Міжнародний огляд концепцій оптимізації збереження та управління гастрономічним ландшафтом

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Анотація *У статті здійснено міжнародний огляд напрямків оптимізації збереження та управління гастрономічним ландшафтом як динамічною соціо-екологічною системою. Показано, що сучасні дослідження зосереджуються на поєднанні локальності, різноманіття, якості та стійкості як базових принципів управління біосферою, гастрономічні ландшафти та сталий розвиток територій. Обґрунтовано, що гастрономічний ландшафт дедалі частіше трактується не лише як простір виробництва й споживання їжі, а як інструмент збереження біокультурної спадщини, підтримки продовольчого суверенітету та територіального розвитку. Виявлено, що ключовими механізмами оптимізації є просторове планування, GIS-моделювання, індексна оцінка ресурсного потенціалу, підтримка локальних харчових мереж і впровадження управлінських підходів. Показано, що такі підходи можуть бути використані для формування багатофункціональних агропродовольчих парків, розвитку гастрономічного туризму та ревіталізації територій.*
Вступ. Міжнародні дослідження гастрономічного ландшафту демонструють перехід від його сприйняття як культурного феномена до розуміння як об'єкта стратегічного управління.
Методи. Застосовано порівняльно-аналітичний, системний, просторовий та концептуально-оглядовий підходи до вивчення міжнародних публікацій.
Результати. Результати. Виявлено провідні напрями: управління біосферою, продовольчі ландшафти, управління природними ресурсами Землі, сталий розвиток територій, GIS-аналіз і локалізація харчових мереж.
Висновки. Гастрономічний ландшафт є ефективною платформою для поєднання збереження спадщини, економічного розвитку та адаптивного управління територіями.

Ключові слова: *гастрономічний ландшафт, управління, збереження, багатофункціональні агропродовольчі парки.*

An international review of concepts for optimizing the conservation and management of the gastronomic landscape

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Abstract: *This article provides an international overview of approaches to optimizing the conservation and management of the gastronomic landscape as a dynamic socio-ecological system. Contemporary research highlights the combination of locality, diversity, quality, and sustainability as fundamental principles in biosphere management, gastronomic landscapes, and sustainable territorial development.*
Introduction. International research on the gastronomic landscape demonstrates a shift from perceiving it as a cultural phenomenon to understanding it as an object of strategic management.
Methods. Comparative-analytical, systemic, spatial, and conceptual-review approaches were applied to the study of international publications.

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Results. The following key areas were identified: biosphere stewardship, foodscapes, earth stewardship, sustainable place development, GIS analysis, and the localization of food networks.
Conclusions. The gastronomic landscape serves as an effective platform for combining heritage preservation, economic development, and adaptive territorial management.

Keywords: *gastronomic landscape, management, conservation, multifunctional agri-food parks.*

Introduction. National research on the gastronomic landscape has laid the foundation for understanding it as a territorial-cultural phenomenon.; however, international approaches have significantly expanded the methodological toolkit, emphasizing sustainability management, biocultural heritage, and food sovereignty.

Contemporary concepts of gastronomic landscapes and foodscapes view them not as static objects, but as dynamic socio-ecological systems that require optimization through management approaches, locality, diversity, and quality (Table 1).

Table 1. International Concepts of the Gastronomic Landscape

Author	Essence of the Concept
Jonsson A., Haider J. A., Pereira L. M., Fremier A., Folke C., Tengö M., Gordon L. J.	Developed the concept of gastronomic landscapes as an approach to landscape management through culinary craftsmanship, locality, diversity, and quality; emphasis on biocultural sustainability and food sovereignty (Jonsson, Haider & Pereira et al, 2024).
Vonthron S., Perrin C., Soulard C.-T.	Explores «foodscapes» as an interdisciplinary space where food and landscape intersect; presents various research approaches to analyzing "foodscapes" as an analytical tool for food security policies and spatial planning (Vonthron, Perrin & Soulard, 2020).
Chapin F., Power E., Pickett T. A., et al.	One of the key theorists of "Earth Stewardship"; His approach is often used to explain landscape management through sustainability and human interaction with ecosystems (Chapin, Power & Pickett et al., 2011).
García-Martín M., Agnoletti M., Bieling C.	In studies on food and gastronomy for sustainable regional development, they emphasize the role of food and gastronomy as a factor in territorial development (García-Martín, Agnoletti & Bieling, 2017).

The subject of this study is the international experience in preserving, optimizing, and managing the gastronomic landscape as a complex socio-ecological and territorial-cultural system.

The aim of the study is to identify and summarize international trends in optimizing the preservation and management of the gastronomic landscape, as well as to determine their methodological significance for further application in geographical and spatial planning studies.

To achieve this objective, the following tasks must be addressed:

✓ analyze theoretical approaches to the interpretation of the gastronomic landscape in the international scientific literature;

✓ identify the main concepts used for its conservation and management, specifically stewardship, foodscapes, biosphere stewardship, and sustainable place development;

✓ summarize tools for the spatial optimization of the gastronomic landscape, including GIS modeling, index-based assessment, and territorial zoning;

✓ identify international practices aimed at supporting local food networks, biocultural heritage, and food sovereignty;

✓ aassess the potential for adapting international experience to Ukrainian conditions, particularly for the development of multifunctional agri-food parks and territorial communities;

✓ justify the potential for using the gastronomic landscape as a tool for sustainable regional development.

Materials and Methods. One of the most pressing areas of research is biosphere stewardship in gastronomic landscapes, a concept developed by a group of Scandinavian scientists. Scientists A. Jonsson, J. Haider, Pereira L., Frémier A., Folke K., Tengo M., and Gordon L. propose a concept in which the gastronomic landscape is presented through culinary craftsmanship, emphasizing four dimensions: locality, diversity, quality, and sustainability (Jonsson, Haider & Pereira et al., 2024). The authors demonstrate how daily practices of food selection, preparation, and consumption can revitalize landscapes, promoting biodiversity and food sovereignty.

This approach is based on empirical case studies of biosphere reserves and offers practical management tools, such as local food networks and eco-gastronomic initiatives. In parallel, the concept of «foodscapes» is developing as a space where food, landscape, and politics intersect. Vonthron S., Perrin C., and Soulard C.-T. analyze four approaches in their research program: spatial (GIS analysis of food accessibility), sociocultural (structural inequalities), behavioral (consumer perceptions), and systemic (alternative food networks) (Vonthron, Perrin & Soulard, 2020).

They emphasize that the "foodscape" is not merely the physical environment, but a socially constructed landscape that encompasses individual perceptions and policies, and they propose a research agenda for integrating people-based and place-based approaches. In the work «Caring for the Earth», Chapin, F., Power, M., Pickett, S., et al., argue that landscape management is a shared responsibility of humans and nature, where gastronomic practices become a tool for ecosystem sustainability (Chapin, Power & Pickett et al., 2011). This framework emphasizes scientific and practical actions to preserve human-nature systems, including gastronomic landscapes. Similarly, García-Martín, M., Agnoletti, M., and Bieling, K., in their concept of "food and gastronomy for sustainable place development," demonstrate how gastronomy adds value to territories, contributing to their sustainable development through local products and cultural heritage (García-Martín, Agnoletti & Bieling, 2017).

These concepts complement one another, proposing the optimization of the gastronomic landscape through: stewardship models for biodiversity (Jonsson, Haider & Pereira et al., 2024); interdisciplinary analysis of «foodscapes» for food security (Vonthron, Perrin & Soulard, 2020); earth stewardship for global sustainability (Chapin, Power & Pickett et al., 2011); gastronomy as a resource for territorial branding (García-Martín, Agnoletti & Bieling, 2017).

A global review demonstrates a shift from description to active management, where local networks, consumer perceptions, and conservation policies are key. Thus, the optimization of the gastronomic landscape becomes a tool not only for heritage preservation but also for adapting to global sustainability challenges.

An international literature review demonstrates that the optimization of the gastronomic landscape through «biosphere stewardship» and «foodscapes» creates a methodological foundation for the practical implementation of sustainable models at the regional level. These concepts are particularly relevant for constructivist-geographical studies of natural resource potential, where the gastronomic landscape serves as the foundation for creating multifunctional agro-food parks that integrate production, heritage preservation, tourism, and regional development. This approach not only preserves biodiversity and local products (terroirs) and specialties but also optimizes natural resource potential for territorial sustainability.

The Chinese academic community is actively developing approaches to studying the gastronomic landscape in the context of cultural heritage, tourism, and sustainable development, combining digital analysis methods, spatial planning, and cultural-symbolic strategies.

In particular, a study (Wang, Sun & Zhang, 2023) proposes the concept of the Urban Gastronomic Destination Image (UGDI) as a tool for analyzing the gastronomic environment of cities based on multimodal user-generated content (UGC), which includes textual and visual data from the Dianping platform. The application of network analysis methods (community detection) made it possible to identify spatial and behavioral patterns in the formation of the urban foodscape, ranging from consumption practices to cultural experiences. The results obtained justify the need for differentiated gastronomic marketing strategies aimed at preserving local identity in the context of globalization. In the study (Zhang, 2023), a concept of gastronomic

intellectual property is developed using the «Panda Bamboo» model for the city of Chengdu as an example. The study demonstrates how cultural symbols (in particular, the image of the panda) can be integrated into the gastronomic landscape to create themed spaces, develop culinary tourism, and promote regional cuisine. This approach opens up new opportunities for the commercialization and popularization of gastronomic heritage. An important direction is the combination of cultural-landscape approaches with spatial technologies. In a study (Gu, Wang, Wu & Dai, et al., 2025), the integration of the theory of the cultural landscape gene with GIS analysis is proposed for planning the development of traditional settlements (using the example of Goulan Yao Village). The authors classify and code cultural landscape elements, forming a «three-core, multi-node» spatial organization model. The proposed strategy is based on a three-pronged approach: preserving authenticity, optimizing spatial structure, and fostering innovative tourism development. For their part, Chinese scientists are examining the gastronomic landscape within the broader context of the transformation of agri-food systems. A scenario-based approach to sustainable development (FSTSDP_China) has been proposed, which involves integrating policies on nitrogen management, water resources, greenhouse gas emissions, dietary changes, and biodiversity conservation. This approach demonstrates that the gastronomic landscape is an integral part of complex socio-ecological systems and requires cross-sectoral management. A review of China's experience indicates that modern approaches combine digital analytics, cultural symbolism, spatial modeling, and environmental policy. This allows the gastronomic landscape to be viewed as an integrated tool for territorial development that simultaneously ensures the preservation of cultural heritage, economic efficiency, and environmental sustainability.

Australian scientists are actively researching the gastronomic landscape in the context of sustainable agriculture, crop genetics, and environmental sustainability. Key research areas include genetic optimization of crop yields, chemical-free technologies, and urban planning for local food systems. Wheat Genetics for Nitrogen Use Efficiency (NUE) Researchers at Murdoch University (AgroTimes, 2026) are developing breeding programs to improve nitrogen and protein uptake efficiency and wheat yield. This reduces dependence on expensive fertilizers (prices have risen by 50% due to global crises) and increases resilience to drought and wildfires. Chemical-Free Weed and Disease Control (Anaerobic Soil Disinfection, ASD) Australian scientists at CSIRO (2025) have studied ASD as a pesticide-free soil sterilization technology. A five-year study in the U.S. and Australia demonstrated the method's effectiveness for organic farming, reducing the burden on the ecosystem. The Australian experience demonstrates a comprehensive approach to optimizing food landscapes, combining genetic innovations, environmental technologies, and urban planning. These approaches can be adapted for Ukrainian regional and urban systems to enhance sustainability, local economic efficiency, and food security.

Applying international experience in optimizing the gastronomic landscape in Ukraine. International experience in optimizing the gastronomic landscape (biosphere stewardship, foodscapes, GIS planning) can be adapted for Ukraine through regional clusters and sustainable planning. Application of the biosphere stewardship concept (Jonsson, Haider & Pereira et al, 2024) – locality, diversity, quality: for Polissya – the «Polissya Gastronomic Cluster» featuring honey, berries, mushrooms, and hemp. "Farm-to-table" cycles, GI labeling for «Polissya Wild Honey». Example: as in China (Gu, Wang, Wu & Dai, et al., 2025),) – GIS and cultural genes for villages. Foodscapes (Vonthron, Perrin & Soulard, 2020) for zoning: 4 approaches: GIS maps of food accessibility, sociocultural analysis of traditions, behavioral monitoring of tourism, systemic networks. For Polissya – mosaic zoning: intensive agricultural production, organic farming, tourism. Sustainable place development (García-Martín, Agnoletti & Bieling, 2017). Branding: «Polissya Taste Mosaic» – festivals, routes, local products. As in Denmark's Agro Food Park – processing clusters. Chinese experience (Gu et al., 2025) Cultural landscape genes + GIS: for Polissya – coding of «genes» (beekeeping, wild plants), a plan for «preserving the essence – optimizing space – innovative tourism».

Practical steps for Ukraine: GIS models: Potential maps (soils and heritage) for local communities. Clusters: «Western Polissia» as a prototype. GI protections: honey, Polissia potatoes, tourism: «Gastronomic Routes of Polissia».

Results and their analysis. An international review has shown that contemporary research on the gastronomic landscape goes beyond a purely descriptive approach and is increasingly focused on its managerial, environmental, and socio-economic functions. In the works of (Jonsson, Haider & Pereira et al, 2024), the

gastronomic landscape is viewed as a space where culinary craftsmanship, locality, diversity, and quality form the basis of biosphere stewardship – that is, the careful management of the biosphere through food practices.

The authors argue that the preservation of gastronomic heritage is not a separate cultural task, but is directly linked to landscape sustainability, food sovereignty, and the viability of local food systems. A comparative analysis revealed that the concept of «foodscape» in the international literature has a significantly broader scope than the concept of «food environment». In their scoping review, Vonthron, Perrin, and Soulard (2020) identified four dominant approaches: spatial, sociocultural, behavioral, and systemic. The spatial approach focuses on mapping the availability of food resources and territorial inequalities; the sociocultural approach focuses on the role of social practices, identity, and inequalities; the behavioral approach focuses on consumer perceptions of the food environment; and the systemic approach focuses on local and ethical food networks. This indicates that in contemporary science, the foodscape has become a tool for analyzing not only nutrition but also social justice, spatial planning, and sustainable development. The findings also revealed that a key focus of international research is the shift from resource management to managing the interactions between people, the food system, and the territory. In this context, biosphere stewardship, Earth Stewardship, and the concepts of sustainable place development collectively form a new methodology in which the gastronomic landscape is interpreted as a dynamic socio-ecological system. Its optimization does not involve maximizing production, but rather supporting multifunctionality, biodiversity, cultural authenticity, and the local economy.

An analysis of international approaches suggests that the most promising approach is an integrated management framework that combines spatial modeling, local supply networks, support for traditional practices, and quality preservation policies. It is precisely this logic that creates the possibility of transitioning from studying the gastronomic landscape as an object of observation to designing it as a resource for development. This is particularly important for territories where gastronomic heritage, agrobiodiversity, and tourist appeal form a unified system. A synthesis of the results leads to the conclusion that this international review confirms the relevance of the gastronomic landscape as a tool for territorial management, adaptation to climate change, and strengthening food security. For future research, this opens up opportunities for the application of GIS modeling, index-based assessment, and spatial zoning within regional and local management systems.

Conclusions. The present study has shown that, in international academic discourse, the gastronomic landscape is increasingly viewed not as a static cultural phenomenon, but as a dynamic socio-ecological system requiring targeted management, conservation, and adaptation. The most significant scientific finding was the identification of a shift from descriptive analysis of food practices to management models based on the principles of biosphere stewardship, foodscapes, Earth Stewardship, and sustainable place development. This demonstrates that the gastronomic landscape in the global literature is acquiring the status of an instrument of territorial sustainability, rather than merely an object of cultural interest. The scientific novelty of the study lies in the synthesis of international approaches to optimizing the gastronomic landscape through the integration of spatial planning, GIS modeling, local food networks, and policies for the preservation of biocultural heritage. It has been established that the most promising models are integrated ones that simultaneously ensure the preservation of locality, support for food sovereignty, and adaptation to climatic and socio-economic changes. The practical significance of the results lies in the fact that they create a methodological foundation for further application in regional planning, the development of gastronomic tourism, and the formation of multifunctional agri-food parks. Thus, international experience demonstrates the possibility of using the gastronomic landscape as an effective tool for sustainable territorial development.

Declaration of conflict of interest. The author declares that there is no conflict of interest.

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