One more way to support Ukraine: Celebrating its endangered biocultural diversity

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Notes on Ethnobotany - Photo Essay

Abstract

Background: Ukraine holds a rich reservoir of cultural and biological diversity due to its complex history and variegated landscapes. However, the current aggression poses threats to it, attacking its identity expressed through local ecological practices. Therefore, in this photo essay, we aim to celebrate the great reservoir of biocultural diversity that we observed during several field investigations in different areas of Ukraine.

Methods: We selected photos taken during fieldworks conducted by the authors between 2015 and 2021 in ten oblasts (counties) of Ukraine. The pictures were selected based on their efficacy in conveying a story about a local (food) practice or landscape.

Results: Two main aspects of food culture are relevant in Ukraine. First the foraging of wild plants and mushrooms for food and medicinal purposes in forestlands. Second, "babushka markets" where elderly sellers bring a few things they want to sell on the fringes of the official market. They often included preserved as pickles and jams, but also fresh products. In addition, the several traditional Ukrainian landscapes serve as reservoir of biocultural diversity expressed by small-scale farmers and livestock keepers.

Conclusions: We illustrated several examples of the richness of the biological and cultural diversity of Ukraine. Nevertheless, freedom is essential for expressing identity through food practices and landscape management. We hope that such a reservoir can serve as a foundation stone for rebuilding destroyed areas and devastated communities.

Keywords: Cultural diversity; Ethnobiology; Landscape; Political context; Resistance.

Background

Ukraine is the largest country in Europe, located on the eastern side of the continent. It possesses great cultural diversity due to historical events, as its territory (partially or entirely) has been part of several political entities over the last centuries. Ukraine also holds an important reservoir of biological diversity (over 70,000 species, corresponding to 35% of all European biological diversity).

According to the latest Ukrainian population census of 2001, ethnic Ukrainians make up 77.8% of the total population, followed by Russians (17.3%), Belarusians (0.6%), Moldovans (0.5%), Crimean Tatars (0.5%), Bulgarians (0.4%), Hungarians (0.3%), Romanians (0.3%), Poles (0.3%), Jews (0.2%), Armenians (0.2%), Greeks (0.2%), Karaites (>0.1%), Krymchaks (>0.1%), and Gagauzes (0.1%) (State Statistics Committee of Ukraine 2003). Ukraine's

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multiethnic mosaic is largely the result of two factors: its geopolitical position and its historical legacy of subjugation to a number of different empires (Lakiza-Sachuk 1996).

Over a long historical period, the borders of Ukraine constantly ebbed and flowed. In this patchwork context, an increased emphasis on Ukraine's historical and cultural diversity also serves as an "antidote" to centralization. Despite many approaches to the cultural dividing of the country, most Ukrainian scholars highlight four macroregions: Western, Central, Southern, and Eastern Ukraine. Scientists attribute the eight westernmost regions to the Western macroregion – Volyn, Rivne, Lviv, Ivano-Frankivsk, Ternopil, Khmelnytskyi, Zakarpattia and Chernivtsi. The Central macroregion encompasses the regions of Zhytomyr, Vinnytsia, Kirovograd, Cherkasy, Poltava, Sumy, Chernihiv, and Kyiv and the city of Kyiv. The Southern macroregion comprises the regions of Dnipro, Odesa, Mykolaiv, Kherson, and Zaporizhzhia and the Autonomous Republic of Crimea. To the Eastern macroregion, scientists attribute the three easternmost regions – Kharkiv, Donetsk, and Luhansk (Balabanov *et al.* 2019). The boundaries of the historical and ethnographic regions of Ukraine do not coincide with the modern administrative-territorial divisions. Ukrainian scholar Kosmina (2005) identifies 24 ethnographic regions (some of them consist of subregions) and divides them into four macroregions: Polesie, Forest-Steppe, Steppe, and Carpathians. The different historical and cultural experiences of the various Ukrainian regions are preserved in dissimilar collective memories, and local knowledge and practices transmitted within these regions.

The current Russian aggression poses serious threats to the biocultural diversity of Ukraine (see Stryamets *et al.* 2022), attacking its identity expressed through local ecological practices, for three main reasons. First, it disconnects Ukrainians from their home food-, landscapes as a result of both the inability to move freely and massive, forced emigration. Second, it separates family members, preventing local knowledge transmission. Third, it is likely to prevent people from observing traditional rituals in terms of food production, moving to essential, energy-rich, and available food products, no matter their origin.

In this photo essay, we aim to celebrate the great reservoir of biocultural diversity that we observed during several field investigations in different areas of Ukraine.

Materials and Methods

We selected photos taken by the authors between 2015 and 2021 in ten oblasts (counties) of Ukraine, including Ivano-Frankivsk, Cherkasy, Chernihiv, Chernivtsi, Kyiv, Lviv, Odesa, Rivne, Volyn, and Zakarpattia. The pictures were selected on the basis of their efficacy to convey a story about a local (food) practice or landscape.

Figure 1. Map of the study areas.

Results

Ukrainian Foodscapes

Cultural aspects of food production

Forest products are crucial cultural foods in several mountain communities of eastern Europe. Among these products, mushrooms and berries are of the utmost importance in both preparing ritual foods and generating income. They are also used for medicinal purposes. However, forest products are not only a commodity, as their picking also encourages a daily (yet seasonal) attendance of forestlands. For more insights into Ukrainian forests and biocultural diversity see Mattalia et al. 2021a; Zhyla et al. 2018; Melnykovych and Soloviy, 2014.

Mushrooms are cooked during several religious festivities and in different ways. They can be harvested most of the time in which the ground is not covered by snow. For a comparison between the mushrooming habits of Romanians and Hutsuls living in Ukraine see Stryamets et al., 2022.

Figure 2. *Boletus edulis* L. Harvest of the best quality *Boletus edulis*, e.g., small caps and the fruiting bodies of the fungi are not damaged by insects, from a beech forest. The historical methods of preparing these mushrooms were drying and marinating, while freezing is a new way of preserving them. Nataliya Stryamets, Stavky, Lviv oblast, September 2017.

Figure 3. *Suillus* spp. These species, as with other fungal genera, are frequently consumed raw, boiled and cooked with cream in a delicious soup, or, more often, pickled for the winter. Andrea Pieroni, Volyn Oblast, October 2016.

Figure 4. *Boletus edulis* L. In rainy weather mushrooms grow fast, and the growth and abundance of *Boletus edulis* is signaled by Hutsuls through sayings like "going into mushrooms" (because there are so many mushrooms that you have to find a way through them) and "growing like a mushroom" (which means growing really fast). Nataliya Stryamets, Foshky, Chernivtsi oblast, July 2018.

Figure 5. *Laetiporus sulphureus* (Bull.) Murrill by Nataliya Stryamets, Ivano-Frankove, Lviv oblast, September 2019. In the Ukrainian Carpathians, blueberries (*Vaccinium myrtillus* L.) are considered "gold" as they provide a good source of income, an excellent food resource, and a medicinal product. Often, they are stored for winter in cold places in glass bottles with sugar, but without boiling or thermal processing. In the past, when sugar was not available, Hutsuls stored blueberries in glass bottles without processing or dried them. All over Ukraine, wild or cultivated strawberries (*Fragaria vesca* L.) and raspberries (*Rubus idaeus* L.) are collected and used in various preparations, including compote, a typical beverage made of water and fresh fruits.

Figure 6. Dried branches of wild blueberry (*Vaccinium myrtillus* L.). In this region of the Ukrainian Carpathians, these plant parts are used to prepare very distinctive recreational or anti-diarrheal teas or are macerated in vodka for the same purpose. Andrea Pieroni, Sarata, Chernivtsi oblast, May 2015.

Figure 7. Fresh cultivated raspberries (*Rubus idaeus* L.). Igor Khomyn, Vyazivok, Cherkasy oblast, August 2020.

Figure 8. Forest blackberries (*Rubus caesius* L.). Nataliya Stryamets, Roztochya Biosphere Reserve, Lviv oblast, 2019. Ukraine is well known not only for its forest products, but also for its wheat (and sunflower) production, thus often being referred to as the "breadbasket of Europe" (Fileccia *et al.* 2014). Here we want to highlight small-scale agriculture, fishery, and animal breeding.

Figure 9. In this village, the main income of the locals comes from growing vegetables, in this case carrots (*Daucus carota* L.), which are sold for a symbolic price. Renata Sõukand, Liubeshiv, Volyn oblast, October 2016.

Figure 10. Harvested carrots, as seen in Figure 9, are later buried underground to store for winter. In this way, they are protected from frost and are also fresh and tasty in the spring after the snow melts. Renata Sõukand, Liubeshiv, Volyn oblast, October 2016.

Figure 11. Preparing winter food for animals: cleaning "animal beets". The whole interview was conducted in such a setting, where the villagers did not stop their work during the entire conversation. The village was among the first territories temporarily occupied by the Russian army on 24 February 2022; it was liberated at the beginning of April. Renata Sõukand, Chernihiv oblast, October 2016.

Figure 12. Successful hay harvest. The methods of the hay preservation. Renata Sõukand, Liubeshiv, Volyn oblast, October 2016.

Figure 13. “It was a good catch today”. Interviewees were proud of their morning catch from a nearby lake. In the area, pike is consumed fried, and also often dried or smoked; after the interview, study participants gave us a few dried pike as a gift, which we gratefully brought back to our homes in Western Europe. Andrea Pieroni, Liubeshiv, Volyn Oblast, October 2016.

Figure 14. Home-bred birds are part of food security in rural Ukraine. While historically children took care of hens (Figure 15), nowadays hens are left on their own given the efficient fences protecting crops, which are otherwise vulnerable to visits by the non-invited, fertilizer producers. Renata Sõukand, Liubeshiv, Volyn oblast, October 2016.

Figure 15. Liubeshiv. Isaak Serbov, 1912. From the digital collection of Vilnius University, accession number VUB01-000446480. https://kolekcijos.biblioteka.vu.lt/en/islandora/object/kolekcijos%3AVUB01_000446480

Figure 16. Cows ruminating in a Carpathian meadow. The Carpathian Mountains present a sequence of forests and meadows maintained by cow and sheep grazing. Mountain summer huts, which are called *polonnyna*, are important hotspots of biocultural diversity, places which are home to people with incredible knowledge on landscape maintenance and milk production (see Warchalska-Troll & Troll 2014). Brydza cheese, a Slow Food presidium and the first Protected Geographical Indication of Ukraine, is produced by Hutsuls of Zakarpattia. Nataliya Stryamets, Kryvorivnya, Ivano-Frankivsk oblast, July 2018.

Figure 17. While we were driving to the remotest villages of the Putyla rayon, at the very border with Romania, a person asked us for a lift; we picked him up and started a conversation on the surrounding landscape: "You see, this is a house of rich people from the capital. Since it is no longer possible for Ukrainians to reach Crimea, more people spend their holidays here in the mountains. However, hey, can you imagine, they do not even have a cow. How can they live? No way, no way. Mushrooms and a cow are the means of survival for us". Pictured on the left, a summer cow stable, up in the mountains, where the owner comes twice a day to milk his cow and to give her a "tasty snack - wheat". Pictured on the right, a cow grazing at the Romanian border. Nataliya Stryamets, mountains close to Sokoliy Khutir, Chernivtsi oblast, July 2018 (left), and Shypit, Chernivtsi oblast, July 2019 (right).

Informal markets

Farmer's markets in Ukraine have a long history stretching back to the first years of Soviet occupation, during which time farmers were allowed to sell their surplus products to city-dwellers as compensation for essentially unpaid labor on collective farms. Current legislation suppresses such activities at the official level, and therefore there exists such phenomena as "babushka markets" where elderly sellers bring a few things they want to sell on the fringes of the official market. They are still tolerated by the police and often citizens buying from them express their support and admiration (for more details see Sõukand *et al.* 2020).

A formal market is often an in-between space where small-scale producers can sell their regionally significant products.

Figure 18. Fresh forest berries, *Cantarellus cibarius* L. mushrooms, together with homemade sour cream (from non-pasteurized milk) and homemade cheese, which are sold to obtain some cash. As a rule, the buyer, who often has a favorite babushka to buy food from, has a conversation with the seller discussing ways to prepare the food, during which time they taste the cheese and sour cream before purchasing. Nataliya Stryamets, Novoyavorivsk, Lviv oblast, August 2020.

Figure 19. Lacto-fermented cucumbers of different fermentation lengths for sale in the Kyiv market. Cucumber fermentation is a tradition across the whole area and provides variety and a means of preserving food that is otherwise not long-lasting. The seller has two different types of fermented cucumbers: the ones on the right are a "little salty" - malosolnye - which are to be eaten, as is, on the spot, as they not intended for longer preservation. The ones on the left have gone through a long process of fermentation (more than three days) and can, theoretically (although it is not the case here), be preserved for winter in a jar. Renata Sõukand, Kyiv, May 2015.

Figure 20. Smoked fish in the village market of Vylkovo, well known for its fishing traditions, which now are declining due to restrictions in legislation. Renata Sõukand, Vylkove, Odesa oblast, January 2017.

Figure 21. Cured meat from small-scale producers in the Odesa market. The wide variety of cured meats offered by different small-scale producers was striking and provided good ground for future documentation and development of regional food products that deserve inclusion in the Ark of Taste of Ukraine. Renata Sõukand, Odesa, January 2017.

Figure 22. Homemade raw-milk cheese with various berry fillings in the market in Odesa. This cheese, regardless of the relatively formal setting of the market, looked quite homemade and informal. Something not readily available with the restrictive market regulations yet appreciated by customers. Renata Sõukand, Odesa, January 2017.

Figure 23. Various cheeses from the Zakarpattia region; the advertisement says "Transcarpathian Viagra". Nataliya Stryamets, Rakhiv, Zakarpattia oblast, September 2020.

Food preservation

For centuries, the long and severe Ukrainian winters have forced local communities to develop conservation strategies. We documented three main strategies: drying (and smoking), preserving with sugar, and lacto-fermenting (see Sõukand & Pieroni 2016; Mattalia *et al.* 2020; Stryamets *et al.* 2021).

Figure 24. From the left, *Rumex acetosa* L. for making green borsh preserved in a jar, zucchini-based "ikra"- salad, and fermented cabbage, as examples of different preserves prepared for wintertime. Renata Sõukand, Chernivtsi oblast, May 2015.

Figure 25. Black currant (*Rubus nigrum* L.) puree with sugar as a non-boiling preserve. Igor Khomyn, Vyazivok, Cherkasy oblast, August 2020.

Figure 26 Homegrown tomatoes and marinated cherries. Here you can also see the book of home-written recipes, essential for each household, where the best and very special recipes are kept. Igor Khomyn, Vyazivok, Cherkasy oblast, August 2020.

Figure 27. Several different fruits are preserved for wintertime in various ways, such as jams, juices, syrups, soaked in alcohol, and dried. Here *kalina* (*Viburnum opulus* L.) and *Vaccinium oxycoccus* L. are to be stored in jars. *Kalina* in particular is an important marker of contemporary enthusiasm for "healthy" plants in many places in Ukraine. For more insight into medicinal plants in Ukraine see Mattalia *et al.* 2020; 2021b. Andrea Pieroni, Volyn oblast, October 2016.

Figure 28. Apples (*Malus domestica* Borkh.) are sun-dried and then smoked to produce uzvar (var), a smoked beverage made in several areas of Ukraine. Uzvar, which can be served cold or hot, is rich in vitamins and believed to be healthy; it can also be made from dried plums, cherries, apricots, or pears. Nataliya Stryamets, Roztochya, Lviv region, August 2020.

Figure 29. Mushrooms and herbs are dried to be used during wintertime. They are sold in the open market in Odesa. Renata Sõukand, Odesa, January 2017.

Figure 30. Cucumber pickles are the most popular preserve, which may be prepared with several different ingredients, such as garlic (*Allium sativum* L.); oak (*Quercus robur* L.), cherry (*Prunus* spp.), and blackcurrant (*Ribes nigrum* L.) leaves; horseradish (*Armoracia rusticana* G.Gaertn., B.Mey. & Scherb) roots and leaves; and dill (*Anethum graveolens* L.) seeds. There are many variations of pickled cucumbers depending on the variety of leaves and even alcohol for better preservation. For an overview see Stryamets *et al.* 2021. Nataliya Stryamets, Putyla, Chernivtsi oblast, August 2019.

Traditional foods

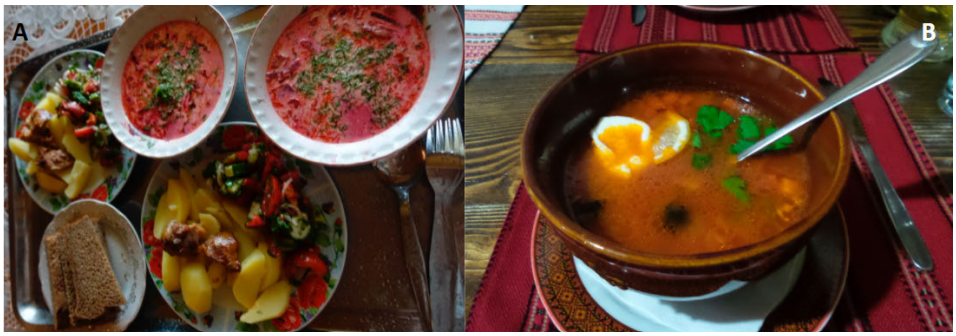

Figure 31 *Borsh*, a delicious, traditional Ukrainian meat soup, made of beetroot, cabbage, carrots, onions, potatoes, and tomatoes (if any), served in a Hutsul family home (A) and in an Odesa restaurant (B). Simply from the color and consistency of the *borsh*, you can see the diversity of the preparation. Indeed, every chef has their own recipe. (A) Nataliya Stryamets, Putyla, Chernivtsi oblast, July 2019; (B) Renata Sõukand, Odesa oblast, January 2017.

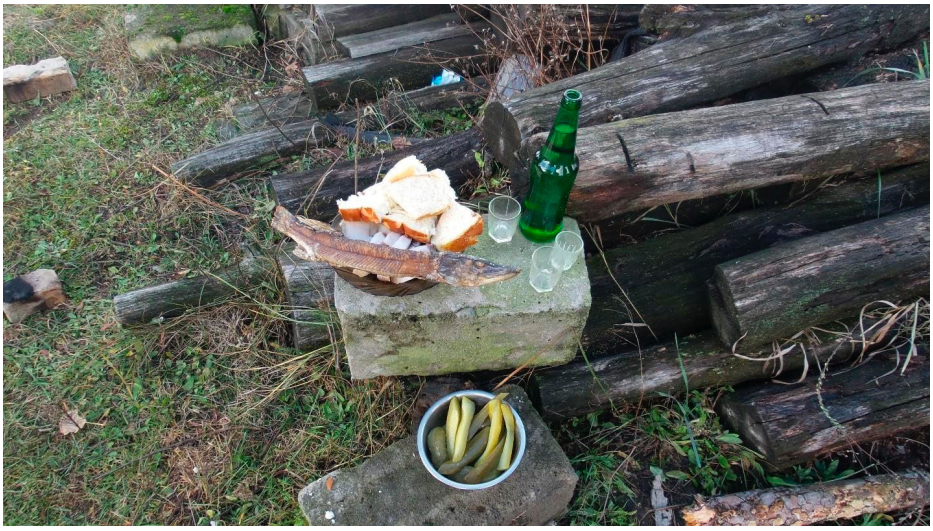

Figure 32. During an interview, local residents offered us what they had at hand to eat and drink: lacto-fermented cucumbers, homemade moonshine, wheat bread, and dried fish. The offering was accompanied by an in depth-discussion on the importance of local wild food plants and freshly collected mushrooms (Figure 3). Renata Sõukand, Liubeshiv, Volyn oblast, October 2016.

Figure 33. *Vareniky* with cherries (*Prunus* spp.) served in a local restaurant. Vareniky can be made with a wide variety of fillings and can be both sweet and salty, and as with *borsh*, every chef has a special secret ingredient. Renata Sõukand, Ivano-Frankivsk, May 2017.

Figure 34. Wild raspberries (*Rubus idaeus* L.), which are stored in jars with sugar, are served with homemade pancakes. Nataliya Stryamets, Ivano-Frankove, Lviv region, August 2019.

Ukrainian Landscapes

Many traditional Ukrainian landscapes are severely endangered due to social drivers such as land abandonment, urbanization, and emigration (Schultheiß *et al.* 2020).

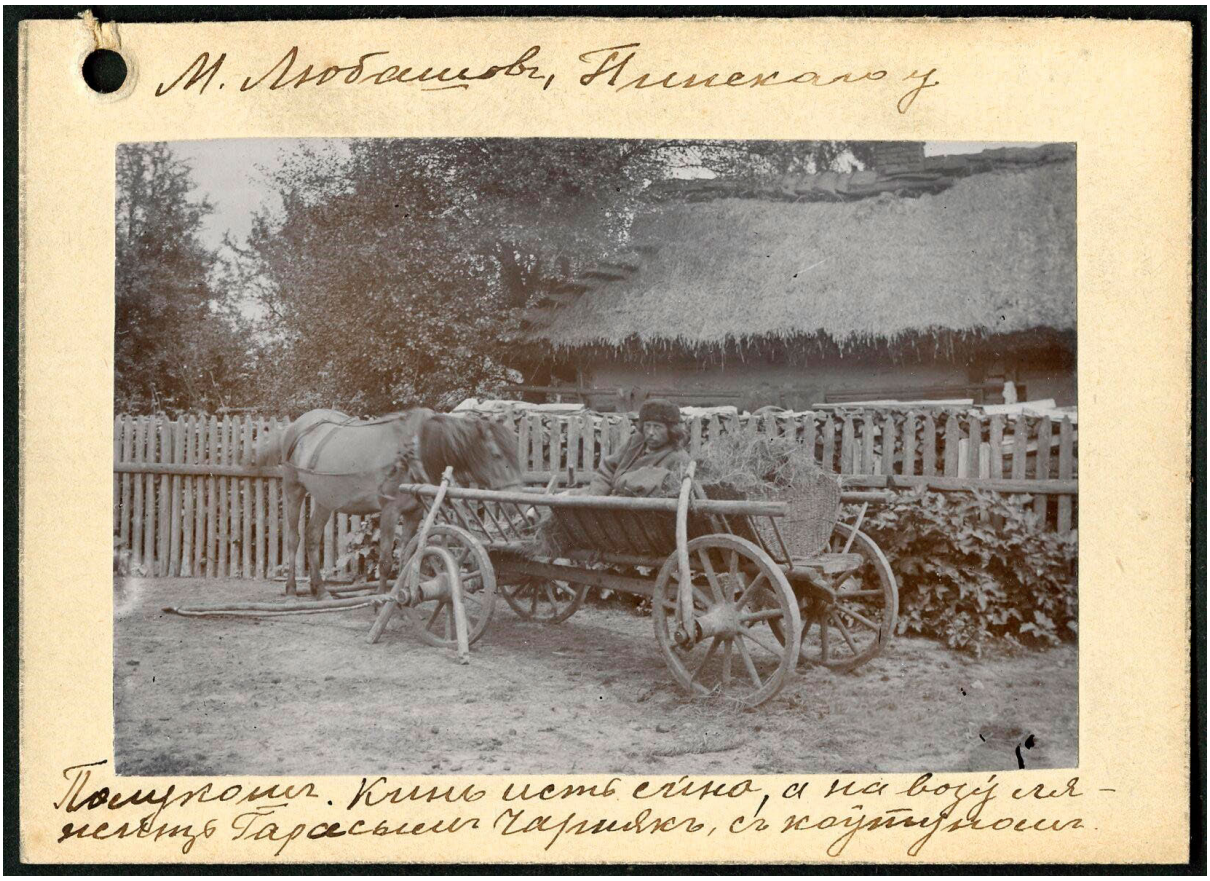

Figure 35. Liubeshiv. Isaak Serbov, 1912. From the digital collection of Vilnius University, accession number VUB01-000447535. *https://kolekcijos.biblioteka.vu.lt/en/islandora/object/kolekcijos%3AVUB01_000447535*
Here, we celebrate mountain and plain cultural landscapes, as well as the distinctive religious and civil architectures that are embedded in them.

Figure 36. Early spring in an isolated part of the Carpathian Mountains inhabited by Hutsuls. Andrea Pieroni, Chernivtsi oblast, May 2017.

Figure 37. You can still encounter horses carrying fodder on the roads of remote mountain villages inhabited by Boikos. Renata Sõukand, Zakarpattia oblast, May 2016.

Figure 38. The small-scale agricultural lands in a Boikos village. Renata Sõukand, Zakarpattia oblast, May 2016.

Figure 39. Double fencing within the garden is likely meant to keep domestic animals away from the vegetable patch planted in the middle of the meadow. Renata Sõukand, Zakarpattia oblast, May 2016.

Figure 40. One little home garden produces enough food for one family to survive the harsh mountain winter. Renata Sõukand, Zakarpattia oblast, May 2016.

Figure 41. "The forest was destroyed!": new forestry practices at the Romanian border (see Mattalia *et al.*, 2021a). Nataliya Stryamets, Selyatin, Chernivtsi oblast, July 2019.

Figure 42. The forest has always protected local inhabitants. Among the residents of one little forest village, we met a granny who survived the Holodomor, the artificial hunger imposed on peasants by Soviet occupants in 1932-33. We spoke for about two hours, which were filled with unfading memories of inhumane hunger and tears. This region also endured temporary occupation in the war of 2022. Renata Sõukand, Chernihiv oblast, October 2016.

Figure 43. A traditional Hutsul house photographed during field interviews. Andrea Pieroni, Sarata, Chernivtsi oblast, May 2016.

Figure 44. Typical village at the Belarusian border. Igor Khomyn, Dubrovytsya, Rivne oblast, October 2018.

Figure 45. A typical countryside garden, with an old wood and clay house, fruit trees, and a raspberry fence. Igor Khomyn, Hutir Lis, Lviv oblast, June 2017.

Figure 46. Ukrainian autumn, crossing the Dnieper River. Igor Khomyn, Vyazivok, Cherkasy oblast, October 2020.

Figure 47. Mountain haymaking in a Boyko village. Renata Sõukand, Zakarpattia oblast, May 2016.

Conclusions

This photo essay illustrates the richness of the biological and cultural diversity found within Ukrainian borders, developed over centuries of continuous interactions with the local environment and often perpetuated despite the difficult Soviet times.

Nevertheless, freedom is an essential condition that must be met to fully express identity through food and landscapes. We very much hope that the freedom to express Ukrainian biocultural diversity can soon be restored, and that such a reservoir can serve as a foundation stone for rebuilding destroyed areas and devastated communities.

May the rich Ukrainian biocultural heritage guide a new era of freedom.

Declarations

List of abbreviations: Not applicable.

Ethics approval and consent to participate: The current study is based on data collected over various fieldworks which received the approval and consent by the ethical committee of the Ca' Foscari University of Venice and the University of Gastronomic Sciences, Italy.

Consent for publication: All persons shown in images provided their consent to have their images published.

Availability of data and materials: Not applicable.

Competing interests: Authors do not have any financial or non-financial competing interest.

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Authors' contributions: A.P. conceived the study; G.M. drafted the first draft of the manuscript with the contribution of pictures from N.S., I.K., R.S., A.P.. All authors have contributed to and approved the last version of the manuscript.

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