

Specifics of the biocultural approach and its potential for interdisciplinary studies: on the example of anthropobiotic community

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Abstract. The article makes an attempt at an analytical interpretation of the specifics of the biocultural approach and its potential for interdisciplinary research. Starting from the premise that the interest is incessantly growing in studies viewing the link between man and environment beyond the traditional disciplinary borders, and also that combining the expertise of natural and social sciences is in increasingly greater demand, this article will show the importance of the biocultural approach as an analytic instrument working on the borders between ecology, biology, anthropology and sociology. Linking into one ecological knowledge, cultural practices, and social structures, this approach fosters the analytic and methodological overcoming of hard limits between natural and social sciences. The article dwells on the case of beekeeping as an example of such a biocultural unity of human knowledge and experience in which the biological and the cultural are in dynamic interaction. As a theoretical and empirical contribution, we introduce the concept of anthropobiotic community, understood as a form of joint interaction between man and another form of life – the bee colony. This concept permits rethinking the coexistence of human communities and animal groups based on mutual dependence, care and co-participation in which humans are ‘with’ and not ‘against’ their environment which is ‘between’ humans and the things in it and which can connect then – also affectively, personally, emotionally – as a space of creation of a community, as a new form of togetherness.

Key words: biocultural heritage, interdisciplinary studies, beekeeping, ecological knowledge, cultural practices, social structures.

Introduction

In recent decades, there has been a growing interest in studies that view the connection between man and environment in the context of a specific multidisciplinary approach that goes beyond traditional disciplinary borders between natural and social sciences. Thus, the biocultural approach asserts itself as an important analytic instrument revealing the interconnection between ecological knowledge, cultural practices, and social structures. This article aims to present the

specifics of this approach and explore its potential for an interdisciplinary understanding of local cultural experience and practical ecological behaviours. The example we are to consider is related to beekeeping as a form of human knowledge and experience in which the biological and the cultural have merged to exist in a dynamic and coherent unity. As a theoretical and empirical contribution of the article, we will point out the concept of anthropobiotic community, one understood as a form of joint existence between man and another

form of life – the bee colony, a concept permitting the rethinking of the being-together of human communities and animal groups based on mutual dependence, care and co-participation. This concept is an original discovery of Stoyka Penkova and Milena Tasheva as a result of their attempt to critically rethink the specific joint community between humans and bees (speaking in the theoretical key of the actor-network theory and Bruno Latour, between humans and non-humans) on which they have observed in their fieldwork (Penkova & Tasheva, 2025; Latour, 1993).

The specific anthropobiotic pairing between beekeepers and bees, between humans and other living and active agents, unfolding within the horizon of care, is going to be analysed through the case of two families of beekeepers. In the two examples, this community is organised and manifested in different ways, but the commonality is the achievement of a specific communication and ‘*dialogue*’ by which the understanding between man and the form of life takes place. It is thus that the beekeepers become able to ‘*answer*’ – able to reflect adequately the need that bees have here-and-now and ‘*speak in their language*’. The research focus will be on the specific ‘*how*’ of this understanding and of biocultural practices combining ecological and cultural knowledge through which beekeepers, ‘*talking to bees in their language*’, make it possible for the anthropobiotic community to happen.

Materials and methods

This study is based on an interdisciplinary methodological framework in which the biocultural approach functions not as a specific method but as an analytic instrument. It permits the recognition of interconnectedness between cultural practices and biological processes, as well as to explore their co-construction within specific local ecologies. In this sense, the approach provides sensitivity for the dynamics of joint existence and cohabitation without prioritising the human or the non-human agent.

For this, we will first make an overview of the scientific literature by which to delineate the theoretical grounds of using the biocultural approach as well as to explore its application to the study of the interactions between man and environment. A particular attention is paid to the works of Tim Ingold and Anna Tsing, as well as to authors like

Molly H. Mullin, whose holistic, non-anthropocentric approach to the connections between human communities and other living beings provides an analytic ground to thinking beyond the culture/nature binarity (Mullin, 1999).

Then we will dwell on the theoretical and methodological justification of the concept of anthropobiotic community that will be applied to the empirical case of beekeeping as a biocultural practice.

The empirical data that are the basis of the subsequent analytic interpretations have been accumulated in the course of the fieldwork done in 2024–2025 in the apiaries of two beekeeping families. The one is located in the plain near the Bulgarian village R. K. Fieldwork there was performed jointly with Milena Tasheva in 2024 in the course of the summer student practice entitled “Nature, ecology, sociality”. The other case study is a family that takes care of 2 apiaries located in the area of the Strandzha mountain. It must be said here that the fieldwork in Strandzha was performed jointly with Meglena Zlatkova and Dobrinka Parusheva within the project “Digital sustainable systems – technological solutions and social models of sustainability of ecosystems” (DUEcoS) BG-RRP-2.004-0001-C01 in the 2022–2025 period. As a team, we have constantly shared and discussed our observations and the collected empirical data, as well as the possible ways of interpreting them. We are indebted to Meglena Zlatkova for the ideas that have helped both our understanding of the problematic of biocultural interaction and its understanding and its current uses in this article. In both cases, observations were made on apicultural activities and in-depth interviews with the beekeepers. Empirical field data permit analysing how relations of care, attention, dependence and cohabitation are built between human and bee communities.

As the last stage, the analysis of collected empirical data will interpret the interactions, observed in the course of fieldwork, between bees and humans, emphasizing those forms of living together which, surpassing a simple functional interaction between them, reveal the mutual sensitivity and ‘taming’ of one another in the anthropobiotic community created by affective and emotional cooperation.

Results

Nature and specifics of the biocultural approach

The biocultural approach emerged in the 1970s as the result of the effort of scientists from diverse disciplines to overcome the classical division between biology and culture in the understanding of human individuals and communities in the context of their ecological environment. Historically, this approach has found its first manifestations within biological and medical anthropology, where authors like Alan Goodman, Nancy Scheper-Hughes and Thomas Leatherman proposed a criticism to the idea that biology is neutral and independent of social conditions. In the book *Building a New Biocultural Synthesis* (1998), they insist that human bodies are not merely biological but socially formed and historically situated.

The biocultural approach assists the overcoming the epistemological asymmetry between natural and social sciences, which is debated in the scientific fields of political ecology and of science and technology studies (STS) (Latour, 1993; Escobar, 1999; Haraway, 2008). Although the biocultural approach has the potential for overcoming the dichotomy between natural and cultural, its interdisciplinary application often stays restricted to functionalist models. These set an analytic framework that views culture and biology as two mutually impacting systems. What this approach doesn't take into account is the joint co-creation of cultural and biological systems. Guided by the study of beekeeping as an example of a specific biocultural interaction, we propose an analysis that surpasses the framework of functionalism and provides a holistic approach in which it is revealed how the social and the biological are building one another and are in a process of constant co-constitution. This approach has gained popularity in recent decades and has been argued in the work of social anthropologists Tim Ingold and Anna Tsing.

Tim Ingold criticises the classical dichotomy between nature and culture and proposes instead the concept of *'being with the world'* in which human societies are regarded as built in mutual dependence with their life environment but also as jointly developing with it. Humans are not viewed as external to the environment but as co-present and co-creating it by bodily, sensory and practical interactions. This is an analytic frame-

work that opposes the notions of man's domination over nature. In the collection *The Perception of the Environment*, he elaborates on the thesis that living organisms (including humans) exist in ecological networks not as passive units but through active practices of inhabiting, perceiving and work with matter. According to Ingold, living organisms and man are not to be considered separately from their life environment because, in his words, *'the organism and its environment are not two separate entities but are mutually constitutive: the organism enacts its own environment through its perceptually guided activity'* (Ingold, 2000). Ingold's approach stresses that the social, economic and cultural specifics of human societies, including ecological knowledge and practices, are not pre-given but emerge in the context of living relations between humans and their environment. The life environment that consists also of a diversity of biological species is, for the author, not a mere stage on which organisms act – it participates in their formation just as much as they participate in the formation of the environment. The author imposes the view that *'the environment, in turn, acts back on the organism, modifying the conditions of its development and activity'*. He stresses that the mutual dependence and mutual control between the societies inhabiting the environment and the life environment itself are fundamental, and *'neither exists as a completed form outside the context of its engagement with the other'* (Ingold, 2000).

Ingold proposes the term "perceptual engagements", something that can be very precisely recognised in our notion of anthropobiotic communities. The term concerns the way in which humans feel, perceive and orient themselves in the world through their senses – vision, hearing, touch, smell, and movement. He uses the concept of perceptual engagements to stress that the perception of the world that surrounds us is not a passive *'receiving'* of information from the environment but an active process of co-presence – when a human perceives the environment through the movement of their body, through the time spent in a certain place, and through their physical participations in practices like work, breeding, care, and inhabiting (Ingold, 2000). Thus beekeepers not merely inherit a biocultural heritage that includes practical knowledge and skills of breeding bee colonies and extracting honey from hives; this knowledge is also related to an accu-

mulated sensory experience in which bee colonies are perceived by their smells, sounds, behaviours, and the beekeeper responds by reacting to these signs and interprets them, knowing the 'language' of bees.

By the term "biocultural heritage", we would like to put an emphasis on the long-term interaction between humans, in this case beekeepers, and their natural environment into which bees are inscribed. According to Davidson-Hunt et al. (2012), the term presents the interrelated inheriting by a given local community of natural (biological) and cultural resources, which includes knowledge of local varieties and breeds, traditional crafts, local oral history, language forms, customs and practices, that are closely connected to an inhabited territory and the transmission of stable cultural and agriculture models of interaction with the natural environment. This knowledge and experience are transmitted throughout generations in the context of ecosystemic memories (Lindholm & Ekblom, 2019). As we will see further in the article, the accumulation and transmission of knowledge and practices related to beekeeping is key to the families of beekeepers. In both cases, beekeeping has been inherited from their parents and ancestors, and there are expectations for its transmission as a craft to the next generation. The wife of one of the beekeepers has even written and published children's books about bees, where the characters are her daughters.

Another key author who considers the joint cohabitation of human and animal species is Anna Tsing. She combines approaches from ecology, posthumanism and political economy to explore zones of interspecies coexistence. In her book "The Mushroom at the End of the World", Tsing (2015) uses the example of the matsutake mushroom growing in Oregon and the networks of humans who collect, sell and utilise it to show how 'ecologies of cohabitation' emerge. She introduces that concept to reveal how non-human and human beings survive together through cooperation between the species, which she names 'collaborative survival'. For Tsing, the biocultural is not a stable system but an open arena of cohabitative being-together in which knowledge, matter, and life jointly create one another. The author stresses that life in the world of today, especially after the collapse of industrial and capitalist structures, takes place in conditions of insecurity where dif-

ferent forms of life meet, clash and create something new. Rather than viewing biocultural processes as stable and systematically ordered, she presents them as 'open-ended gatherings' – connections that are never fully complete, and ones in which the human and the non-human interact incessantly (Tsing, 2015).

The ideas of Tsing offer a productive framework for the analysis of anthropobiotic communities between humans and bees. Her notion of ecologies of cohabitation permits thinking the joint life of different species not as static systems but as processes built in interactions, insecurities and mutual adaptation. Similar to the interaction between mushroom pickers and the forest in Tsing's study, the described cooperation between species can also be observed in beekeeping. Here too, the human and the bee exist in co-presence, which requires attention to the rhythm and the behaviour of the other species. The contact zone between beekeeper and hive is a stage of 'cohabitative being-together' in which care, observation, and work are intertwined. In this sense, anthropobiotic communities can be understood as localised manifestations of the ecology of cohabitation – systems that not merely function but also tell stories of adaptation, care, and dependence between species.

Biocultural interactions between man and bees

The particular interrelations between man and bees are the research focus of several scientific texts that present analyses in the context of an approach close to the biocultural one. On the basis of a systematic overview of scientific literature, Matias et al. (2017) offer an overall presentation of the ecosystemic service that wild bees provide in the form of three main types of benefits: 'food, medicine, and pollination' (Matias et al., 2017). These benefits are often viewed not as individual but as communal ones, as the authors stress that 'wild bees directly provide benefits to communities to a greater extent than individuals' (Matias et al., 2017). An important conclusion of the analysis is that wild bees play a central role in social systems, not as a resource but as an important element of cultural, economic, and ecological networks (Matias et al., 2017). Therefore, it is extremely important for the preservation of biodiversity to consider them not merely as ecological actors but also as 'embedded in human social worlds' (Matias et al., 2017).

In her turn, Jennifer Marshman in “Communing with Bees: A Whole of Community Approach to Address Crisis in the Anthropocene” (2019) performs an analysis of the “man – bees” interaction from a critical perspective. Dwelling on the ecological and social crises in the context of the Anthropocene, she introduces a new approach to interhuman and interspecies relations, interpreting them in the context of the so-called ‘*whole-of-community*’ (the whole of community approach). In clarifying this overall communal approach, the author points out that it is directed to both interhuman and interspecies interrelations. The creation of communities connected to the place they inhabit turns the participants in them into active communal actors guided by eco-social justice and equality of rights (Marshman, 2019). The closer scrutiny of the specifics of bee colonies, according to the author, can be a useful instrument of the study of interactions in such hybrid communities in which human and non-human inhabitants of a given locality can be considered in their interdependence. Moreover, Marshman stresses that the ‘*man vs. nature*’ opposition is inefficient and destructive. She states that ‘*A dualistic and dysfunctional human nature relationship that fails to recognize humans as nature, rather than humans in nature, has resulted in many of the socio-ecological crises...*’ (Marshman, 2019). For Marshman, the road to overcoming this inequality is by analytically exploring interspecies communities manifesting the interrelation of cultural and natural cohabitation of a given territory. According to her, it is necessary to reconcile humans with the rest of the biotic community through place-based initiatives. In her view, this is possible by fundamentally and radically expanding our current framing of the concept of community. The new notion of community that she proposes is based on the idea of inclusion, in which not only human socio-cultural societies are present but also all biological forms with which they interact in a given inhabited locality (Marshman, 2019).

In following these lines of rethinking the relation between human communities and animal groups, we introduce the term “anthropobiotic community” as an analytic category that expands the possibilities of the biocultural approach in integrating the notion of joint communities and being-together between human and non-human agents, in this case - humans and bees. This

concept builds on approaches like multispecies ethnography (Kirksey & Helmreich, 2010) and companion species (Haraway, 2003), emphasising not merely coexistence but also the forms of mutual participation, care and joint experience in a shared eco-social reality. In this sense, the notion of anthropobiotic community permits revealing the specifics of the being-together of human communities and animal groups as based on care, co-participation and dynamic cohabitation.

Discussion

The anthropobiotic community – specifics

The concept of anthropobiotic community appeared initially as a response to the so-called “anthropobiotic turnover” [in Russian: *khomobioticheskiy oborot*], introduced in 1999 by V. Shapiro for the explanation of the biotic turnover orchestrated by *Sapiens* which involved zero-waste technologies in agriculture, industry, and communal services, that facilitated the integration of plant growing, animal husbandry and waste management into one complex. The main principles of anthropobiotic [*khomobioticheskiy*] turnover are formulated in the book “The drama of life”, a united history of matter, life and reason, which, immediately after its publication, gave reasons to talk about an “anthropobiotic [*khomobioticheskaya*] revolution”.

Combining different aspects of human activity into one ‘*complex*’ is a part also of our understanding of the anthropobiotic community but with an emphasis on joint participation and affective making of the community between the human and the non-human included in this activities and not so much on the ‘*orchestration*’ of activity by man as in the described process of enrichment and restoration of soils (Penkova & Tasheva, 2025).

Our vision also goes further than other theoretical perspectives in the social and human sciences that deal with the relations between humans and non-humans. Here, along with the leading actor-network theory (ANT) connected to the names of Bruno Latour, Michel Callon and other French sociologists, we also have in mind the interesting application of the notion of “heterogeneous couple” developed by Ivan Tchalakov (2015). Criticizing the ANT’s understanding of the human-non-human relation as viewed ‘*from without*’ the interaction between human and non-

human agents and demonstrating how man gradually becomes a *'spokesperson of the non-human coupled with them'*, Tchalakov focuses on understanding what happens *'between'* them, describing their mutual *'taming'* by exchanging traits and properties (Tchalakov, 2015).

Por's perspective goes beyond this analytic interpretation too, because, unlike Tchalakov, we ask not merely what happens in the heterogeneous couple but also how, in a non-pre-given but also not fortuitous manner, heterogeneous elements *'tame'* one another, i.e. how beekeepers *'tame'* bees in being themselves *'tamed'* by them. By introducing the concept of anthropobiotic community, we try to give an answer to this question, going beyond the traditional view of the interaction between the human and the non-human, and with an emphasis on its extraordinariness with regard to the non-human. Thus, the man-nature relation is considered in an entirely new way as we demonstrate how an anthropobiotic connection is built with elements of the biophysical environment, thus forming a multitude of human-non-human communities, the inclusion into which inevitably leads to the emergence of certain types of holistic dispositions toward the environment in different dimensions of human life.

Thus, starting from understanding that *'how'* humans enter into interaction with their environment is not independent from what they *'do'* to it, we try to understand their impact on the biophysical world by the study of two examples of an anthropobiotic community (ABC) that creates a connection and, as we said above, an arena of cohabitative coexistence between two families of beekeepers and their apiaries, who have turned the care of them into their profession but also, we will add, by their calling. This is a relation of mutual co-presence of the human and the bee, in which, with a special attention to the rhythm and behaviour of the other (human or non-human), care and work are intertwined through biocultural (beekeeping) practices generated in the course of activity. The pro-ecological behaviour cultivated as the result of interaction in the anthropobiotic community turns into a specific way of life as an explicit and governing principle of the beekeepers. The organisation of life in the anthropobiotic community includes specific rules and norms, different forms of social interaction, biophysical design, and way of connecting within

and outside the community. Maintaining as a practical achievement of this overall way of life that is ecologically supportive takes shape in the practices and everyday life of beekeepers, turning into habits, preferences and tendencies.

ABC - on the example of the man-bee colony joint community

Two cases were selected of the described *'ecology of cohabitation'* that are both similar and different. The one family (G. T. and P. T.) takes care of their over 100 hives in the area of a village in the plane, at a place that has been specially chosen and adapted for the purpose by themselves. The other family (A. S. and E. S.) owns two large apiaries having 200 hives each. One is located in a *'wild forest place'* (as they describe it themselves) deep in the mountain of Strandzha, a place that, we can say, is for the bees, i.e. the place where humans are *'tamed'*, and the other is in a Strandzha village that is a preferred villa zone and is for the humans, i.e. the place where bees are *'tamed'*. The second family (S.) is one of the five producers of Strandzha honeydew honey who have a PDO certification. In 2019, the European Commission inscribed "Strandzha honeydew honey" into the register of PDO. The honey of the first family (T.) is also certified.

Both families of beekeepers that we studied occupy themselves with it professionally and have the mission to produce ecologically clean honey not just as an institutional but also as a moral obligation. Through these cases, we explore the sustainable pro-ecological interaction between humans and the biophysical world with an attention to its doing as a practical achievement where humans (beekeepers), formulating practically their habitualized references to themselves and entering into active relations with their non-human co-agents (bees), form a new bio-cultural human-non-human joint community that can be inherited and transmitted under the form of beekeeping craftsman as a biocultural heritage.

A vivid example of the transmission of biocultural inheritance is manifested in one of our cases. Upon reaching the retirement age in 2008, first the husband G. T., who had worked as an airplane mechanic in an airport base, and not long also the wife P. T., a former librarian-secretary in the village's culture club, turned beekeeping into their way of life and family livelihood. Beekeeping

is not an unfamiliar occupation for G. T. Nevertheless, it was not an easy decision to turn the 'hobby' that he had long shared with his father into a main and professional occupation, registering himself as an agricultural producer and creating an apiary outside the village. The decision was hard since father and son had already invested in modern equipment for the father's carpentry workshop, but the income from their joint activity was insufficient in the hard times of transition. It was then that G. T. 'trusted' his father's advice – 'Leave carpentry, take up bees' – and, devoting himself to beekeeping, he turned his apiary into an 'example of a model farm'. G. T.'s father was the one to teach his son in carpentry and beekeeping. When G. T. started to take care of his father's 'fifteen or sixteen beehives at home', he turned this amateur accusation into profession (and, we would add, into a calling).

The social and biographical context in the second case, that of the S. family, is similar. Here too, beekeeping stood as a 'telos', as an 'unchosen choice' that has come upon unexpectedly and in an un-pre-given manner, i.e. not by necessity, into the life of the beekeeper A. S.; it was as if all his life transitions came about in such a manner as to bring the moment of his being called to the profession of beekeeper and of the occurrence of his calling as a profession – all this life story with an almost teleological structure appears in the course of the informal conversation that we had with his wife E. S. during our visit to the apiary made by humans for bees 'deep in the forest' of Strandzha.

In the course of conversations *in situ*, i.e. in the very apiaries where we took interviews not only from beekeepers but, as it were, also from the co-participant bees themselves who were around us, landed on us, hummed and 'did' their everyday activities, as we tried to identify, observe and question those predispositions that stand in the basis of the specifically oriented work of beekeepers resulting not only in the creation but also in the maintenance of the 'model' apiary – what we deem an example of an anthropobiotic community.

To 'love' bees, to be 'dedicated' to them – in the words of P. T. – is the sign under which the 'labour' of the beekeeper 'must' take place. In the apiary, the 'labour' of the beekeeper is 'human help' to a living, complex and active organism – an organism to help when in need, one with whom to be

a partner in a joint activity. That is why their 'labour' as beekeepers is perceived in the modality of 'must' and more precisely in that of 'duty' which, deployed in the logic of the gift rather than of the market, turns giving into receiving – 'We won't get rich... Most of all, the pleasure of bees – that's what moves us, me especially. Most of all, when I see that some bee family needs something and when I start speaking to it in its language, then the pleasure is the greatest.'

In the considered anthropobiotic communities, however, not a mere abstaining from giving privilege to oneself, to one's thinking and behaviour on the part of beekeepers is observed (that would mean ignoring the needs of bees and an instrumental attitude towards them) but prioritizing bees and their activity – 'The most important is to serve to the bee family what it wants' (G. T.). The task of the beekeeper in the common partnership is to understand what the bee colony 'wants' and 'serve' it to them in the right moment. The practical reflexivity here consists in the beekeeper's becoming-adequate-to-bees-life-and-activity.

Within the community, the interaction between humans and bees is deployed in the mode of 'conversation' when 'the bee family needs something' – i.e. of communication in a situation of a need for help. The 'language of the bees' is not a given – it becomes mastered with reflexive attention, with the formation of an attitude, a predisposition for patient observation and learning, as well as respect for the living organism. It is this communication of the personal type that creates the community, wrapping it in a halo of intimacy, sharing and deep affectivity. It is because of the personal and affective interaction with the bees, deployed under the sign of care, that the beekeeper acquires the ability to 'talk to bees in their language' – 'Most of all when I see that some bee family needs something and when I start speaking to it in its language, then the pleasure is the greatest.'

One can infer another derivative key aspect of the overall attitude of the village's beekeepers towards their interaction with the other living and acting partner agent – prioritising the 'romantics' of beekeeping at the expense of 'business' and economic gains:

'I'll say it again – I get very impressed by the ways of the older beekeepers, like Uncle I. K., who's still alive. He would speak like this: "Hey, boys, quit running for those profits, he would say. In racing against time, you

miss the romance of beekeeping! To sit next to the hive, to take a good look at it, to see all of the things... You're just losing that which... So most probably you guys, he would say, are no beekeeper material".

In the 'romantics of beekeeping', one can discern those predispositions that stand in the basis of the specifically oriented work of beekeepers, resulting not only in the creation but also in the maintenance of the apiary – an example, in our view, of an anthropobiotic community as a community between humans and other living and complex forms of life which is deployed under the sign of care, in a non-pre-given but also non-fortuitous manner achieved as a joint community between:

- families of beekeepers;
- bee colonies – as a reflexive interaction with a living partner agent in the anthropobiotic community;
- the apiary – its construction and maintenance as the material habitat of the interaction in the anthropobiotic community, as well as the creation and introduction of a specific organisation of work there.

We turn special attention to the fact that beekeeping in both cases is a family occupation. In the observations and conversations, the care of the bee colony (in Bulgarian: *'the bee family'*) was manifest as a care for one's own family, and hence the affective, emotional, personal attitude of the human to the non-human that is manifested within the horizon of care.

Thus the human – non-human connection and their mutual 'taming' in the anthropobiotic community inevitably entail the 'taming' also of the 'place' where the apiary is constructed. In the case of the T. family, it has been selected outside the village, i.e. *'... as much as possible in their own environment, next to a forest, that is, in the wild'*, in proximity to the plots cultivated by the local agricultural producers and serving as a pasture for the bees. Besides, linden trees have been additionally planted in the apiary – *'It's the beekeeper's tree. You can see how many bees are in it now!'* Adjacent small buildings have been built to store the necessary work equipment and supplies. In short, a suitable habitat has been created for the anthropobiotic community as an independent world of their partnership – a world with new rules.

However, it is not just setting up the external habitat, i.e. the environment, presupposing the taming also of nature (turning the apiary into a

garden and the creation of a linden grove), but also the improvement of the beehives themselves – the material habitat of the bee colonies – that carry the 'embodied necessity' of the beekeeper. G. T., combining elements from two different types of hives, created his own, unique hive type, making additional changes to its hull. Since *'the main work on the apiary is with your head'*, as he often quotes himself, he removed the unnecessary heights, made changes to the lid, removed the external ridges, modified the hives' bottoms – *'I began to combine things so as not to get in the way of bees – for that's the main thing for me, not to hamper them – and in the same time to diminish my work in some way, if possible of course.'* To make these changes, the beekeeper returned to his father's carpentry workshop and, *'combining things'* in this different dimension, he resumed its halted work but in a direction relevant to his current occupation with beekeeping – *'At this time, we only work on hives in the workshop I've set up myself a whole technological line for hives.'* It is essential here how the interrupted investment in carpentry reappears once again as an important investment into the future of the new professional field; in other words, how in the occupation with beekeeping the previously mastered carpentry skills are superposed over the knowledge 'of' and 'about' specific biological and cultural practices and in this way it turns into biocultural knowledge that can be transmitted as a heritage under the form of practicing the beekeeping craft.

The two big apiaries of the S. family are similarly constructed. The first is, so to say, more 'tame', and besides a special 'place' for the bees, it is also conceived as a special 'place' for the humans – the family of beekeepers, their guest, those desiring to pour themselves from the 'honey bar' – some biologically produced and ecologically certified as a UNESCO trademark honeydew honey. The second is *'deep in the forest'*, located in the silence of the Strandzha oaks and the murmur of the rivulet nearby – another special place but made for the bees, into which humans tread quietly, and the beekeeper delivers his care among the sound of their humming.

We can summarise that the two examples of anthropobiotic community represent two different worlds of partnership in which the interaction is organised in different rules depending on the practical goals they serve. And the condition

of possibility of the genuine communication with bees, i.e. the condition of possibility of the partnership, is, on the one hand, in understanding them – being able to ‘see’, to recognize the ‘urgency’ (in the words of P. T.) that they have here and now, and on the other, in stepping into necessity, in making oneself able to respond to their ‘need’.

The moving principle of this internal organization of the work in the apiary as a manifestation of the ‘practical sense of correctness’ of the beekeeper is synthesized in the already quoted words: ‘*The most important is to serve to the bee family what it wants*’, and the condition of possibility of that is to get to know the bee colonies intimately and observe them to be able to take care of them and help ‘*when the problems come*’.

Conclusions

In this article, we tried to delineate the potential of the biocultural approach as an analytic instrument for redrawing the hard borders between natural and social sciences in the study of the problems of the environment. Scientific knowledge is called upon to reveal these problems and offer a set of instruments for their solution. This ensues from the growing awareness of the fact that these are not merely biological and/or ecological but fundamental social problems: they are the result of human social behaviour, they are considered problematic because of their impact on humans, and their resolution requires societal effort.

The biocultural approach as proposed in this article claims to be a multidisciplinary approach that combines the research expertise of scientists from different paradigms and different scientific fields, such as ecologists, biologists, anthropologists, sociologists, social geographers etc., revealing the close interconnection between ecological knowledge, cultural practices and social structures, in our attempt to analytically interpret the problems of the environment. We tried to delineate the specifics of this approach and the possibilities it provides to the different research perspectives for an interdisciplinary problematization of local ecological knowledge and practices. We permitted ourselves to empirically connect our theoretical premises to two research cases related to beekeeping as a specific form of knowledge and experience in which the biological and the cultural have merged into a peculiar amalgam of bio-cultural practices and interactions. To this

end, we introduced the concept of anthropobiotic community in order to throw analytic light on these practices and knowledge that are accumulated, appropriated, reworked, cultivated, and, we can safely say, ‘tamed’ into biocultural heritages. Understood as a form of coexistence between ban and another form of life, here the bee colony, this form of joint community permits the rethinking of ‘*ecological cohabitation*’ between human communities and animal groups considered within the horizon of care, i.e. based on mutual dependence and co-participation. The cases were presented of two families of beekeepers that make possible the anthropobiotic interaction in the community. We saw how, although this joint community is organised differently, they actually similarly turn the specific communication, the ‘*dialogue*’ through which the understanding takes place between man and the non-human living organism, into their practical achievement. Making beekeeping their profession, but led by their calling, beekeepers acquire those predispositions and attitudes that make them capable of an ‘*answer*’, i.e. able to ‘*understand*’ adequately the need that bees have here-and-now and ‘*speak in their language*’ through emotional affectivity and care. We tried to make explicit these specific ‘*how*’ of that understanding which leads to generating, in the course of activity, a multitude of biocultural practices. Combining ecological, biological and social knowledge, these practices allow them to ‘*speak with bees in their language*’.

We will conclude with the pathos in the words of E. S., who, asked to describe the special link between her and bees, said the following: ‘*In this case, I can say with conviction that bees (as a sole organism) and the beekeeper create their unique community in which there reigns mutual assistance and care on the principle: the more you give, the more you get. In this ‘human-bees’ community, the reasonable, professional activity of the beekeeper goes along with their emotional involvement with them. Here, the bee is not perceived as a trivial honey-bearing insect but as a being with whom you must be considerate and whom you must assist with the most delicate intervention possible.*’

It is practising that ‘*most delicate intervention possible*’ is the condition of possibility of the ongoing creation as a here-and-now practical achievement of the anthropobiotic community between human families and bee colonies. Participation in

it inevitably leads to the generation of a multitude of cultural practices directed to the mutual taming of humans and bees in the course of which, under the sign of care, the specific biocultural knowledge gradually crystallizes whose sedimentation and accumulation permits its transmission as a heritage under the form of beekeeping craft.

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