

Ukrainian Carpathians Conservation Policy

Carpathian National Nature Park, Research Department
PromoCarpathians, NGO
Crystal Kotowski-Edmunds, Research Assistant

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Photo by Serhiy Kantsyrenko with "Protecting Virgin Forests in the Ukrainian Carpathians"



The Carpathians

Considered one of Europe’s last wilderness areas, the Carpathian Mountains’ diverse ecosystem has enabled humans, including the pastoral-Hutsul people, to live and thrive. The Carpathian Mountains are among the most significant and fascinating landscapes in Europe in terms of their geology, geomorphology, landscape and biology. Their giant, nearly 1500-kilometer-long arc stretches over 209,000 square kilometers of Eastern and Central Europe, passing through parts of Slovakia, Czech Republic, Hungary, Poland, Ukraine, Romania and Serbia. Approximately 10 percent of the Carpathians are in Ukraine. ¹

Eastern European Carpathian countries inherited significant and severe environmental problems from more than 40 years of communist rule. The current ecological situation in Ukraine is characterized by both significant advances in environmental protection and deep ecological crisis. The majority of the environmental and social indicators of Ukraine are among the worst in Europe. Major environmental challenges of the Ukrainian Carpathians include deforestation; flooding; overburdened waste management systems; climate change; the centralization of natural resource management, including park management; and poaching. ²

The conservation of the Carpathians for future generations is one of key issues of the Ukrainian government, NGOs, and national parks, including the Carpathian National Nature Park (Park). Founded in 1980, the Park is the oldest and one of the largest national parks in Ukraine at just 500 square kilometers. The Park was created to preserve natural complexes of the Chornohora and Horhany mountain ranges, which are of ecological, historical, and aesthetic value to scientific researchers; to create conditions for recreation and health improvement; and to create nature protection awareness and ecological education. Unlike national parks in the United States, over 25,000 people live in eight towns and villages within the park, making conservation of wildlife and forests even more challenging. ³

This “Conserve” section provides brief histories of major environmental policy and management issues in Ukraine as well as links to learn more about each issue, including films, articles, books, and local and regional experts. The Academic Research and Volunteer sections of this website provide links for institutional and individual involvement.



Park Highlights

Fir-spruce and beech virgin forests- Europe’s largest virgin beech forest:

Many virgin forests ecosystems have been preserved in the Park, due in part to their earlier inaccessibility for forest exploitation and, since the beginning of the 20th century, to planned conservation. Now virgin and natural forests cover an area of 2.5 thousand hectares (ha), more than seven times the size of Central Park in New York City. There are three forest-forming species: spruce – 79%, fir – 4% and beech – 10%. Pine, cembra pine, hornbeam, alder and others can also be found. The virgin forests are 170 to 220 years old.

Virgin forests provide multiple values. They are productive and persistent plantations and an integral component of wilderness. They provide both ecological and aesthetic experiences for humans as well as jobs for forest engineers, biologists, ecologists, and biogeographers, among others.

“Pidlishiv” was created to recover the virgin forest by creating areas based on conditions and type of forest to become highly productive and biologically persistent.

Rich floristic and faunistic diversity, including relict and endemic (native and restricted to a certain place) species:

- **Flora:** There are 1 105 species of high vascular plants growing in the Park; they form 94 families and 420 different varieties. The most common are different species of sedge, hawkweed, meadow fescue and annual meadow grass. The Red Data Book of Ukraine, the Ukrainian/European equivalent of the Endangered Species Act’s threatened/endangered species list,

has 95 flora entered; four to the Bern Convention; three to the European Red List; and two to The International Union for Conservation of Nature Red List of Threatened Species. About 60 relict species grow in the Park. Due to the change of climate and soil conditions caused by altitude differences, the vegetation changes as well.

- A zone of beech forests is situated in the foothill and mountainous areas of the Park. Native forest types such as the European beech have been accompanied by sycamore, Scots elm and Norway maple. Due to lower temperatures, a zone of mixed coniferous-leaf forests has formed of fir and beech. The largest area in the Ukrainian Carpathians is a large mass of mixed and pure spruce forests that have been conserved by the Park. They grow in the altitude of 1100 to 1600 meters above sea level (m.a.s.l.). Swiss pine grows in the mass connecting the Kedrovaty of Chornohora range, on the south stony slope, at an altitude of 1470 m.a.s.l. The subalpine zone is situated higher than the spruce forests. This zone is represented by curved woodlands with creeping pine, *Duschekia viridis*, common juniper and sub-alpine meadows. Rare groups of *Rhododendron* can be found here. The alpine zone is situated at altitudes from 1850 to 2061 m a. s. l. only in the highlands of Chornohora massif.
- **Fauna:** The animal world of the Park is rich with various species. About 200 species of vertebrate and about 600 species of invertebrate animals are being registered here. At this time, 77 species of fauna are considered endangered and hold protected status within the Park. The main zoological and geographical feature of the Carpathians is to prevent plain species from penetrating this territory. The specific complex of boreal and taiga as well as mountainous species of vertebrates were formed here. Some of these species are not found in adjacent territories and some of them are endemics. These are brown trout, Alpine newt, fire salamander, yellow-bellied toad, western capercaillie, Alpine accentor, grey wagtail, water shrew, Carpathian squirrel, red deer, brown bear and other species. There are 9 fish species that are registered here. Danube salmon has been entered in the Red Data Book of Ukraine. Amphibia classification is represented by 10 different species. Fire salamander, Carpathian and Alpine newts, all of these amphibians have been entered in the Red Data Book of Ukraine. The reptiles are represented by 6 different species; the grass snake is the only reptile that has been entered in the Red Data Book of Ukraine. The birds include more

than 110 species; 14 have been entered in the Red Data Book of Ukraine. The mammals are represented by 53 species, 11 of which have been entered in the Red Data Book of Ukraine. Among them one can find Alpine and water shrews, lesser horseshoe bat, European water vole, stoat, European mink, badger, Eurasian river otter, wildcat, lynx and brown bear. The invertebrates are the most numerous group of animals; four of these species have been entered in the Red Data Book of Ukraine.

Favorable climate for health improvement, in particular respiratory diseases:

In addition to hiking and numerous adventures, Yaremche is the perfect place for health improvement. There are no polluting factories here. Thanks to dense forest plantations, untamed nature, unique plant species, and fresh, pure air, this region can be considered as the “lungs of Europe”. Essential oils of coniferous trees together with scents of other plants enrich an environment with phytoncides. The biggest quantity of them is in the month of May. These substances are believed by locals to repress even tuberculosis although no studies have been conducted. Concentrations in coniferous scents are thought to be useful for improving immunity, respiratory system, central nervous system and high blood pressure problems. Coniferous forest is also a source of vitamins B, E, K and C. Local inhabitants use cones for preparing different beverages, teas and even jams. Landscaping therapy is one of the local types of treatment. The wellness centers have operated in the region since the beginning of the 20th century. Currently Yaremche together with adjacent areas is a popular wellness destination among Ukrainians and tourists from neighboring countries.

Healing natural springs:

Natural springs are a special feature of the Park. There were about 800 natural springs in the Park’s territory according to the inventory of the 1990s. Ninety of them belong to so-called “key springs” which are available for visiting, are used by locals and tourists and don’t go dry in the period of low water. During the last decades the number of natural springs declined, especially in the highlands, as revealed by a current inventory of natural springs. Global climate change is a major contributing factor exacerbating this trend.

Springs of the national park are very valuable for recreation but they still aren’t used in medicine because of limited research. The partnership between researchers at the Monitoring and Analytical Control Laboratory and the Ivano-Frankivsk State Medical University researched only 10 springs.

According to their results, water of everyday use prevails, but there are also waters used as preventative medicine and a hydrogen sulfide spring that can be used in medicine. The majority of springs contain silver, which is famous for its bactericidal properties. Some springs can be rather prospective for investors and development for consumption. Before their wide use as medicine, geological surveys of water stocks must be done as well as more medicinal research of water.

Source of the Prut River:

The area combines peat marches, lakes, streams, near-shore areas, and virgin forests of the Chornohora Ridge in the Ukrainian Carpathians. This site functions as a flood regulator as well as a container of fresh water. It provides more than 5,000 residents and 750,000 visitors with fresh water within the Park boundaries annually. Downstream, the Prut River delineates the countries of Romania and Moldova. By conserving these important headwaters within the Park, we can protect the water supply of hundreds of thousands of people downstream beyond Ukraine’s own border. Neary a quarter of all Moldovans and over one million Romanians live within the Prut River basin. The source of the Prut is a habitat for 35 endangered species at the national level (23 species are endangered globally). More than half of the biodiversity of the Ukrainian Carpathians is represented here. Different areas of wetlands serve as shelters for reproduction and nurturance of reptiles.

Source of the Pohorilets River:

This area consists of a network of springs, streams, marshes, and lakes in the upper basin of the Pohorilets River (tributary of the Black Cheremosh River, the Prut River basin). It is home to 500 species of vascular plants and 90 species of vertebrate animals, many protected at the global and national levels. A large number of them are endemic to the Eastern Carpathians. This area is very important for the European mink. This site serves as a container during heavy rains and snow melting, reducing the risk of disastrous floods downriver. It also provides more than 1,000 people with fresh water.

Wetlands:

The Park’s area includes two wetlands of international importance. They belong to the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, an international treaty for the conservation and sustainable use of wetlands.

Carpathian bee, productive even at low temperatures:

The Carpathian bee (*Apis mellifera carpatica*) is one of the most productive among other bee species not only in Ukraine but also worldwide. Severe mountain climate with rapid and frequent weather changes as well as short summers, low night temperatures and long winters encouraged bees to work and survive in such complicated conditions. Additionally, the bees have many other positive characteristics:

- They are gentle, making work easy for the beekeepers, especially during winter months
- Mild propolis producer
- Early spring evolution
- Fast rhythm of brood production and then brood rearing reduction when available forage decreases
- Very good immunity
- Low tendency to rob honey
- Forage earlier in the morning and later in the evening, and on cool, wet days. Due to their region of origin, they are more likely to forage on cold, wet days than other types of bees and rank among the best for overwintering. A sharp reduction in bee populations in the Park during the last decades imperilled the pollination of endangered plants. There aren't big apiaries in the region because of their low profitability. The Park has a small bee farm which can be used for recreation. Beekeeping restoration needs support and investment.

Learn More:

Films:

- Ruslana - ["The Carpathians are a Place of Power"](#)

Books & Research:

- Amato, Anthony, 2020, *The Carpathians, the Hutsuls, and Ukraine: An Environmental History*, Lexington Books, 484 p.
- Feshbach, Murray, 1993, *Ecocide in the USSR*, Basic Books, 400 p.
- Peterson, D.J., 2019, *Troubled Lands: Environmental Legacy of the Soviet Union*, Routledge, 318 p.
- "Environmental Issues in Post-Communist Ukraine"⁴

Organizations:

[MAMA 86](#)

- **Environmental NGO “MAMA-86-Yaremche”:** Environmental NGO “MAMA-86-Yaremche” unites people of different professions who are about the environment and health of present and future generations. Since 2000, the organization has worked in the Yaremche area (Ivano-Frankivsk region), taking an active part in solving environmental and social issues at different levels, in close cooperation with local authorities and communities.

The main areas of activity include:

- Participation in local environmental policy;
- Expanding public access to safe drinking water and sanitation;
- Reducing the risk of chemicals to human health and the environment;
- Protection and conservation of natural resources and eco-ethno-cultural heritage.

[Environment, People, Law](#)



Deforestation

The Carpathians boast the largest stretch of virgin forests in Europe, and a third of the forest reserves of Ukraine are located in the Ukrainian Carpathians.⁵ A haven for biodiversity, the forests are known as the lungs of Europe. In Ukraine, the forests are still owned by the state, as are the companies that administer them. As Professor Keeton of the University of Vermont wrote in 2007, “Encroachment, forest health, [...] logging, privatization, and lack of coherent forest policy are among the many problems facing forestry in the Carpathians.” Further, the issue of deforestation is getting more critical every year. Keeton continues, “Implementation of third-party certification is a promising trend, but adherence to traditional silvicultural prescriptions and funding are major impediments to sustainable forestry management.”⁶

The following sections will cover organizations involved in forestry, reforms to forestry to curb deforestation, the new forest and nature management legislation of Ukraine, and the new forest law, as well as analysis of respective legislation.

The Specifics:

Intensive deforestation significantly affects the change of the microclimate of the region; according to EcoAction, "it leads to deterioration of the gas composition of the atmosphere, changes in the hydrological regime of water objects, soil erosion, the emergence and spread of new pests and pathogens in forested areas, migration of plants that are not characteristic of the local ecosystem. Moreover, as a result of increasing the intensity of feeling there is a violation of the age structure of forests and their biological stability."⁷

New Forest and Nature Management Legislation of Ukraine

On November 21, 2017 the President of Ukraine signed Decree #381/2017, "On additional actions regarding development of the forest sector, rational nature management and preservation of the nature protection fund objects." The decree includes these provisions:

- ensure implementation of the action set on protection and preservation of the high value territories and objects;
- develop and adopt by September 1, 2018 a National Action Plan of Reserve Management;
- ensure implementation of the provisions of the Framework Convention on the Protection and Sustainable Development of the Carpathians and its Protocols;
- activate international cooperation in the environmental sphere, development of reserve management, including issues of wetlands of international significance, creation of transboundary protected areas and eco-corridors and also implementation of joint actions on these territories;
- develop actions aiming at protection and development of the Ukrainian part of the UNESCO World Heritage site "Primeval Beech Forests of the Carpathians and Other Regions of Europe";
- accelerate transition of the land plots of the forest fund to the permanent use of biosphere and nature reserves, national nature parks; activate works on preparation and submission of the proper proposals on enlargement of the territories of the nature protection fund;
- implement actions on capacity-building of the management units of nature protection fund⁸

Decree assessment

Analysis conducted by the experts of the organization “Environment People Law” expresses concerns regarding practical implementation of the decree. The critique includes these points:

- “artificial increase of the forest areas, which will lead to further destroy [sic] of the steppe;
- “regulation and cleaning of the river beds, which in Carpathian region can lead to the destruction of the natural ecosystems and disappearance of the majority of the rare internationally protected fish species;
- “delegation of the functions of supervision and control of the environment law compliance to the local government bodies without additional trainings and awareness raising may lead to the absence of such control;
- “and decree also directs to increase efficiency of the forest management, preventing in the same time limitation of the management and financial-economic independence of the state forest enterprises. This point of the Decree contradicts the recently adopted “Strategy of reformation of the forestry sector for the period until 2022,” which foresees reformation of the network of state forest units to one corporation.”⁹

New Forest Law

The Government of Ukraine adopted the controversial “Strategy of reformation of the forestry sector for the period until 2022” on November 15, 2017. ¹⁰ To implement this strategy, the government plans to:

- create a forest inspectorate service,
- introduce electronic timber turnover for all permanent forest users,
- conduct aerospace photography,
- simplify the conditions for obtaining permits for permanent forest users of forest land,
- introduce a unified procedure for the sale of unprocessed timber,
- toughen punishment for violations in the industry,
- and clearly distribute the powers among law enforcement agencies for recording and collecting proofs.

The document provides for the introduction of mechanisms for prompt response to forest health problems, the development of a state compensation program for the use of environmental conservation technologies and a government program to stimulate the activities of forestry entities.¹¹

Learn More:

Research

- “Forest Policy in an Aroused Society: Ukrainian Post-Orange Revolution Challenges.”¹²
- “To Sustainability in Forest: The Ukraine Case”¹³

Relevant Organizations + Leaders:

- Dmytro Karabchuk, the founder of the “Forest Guard” project¹⁴
- Forest Initiatives and Communities
- Natalia Gozak, the director of Ekodia
- European Wilderness Society
- European Beech Forest Network

Park Priorities:

- **Enlargement of the Park:** Ukraine currently still has forest enterprises, which are tasked with timber cutting, and national parks, which are tasked with protecting forests. In the Yaremche region, there is the Park and two small forest enterprises in Deliatyn and Vorokhta. If the Park were enlarged, the effects of deforestation, climate change, and flooding would be curbed, but those working at the enterprises would become unemployed. The enlargement of the Park also calls for the introduction of a new economy supporting business initiatives based ecosystem services. Both [Global Conservation](#) and the Germans support and encourage conservation through increasing the protective area.

Policies & Frameworks:

- [Carpathian Convention](#): The Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention) was adopted and signed by the seven Parties (Czech Republic, Hungary, Poland, Romania, Serbia, Slovak Republic, Ukraine) in May 2003 in Kyiv, Ukraine, and entered into force in January 2006. It is the only multi-level governance mechanism covering the whole of the Carpathian area and besides the Alpine Convention the second sub-regional treaty-based regime for the protection and sustainable development of a mountain region worldwide.



Flooding

Over the past few decades, there have been four major floods in the Carpathian region of Ukraine, all of which resulted in loss of life and extensive damage. With each passing year, the flooding and subsequent landslides and mudflows have become increasingly catastrophic.¹⁵ The experts state that the Carpathians, especially basins of the Prut, Tysa and Dniester Rivers, are the most fragile flooding areas. Floods and freshets are common for these areas. Frequent and rapid, simultaneously covering the area from 10 to 30 thousand square kilometers, they cause catastrophic consequences. During the snow melting in spring and the Mediterranean tropical-like cyclones of summer, the water-level rise sometimes can reach from 6 to 7 meters, which is especially dangerous. Flooding is attributed to deforestation; climate change; and to the destruction, melioration, and construction on the natural river floodplains from the Soviet era's policy of extensification (the process of decreasing the use of capital and inputs such as fertilizers, pesticides, machinery) relative to land area.¹⁶

The following sections will cover organizations involved in watershed management reforms to floodplain management to curb flooding, including the Prut River Management Plan, The Carpathian Convention, NATO-Ukraine Charter for a Distinctive Partnership: NATO-Ukraine Pilot Project on Flood Preparedness, as well as analysis of respective legislation. Further sections on climate change and deforestation also address flood management strategies.

The Specifics:

There are myriad causes for the extensive flooding in the Carpathians. According to ecologist Petro Tiestov, the main cause of flooding is not deforestation, though it has an impact, but, rather, the destruction, melioration, and construction on the natural river floodplains. Such floodplains were destroyed in the Soviet era due to the policy of melioration to "have more arable land." Streambeds were deepened, aligned, and strengthened by dams, making river streams faster and more

dangerous. Therefore, floodplain preservation and river restoration are essential. Such restoration of rivers has already become an effective policy in other countries, in particular, in Switzerland. ¹⁷

Still, deforestation is a major cause of flooding. Water flows quickly from steep hills to the valley, creating flooding. Rapidness of water-level rise and scales of a disaster depend on the structure of river-basin areas. About 49% of water is maintained and evaporated in spruce forests of Chornohora Ridge, about 32% in beech forests, 80% in crooked forests of mountain pine, and from 65% to 97% is in grass coverage. Extensive logging and related economic activity is one of the key reasons for catastrophic floods in the Carpathians, where about 70% of forests are young and medium-aged. Logging occurs on steep slopes along rivers, mountain streams and roads. Mountain streams are littered by timber, gravel and rocks are taken from the rivers, and the riverbanks close to settlements aren't strengthened.

Yevhen Hlibovytskyi, a member of the Nestor Group think tank, stresses that western Ukraine suffers from an absence of strategic planning, which has caused significant flooding. The Carpathian regions were developed along roads constructed in the first half of the 20th century, which run along the rivers devastated by abnormal floods approximately every decade. Wealthier nations changed this practice 150 years ago, says Hlibovytskyi: building roads on the ridges or by traversing costs more but requires fewer maintenance expenditures than roads along rivers or with many bridges. Only if the risks of building roads in disaster-prone areas are monetized through insurances with a span of 20-25 years will local communities start thinking of investing prudently, Hlibovytskyi stresses. Until then, Ukraine will be forced to dole out emergency funds to restore destroyed infrastructure each time a catastrophe strikes, with the latest devastating floods occurring in 1998, 2008 and 2020 and the frequency of those catastrophes prone to increase as a result of climate change. ¹⁸

Ongoing Park Efforts:

The Park recommends the following measures to be taken to decrease devastating effects of floods:

- Construct and restore hydraulic structures. Plant trees close to riverbanks to strengthen the riparian buffer zones
- Restore and support the hydrological and sanitary state of the watershed. Establish artificial rapids for Danube salmon and brown trout spawn

Policies & Frameworks:

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- **NATO-Ukraine Charter for a Distinctive Partnership:** NATO-Ukraine Pilot Project on Flood Preparedness: In an effort to address this serious and recurring problem, the Ukrainian government proposed the development of a pilot project on flood prevention and response. Because civil emergency planning and disaster preparedness are key components of the NATO-Ukraine Charter for a Distinctive Partnership, NATO agreed to fund and coordinate the first phase of the project. The project not only has direct practical benefits for Ukraine, but also serves as an important mechanism to improve and expand NATO-Ukraine cooperation. ¹⁹
- **Prut River Management Plan:** Modern ecosystem riverine management in Ukraine involves the basin principle. Following the EU Water Framework Directive, the legislative changes were introduced into the Water Code of Ukraine. Currently management plans are being developed for 9 river basins. The responsible institutions are Basin Councils and Basin Administrations. The Rivers Prut and Siret Basin Administration are working on the management plan for the Prut River. The draft of the Prut River Basin Management Plan (Prut RBMP) has been prepared by UNENGO "MAMA-86" in the context of the project "Environmental Protection of International River Basins Project (EPIRB)" funded by the European Commission – Directorate General for Development and Cooperation – Europe Aid and implemented between January 2012 and January 2016 by the consortium led by Hulla & Co "Human Dynamics". The key aim regarding the development of the RBMP for the Prut pilot sub-basin was to improve stakeholders' understanding of key elements of the WFD and river basin planning process and to integrate management of water resources (surface water and groundwater) within the pilot basin district to achieve environmental objectives. Representatives of NGO MAMA 86 Yaremche and the Park are included in the Rivers Prut and Siret Basin Administration and participate in development of key principles of the Prut Management Plan.



Wildlife Mangement & Hunting Legislation

The Carpathian National Nature Park contains many of the last remnant populations of endangered wildlife species that once roamed the European continent. Wildlife includes brown bear, wolf, lynx and 400 unique species of mammals including the Carpathian chamois. Further, 60% of Europe’s last brown bear population live in the Carpathian Mountains. Despite government efforts over the past decade to protect wildlife habitats in Ukraine, wildlife are still facing the threat of extinction due to unregulated hunting and wildlife poaching.²⁰

The following sections will cover organizations involved in wildlife management; multilateral proposals to reform Ukraine’s hunting legislation, including from the World Wildlife Fund (WWF); Global Park Defense program; and Open Borders for Wildlife in the Carpathians: Hungary- Slovakia- Poland- Ukraine ENI Cross Border Cooperation Program.

The Specifics:

Although hunting is prohibited in the Carpathian National Nature Park, park rangers in the Carpathians face tremendous challenges in curbing poaching, to include low budgets and too few personnel to cover large areas; the lack and low quality of equipment, infrastructure and transportation; and inadequate training of personnel working in many nature-protected areas.²¹ Although the Carpathians extend across different countries, they have relatively similar historical backgrounds with respect to hunting legislation. The hunting tradition in Poland, Slovakia, Ukraine and Romania is deeply rooted in the culture of local people, and hunting activities are regulated by structured legislation. The majority of the forested territory (up to 80%) of Poland, Slovakia, Ukraine and Romania belongs to the respective States, and so does the wildlife that lives in the forests. The

territory of each country is divided into hunting management units, called hunting grounds (HG) that cover various areas ranging from 2,500 to 10,000 ha in different countries, but the approaches to their management are consistent across the ecoregion.²² Reforms to hunting legislation are focused on further devolution of control, improving mechanisms for leasing and payment, and cross-border cooperation.

WWF Proposals Relating to Hunting Legislation:

- 1. Increase the role, autonomy (independence) and responsibilities of lower hunting teams.** The analysis shows that in most countries democratic forms of hunting management are more effective. This particularly applies to low- level community groups. The team, as a primary group, is a legal entity, performs all financial transactions and has low dependence on the “add-ons”. It sets the cost of fees and services according to its needs; the funds raised are used primarily for the protection of game which is related, in turn, to profitability management. Hunters are not only entitled but also obliged to control the number of game fauna by maintaining the number of wild animals within certain limits that are optimal for wildlife and people.
 - One of the main reasons hampering the development of the hunting industry is the complete exclusion of commune hunting groups of the Ukrainian Society of Hunters and Anglers from the economic process. The first structural unit of the society is the regional association of hunters. Each numbers from 1000 to 1500 members who are provided with an area of 100,000 or more hectares under land lease. This hunting area results in low numbers of game and a resulting prevalence of a poaching culture.
- 2. Improving the mechanism for hunting grounds’ lease.** The lack of a clearly stated and competitive mechanism for hunting grounds’ use in the legislation of Ukraine leads to corruption, and sometimes also to social conflicts in some regions. Therefore, there is a need to consider the interests of local communities in the hunting grounds’ lease process.
- 3. Development of a mechanism of payment for the hunting grounds use.** In Ukraine, the main factor that prevents establishing business relations between landowners and hunting societies is the impossibility of landowners’ receiving payment for the use of ground plots for hunting. In many countries, there are financial relations between hunters and owners of land used as hunting grounds. The absence of such relations causes financial losses

to the landowners on the one hand, and on the other, negative economic impact through the removal of large areas of land from the hunting process. Hunting management on the areas owned by the state, private individuals, hunting associations or enterprises should be supplemented by rent payment. Such an approach should encourage hunting grounds to invest in projects to increase the number of hunting fauna. Hunting legislation should include payment for the use of hunting grounds, to include payment to landowners.

- 4. Improving hunting service and game management.** The low number of hunting services adversely affects the efficiency of hunting management as well as the population of threatened game species and animals listed in the Red Book of Ukraine. In many countries, the hunting service (gamekeepers) has the right and authority of the police (and often more), which makes it possible to effectively combat poaching. Elimination of the problem of the insufficient number of rangers in the hunting ground as well as limited material and financial support may require increasing the authorities and responsibilities of the hunting service. The rights and duties of the rangers and officials should be clearly regulated. The level of professional training and education of game managers and the scientific support of hunting management are also important. Low efficiency of the game managers and hunting services is caused by a large area of land serviced (sometimes over 10,000 ha per manager).
- 5. Developing a hunting culture.** This process should start and be developed while obtaining a hunting permit in Ukraine. As implemented in many countries, future hunters must take special courses, work as a volunteer in a hunting organization and get approval from the association's fellows at a general meeting. When gaming, the hunter must have all required documents and note in a special log book where he/she is going, what he/she aims to hunt, ending time and results. This allows other hunters as well as law enforcement, inspection, and forestry officials to control and distribute the hunters over the territory to prevent poaching and to keep records of hunted animals. The feeling of belonging to a hunting association promotes compliance with rules concerning not only hunting established by the association but also general rules of behavior, a certain code of hunters' honor. This feeling is facilitated by conducting different kinds of hunting feasts, festivals, competitions, development of hunting traditions, etc.
- 6. Improving the mechanism of damage compensations from game species.** Effective hunting management promotes hunting fauna development and stimulates control over its population. Excessive numbers of some animals can inflict damage to agriculture

and forestry. In this case, the owners of agricultural land affected by wild animals receive compensation for the damages inflicted. It would be reasonable to apply the Polish model here: damages caused by game species shall be compensated by hunting management units on whose territory it happened, while the protected animal damages are compensated for by the Ministry of Environment.

7. Rationale for the possibility of local communities' influence on managing hunting grounds in their territory.

Existing laws and practices in the region may be instructive. Poland fully ensures the rights and opportunities of local communities to influence the hunting management process and to represent and protect their interests, which prevents conflicts in hunting. Hungary provides certain rights to local communities to participate in the hunting management, at least during the development of business plans or when settling disputes on the assessment and game damage and hunting compensations. In Slovakia, local communities are not legally involved in hunting management; however, in practice, there are examples of some concessions to the local population to avoid conflict situations, such as access to forest resources in the territories of game preserves in the relevant period. While the development of hunting trophy businesses can be lucrative, thus far Ukraine has not benefited due to the small number of animals harvested via hunting. Additional charges for hunting trophy game significantly contribute to the economic development of hunting management units or their infrastructure. Wealthy trophy hunters pay a big price to established local hunting management teams for permits that grant them a choice of hunting The Best Mature, The Largest Body Size or Largest Antlers or Horns game species. Because trophy hunting is the selective hunting of wild game, the experts say the regulated hunts help to raise money for local communities, conservation efforts and managing wildlife populations. In most neighboring countries, such gaming has selection functions because together with a hunter there is a specialist (game keeper) who authorizes the shooting based on a specific assessment of the spotted individual animal.

8. Approximation of Ukrainian legislation on hunting with the European Union regulations.

The legal basis of hunting management and gaming in Ukraine should be brought into line with international requirements, including Birds Directive, Habitats Directive, Firearms Directive, and a number of other conventions (Ramsar, Rio de Janeiro, Washington, Berne, Bonn, etc.). In many cases, this has already been done with a few exceptions. Article 1 of the

national “Law on Hunting and Gaming” states that one of the main objectives of hunting is to protect wild animals, which in practice means subordination of hunting regulations to the principles of environmental protection. The above elements should be fully incorporated into the national hunting politics.²³

Learn More:

Organizations:

- [European Wilderness Society](#)
- [Hungary Slovakia Romania Ukraine Cross Border Cooperation](#)
- [World Wildlife Federation Ukraine](#)

Reports:

- [Analysis of Legislation and Practice of Hunting in Some EU Countries](#), European Neighborhood and Partnership Instrument East Countries Forest Law Enforcement and Governance II Program

Policies & Frameworks:

- [Red Book of Ukraine](#)
- **WWF Proposal to Hunting Management** ²⁴
- **Global Park Defense:** Global Conservation and the Carpathian National Nature Park established a Global Park Defense program focusing on using Cellular Trailcams and SMART Ranger Patrols, and establishing a Command Center in the park headquarters based in Yaremche, Ivano-Frankivsk province.²⁵
- **Open Borders for Wildlife in the Carpathians: Hungary-Slovakia-Poland-Ukraine ENI Cross Border Cooperation Program**
 - Open Border for Wildlife in the Carpathians contributes to effective protection of biodiversity in the Carpathian Ecoregion by maintaining and improving ecological connectivity between habitats and maintaining ecosystem functions and services, the cornerstone of sustainable development. The focus project area, approximately 4,000,000 ha, part of the Carpathians, is one of the most important global repositories of natural wealth, recognized by the Carpathian governments with the signing of the Convention for the Protection and Sustainable Development of the Carpathians.²⁶

The project targets preservation of common values on a landscape level, demolishing the negative effects of borders on habitats by:

- ◇ Identifying key ecological corridors of transboundary interest for large carnivores as umbrella species, within 4 million ha by using jointly developed, harmonized methodology;
 - ◇ Developing in a participatory manner and implementing management measures to increase the favorability of ecological corridors;
 - ◇ Advocacy actions for protection of corridors; awareness-raising and education on biodiversity importance as a precondition for sustainable development of local communities.
- Project innovation relates to a first-time partnership of 3 EU countries and Ukraine in a joint effort for ensuring connectivity beyond borders for wildlife through cooperation, field and policy work. Moreover, scientific monitoring equipment will bring in new data on wildlife distribution and development infrastructure.²⁷



Waste Management

Waste management is a consistent problem in a majority of the Carpathian countries. Approximately 95 percent of waste in Ukraine is landfilled to over 6,000 legal dumps and 33,000 illegal dumps around the country, 90 percent of which do not meet basic environmental standards. The burning of dry vegetation and waste has already become a systemic phenomenon in Ukraine in both autumn and spring. With the onset of autumn, cities and villages are again plunged into smoke and fire. People, while “caring” about clean and neat yards, farmland, and field, do not realize that such burning harms the health of their family members, primarily children, the people around them and the environment.²⁸ Moreover, burning of dry vegetation and waste has a detrimental effect on

the environment, as it leads to air pollution and causes various human diseases and destruction of ecosystems, in particular of insects, animals, plants and microorganisms and the deterioration of soil quality²⁹. Climate change will exacerbate the challenge, as air intrusion in landfills without cover catalyze decomposition and combustion, emitting formaldehyde, hydrogen cyanide, hydrogen sulfide and nitrogen oxides. Further, climate change is projected to increase ground-level ozone and/or particulate matter air pollution.

The following sections will cover organizations involved in waste management, reforms to waste management, including the National Waste Strategy, Ukrainian Waste Management Strategy until 2030, green tariff legislation as well as analysis of respective legislation.

The Specifics:

Experts are helping bring Ukrainian legislation to European standards; under the guidance of the EU, Ukraine drafted its first National Waste Strategy, which has not yet passed. However, in 2017, the Cabinet of Ministers of Ukraine approved the Ukrainian National Waste Management Strategy until 2030. It is intended to establish regional waste disposal centers and obliges local self-government authorities to set up a network of reuse sites.

For two years, the Parliament of Ukraine has also been trying to introduce a “green” tariff, spurring legislative changes to classify domestic waste as an alternative source of energy and granting state subsidies to enterprises that generate electricity power through waste incineration. Still, in the absence of state control over chemicals including dioxins, furans as envisaged by EU Directive “On Industrial Emissions” as well as the unwillingness and inability of Ukrainian business to invest into purification equipment, some environmentalists are concerned that the “green” tariff for waste incineration will cause a wave of environmentally hazardous incineration and thus will endanger the health of Ukrainians.

Waste in Yaremche:

Yaremche and adjacent areas are popular tourism destinations, with thousands of tourists visiting the region every year. According to available infrastructure, the region can host about 750,000 tourists annually, a number that is 35 times higher than the local population. Effective waste management is especially important because about 95% of local inhabitants live in private houses

and use their facilities for tourism, causing the rapid accumulation of waste. Heaps of plastic bottles spoil the mountain landscapes. The nearest landfill is 50-80 km away from the town. Solid waste consists of: food – 30%, wood – 8%, paper – 26%, plastic – 6%, rags – 8%, glass – 9%, scrap metal – 6%, other waste – 7%.

The first conditions for separation of solid waste have already been established. The local communal enterprise has a scale, equipment for litter breaking, press and special vehicles. There are several entrepreneurs who collect litter for recycling. Environmentally aware inhabitants together with NGO “MAMA 86 Yaremche” implement environmental projects. MAMA-86 contributed to the establishment of a demonstrative site for litter separation, and they established five sites for litter separation in Mykulychyn and containers for plastic bottles. Several other ecological actions are conducted in the region annually, but these initiatives implemented by NGOs, grants, and environmentally conscious inhabitants aren’t enough to establish effective waste management in the region. Litter separation is not effective due to the lack of infrastructure for it. Establishing a separation line, purchasing containers for litter separation, and establishing modern-equipped recycling points are important to introduce effective waste management in Yaremche and the Park. Effective waste management is one of the key requirements for the sustainable development of the region in the framework of rapid tourism growth.

Learn More:

Organizations:

- [Smart Environment Khmelnytskyi](#)
- [No Waste Ukraine](#)
- [Clean Country](#)
- [Kompola](#)
- [Scrap your batteries](#)

Paths Forward:

- Ukrainian National Waste Management Strategy
- Green Tariff Legislation
- Establishing infrastructure for litter separation in the settlements the Park’s territory stresses



Climate Change

Little research has been conducted into how the climate in Ukraine specifically will change over the course of the 21st century; most research has concentrated on the larger area of Northern Europe, which includes Ukraine.³⁰ Generally the large-scale patterns of change for Europe show a substantial warming by the end of the 21st century in the north, with a lesser, but still important warming in Mediterranean areas. The projected summer warming in parts of central and eastern Europe, including Ukraine, may be closely connected to higher temperatures on warm days than to a general warming. It is likely that for Ukraine, inland areas, away from the moderating influence of the Black Sea, will see the greatest increases in temperature during the 21st century.³¹ Owing to the projected increase in warm extremes in the future, Ukraine may experience an increase in summer dry periods by the late 21st century. Scientists say Ukraine is seeing fast changes to its climate and neither the government nor the population is prepared for it.³²

The following sections will cover organizations involved in climate change mitigation and adaptation, guides on how to contact different Ministries to advocate for climate protection, legislation addressing climate change including the Energy Efficiency Fund, as well as analysis of respective legislation.

The Specifics:

The impact of climate change on the Danube Delta and the Carpathian Mountains is of particular concern as these regions support not only a vast number of plants and animals, but also some rare ones. Flora and fauna in the Carpathians are already exhibiting responses to climate change, with the tree line increasing in altitude and other species following suit (Mindas et al., 2000). Forested areas are likely to change further in character as the climate warms and rainfall patterns

alter. With climate change, it is possible that these trees may suffer from water stress, particularly in the summer, and that net growth will change in response (Alcamo et al., 2007). Any forest loss will impact negatively on soil condition. If this forest were to change dramatically, not only the fertility of the ground but also its unique primeval character that makes it such a significant tourist attraction would be lost. ³³

Due to climate change in the Ivano-Frankivsk region over the past 20 years, the average annual temperature has increased by 0.8 °C, and the average temperature of January and February by 1-2 °C. In February, March, June, October, November and December 2019, the air temperature was one of the highest during the whole period of research. According to forecasts, by 2030 the increase in the average annual temperature in the region will not exceed 0.40 °C, compared to 1991 – 2010. Rainfall on average for the year will increase by about 10%, the most significant in winter (12 - 25%) and spring (10 – 18%) months. From August to October, a 5 percent decrease in rainfall is forecast. It is of concern that the rate of increase in air temperature in Ukraine is ahead of similar trends of the Northern Hemisphere countries.

The Park is located in the temperate-continental zone. The dry periods are typical for the region. The upper part of the Prut River belongs to the wettest areas of the national park. The approximate quantity of precipitation varies from 976 to 2117 mm in the mountains. The research observes a half-year quantity of precipitations during one month, and a month's quantity in a couple days. The average annual temperature increased from 0.2 to 1.9 °C during the last 30 years. The highest air temperatures are during January and February in winter. In July and in August the temperature increased from 0.7 to 1.9 °C. So called "dry years," namely hydrological droughts, have been appearing since 1990. As a result, local wells dry out. The natural springs dry out, too, as proved by the inventory of springs of the Park. The phenologists observe shifts of stages in plants and animals almost every year.

Large scale patterns for precipitation, frost, and temperature have been delineated for Northern Europe. The largest increases in rainfall are projected for winter in northern and central Europe, including Ukraine, though less is projected to be in the form of snow. Fewer days of snow and frost, along with shorter frost seasons and a widening of frost-free areas, are projected throughout northern Europe over the coming century. One multi-model study suggests that by 2100 the

Ukraine may see approximately a 60-day reduction in the number of days with frost cover, and a 50-day reduction in days with snow cover in the northern part of the country by 2100, relative to the 1961 to 1990 average. The study also found that changes in snow cover in northern and central Europe, including Ukraine, correlated well with increases in winter maximum temperatures; an increase of 1°C corresponding roughly to a decrease of 10-15% of days with snow cover (Jylhä et al., 2008).³⁴ Changing rainfall patterns and runoff indicate that future summer river flows are likely to decrease substantially, by as much as 50%, across central and eastern Europe, including Ukraine (Oltchev et al., 2002 , Eckhardt & Ulbrich, 2003). It is likely that the country will suffer increased water stress over the 21st century as severe droughts, classified today as one-in-100-year events, are projected to become twice as likely by 2070 (Alcamo et al., 2007). A recent study including part of Ukraine (Feyen & Dankers, 2009) found a considerable decrease in river flooding over the long term, owing to warmer winters and a short snow accumulation season, leading to lower snowmelt flooding in spring.³⁵

Learn More:

Books + Research:

- [UNEP, Outlook on Climate Change Adaptation in the Carpathian Mountains](#)

Organizations:

- Institute for Environment of the Carpathian Mountains
- [EcoAction](#)

NGO EcoAction³⁶ Recommendations via Community Adaptation Planning

- **Act ahead and conduct clear forecast calculations on the possibility of forming floods, floods, landslides, etc. in mountainous terrain.** It is necessary to develop a set of measures to prevent these kinds of cataclysms. Among them there are foresting of territories, formation of an extensive network of forest roads, construction of dry water-containing tanks, strengthening of river banks, determination of likely places and modeling of extraordinary natural phenomena.
- **Develop a set of actions to reduce the degree of vulnerability of low-income households.** Effective measures include the restoration and expansion of the forest

management network, improvement of early alert systems for citizens regarding the occurrence of danger, the use of new flood technologies and moisture-resistant materials in construction, ensuring the possibility of using independent (including renewable) energy sources in case of emergencies, which will increase the resilience of infrastructure and socio-economic system in general. Next to adaptation measures for sustainable community development, in particular the economic viability of agriculture, experts highlighted the following recommendations:

- **Develop a community-backed solidarity farming model (Community Supported Agriculture, CSA):** The concept of solidarity agriculture is based on usually non-farming neighbors and farmers sharing the risks of food production: the neighbors subscribe, or buy shares, in a farmer's business, usually in advance of the growing season, that entitle them to a set amount of produce or other organic or non-organic food from the farmer at regular intervals. Farmers have a guaranteed place of sale for products that allows them to better prepare their production. At the same time, neighbors, often residents of cities who have subscribed to the "basket," regularly receive local, fresh and often organic products. Usually food sets contain vegetables, fruits, herbs, meat, eggs, dairy products, cut flowers, etc.
- **Grow more profitable crops and organize processing:** For the development of agriculture, the authors of the study recommend paying attention to the cultivation of niche crops, such as organic cultivation of cranberries and other berries and fruits and their processing. Cranberry berries are eaten both fresh and processed in the form of juices, syrups, extract, liqueurs, wines, jams, jelly, marmalade, dried and candied fruit. Most of these products are in strong demand in European markets and can increase revenues to the budget of amalgamated hromadas (AHs). Such solutions will help make community development more sustainable and effective. It is important that each AH evaluates its strengths and vulnerable parties, as well as opportunities that will maximize its potential. This will help to determine strategic priorities for the hromada, or community council, and form a long-term vision of sustainable development of each AH. With the full version of the report for the Edging AH, you can find at the link: [Socio-economic analysis of the development of the Vistvytska AH \(PDF\)](#).³⁷

Endnotes

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