Chapter 21
Introduction to Part III: Biocultural Communication and Conservation Across Urban, Rural, and Remote Ecosystems

Danqiong Zhu, Terrance Caviness, and Ricardo Rozzi

Abstract Biocultural homogenization and the "extinction of experience" are key drivers of rapid losses of biological and cultural diversity. However, a lack of awareness about the causes and consequences of these losses prevails in global society. To transform this social alienation and contribute to conserving biocultural diversity, it is essential to develop biocultural communication that connects society with the diversity of worldviews and cultures that value biodiversity. This biocultural diversity occurs across gradients of urban, rural, and remote ecosystems. In our introduction to Part III, we briefly refer to three case studies that inspired our book and showcase forms of biocultural communication in place-based educational settings: Omora Ethnobotanical Park (Puerto Williams, Chile), the Cranberry Lake Biological Station (New York State, USA), and the H.J. Andrews Experimental Forest (Oregon, USA). We then summarize six biocultural conservation concepts and practices presented in the chapters of Part III, which draw on innovative initiatives from Asia and Latin America. (1) Flagship species, such as the Chinese medicinal plant *Cao-guo* or Chinese black cardamom (*Lanxangia tsao-ko*), inspire citizens to engage in biocultural conservation. (2) Eco-themed art exhibitions increasingly captivate the public as well as ecologists, artists, and citizens, offering

D. Zhu (✉)
Sub-Antarctic Biocultural Conservation Program, Department of Biological Sciences, University of North Texas, Denton, TX, USA

Cape Horn International Center (CHIC), Universidad de Magallanes, Puerto Williams, Chile
e-mail: Danqiong.Zhu@unt.edu

T. Caviness
Department of Environmental Biology, State University of New York College of Environmental Science and Forestry, Syracuse, NY, USA
e-mail: tcaviness@esf.edu

R. Rozzi
Sub-Antarctic Biocultural Conservation Program, Department of Philosophy and Religion and Department of Biological Sciences, University of North Texas, Denton, TX, USA

Cape Horn International Center (CHIC), Universidad de Magallanes, Puerto Williams, Chile
e-mail: Ricardo.Rozzi@unt.edu

D. Zhu et al. (eds.), *Linking Arts with Biocultural Conservation, Restoration, and Communication*, Ecology and Ethics 8,
https://doi.org/10.1007/978-3-032-04830-1_21

a novel form of contemporary biocultural communication. (3) Innovative combinations of landscape painting and poetic dance drama amalgamate traditional and contemporary art forms. (4) Integration of rational knowledge and emotions is illustrated with photovoice, a qualitative research method used in community-based participatory research that involves gathering photographs and narratives taken by community members, as opposed to outside researchers. (5) Nature-based paths for rural revitalization developed in Chinese urban-rural co-innovation regions, are especially relevant to villages with rich natural and cultural heritage, which can be valued and protected using market-oriented approaches to sustainability in ways that meet the demands of both rural and urban residents. (6) Ancestral practices, such as the Lamkaang Naga Indigenous Traditional Healing Systems of northeastern India, express forms of collective interdependence among humans, the land, medicinal plants, and the entire community of living beings with whom the habitat is shared. These six forms of biocultural communication illustrate vital interconnections between the life habits of human and other-than-human co-inhabitants in shared habitats. In this way, biocultural communication discloses just and sustainable forms of co-inhabitation among diverse cultures and species.

Keywords Arts · Biocultural homogenization · Flagship species · Rural revitalization · Urban ecology

21.1 Introduction

The conservation of global biocultural diversity faces unprecedented challenges. Biocultural homogenization has occurred and continues to occur around the globe at different scales, impacting urban, rural, and even remote ecosystems. The impact of biocultural homogenization across anthropogenic gradients has been demonstrated by numerous studies (Celis-Diez et al. 2017; Rozzi 2018). To address these challenges, novel educational methodologies emerge in the field, such as constructivist learning approach (Arık and Yılmaz 2020), mixed reality (XR) (Aguayo and Eames 2023), and field environmental philosophy (FEP) (Rozzi et al. 2023). Several case studies in our book have adopted field environmental philosophy as a methodology to foster "direct encounters" with biocultural diversity (Rozzi et al. 2008, 2023; Tauro et al. 2021). Examining the interrelationships between biocultural homogenization and the "extinction of experience," Alexandria Poole (2023) proposed that it is necessary to make adjustments to the contemporary formal education system so that "localized knowledge" and "globalized knowledge" can interact and thus foster biocultural conservation.

From a biocultural perspective, we can value the complementarity between modern "globalized knowledge" and ancestral "localized knowledge." Forms of globalized knowledge associated with Western sciences, such as biology and ecology, taught in formal educational systems, would be enriched if they also consider traditional ecological knowledge as well as knowledge inherent to the cultural identity of local communities. In this regard, liberation theologian May Jr (2023)

has combined his experience in formal and non-formal education in Latin America. He has criticized Eurocentric approaches to education for strengthening the coloniality of power, shaping social structures, mentalities, and lifestyles in ways that have oppressed Indigenous and other local communities (May Jr 2023). May Jr. as well as other Latin American ecologists and philosophers, such as Alejandra Tauro (2023), Alicia Bugallo (2012) and Rene Moreno-Terrazas and collaborators (2023), have proposed that the research, educational, and action methodology of field environmental philosophy can offer a strategy for conserving the integrity of traditional ecological knowledge and global biodiversity. Chinese environmental philosopher Yubo Song elaborated on the vital relevance of integrating local culture and knowledge into biocultural conservation and restoration (Song 2026).

Field environmental philosophy incorporates the arts, as they play a significant role in biocultural conservation and restoration by engaging local communities and fostering a deep connection with biocultural diversity. In various regions of the world, artists often collaborate with members of local communities to create site-specific and place-based works that reflect an area's unique biocultural heritage (Curtis et al. 2012; Ojeda et al. 2023; Costa-Carvalho 2023). By involving community members in the creative process, the arts raise awareness of the values of local and regional biocultural diversity. At the same time, they empower residents to actively participate in the conservation and restoration of their unique biocultural heritages, landscapes, and community ties (Song 2026; Zuo and Zhang 2026).

Parts I and II of our book included case studies that illustrate concepts and practical knowledge rooted in biocultural diversity. These cases express place-based worldviews and "localized" practical knowledge, where the arts have played powerful roles in biocultural conservation and restoration. Part III of the book emphasizes that biocultural communication is also an integral component of biocultural conservation and restoration. This is demonstrated by diverse artistic formats taking place in urban, rural, and remote ecosystems that envision future forms of biocultural communication where the arts will take even more central roles.

21.2 Biocultural Communication in Three Places That Inspired This Part

In our introduction to Part III, we briefly refer to three case studies that inspired our book and showcase forms of biocultural communication in place-based educational settings: Omora Ethnobotanical Park (Puerto Williams, Chile), the Cranberry Lake Biological Station (New York State, USA), and the H.J. Andrews Experimental Forest (Oregon, USA).

Three place-based biocultural conservation initiatives in the Americas disclose how precious biocultural communication is for reconnecting global citizens with biological and cultural diversity and their interrelationships. These cases are: (1) the biocultural research/educational/conservation program of Omora Ethnobotanical

Park in the Cape Horn Biosphere Reserve, Chile, at the southern tip of South America; (2) the educational and community engagement programs at the Cranberry Lake Biological Station, College of Environmental Science and Forestry (ESF), State University of New York (SUNY), in the Adirondacks, USA; (3) the H.J. Andrews Experimental Forest Long-Term Ecological Research (LTER) site in the Western Cascades, Oregon, USA.

The Omora Ethnobotanical Park Initiative was created in 2000 to provide a "physical and conceptual space" for long-term biocultural research, education, and conservation (Rozzi et al. 2006). As a *physical space*, it is a biological reserve that protects the Robalo River watershed, the source of drinking water for the town of Puerto Williams. As a *conceptual space*, biocultural research and educational programs of Omora Park integrate sciences, philosophy, and arts. Located 3 kilometers west of the world's southernmost city, Puerto Williams, the Omora Ethnobotanical Park team has developed concepts and methodologies of great significance for biocultural conservation and communication. Its Field Environmental Philosophy workshops and courses involve educational strategies that incorporate *in-situ* communication among students, members of the Indigenous Yaghan community, other local residents, navy people, authorities, teachers, tourism guides. Participants engage in storytelling, linguistic sharing and analysis, and artistic activities involving Indigenous and scientific knowledge of plants, birds, other organisms, and ecosystems (Rozzi et al. 2008, 2014; Rozzi and Jiménez 2014).

Practically, in a conventional classroom setting for a course in ornithology, one might study the physiology of the organism, the taxonomic differences, the skeletal structure, even the ecological interactions, but this all happens *ex-situ*, with the organisms separated from their habitat and other co-inhabitants. The language used is technical and precisely communicates. Place-based knowledge may appear as the environment the organisms live in. There is also a typical dissemination of information from instructors to students. Whereas in a class at Omora Ethnobotanical Park, connection to place is prioritized, whether local or visitor, participants are invited to bring their experiences with them. Language, names of organisms, and what they can tell us about how humans interact and perceive other-than-human beings are central. Communication is plurilateral as opposed to hierarchical. Through conversation amongst all participants (instructor included), a more holistic understanding of the organisms and the place-based biocultural diversity is attained rather than a strict biological analysis.

Rozzi considers biocultural communication occurs in the field among participants of the programs through face-to-face contacts, interpersonal communication, intercultural and interspecies encounters, and it also reaches out and extends to a broader audience about the discoveries, activities, and projects through multiple media, such as publications, documentary films, newspaper, radio programs, or social media (Rozzi et al. 2006; Rozzi 2023). These messages sent through multimedia and multiple channels are both expressions and invitations. However, Rozzi emphasizes that:

> In … urban global society, communication is carried out through media communities, to the point of turning face-to-face encounters with biological and cultural diversity into an atavistic memory … Communication without face-to-face encounters and sensory experiences, however, leads to a knowledge about biological and cultural diversity that ends up not being felt. For this reason… Omora Park's field environmental philosophy programs emphasize experiences of "direct encounter" with mosses, lichens, trees, rocks, water, birds, and other living beings (humans and other-than-humans). With its emphasis on direct encounters and the immediate and holistic perception of nature, Omora Park's educational experience aims to compensate for the current excess of mediated information (Rozzi 2023, p. 169).

Through these experiences at Omora Park, students and researchers become actors and social communicators of biocultural diversity. Today, linguistic and cultural diversity is even more "invisible" than biological diversity. To counterbalance this deficit, the educational approach of field environmental philosophy involves both intercultural and interspecies encounters (Rozzi et al. 2008; Contador et al. 2023; Crego et al. 2023; Méndez-Herranz et al. 2023; Ojeda et al. 2023).

Cranberry Lake Biological Station (CLBS) is located in a remote area of the Adirondack region, New York State, surrounded by Adirondack Wild Forest and Wilderness lands and can only be accessed by boat. For over 100 years the station has served as a place to cultivate connection with land and place (SUNY ESF 2024). Primarily an educational field station, students learn with professors directly from the beings they are studying. Their keystone course, Ecological Monitoring and Biodiversity Assessment, places value on "direct encounters" with other-than-human organisms in their native habitats, and personal reflection about these interspecies encounters. Students are required to keep a nature journal about the organisms they encounter, including their broader ecological surroundings and how they are engaging with other beings. Through art and scientific curiosity students develop a connection to place over the duration of the course. In their final week of the course, they use their journal to reflect on what they have seen and learned, both in class and through their personal journals to develop research questions. These questions are often tied closely to the biological station and reflect their scientific curiosity rooted in ecological interaction rather than extracting an organism from their surroundings. Other courses offered include ethnobotany and respectful field research approaches. Both courses include the blending of Indigenous and western sciences to inform how we learn from the natural world, how we engage with the natural world, and how to develop research projects that are founded on respect for the beings of study.

In recent years there have been initiatives to expand beyond the classroom. Through service-learning components the local communities are brought into the collective learning of the students. New programs such as lecture series and scientific illustrator programs are broadening the impact of research at the station, sharing information, and learning from participants about their perceptions of place and what they have seen change ecologically over the years (SUNY ESF 2025b). New voices are invited to the station through the Indigenous Writer in Residency Program, three writers are hosted yearly, aligned with student course sessions, to provide a place for them to engage with research, find solace in place, and have the creativity to write

(SUNY ESF 2025a). The residency is welcoming with few constraints on projects or deliverables to ensure that the place itself can provide inspiration for the work of the writers. In addition, residency writers also have the opportunity to join courses and give talks to students to ensure that cross-pollination happens among every participant. These programs seek to incorporate different perspectives and worldviews into the biological station and provide space for exchange and discussion as a method of biocultural communication.

The H.J. Andrews Experimental Forest in the Oregon Cascade Range, USA, is an experimental forest in the US Forest Service system, encompassing 6400 ha of public land of old conifer forest, forest plantation, and fast-running streams. It is a Long-Term Ecological Research (LTER) site that has gone through four stages since the 1950s (Swanson 2023). Early communication at Andrews Forest occurred primarily among professionals, such as Forest Service researchers and land managers who advocated the development and exploitation of the forests. In Frederick Swanson's words,

> [The] conversion of native forests on Forest Service lands in the Pacific Northwest was based on an instrumental/utilitarian view of the value of the forests—they are valuable only for human use as wood products. The native forest was being erased… imposing a disconnect between humans and the natural world. In this era [1950s], science was conducted at the Andrews Forest by a small cadre of Forest Service researchers mainly to support utilization, while minimizing environmental impacts. Communications efforts targeted scientists and land manager audiences, but interaction with land managers was otherwise minimal. In a sense, this was "domesticated science" … and had no direct engagement with the notion of non-utilitarian values of the forest (Swanson 2023, p. 541).

Communication with the public emerged in the 1970s, primarily by presenting professional scientists' research on the complexities and wonders of old-growth forests to the public through a variety of media. Beginning in the 2000s, because of the trend toward art-literature-science synergies in the environmental field, the Andrews Experimental Forest has also been initiating programs to promote engagement with the humanities, such as the LTER Reflections Residency Program, the Nelson's Conservation Ethics Program, and the outreach programs (Swanson 2023). Through these programs, writers, artists, scholars, philosophers, graduate students, middle-and-high school students, and other citizens are invited to the sites to conduct reflection, creative, educational, and other field activities.

A novel educational approach at Andrews Experimental Forest combines digital technology with field experiences. Since 2018, an inquiry-based curriculum is formatted on portable tablet computers (iPads) shared by groups of two to three students enabling them to have hybrid sensorial-technological place-based experiences (Markiewicz et al. 2023). Digital technology use in STEM (Science, Technology, Engineering, and Mathematics) learning environments is common, but the use of digital technology in field settings has been poorly explored (Markiewicz et al. 2023). The tablets provide a non-invasive way to archive student assessment data and facilitate the communication of their place-based experiences. However, Julie Markiewicz and collaborators (2023) admit that there is a methodological and philosophical tension with taking digital technology outdoors because it mediates

field experience in ways that could prevent emotional connections to the natural world, and attentive place-based learning.

21.3 An Overview of Part III Chapters

The chapters in this part are further elaboration, exemplification, and response to approaches to biocultural communication and conservation presented in previous volumes of the *Ecology and Ethics* series and the first two parts of our book. It includes art-science initiatives across gradients of urban, rural, and remote ecosystems. Among these, some initiatives are as mature as the research and education programs described above for Omora Park, Cranberry Lake, and Andrews Experimental Forest, and other initiatives are at an exploratory stage. However, together they cover cross-cultural theoretical discussions about biocultural communication as well as practical techniques in the field. Putting these chapters together, we expect to expose readers to a thriving and multicolor landscape of biocultural communication experiences taking place contrasting socio-ecosystems.

The use of a single, culturally important, "flagship species" is useful as an entry point for people to engage on a deeper level with the natural world (Zhu 2023). This is particularly useful to connect people with remote areas that most citizens have not directly experienced. In Chap. 22, "A Biocultural Sketch of Cao-guo (*Lanxangia Tsao-ko*)," Zhang and Xu (2026) examine a Chinese medicinal plant as a flagship species. They apply the 3Hs (habitats, habits, and co-inhabitants) model of the biocultural ethic and the field environmental philosophy methodology to explore biological, ecological, cultural, aesthetic, and socio-economic values of a flagship species, which is more integrally understood as biocultural keystone species. Reflecting on the journey to visit Cao-guo in its native habitats, Zhang and Xu (2026) analyze the potential of employing watercolor paintings to communicate the biocultural significance of this species rooted in traditional medicine and food culture.

A novel form of biocultural communication is explained by Li et al. (2026) in Chap. 23: "Immersion and Interactiveness: Eco-themed Art Exhibitions and Biocultural Communication in East Asia." Li et al. (2026) illustrate how interdisciplinary collaborations take place at museums, art festivals, and exhibitions, which offer effective platforms for biocultural communication. Exhibitions and events in various locations in China, Japan, and South Korea, such as the insect exhibitions in Quantum Farm (China), Guanzhong Mangba Arts Festival (China), Our Ecology: Toward Planetary Living (Japan), Sea Art Festival (South Korea), and Gangwon International Triennale (South Korea), are examined through the lens of biocultural ethics. They discover that these eco-themed art exhibitions generate effective biocultural communication because they carry copious messages regarding multiple species entanglement, interconnectedness of all things, and the aspiration of people to reconnect with their traditions, habits, and history. Li et al. (2026) document how curators and artists of these exhibitions proactively employ immersive and

interactive methods to associate with the visitors and local people, engaging their multiple senses to sustain artistic creations and narratives of biocultural traditions in East Asia. In summary, eco-themed art exhibitions increasingly captivate the public as well as ecologists, artists, and citizens, and offer a contemporary blending of traditional and technological concepts-and-practices to communicate core values of biocultural diversity.

Urban residents tend to contribute more to the status quo of global biocultural homogenization, and are largely unaware of its detrimental impacts. Chinese artist Juan Wang exerts dance to tackle this problem in metropolitan areas of the globe. In her chapter "A Mere Touch of Green: Reconnecting People and *Shanshui* through Poetic Dance Drama," Wang (2026) presents her work concerning biocultural communication through arts. In Chap. 24, she examines the connections between a contemporary poetic dance drama, *A Mere Touch of Green,* and a national treasured landscape painting, *A Panorama of Mountains and Rivers*. Wang (2026) discovers a striking similarity between the mindsets of ancient Chinese literati and modern urbanites: the attachment to *Shanshui*, the Chinese word for landscapes hosting mountains and rivers. The paradox of being absent in the *Shanshui* and hunted by this landscape urges people to reconnect to their native biocultural habitats. Through her blending of paintings and experimental dance, Wang (2026) ultimately achieves immersing herself into the native landscapes. This art experience led her to realize that green infrastructures (such as a low-maintenance, nature-based, rewilded urban park, and green space in university campus), offer places that are at hand in everyday urban life for reconnecting people with *Sanshui.* In this way, Wang (2026) offers an affordable and amiable art practice to cultivate an appreciation for the land, and to catalyze biocultural communication through dance pedagogy.

The combination of technology with field experiences is approached by Mexican ecologists Franquesa-Soler and Mesa-Jurado (2026) in "Photovoice: A community-based research and communication tool for wildlife conservation and coexistence." Photovoice is a qualitative research method used in community-based participatory research that involves gathering photographs and narratives taken by community members, as opposed to outside researchers. Franquesa-Soler and Mesa-Jurado (2026) adopt this method to integrate rational knowledge and emotions in the participation of local people in conservation. In Chap. 25, they explore how art can be used by researchers to empower residents' voices and drive wildlife conservation. This art-science method also enhances understanding about residents' perceptions of their local environment, and dialogic communication via photography and discussion. The shift of power from researchers to members of local communities opens novel paths for the identification of socio-ecological problems, and the cocreation of solutions. Based on a case study in southern Mexico, Franquesa-Soler and Mesa-Jurado (2026) highlight how photovoice served as a methodology for communication engaging students, adults, and other stakeholders in analyses of socio-ecological changes. This communication methodology enhanced students' perception of wildlife and facilitated the identification of positive and negative interactions between wildlife and the community, thereby informing community processes focused on natural resource management.

Habitat management can be critical in urban ecosystems. In "Nature-based Solutions to the Revitalization of Wuyuan County," Kongjian Yu and his collaborators explain a nature-based rural revitalization project in Xunjiansi Village, Wuyuan County, Jiangxi Province, China. Yu et al. (2026a) use the *Wangshan Life* framework, which they designed for revitalization of traditional agricultural wisdom, restoration of ecological infrastructure, conservation of cultural landscape, and reconstruction of village life habits in Xunjiansi. Aligned with biocultural ethics which values the vital links between the life habits of human and other-than-human co-inhabitants in their shared habitats (Rozzi 2012, 2013), the *Wangshan Life* framework addresses the complexities of relationships among people, other-than-human beings, and their landscapes (Yu et al. 2026a). A nature-based ideal of co-inhabitation has reached out to domestic and international audiences through *in-situ* seminars on human settlement and vernacular, cultural landscapes as well as continuous programs at the National Mayor Training Institute and related educational/research activities. In this initiative, arts play a central role in educational and field activities. By inviting artists and villagers to create artworks jointly, local biocultural heritage is conserved. Their local, place-based aesthetics, namely "Bigfoot Aesthetics" values healthy ecosystems and guides prudent use of nature in conservation. Regional cultural landscape and corresponding biocultural heritages have endured generations, and the ecological wisdom revealed is worthy of reverence, protection, learning, and passing on. This is the key message for biocultural communication and conservation stated by Yu et al. (2026a).

The former concept is further elaborated through other case studies in the chapter "The *Wangshan Life* Model for The Revitalization of Rural Villages: The Xixinan Case." In Chap. 27, Yu et al. (2026b) explains their *Wangshan Life* model, which includes five interconnected components:

- poetic dwelling,
- organic food,
- free touring,
- immersive education, and
- the arts.

Yu et al. (2026b) explain how the integration of these five elements is enhanced by improving ecological infrastructure and rebuilding residential spaces as well as by incorporating ecological learning, research, and artistic practices into village branding. Their initiative has fostered a co-governance system involving local government, village residents, experts, and enterprises. Yu's experimental model has yielded remarkable results, including improved ecosystems, increased local incomes, revitalization of the rural community (with younger generations returning from large cities), and the preservation of cultural heritage. The *Wangshan Life* model offers a promising path toward urban-rural co-prosperity and biocultural conservation, which could be essayed in other regions of the world.

The immersion of local cultures and their native land is presented in a personal and reflective way by Sumshot Khular in "Indigenous *Lamkaang Naga Loh Kchet*: Collective Interdependence in Northeastern India." In Chap. 28, Khular (2026)

describes her Lamkaang Naga Indigenous community, where she was born and raised. Khular combines Brian Burkhart's model for cultural resurgence and colonial resistance with Ricardo Rozzi's 3Hs model of the biocultural ethic to interpret and analyze Lamkaang Naga practices. She employs Burkhart's term "locality" as a conceptual tool to reference how being, meaning, and knowing are rooted in the land. She uses the 3Hs (Habits, co-in-Habitants, and Habitats) to highlight the vital interconnections among the life practices of humans and other-than-human beings who share ecological and cultural spaces. Khular stresses the collective interdependence and relationality that Lamkaang people maintain with their land and all living and non-living beings in their shared habitat. Traditional practices, such as healing rituals and collective labor like *Loh Kchet,* are deeply rooted in Indigenous worldviews that respect the land as a living entity. Based on personal experience grounded in ethnographic studies and other empirical research, Khular (2026) documents how Lamkaang Naga people ask permission from the land, plants, animals, and water before engaging in various activities. This is a reflection of their deep respect for the agency and sacredness of other beings, and the land as a whole.

Part III ends with a short storytelling essay, which is emblematic for biocultural communication. In "Carekeepers," Yakovleva (2026) explores the interplays between mushrooms and her story, language, and family history. Yakovleva narrates her youth with her grandparents and parents foraging in the forests around Moscow, and the family stories that accompanied these excursions. Remembering family history, cultural stories, and respectfully engaging with the natural world, Yakovleva (2026) generates a captivating type of biocultural communication that nourishes a unique biocultural ethics. Echoing a central invitation of our book *Linking Arts with Biocultural Conservation, Restoration, and Communication*, Yakovleva encourages readers to connect with their own family and cultural histories as well as communities of other-than-human co-inhabitants to achieve a sense of biocultural communication, and foster conservation of biocultural diversity.

Acknowledgments We acknowledge the support from the Chilean National Agency for Research and Development through the Cape Horn International Center, CHIC (ANID/BASAL FB210018).

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