

THE NEW NORMAL: ETHNOBIOLOGY OF CITIES AND URBAN ECOLOGICAL KNOWLEDGE

ANI BAJRAMI, AJOLA MESITI, ERMELINDA MAHMUTAJ,
PETRIT HODA

Research Center of Flora and Fauna, Faculty of Natural Sciences, University of Tirana

e-mail: ajola.mesiti@fshn.edu.al

Abstract

Urban ethnobiology is a scientific discipline focused on relationship and interactions between people and living things in urban ecosystems. In the face of overpopulation, climate change and Capitalocene, those relationships and interactions, part of people's systems of beliefs, values and perceptions and embedded in urban ecological knowledge, it is of great importance to identify, document and interpret this type of knowledge, especially in major cities, including those of people's living in the capital city of Albania, Tirana. In this article we will try to give insights on today's major trends in urban ethnobiology and the basic notions which accompany them, and to address the why's and how's to conduct future ethnobiological studies in our cities. That is because these kinds of studies are absent. Additionally, in line with today's scientific methods and communications technologies developments, we recommend that during ethnobiological fieldwork it is crucial the involvement and engagement of communities living in cities, through community-based research approach and citizen science projects for a meaningful and sustainable future.

Key words: *urban ethnobiology, urban ecological knowledge, community-based research, citizen science, Tirana.*

Përmbledhje

Etnobiologjia urbane është një disiplinë shkencore që ka si qëllim njohjen e marrëdhënieve dhe bashkëveprimeve mes njerëzve dhe gjallesave të tjera në ekosistemet urbane. Në kushtet e mbipopullimit të qyteteve, krizës klimatike dhe të jetuarit në epokën e Kapitalocenit, marrëdhëniet dhe bashkëveprimet mes njerëzve dhe biotës urbane, shënjuar prej sistemeve të besimeve, vlerave dhe perceptimeve të njerëzve që jetojnë në qytete, lind nevoja jo vetëm e identifikimit dhe dokumentimit të tyre, që brendësohen ose mishërohen në dijet tradicionale urbane por dhe interpretimit të tyre në dobi të zhvillimit të

qëndrueshëm në qytete, përfshirë dhe Tiranën. Në këtë artikull, do të përpiqemi të hedhim dritë në prirjet e sotme të etnobiologjisë urbane dhe konceptet bashkëshoqëruese, si dhe do të adresojmë nevojën për të realizuar studime në qytetet tona, sidomos në kryeqytet. Kjo pasi këto tip studimesh në vendin tonë mungojnë. Gjithashtu, në përputhje me zhvillimet e sotme metodologjike, ne rekomandojmë që studimet vendase me karakter etnobiologjik lipset të realizohen përmes përfshirjes dhe angazhimit të komuniteteve që jetojnë në qytete, duke u mbështetur në të ashtuquajturat ruajtjen me bazë komunitetin dhe shkencën e qytetarit.

Fjalë kyçe: *etnobiologji urbane, dije tradicionale urbane, ruajtja me bazë komunitetin, shkenca e qytetarit, Tirana*

Introduction

More than half of the world population now lives in cities and there has been a continuous decrease of green areas and agricultural land (Ritchie & Roser, 2019; Girardet, 1992; EEA, 1998). By 2050, it is projected that close to 7 billion people will live in urban areas (UN, 2018). Most common reasons associated with rural to urban migration are linked to life satisfaction (D'Acci, 2021), social and economic development (Satterthwaite, 2000) which additionally triggers inequalities (Kuddus, Tynan & McBride, 2020) and associated problems related to overpopulation, namely "urban diseases" or "big cities diseases" thus cities becoming a hotspot for rapid spread of infectious diseases (Alirol *et al.*, 2011; Neiderud, 2015; Aguilar, 2022) besides region heterogeneity observed during COVID-19 pandemic (Han *et al.*, 2022; Sun, Troxell & Tibshirani, 2023).

Additionally, the risks associated with extreme weather events like prolonged and severe heat waves and flash floods because of human induced global warming are strong warnings for people living in urban areas. Global warming is considered the most important existential challenge for humanity and beside the hubris term of Anthropocene (Brondizio & Moran, 2013; Visconti, 2014). affects national security (Arnall, 2023), climate migration (Kaczan & Orgill-Meyer, 2020), living conditions and health (Kumar, 2021), economic and social inequality (Islam, 2017; Diffenbaugh and Burke, 2019), natural and social ecosystem (Malhi *et al.*, 2020; Rising *et al.*, 2022), biodiversity (Habibullah *et al.*, 2022), water and food availability (He *et al.* 2021; Baldos & Hertel, 2015) and should be conceptualized from an holistic approach to mitigate the above mentioned undesirable effects (Bajrami, 2022).

Furthermore, when discussing climate changes, we should consider the global related processes in relation to historical and the contemporary economic system. Some authors have labelled the present times as Capitalocene to emphasize the fact that climate changes should be considered a product of human's overexploitation of natural resources (Moore, 2016; Arons 2023;).

In this context, particular attention should be directed to the problem of widening income and climate inequalities which are in juxtaposition with community interests.

The "New Normal" or overpopulation and global warming occurs and affects mostly in cities. Because of the cities' self-administration, they create various ecological conditions for taxa sheltering (Gilbert, 1989). From this point of view, after the fall of communism during the 1990s, Tirana has grown exponentially both in terms of population and urban construction. Some of the most pressing problems that Tirana faces are rapid urban construction which affects the quality of air, the urban heat island effect, increases existing economic inequality and raises the intricate problem of gentrification. Additionally, urban construction affects urban biodiversity and urban green spaces. The latter are characterized by a very wide reaction rate, which shows the changes very late. When these changes are detected, it will be impossible to recover those (Mesiti & Dinga, 2011). Within this context is impossible not to focus on the relationships and interactions between people and urban biodiversity. But first, let's discuss the most important historical phases of ethnobiology in Albania.

Concise history of ethnobiology in Albania

The history of ethnobiology is related to the development of theories and methodologies in other scientific disciplines which served to the holistic approach of ethnobiological studies (Bajrami *et al.*, 2023). According to Clement (1998) the history of ethnobiology comprises three phases or periods: pre- classic, classic and post- classic. The first phase (1860-1899) coincides with the birth of scientific disciplines of ethnobotany and ethnozoology; during the second phase (1950-1980) an emic approach was adopted from anthropology and cognitive psychology; the third phase (1981-1992) was focused on the importance of the conservation of natural resources (Clement, 1998).

Furthermore, Hunn (2007) recognized four phases: pre- classic (until 1950s);

cognitive ethnobiology (1950 –1970); ethnoecology (1970 - 1980) and the right of indigenous people (indigenous ethnobiology (1990- to this day). Consequently, a fifth phase was proposed which is known as conservation ethnobiology (Wyndham *et al.* 2011). On this phase, the importance of ethnobiological studies in the face of climate change and the need to preserve cultural biodiversity took priority (Bajrami *et al.*, 2023; Hidayati *et al.*, 2015; Wolverson, 2013; Wyndham *et al.*, 2011).

Additionally, in line with theoretical developments in evolutionary theory (The Extended Evolutionary Synthesis) and the theory of Cultural Evolution (CE) during the 1980s, an evolutionary approach permeated ethnobiology. In short, researchers were interested in the factors which influenced cultural evolution and the adaptive nature of culture in humans (Bajrami & Qirjo 2019; Bajrami, Qirjo & Sokoli 2019). On this ground, a sixth phase of ethnobiology was proposed, namely, evolutionary ethnobiology (Albuquerque & Medeiros, 2013; Albuquerque & Ferreira Junior, 2017; Albuquerque *et al.*, 2022; Santoro *et al.*, 2018).

In a latest article (Bajrami *et al.*, 2023) three phases of ethnobiology in Albania were proposed. According to the authors, in the first phase, several travelers, missionaries, naturalists, anthropologists, botanists etc. have conducted studies and were focused on identification and mode of uses of plants (Saraçi & Damo, 2021). This phase corresponds with the first phase proposed by Hunn. The second phase is related to the communism period in Albania (1945-1990). It can be differently considered as the “autochthonous ethnobiology of socialism” which corresponds with the emic and systemic phase (Bajrami *et al.*, 2023). It is important to state that during this phase, many ethnobiological states of knowledge and practices by Albanians researchers were collected, with numerous articles and books published. Finally, in the third phase, or the post-communist ethnobiology (2000- currently) collaboration efforts between Albanian researchers and foreigners were important in documenting traditional ecological knowledge and several ethnobiological studies were conducted, in line with conservation ethnobiology methodology (Bajrami *et al.*, 2023).

Urban ecological knowledge: A new paradigm

During the development of ethnobiology as a scientific discipline, researchers were mostly focused on traditional ecological knowledge of people living in rural areas (Albuquerque *et al.*, 2023). This happened in Albania too; ethnobiological studies were focused mostly on isolated villages, with a much

less focus on ethnic minorities and almost absent in the southern part of Albania (Bajrami, 2023). Therefore, urban ethnobiological studies were not conducted in urban areas. Additionally, with a few exceptions, exists a substantial lack of urban biodiversity studies in Albania even though the study of urban areas is a research trend in other countries (Paparisto, Qosja and Demiri 1962; Mesiti & Dinga, 2017; Paparisto, Halimi and Bego, 2022). Studies concerning urban biodiversity were performed in the city of Tirana, where 40% of Albanian flora are found (Mesiti, 2016).

The importance of ethnobiological studies in urban areas in Albania is related to the documentation and interpretation of urban ecological knowledge which will serve as a basis for a new scientific discipline in the country such as urban ethnobiology. Furthermore, ethnobiological methods can show how demographic movements affect transmission and interaction with the environment. Urban centers are a main "hotspot" for the spread of non-native species, with different purposes of use, which also brings new approaches to knowledge about the environment. Mainly non-native species are intended to be introduced into everyday life, for aromatic-medicinal, nutritional and/or ornamental reasons (gardening) (Dinga & Mesiti, 2008).

The classic definition of traditional ecological knowledge encompasses the whole knowledge and practices related to the environment by a certain group of people or social community which are embedded in social-ecological systems (Colding & Barthel 2019). Shortly, traditional ecological knowledge is considered part of culture, is learned, and transmitted via enculturation, has an adaptive nature and are always changing to solve the adaptive problems, mostly those related to survival (Bajrami & Qirjo, 2019).

We could argue that urban ecological knowledge changes more frequently and the rhythm of change is much higher. This could be explained demographically: a larger population living in urban areas has a larger pool of cultural variants compared to those living in rural areas. Multicultural urban context is complex and subsequently, cultural evolution factors such as cultural selection will change the proportion of urban ecological knowledge present in a society. For example, this happens with plant preferences, favoring native plants much more than spontaneous plants, which characterize the new urban ecosystems (Teixeira *et al.*, 2022). Additionally, it is important to mention that in a smaller population, like those found in rural areas, the probability of fixation or even loss of urban ecological knowledge is much higher. Moreover, we need to mention cultural niche which is related to the

continuous modification of the environment by society members to solve adaptive problems (Boyd *et al.*, 2011). As we can imagine, in an urban context, the cultural niche effect is greater, like the scale of the modification of urban environments by people, a process which goes as far as 11.000 years ago.

Additionally, other valuable aspects such as the involvement and engagement of respondents living in an urban area during ethnobiological studies are beginning to take hold (Carayannis *et al.*, 2021). In support of this claim, we believe that using citizen science as a tool to record ethnobiological data will empower both citizens and researchers, because it is a functional tool, made possible by communication technological developments in recent times (Kalle *et al.*, 2022).

Conclusions

Overpopulation, global warming, and economic inequality across the world influence citizens' life quality and threaten urban ecosystems. Urban ethnobiology as a relatively late new scientific discipline should be concerned not only with the identification, documentation, and interpretations of urban ecological knowledge but with policy making and implementation of social and environmental policies to improve people's life. During democratic transition in Albania, large transformations in different levels of organization such as politics, social, and living environment occurred. Those transformations were reflected in people's perceptions, beliefs, and values, embedded in urban ecological knowledge.

Unfortunately, urban ecological knowledge and urban biodiversity has not been at the forefront of studies Albania. For this reason, it was important for us to stress the much needed theoretically and methodological bases for future ethnobiological studies in Albania, which should not only confine to rural areas but include the cities. In this context, bearing in mind the rapid scale of urbanization, heat waves and economic polarization in the last years, future ethnobiological studies in Tirana should focus on the documentation and conservation of both urban biodiversity and urban ecological knowledge. Most importantly, they should consider urban communities' interests by implementation of social and environmental policies for sustainable development. Furthermore, these studies should put community partnership at the forefront by using citizen science projects to store urban biodiversity and urban ecological knowledge and create a valuable database for both researchers and citizens in the future.

References

- Albuquerque UP., Vandebroek I., Ladio A., Silva MTP. Exploring biocultural diversity in urban ecosystems: An ethnobiological perspective. *Ethnobiology and Conservation*. DOI: 10.15451/ec2023-06-12.10-1-12, 2023
- Albuquerque UP., do Nascimento ALB., Neto EMFL., Santoro FR., et al. Brief introduction to evolutionary ethnobiology. 1st Edition, Nupeea, Brasil, 2022
- Albuquerque UP., Ferreira Junior, W. S. What do we study in evolutionary ethnobiology? Defining the theoretical basis for a research program. *Evolutionary Biology* 44: 206-215, 2017
- Albuquerque U.P., & Medeiros, P. What is evolutionary ethnobiology? *Ethnobiology and Conservation*, 2013. [E-book] Available: <https://doi.org/10.15451/ec2013-8-2.6-1-04>
- Aguilar J., Bassolas A., Ghoshal G., et al. Impact of urban structure on infectious disease spreading, 2022. [E-book] Available: *Nature* 10.1038/s41598-022-06720-8
- Alirol E, Getaz L, Stoll B, Chappuis F, Loutan L. Urbanization and infectious diseases in a globalized world. *The Lancet Infectious Diseases*. 11, pp 131-41 2011.
- Arnall A. Climate change and security research: Conflict, securitization and human agency, 2023. [E-book] Available: *PLOS Climate* <https://doi.org/10.1371/journal.pclm.0000072>
- Arons W. We should be talking about the Capitalocene. *TDR*, 67 (1), pp. 35-40, 2023.
- Bajrami A, Saraçi A., Rexhepi B., Damo R. Faza V: Statusi aktual i etnobiologjisë dhe perspektiva studimore në Shqipëri. *Revista Antropologjike* (in review), 2023.
- Bajrami A. Current status of ethnobotany in Albania. *European Journal of Medicine and Natural Sciences*, 6, 9-17, 2023.
- Bajrami A. From nature to man: Environmental anthropology in the Anthropocene, 2022. [E-book] Available: *Journal of Biological Research* <https://doi.org/10.4081/jbr.2022.10377>
- Bajrami A, Sokoli, E., Qirjo, M. Që prej Darwinit: Nga mendja te kuptimi evolucionar i kulturës. *Buletini i Shkencave të Natyrës*, 27, pp. 83-93, 2019.
- Bajrami A., Qirjo, M. Roli i të mësuarit në konstruksionin e nishit dhe dijeve tradicionale ekologjike. *Buletini i Shkencave të Natyrës*, 27, pp. 94-102, 2019.
- Baldos ULC., Hertel TW. The role of international trade in managing food security risks from climate change, 2015. [E-book] Available: *Food Security* <http://dx.doi.org/10.1007/s12571-015-0435-z>
- Boyd R., Richerson PJ., & Henrich J. The cultural niche: Why social learning is essential for human adaptation. [Colloquium Paper]. *Proceedings of the National Academy of Sciences USA*, 2011. [E-book] Available: doi: 10.1073/pnas.1100290108.
- Brondizio ES., Moran EF, eds. *Human environment-interactions: Current and future directions*, 2013. Springer.
- Clement D. The historical foundations of ethnobiology. *Journal of Ethnobiology*, 18, pp. 161-187, 1998.

Colding J., and Barthel S. Exploring the social-ecological systems discourse 20 years later. *Ecology and Society* 24 (1), 2, 2019.

Carayannis EG., Dezi L., Gregori G., & Calo E. Smart environments and techno-centric and human-centric innovations for industry and society 5.0: A quintuple helix innovation system view towards smart, sustainable, and inclusive solutions. *Journal of the Knowledge Economy*, 13, pp. 926–955, 2021.

D'Acci L. Preferring or needing cities? (Evolutionary) psychology, utility and life satisfaction of urban living. *City, Culture and Society*, 2021. [E-book] Available: <https://doi.org/10.1016/j.ccs.2021.100375>

Dinga L., Mesiti A. Roli dhe pozicioni i bimëve në objektet e kultit dhe kulturën e rrethit të Beratit”. Diploma thesis, 2008.

Diffenbaugh NS., Burke M. Global warming has increased global economic inequality. *Proceedings of the National Academy of Sciences USA*, 2019. [E-book] Available: <https://doi.org/10.1073/pnas.18160201>

Habibullah MSH., Haji Din B., Tan SH., Zahid H. Impact of climate change on biodiversity loss: global evidence. *Environment Science and Pollution Research*, 2021. <https://doi.org/10.1007/s11356-021-15702-8>

Han Y., Huang J., Li R. Impact analysis of environmental and social factors on early-stage COVID 19 transmissions in China by machine learning. *Environmental Research*, 2022. [E-book] Available: <https://doi.org/10.1016/j.envres.2022.112761>

He Ch., Liu Zh., Wu J., et al. Future global water scarcity and potential solutions. *Nature Communications*, 2021: [E-book] Available: <https://doi.org/10.1038/s41467-021-25026-3>

Hidayati S., Franco FM., Bussmann RW. Ready for phase 5 - current status of ethnobiology in Southeast Asia. *Journal of Ethnobiology and Ethnomedicine* 11:17, 2015.

Hunn E. Ethnobiology in four phases. *Journal of Ethnobiology* 27(1), 1–10, 2007.

Islam SN., Winkel J. Climate change and social inequality. *DESA Working Paper*, 2017.

Kalle R., Pieroni A., Svanberg I., Soukand R. Early Citizen Science Action in Ethnobotany: The Case of the Folk Medicine Collection of Dr. Mihkel Ostrov in the Territory of Present-Day Estonia, 1891–1893, 2022. [E-book] Available: *Plants*

<https://doi.org/10.3390/plants11030274>

Kuddus MA., Tynan E., McBryde E. Urbanization: Problem for the rich and poor? [E-book] Available: *Public Health Review*. <https://doi.org/10.1186/s40985-019-0116-0>

Kumar P. Climate change and cities: Challenges ahead. *Frontiers in Sustainability Cities*, 2021. [E-book] Available: <https://doi.org/10.3389/frsc.2021.645613>

Kaczan DJ., Orgill-Meyer J. The impact of climate change on migration: a synthesis of recent empirical evidence. *Climatic Change*, 158, 281–300, 2019.

Malhi Y., Franklin J., Seddon N et al. Climate change and ecosystems: threats, opportunities and solutions. *Philosophical Transactions of the Royal Society B*, 375, 2019010420190104,

2020.

Mesiti A., Dinga L. Roli dhe pozicioni i bimëve në objektet e kultit dhe kulturën e rrethit të Beratit. Tezë Diplome. Departamenti i Biologjisë, FSHN, UT, 2010.

Mesiti A., Dinga L. Evaluation of the vegetation of the “Brigade Palace” Park of Tirana – 5th Congress of Pharmacy, Ohrid – Macedonia, October 2011.

Mesiti A., Dinga L. Flora and Vegetation of “Grand Park of Tirana” and Southern area. Albanian Journal of Agricultural Science. ISSN: 2218-2020, Vol. 16, Issue II, 48-58, 2017.

Moore JW. The Capitalocene, Part I: On the nature and origins of our ecological crisis. The Journal of Peasant Studies, 2017. [E-book] Available:

<http://dx.doi.org/10.1080/03066150.2016.1235036>

Neiderud CJ. How urbanization affects the epidemiology of emerging the infectious diseases. Infection Ecology and Epidemiology. 5: 10.3402/iee. V 5.27060, 2015.

Paparisto K., Qosja Xh., Demiri M. Flora e Tiranës. Universiteti Shtetëror i Tiranës. 1962

Paparisto A., Halimi E., Bego F. Fauna Tirana 100: 1920-2020. 2022.

Rising J., Tedesco M., Piontek F., Stainforth DA. The missing risks of climate change. Nature, 610, pp. 643–651, 2022.

Ritchie H., Roser M. Urbanization. Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/urbanization' [Online Resource], 2018

Santoro FR., Nascimento ALB., Soldati GT., Ferrera Junior WS. & Albuquerque UP. Evolutionary ethnobiology and cultural evolution: opportunities for research and dialogue. Journal of Ethnobiology and Ethnomedicine 14, 1, 2018. [E-book] Available: [DOI 10.1186/s13002-017-0199-y](https://doi.org/10.1186/s13002-017-0199-y).

Saraçi A., Damo R. A historical overview of ethnobotanical data in Albania (1800s-1940s). Ethnobiology and Conservation, 10:08, 2021. [E-book] Available: [doi:10.15451/ec2020-10-10.08-1-2](https://doi.org/10.15451/ec2020-10-10.08-1-2).

Satterthwaite D. Will most people live in cities? BMJ (Clinical research ed.) 321(7269): 1143–1145, 2000.

Sun MW, Troxell D & Tibshirani R. Public health factors help explain cross country heterogeneity in excess death during the COVID19 pandemic. Scientific Reports, 2023. [E-book] Available: <https://doi.org/10.1038/s41598-023-43407-0>

Tang Y., Duan H., Shiyun Y. Mitigating climate change to economic inequality under the Paris Agreement. iScience, 2023. [E-book] Available: <https://doi.org/10.1016/j.isci.2022.105734>

Teixeira CP., Fernandes CO., Ryan R., Ahern J. Attitudes and preferences towards plants in urban green spaces: Implications for the design and management of Novel Urban Ecosystems. Journal of Environmental Management, 2022. [E-book] Available: DOI: [10.1016/j.jenvman.2022.115103](https://doi.org/10.1016/j.jenvman.2022.115103).

Visconti G. Anthropocene: Another academic invention? Rend Lincei- Sci Fis 25, 381-92,

2014.

Wolverton S. Ethnobiology 5: Interdisciplinarity in an Era of Rapid Environmental Change. *Ethnobiology Letters*, 4, 21-25, 2013.

Wyndham FS., Lepofsky D., Tiffany S. Taking stock in ethnobiology: Where do we come from? What are we? Where are we going? *Journal of Ethnobiology*, 31, 110–127, 2011.