112).

One of the species commonly used in Poland for willow weaving is the so-called *konopianka*<sup>4</sup> (*Salix viminalis*), i.e., a willow species growing wild on river banks and wetlands. Nowadays, natural sites are used less often than plantations, where American willow (*Salix Americana*) is also grown (Kwasek, Adamska-Malesza, Pisowicz 2009: 18-19). Willow weaving works depend on the weather conditions: “The seasons of the year invariably determine whether to start or stop willow weaving related activities” (Adamska-Malesza 2009: 38). Planting takes place in spring, and harvest time is late autumn and winter (the end of October to mid-April). Willow requires constant access to water resources, therefore its cultivation (in the case of willow for baskets) is possible on riversides and in mid-field and mid-forest soils in well-watered places (Adamska Malesza 2009: 16). Willow weaving is associated with water not only through the conditions for willow cultivation, but also through fishing:

It is a matter of using willow and willow weaving skills, dependence on the river, and also combining these two professions often by one person only. In the past, people living on the Vistula river in the summer – when the crops were at their peak – would become fishermen, in the winter – when willow was harvested – they would engage themselves in willow weaving (Adamska-Malesza 2009: 45, emphasis added).

The strong connection of craft (willow weaving, basketry) and willow weaving material with the surface water level suggests a threat to the stability of practicing this type of ICH resulting from climate change and agricultural drought. Fears of the lack of raw material accompanied ethnologists studying willow weaving as part of the project *On the basketry trail of Vistula River*, implemented by the Serfenta Association in cooperation with the University of Folk Arts and Crafts from Wola Sękowa in 2009. In a publication of the same title, they described a meeting with a willow weaver from the vicinity of Kwidzyn, who, after a long break in craftworking, was unable to point out a wild willow location.

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4 In the regional nomenclature also *trescoki*, *konopa*, *konopina*.



Doubt and fear seized us – what if this situation repeats itself? What if we find people and there isn't enough material to weave? (Adamska-Malesza 2009: 50).

This uncertainty seems to remain valid as extreme weather phenomena such as drought or hail are high-risk factors in the cultivation of willow used in basketry.

#### 2.4. Willow Weaving

A year after the *kabłęcok*, Willow weaving in Poland, as a collective entry covering the areas of Nadsania, Bieszczady, Mazowsze, Wielkopolska, and Pomorze was included in the national ICH register. The places closely related to the Polish willow weaving history are Nowy Tomyśl (location of the Museum of Basketry and Hop Growing and National Association of Basketmakers and Willow Weavers), Rudnik nad Sanem (location of the first basketry school), Kwidzyn, Skwierzyna, and Wola Sękowa (location of the Folk Artistic Crafts University willow weaving course). Efforts related to the entry were made by the Polish National Association of Basketmakers and Willow Weavers, whose members make utility goods (shopping baskets, furniture, trunks), products made at customers' special request, as well as artistic spatial and architectural forms (outdoor sculptures). These two entries concerning willow weaving suggest the great importance of willow in the Polish cultural landscape, which is confirmed by publications on its symbolism (Drabik 1990; Olędzki 1994; Pieńczak, Kłodnicki 2002). Young shoots, as the basic ingredient of an Easter palm, were an important element of spring rituals used in many rituals and magical practices. Oskar Kolberg, prominent 19th century Polish folklorist and ethnographer, mentioned:

Palms blessed in church are given away by the priest (from a heap of twigs and reeds, i.e., willow buds and cane, brought by a sacristan). Everyone is given a palm, which they carry to their cottages and place behind a sacred painting. In summer, this palm is supposed to keep away a hail cloud; when such a cloud arrives, they throw branches from this palm (or rather stick them into the ground) at the four corners of the field in danger (Kolberg 1962: 274).

The palms that the folk carry to church to be blessed are willow branches with *baški* (*kotki*, i.e., buds) (Kolberg 1963: 132).

#### 2.5. Corpus Christi Procession with Traditional Floral Carpets

The tradition of arranging flower carpets for Corpus Christi celebrations<sup>5</sup> is present in two ICH entries. The first to be added to the national list in 2018

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5 The Solemnity of the Most Holy Body and Blood of Christ (coll. Corpus Christi) – a liturgical holiday in the Catholic Church, falling every year on the Thursday after the octave of Pentecost.

was the Corpus Christi Procession with the tradition of floral carpets in Spycimierz. The bearers of this custom, together with local Corpus Christi Centrum, create the Social Archive (Społeczne Archiwum Spycimierskie n.d.) – a unique repository of photos, exhibits, recordings, and films documenting the tradition of arranging flower carpets. Between 2019 and 2020, the City and Municipal Public Library in Uniejów conducted the project *Procession of Corpus Christi with the Tradition of Floral Carpets in Spycimierz – Protection and Strengthening of Tradition*, mentioned at the beginning of this article; its purpose was to prepare and draw up a report containing recommendations for a safeguarding plan (Smyk 2020). In 2021, the custom was included as part of the UNESCO Representative List of the Intangible Heritage of Humanity. The Corpus Christi festivity, with the tradition of arranging flower carpets in Klucz, Olszowa, Zalesie Śląskie, and Zimna Wódka, was added to the national list in 2020. The materials for creating carpets are cut grass, ferns, wildflowers, plants grown in backyard gardens, leaves, twigs, grain ears, bark, and moss. Among the flowers there are roses, peonies, poppies, cornflowers, guelder rose, wild lilac, daisies, pansies, tulips, and horse chestnut tree. The roadsides are adorned with young birches and alders. The collected material is usually stored in a cool, dark, and humid place, most often in basements, garages, and barns. Due to the fact that Corpus Christi is a movable celebration, taking place on a different day each year, and the difference can be up to even two weeks (in 2020 it was the 11th of June, in 2021 – the 3rd of June, in 2022 – the 16th of June, in 2023 – the 8th of June, in 2024 – the 30th of May, in 2025 – the 19th of June), it is significant to take into account the growing season shift. Over the past decade, it accelerated by 9-11 days in comparison to the multi-year period of 1951–1990 (Kępińska-Kasprzak, Chmist-Sikorska 2021).

## 2.6. Rafting Traditions

*Flisactwo* or *flis* is a type of river transport of goods using rafts. Rafting traditions in Ulanów were added to The National List of ICH in 2014. In its current form, this phenomenon is practiced mainly by members of the Rafting Brotherhood dedicated to St Barbara in Ulanów, combining traditions (dialect, nomenclature, songs, rituals, culinary) with the local community's contemporary heritage practices. The Brotherhood organizes rafting trips on the San, Vistula, Odra, and Warta rivers. The *frycowy* baptism, i.e., the rite of promoting adepts to ordinary or honorary raftsmen, is particularly spectacular. During the International Raftsmen's Convention in Italy in 2005, the association from Ulanów was admitted to the International Raftsmen's Association, which includes 26 organizations. In May 2015, the Polish Rafting Museum in Ulanów, located in a renovated building from 1865, was opened. This institution collects rafting tools and equipment, transport documents, archival photographs, and equipment from rafting families' houses. In 2022, the Brotherhood organized Etnoflis – an international rafting event on the route from Jarosław to Ulanów, in which – apart from friends from Silesia – rafters from Germany, Austria,

Slovakia, and Latvia took part. In July 2022, the media reported that the San River, where Ulanów is located, is “a river that is almost non-existent” (TVN24 2022). At the measurement station area in Nisko, the river water level was 103 cm (267 centimeters below the warning level and 397 centimeters below the alert level), exposing the river bed, consisting of stones, branches, and dead fish. The low water level in the Vistula basin, to which the San belongs, is confirmed by information from the State Water Holding Wody Polskie on the hydrological and meteorological situation in Poland. The significant report of 28 October 2022 indicated that not only on the San but also on the Soła, Raba, Poprad, Wisłoka, Radomka, Pisa, Omulwia, and Orzyc rivers, and locally on the Vistula, Przemsza, Skawa, Dunajec, Biała Tarnowska, Wisłok, Kamienna, Pilica, Narew, Biebrza, Bug, Liwiec, and Wkra rivers, water levels are low (PGW Wody Polskie 2022). Reports from the Chief Inspectorate of Environmental Protection (Główny Inspektorat Ochrony Środowiska 2020) show that the factors posing the greatest threat to surface water quality are anthropogenic activity, point source pollution, area pollution, as well as hydrological and morphological changes. Furthermore, the national mosaic report of the Podkarpackie Voivodeship located the main sources of pressure to be in large urban and industrial centers, including Stalowa Wola located near Ulanów. The industrial sector exerts significant pressure primarily on the quantitative status of water through significant water consumption. The water’s insufficient level limits the maneuverability of rafts, which, if caught on an irregular river bed, may cause danger to people on board. In the monograph *Folk Culture of Nadpopradzki Highlanders (from Piwniczna to Rytro)*, Krystyna Reinfuss-Janusz describes highland rafting, the history of which dates back to the 13th century. The author draws attention to the fact that “where the water level was too low, the rafts hung on the rock steps, which meant that the further expedition required more effort on the raftsmen’s part, and the trip would take longer even by several days” (Reinfuss-Janusz 2021: 132).

### 3. Theoretical Framework and Methods

As stated by Gomez-Heras and McCabe in their study of stone-built heritage decay (2015), it is worth considering the Anthropocene as a time of mutual impacts between humans and the Earth system, where each influences the behavior of the other in a complex two-way interaction. The research on the relation between people, ICH and climate change is useful to conduct from the perspective of ethnoclimatology (Orlove et al. 2002; Strauss 2018) or climate ethnography (Crate 2011) and folklore anthropology (Burszta 1987; Kowalski 1990, Sulima 2000, 2010). According to Strauss (2018), ethnoclimatology focuses on localized knowledge and practices generated by cultures or communities rooted in a particular geographic context, becoming an extremely important element for both documenting and responding to climate change in local communities. Ethnoclimatology can be perceived as a sub-discipline of anthropology of weather – a broad spectrum of research on how different cultures

understand, value, and interact with weather and climate. Weather or climate anthropologists focus on weather-related human activities such as anticipating and coping. Rantala, Valtonen, and Markuksela (2011) argue that weather is more than just a medium between humans and the environment; it also evokes and holds strong agency by manipulating human practices in directing and redirecting our nature-based activities. Crate and Nuttall (2016: 14) even introduce the term anthropology of climate change, explaining how this perspective differs from long-standing anthropological interests in the natural environment.

Climate ethnography explores connections between global climate change and local ways of perceiving and explaining it. It uses the assumptions and methods of multi-site ethnography (Marcus 1995) and engaged anthropology. According to Susan Crate (2011), climate ethnography has high activist potential – the results of ethnographic field research conducted in the most endangered places contribute to raising awareness about the consequences of anthropopressure. Folklore anthropology is a methodological and theoretical approach rooted in concepts departing from a narrow, artistic-textual way of understanding this phenomenon, leaning towards a broad, multithreaded anthropological interpretation, which also takes up an analysis of relations with the non-human world. In this context, I understand folklore as a way of perceiving the world directly connected with reality (Cocchiara 1971: 18), which reflects the living conditions of a given community in its forms and content (Burszta 1987: 126). The research is conducted using the method of observation, ethnographic interview, and visual documentation. The questionnaire addresses observed and experienced changes in the heritage practice; the presence of environmental protection activities in the strategy for tradition protection; the type of protective actions (temporary or long-term); the role of rituals, traditions, and symbolic content in times of uncertainty. Tradition helps people and communities cope with the uncertainty through familiar and repetitive actions. The ritual year routine provides comfort and a sense of predictability reflected in traditional weather forecasting, proverbs and ritual timeline. Polish ritual year, consisting of religious holidays and symbolic dates of certain weather phenomena, which designate the time of particular actions, expresses people's efforts to tame and organize the environment. The timeline and corresponding weather occurrences are related to the beliefs of folk meteorology, crucial for gardeners and farmers. Weather forecasting stemmed from the need to plan and prepare for changing or adverse weather conditions generating crop losses and famine. Connections between observations and weather changes were fixed in the consciousness of generations in the form of specific dates and orally transmitted proverbs, though their meteorological verifiability remains undefined. Long-term agrarian and social predictions are based on mythological thinking and do not reflect the climate conditions.

The aim of the research project was, therefore, to identify individual ways of understanding and processing information about visible changes in the local cultural landscape, which determine decisions made by a given community

and implement adaptation strategies (Roncoli 2006). Empirical material will contribute to clarifying the connection between the global climate crisis and local changes affecting the practice of intangible cultural heritage. An application of a downscaling method will make it possible to understand the way of perceiving, explaining, and reacting to the climate crisis at the local level (Milton 2008; Krauss 2009; Crate 2011). The key to effectively mitigating the climate crisis is – in addition to reducing carbon dioxide emissions – reducing activities related to anthropopressure (Gruber 2011: 209). In order to achieve this, it is necessary to find out how people perceive severe climate change and whether there is a correlation in their thinking between local changes in individual practices and a global climate catastrophe.

Focusing on sites of heritage-identified environmental practices paves the way for further research on the relationship between the climate crisis and intangible cultural heritage. Global increase in temperatures, changes in regional climate features, and a higher frequency of extreme weather events, apart from biophysical and economic phenomena, also have social consequences (Jigyasu 2020: 93; Rick et. al 2020: 2). The boundary between areas more or less threatened by the effects of the climate crisis is variable and applies not only to island or subtropical countries (Rosenthal 2008). Local educational activities indicating the dependence of intangible cultural heritage on climatic conditions are crucial in the context of mobilizing local communities in terms of protecting both their own traditions and the natural environment. The research I carry out will facilitate learning about the experiences of inhabitants of the selected areas – people who are the first to experience changes – which can be used both to supplement the national system of protecting intangible cultural heritage and to increase social awareness of the connection between anthropogenic climate change and local traditions. The research results could be used as guidelines in drafting a protection program by applicants to the UNESCO Representative List (revealing the relationship of the phenomenon to the environment is required by the General Assembly in the Operational Directives) and as additional instructions for the monitoring carried out by the National Heritage Board 5 years after enlisting.

The research also focuses on the sense of self-agency of local communities, which “have the right not only to be informed about the consequences of climate change – they are also able to generate concrete solutions” (Rojas Blanco 2006: 141). For this purpose, it is necessary to conduct studies that allow contact with local social actors involved in the process of patrimonialization and environmental protection, e.g., representatives of cultural institutions, local authorities, and non-governmental organizations. The aim of the research is also to reflect on the strategies undertaken by people towards traditional patterns of behavior in the context of the uncertainty of climate crisis, to engage anthropological research on traditional folklore and ICH into mitigation of the climate catastrophe and to raise awareness of the sources of climate change and extreme weather phenomena related to anthropopressure.

#### 4. Research

In January and February 2023, I spent a total of two weeks in the Podhale region, where I conducted field research among the depositaries of *Kumoterki* races. The first, three-day trip, took place in Biały Dunajec. During the second, eleven-day research, I stayed in Bukowina Tatrzańska, the place of the Highlander Carnival, from where I traveled to Ludźmierz, Zakopane and Poronin. This year, three of the seven editions were canceled due to insufficient snow cover. The races were held in Bukowina Tatrzańska, Ludźmierz, Poronin and Biały Dunajec. Those in Zakopane, Szaflary and Kościelisko did not take place. One of the interviewee and organizers of the first canceled event said that there was no prospect of a second race taking place. There was, but the organizers waited until the last possible moment – three days before the day of the event – to announce the decision. An employee of one of the Podhale culture centers said she did not see an ounce of snow outside her window. A snowfall of four or five centimeters was possible, but that was not enough to drive a heavy horse-drawn sleigh. In some of these places, races have not been held for several years, yet they are still being planned, only to be canceled days before<sup>6</sup>. Will uncertainty become the new certainty? What will be the future of people for whom heritage is part of regional identity, a source of livelihood and social fulfillment? These are the questions I kept asking myself.

The IPCC First Assessment Report (1990) foreshadowed the impact of climate change on the terrestrial component of the cryosphere. For most locations which currently experience a seasonal snow cover and frozen ground, projected climate changes suggested a decreased duration of snow cover, and, in some cases, a complete disappearance of snow. The authors argue that “socioeconomic consequences of these impacts will be significant for those regions which depend on snow and ice for water resources, and their social and economic welfare (e.g. recreation and tourist industry)” (1990: 283). This applies equally to expressions of intangible cultural heritage associated with snow, such as the Podhale horse sleigh races. The latest, Fifth Assessment Report (2014) proves that the Northern Hemisphere spring snow cover has continued to decrease in extent and changing precipitation or melting snow or ice are altering hydrological systems.

According to Falarz (2021), the lack of snow is a problem that also affects Poland. It causes a decrease in the albedo of a given area and an increase in the local temperature, which, in turn, results in further decrease of the snow cover. This feedback mechanism is largely responsible for rising winter temperatures and a decreasing number of cold days in the eastern part of Europe. Slowly melting snow cover gradually releases water to supplement the spring water requirements for plants. Its lack or thawing before the growing season disrupts proper plant growth and increases the risk of drought.

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6 At the time of writing this article, four of six races scheduled for 2024 have been canceled due to the lack of snow.



In total, I interviewed 10 people (5 more than expected). They were event organizers, past and present race participants, sled builders, traders and tourists. The questions I asked them concerned the meteorological and technical requirements for holding races, the number and reasons for canceled editions, and possible ways to prevent the problem from exacerbating. According to the interviews, there is little awareness of the climate crisis. Only one person identified anthropogenic activities as those that generate the greenhouse effect and thus irreversible climate change. Two interviewees strongly denied the credibility of scientific reports. One stated that in the distant past there had been vineyards in these areas, which would prove that a warm and humid climate had formerly existed here. Therefore, according to this person, the ongoing warming is a part of the natural glacial and interglacial periods. On the contrary, national and international academies of science and professional associations have formed a strong scientific consensus on global warming. Almost all climatologists actively publishing climate articles are of the opinion that the Earth's climate has been warming since the mid-20th century, and that this is mainly due to human activity (Anderegg, Prall, Harold, Schneider 2010). These assessments confirm and support the position of the IPCC.

For the races to take place, certain technical and weather conditions must be met. The ground should be frozen and the snow cover should be between 20 and 50 cm thick. Only in this way can the heavy horses, along with the sleigh and two people inside, move safely on the track. The interviewees' narratives indicate their observations of changes in the duration of winter, maximum low temperatures and the frequency and intensity of snowfall. Many people told me that in their youth, that is, about 30-50 years ago, depending on their age, winter started in November and ended in March. According to their recollections, in the 1990s, thanks to the fact that winters were cold and snowy, the event was held in a particular village every year. One person, somewhat jokingly, but with a hint of concern in her voice, said that "this year we had a real spring in January" and that this is the first such warm and snowless winter since she can remember.

Theoretically, it is possible to respond to snowless winters. The winter tourism industry has developed tools to improve adverse meteorological conditions, which are snow cannons. Artificial snowmaking on the track would indeed fit into a strategy to safeguard intangible cultural heritage, but not to protect the environment and mitigate the climate crisis. It would, rather, be an emergency aid that masks the real problem. Unfortunately (or not), race organizers and heritage depositaries have neither the snowmaking machines nor the finances to rent them from ski slope owners. In addition, an artificially created snow cover reacts differently from the natural one. On its surface, the so-called sugar is formed, which is slippery and dangerous. Another solution could be to replace sleighs with wheeled carriages, but this, according to most, would make the custom lose its primary meaning – it would no longer be either a snow nor a sledding race. However, one of the former participants



suggested a solution in between – a sled with small wheels hidden in the skids that would make it possible for them to ride on an un-snowed road. The last idea to protect the heritage was to organize one joint race, for example in Bukowina Tatrzańska. However, this opinion was shared only by the residents... of Bukowina Tatrzańska. Many others stated that this would not be possible due to potential local conflicts.

A trait that my interviewees had in common was anthropomorphizing the weather while dismissing their own potential responsibility for climate change. They spoke of the weather and seasons as if these were individuals with their own agency and decision-making power. It is as if the snow itself decides whether to fall or not, not that its presence depends on a number of other forces, including anthropogenic factors. As I mentioned, my interviewees presented low awareness about the climate crisis (scientific reports about the causes and consequences of the climate change). This does not mean that they did not observe or experience any changes. On the contrary, every conversation included information about snowless, short and warm winters. This low awareness, which I have in mind, manifested itself in the fact that depositaries were unable to identify the causes of climate change or did inaccurately. One such misconception, which appeared during research both in Podhale on *Kumoterki* races, and in Strzelce Opolskie on Sowing Hearts and Crosses, was the belief that weather is being controlled by certain groups of people in authority.

Conspiracy theories coexisted in the statements of my interlocutors with climate change denialism. Many people spoke about the climate crisis with sarcasm, or openly denied its occurrence. One of them was a man who informed me that in the sixteenth century grapes had been grown in southern Poland, which, in his opinion, was to be irrefutable proof that the current climate warming is part of the natural cycle. In conspiracy theories concerning both government control of the weather and the cyclical nature of climate change (which is happening in the environment, but not in the present case), there is a visible motive to dismiss one's own responsibility for climate change. This happens, on the one hand, by transferring this responsibility to other people, and, on the other – to geological processes.

According to the Polish Classification of Goods and Services, wicker and willow weaving is classified as a forestry products and forestry-related services. Therefore, it cannot be covered by funding and loss compensation, for example due to drought, as it is in the case of agricultural crops. In official letters to the Polish Ministry of Agriculture and Rural Development, the wickerwork community stresses their serious losses due to natural disasters, especially drought. The argument for including their crops in the agricultural subsidies is, according to the depositaries, the fact that their craft is listed on the national list of ICH. A major counter-argument is that the list covers the skill and knowledge of weaving, not wicker as a raw material itself. There are, indeed,

upcycling practices of weaving from recycled materials such as plastics bags, cables and paper. This is one of the methods of applying local knowledge related to intangible cultural heritage to reduce the carbon footprint. Another is constructing green screens against car emissions. Placing shrub willows along transport arteries, planted and braided in the form of tall hedges, provides a buffer zone to protect the people, agricultural and horticultural crops nearby (Chwaliński 2022). Several species of willow are highly adaptable to changing or unfavourable ecological conditions. Willows growing by rivers and streams create natural reservoirs that retain the flow of water. *Salix viminalis*, *Salix purpurea* and *Salix eleagnos* can be planted on landfills, thus contributing to the ecological reclamation of post-industrial spaces.

Research on the tradition of arranging floral carpets to celebrate Corpus Christi has shown a moderating effect of agricultural drought on the practice of the custom. Depositaries adopted a strategy of using resources available at a given time and under particular meteorological conditions, not specific plant species. Corpus Christi, as a movable holiday, comes at the beginning, middle or end of June. Depending on the date and environmental conditions (temperature, surface water level), the local natural landscape offers different plant species. Ethnographic data has shown that the early Corpus Christi provides the opportunity to arrange flowers from peonies (*Paeonia*), the middle one – acacia robinia (*Robinia pseudoacacia*) and the late one – roses (various woody perennial flowering plants of the *Rosaceae* family). A significant factor in altering the floral composition of carpets is the use of chemical sprays by local farmers, which have a negative impact on the growth of field and meadow flowers. A number of my interviewees pointed out that before the development of intensive agriculture, they had wider access to wildflowers such as poppy, chamomile and cornflower. Nowadays, however, most of the floral arrangements consist of plants grown in home gardens. These, in turn, if regularly irrigated and protected, are less vulnerable to hydrological drought and extreme weather events.

The ethnographic data revealed three types of human actions toward ICH related to the environment – passive adaptation, individual pragmatism and active adaptation. Passive adaptation refers to the transformation of particular activities in order to meet shifting environmental conditions. This is, for example, visible in the use of artificial or other-than-usual flowers to arrange Corpus Christi floral carpets in case of drought or changing vegetation cycle. Individual pragmatism mostly means giving the custom up. According to my research partners from the Podhale region, most safeguarding actions have minimal chances of success, so their coping (or non-coping) strategy consists in canceling the event. Active adaptation stands for an understanding of the relation between the environment and the ICH. The resulting long-term actions combine safeguarding of tradition with the protection of the environment, as it is among the wickerwork community.

## 5. Conclusion

Tradition helps us cope with the uncertainty through familiar and repetitive actions. The collective practice of intangible cultural heritage provides a sense of belonging and security, especially in times of uncertainty. The ritual year routine provides comfort and a sense of predictability reflected in traditional weather forecasting, proverbs and ritual timeline. Polish ritual year, consisting of religious holidays and symbolic dates of certain weather phenomena, which designate the time of particular actions, expresses people's efforts to tame and organize the environment.

Global environmental changes jeopardize not only day-to-day life, but also festive activities that have considerable importance in the forging of local and regional identity. The climate crisis is creating new uncertainties to which local communities are struggling to adapt the cultural heritage they practice. This study focused on how to explore human interactions with ICH and the environment in times of anthropogenic uncertainty. The researcher's task is to reach the people on the front lines, that is, those who are directly experiencing climate change. These include, for example, farmers growing willow for basket weaving, organizers and participants in winter sled races, Christians celebrating Corpus Christi by laying floral carpets, or raftsmen. They are those who practice heritage that require certain weather conditions such as heavy snowfall, depending on the growing season and surface water level. This is the only way to access indigenous knowledge, which can prove crucial to mitigation and sustainability (see Crate et al. 2017). Examining local answers to global environmental challenges from an anthropological perspective has the power to fill a still present gap between human-induced global climate changes and the local ways of resilience in the context of tradition (Crate 2011: 177). Significant information emerging through the narratives of the interviewees can help the communities coping with an uncertain future. My paper then demonstrates the great importance of anthropological research in the context of sustainability.

One of the initial conclusions of the research is the subtle difference between adapting to the weather and coping with climate change. The analysed practices were a type of local response to the state of the atmosphere and meteorological conditions at a particular place and time (weather), rather than to a changing climate regime with its causes and implications for all human and non-human beings (climate crisis). There is no doubt that climate change is progressing whether we are aware of it or not, but would it be legitimate to consider particular actions as coping with the climate crisis if awareness of its causes and consequences is low or negligible? This is where the activist potential of climate ethnography has a significant impact. As mentioned by Crate (2011), the results of ethnographic field research conducted in the most endangered places contribute to raising awareness about the consequences of anthropopressure. This would not, by any means, involve lecturing misinformed or prejudiced people from the position of "a (wo)man of science". Rather, I am referring to participatory actions to map out connections between intangible

cultural heritage and the climate change as well as the possibilities arising from the combined safeguarding of these two areas. As stated by Roncoli (2006), identifying individual ways of understanding and processing information about visible changes in the local cultural landscape, which determine certain adaptation strategies, can help coping with an uncertain future. Canceling the races, unimplemented concepts of snowmaking or holding a single, collective event and assigning responsibility for observed environmental changes to other people would fit into the category of reactive adaptation, that is, actions oriented toward reacting to current obstacles when they are in fact already occurring and lack of anticipation (Gulla, Tucholska, Ziernicka-Wojtaszek 2020: 67). On the other hand, the pro-environmental activities of wicker artists, the educational path at the Museum of Wickerwork and Hopmaking in Nowy Tomyśl, as well as the growing popularity of weaving using recycled materials seem to correspond with the assumptions of proactive climate adaptation (Gulla, Tucholska, Ziernicka-Wojtaszek 2020: 67-68).

This paper presents an anthropological approach to study of the impact of climate change on local practices towards intangible cultural heritage based on human-environment interactions. The presented manifestations of intangible environmental heritage, that is, *Kumoterki* Races, Sowing hearts and crosses in the fields near Strzelce Opolskie, *Kabłęcok* basket weaving skills in Lucimia, Willow weaving in Poland, Corpus Christi Procession with traditional floral carpets in Spycimierz, Corpus Christi Procession in Klucz, Olszowa, Zalesie Śląskie, and Zimna Wódka, as well as Rafting traditions in Ulanów, all demand further research. One may say that it is too early to draw any conclusions. It is true that irrefutable evidence about the impact of climate change on intangible cultural heritage cannot be formulated on the basis of findings from one or two years, and that is why long-term, multi-disciplinary and comparative study is needed.

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