

## Development of and reflections on ecological anthropology in China



Shaocong Zeng<sup>1</sup> · Yi Luo<sup>2</sup>

Received: 4 April 2022 / Accepted: 7 April 2022 / Published online: 27 April 2022  
© The Author(s) 2022

### Abstract

Ecological anthropology in China has a history of more than 70 years, and can be divided into four stages. The first stage was in the 1950s, which began with China's identification of *minzu* and socio-historical surveys of ethnic minorities. This stage was characterized by refinement and application of the Economic-Cultural Type theory from Soviet ethnography. The second stage took place in the 1980s and 1990s, when China's ecological anthropology research focused on explaining the relationship between local group culture and the environment, and how this changed in the process of modernization. Studies in this phase mainly concentrated on China's southwestern and northwestern regions, and the theoretical trends of the "adaptation model" and "the cost of development" were formed, becoming central topics. The third stage was in the first decade of the twenty-first century, when Chinese ecological anthropologists focused on the natural and social consequences of changes in the ecological environment, and stressed the importance of exploring, protecting and transforming local ecological knowledge. Ecological anthropology research flourished in Hunan, Guizhou, and Guangxi as well as in the Daxing'anling and Xiaoxing'anling mountainous regions of Northeast China. The fourth stage was in the most recent decade, when ecological anthropologists expanded their research to cover disasters, biodiversity, local social vulnerability and promotion of ecological progress, and their research areas expanded to the southeastern coast, inland river

---

✉ Shaocong Zeng  
sczeng@yeah.net

Yi Luo  
Lyi811213@sina.com

<sup>1</sup> Institute of Ethnology and Anthropology, Chinese Academy of Social Sciences, Building 6, 27 Zhongguancun Nandajie, Haidian District, Beijing 100081, China

<sup>2</sup> Institute of Cultural Anthropology, Xinjiang Normal University, No.100 Guanjing Road, Shuimogou District, Urumqi 830017, China

basins and traditional farming areas in the Central Plains. This paper argues that the development of ecological anthropology in China has been driven by academic consciousness rooted in local field experience, accurate understanding of the research target and changes in social situations of the era, and in-depth dialogue with Western ecological anthropological theories. At present, China's economic and social development patterns and the relationship between local people and their ecological environments are undergoing profound changes. Therefore, China's ecological anthropology should respond and adapt to these new changes through solid ethnographic surveys, take root in local field experience, and draw on the wisdom of ecological civilization development in excellent traditional Chinese culture, to become aware of new theories and carry out innovative development.

**Keywords** China · Ecological anthropology · Development and reflection · Promoting ecological progress

The past 70 years have witnessed the development of ecological anthropology in China. During this period, comments of researchers in Chinese academic circles on this journey have followed four routes. The first route primarily concerns the main research fields of ecological anthropology, including Marxist ethnology, economic-cultural types and cultural ecological regions, ecological anthropology, ethnobotany, ethnoecology and environmental anthropology (Yin 2012). The second route focuses on a topic of ecological anthropology in a specific period of time, involving discipline localization and theoretical construction, environmental protection and community development, ecological adaptation and cultural change, and so on.<sup>1</sup> The third route is to reconstruct the development process of ecological anthropology in China through interviews with the older generation of Chinese ecological anthropologists, and to present the process through which they conducted ecological anthropology research, the issues with which they concerned themselves and their understanding of and suggestions on the current status and trends of the discipline.<sup>2</sup> The fourth route is to review and reflect on the research purpose of ecological anthropology in China. It holds that the main practices of ecological anthropology in China are as follows: theory construction, application, and cultural criticism (Du 2019). These clarifications essentially expound the history and status quo of ecological anthropology in China. However, they also have three disadvantages. Firstly, the evolution of ecological anthropology theory in China has not been

<sup>1</sup> See Qi Jinyu: "Ecological Anthropology Research: 30 Years of Chinese Experience (1978-2008)", *Guangxi Ethnic Studies*, 1, 2009; Guan Yanbo: "2016 Frontier Report on China's Ecological Anthropology Researches", *Innovation*, 2, 2017; Li Jiqun, He Hongcan: "Current Situation and Prospects of Ecological Anthropology in China", *Social Sciences in Yunnan*, 6, 2008; Zhang Shan: "2013 Review of Ecological Anthropology in China", *Journal of Ethnology*, 6, 2014.

<sup>2</sup> Since 2016, interviews with the older generation of Chinese ecological anthropologists, including Yin Shaoting, Yang Tingshuo, Yang Shengmin, Cui Yanhu, etc., have been published intensively. These interviews were mainly published in three academic journals: *Journal of Poyang Lake*, *Journal of Primitive Ethnic Culture* and *Three Gorges Forum*.

fully discussed, and understanding of the relationship between different stages of theory and its transformation is insufficient. Secondly, they pay insufficient attention to the relationship between the evolutionary trajectory of Chinese and Western ecological anthropology. Thirdly, the relationship between the evolution of theory and the change of research objects and their social situations at the time have not been deeply analyzed. This means that a detailed and in-depth discussion must be carried out on the evolution of ecological anthropology theory in China. Such is the goal of this paper, which divides this 70-year journey into four stages. Starting with the main research topics in each stage, we shall summarize and refine the theories and characteristics of each stage through analysis of representative figures and their findings. On this basis, we discuss the rupture, continuation and transformation of theories in different stages, as well as the relationship between these transformations and the change of research targets and the development progress of Chinese society. Moreover, we shall attempt to compare Chinese and Western ecological anthropology theories, reveal awareness of Chinese ecological anthropology theories in different stages and predict the innovative development of China's ecological anthropology theories.<sup>3</sup>

### **The 1950s: refinement and application of the theory of economic and cultural type**

Generally speaking, the development of ecological anthropology in China began with identification of *minzu* and social and historical investigation into ethnic minorities in the 1950s, marked by the application and improvement of the economic and cultural type theory from Soviet ethnology.

After the founding of the People's Republic of China in 1949, the Communist Party of China (CPC) immediately committed itself to incorporating the concept of "all ethnic groups are equal" into its policies, such as those on regional ethnic autonomy. Firstly, ethnic minorities are recognized by the state. The preamble of the *Constitution of the People's Republic of China* in 1954 stipulates that: "The People's Republic of China is a unitary multi-ethnic state created jointly by the people of all its ethnic groups." As a result, many long-oppressed ethnic minorities declared their ethnic identities and ethnic names. Secondly, the formulation of ethnic policies requires academic support from social science. At that time, as Fei Xiaotong pointed out, "China is a multi-ethnic country, but it is difficult to answer the question of what the ethnic groups are and how many of them there are" (Fei 1980). According to the first national census in 1953, more than 400 ethnic names were registered, with more than 260 names reported in Yunnan province alone. As a result, the government attached great importance to ethnic studies. From 1953 to early 1957, the Chinese government organized a large number of scholars to conduct site surveys on the

---

<sup>3</sup> Due to the limitation of materials availability and space, this paper only discusses the development and reflections of ecological anthropology in Chinese mainland, and does not include the research results of ecological anthropology by scholars in Hong Kong, Macao and Taiwan.

ethnic units to be identified. Pragmatic ethnic policies were thus formulated based on the identification of *minzu*, as well as linguistic, social and historical research on ethnic minorities. By 1979, 56 *minzus* had been identified.

Identification of *minzu* is a serious and arduous scientific research task based on systematic surveys and in-depth research on the history, economic life, social structure and cultural systems of different *minzus*. The identification standard includes three principles: i) flexible use of Stalin's four basic characteristics of national theory (or four elements) combined with the reality of China; ii) analysis and study of the history of each Chinese *minzu* from its current situation; and iii) respect for the opinions of the majority of people in each *minzu*. The "four elements" refer to a common language, territory, economic life and psychological make-up manifested in a common culture. There is an inherent logic between common territory and common economic life that mainly manifests in the close relationship between the ecological environment, resource conditions and economic production model.

Lin Yaohua participated in *minzu* identification and socio-historical survey work. In this process, he introduced and refined the theory of Economic-Cultural Type. As he pointed out, "common territory is a basic element of every historical development stage of an ethnic community. This common territory is the historical stage on which people of all *minzus* develop their economy and culture". He stressed that "interaction of the ecological environment with economy and culture of human society cannot be avoided (Lin 1997)". This means that in the process of *minzu* identification and socio-historical surveys, in-depth and detailed ethnological and anthropological surveys on these two elements and their combination patterns are required.

In 1958, Lin Yaohua and the Soviet ethnologist N. N. Cheboksarov (Н.Н.Чебоксаров) jointly wrote "China's Economic-Cultural Types", setting a precedent for the study of ecological anthropology in China (Lin 1999). "Economic-Cultural Type" refers to the synthesis of economic and cultural characteristics formed throughout history by various ethnic groups living in similar physical and geographical conditions who have similar levels of social development. In terms of operational rules, there are five levels. Firstly, the economic-cultural type is not a simple economic type, but rather a synthesis of economic and cultural interaction. Secondly, the economic-cultural type has the feature of being super-regional. Thirdly, the cultural characteristics of each type hinge on the direction of economic development determined by its geographical conditions. Fourthly, the economic-cultural type is a product of historical process. Fifthly, each economic-cultural type has its own historical age (Lin 1997).

The theory of Economic-Cultural Type has a profound academic foundation in anthropology, dating back to the ideology of "environmental possibilism" in the late 19th and early 20th centuries. Franz Boas, the father of American anthropology, pointed out that "the culture of any ethnicity can only be understood as a product of history, and its characteristics are determined by the social and geographical environment of the ethnic group" (Xia 1997). His student Alfred Louis Kroeber (1876–1960) divided the cultural systems into basic and secondary patterns. Basic pattern refers to the cultural objects related to survival and livelihood, which are based on and constrained by realistic objective conditions, and reflect the immediate or vital interests of the people and the natural conditions they face.

The secondary pattern refers to cultural activities related to creativity and the arts. In Kroeber's view, in any cultural system, the flourishing of the secondary pattern is possible only when the problem of survival is solved (Xia 1997). Both the theories of Economic-Cultural Type and cultural patterns face the same problem in that they do not discuss how to integrate different cultural characteristics. Having identified this problem, Zhang Haiyang revised the theory of Economic-Cultural Type in *The General Theory of Ethnology* edited by Lin Yaohua, in which Zhang advocated for the use of the "ecological environment" to replace "natural conditions" and the use of "livelihood" to replace "level of socioeconomic development". He also hierarchically divided economic-cultural type to make the theory more operational. He believed that economic-cultural type include four "sequential" levels: 1) ecological basis; 2) livelihood (including human production, living activities and material culture); 3) form of social organization and various laws and regulations; and 4) ideology (including code of conduct, ethics, and religious beliefs and ideas) (Lin 1997). These four levels are integrated with each other and cover all levels of the relationship between an ethnicity or group and its ecological environment. The four "sequential" levels are akin to the Cultural Ecology theory proposed by Julian H. Steward. Cultural ecological analysis consists of three basic steps. The first is to analyze the relationship between production technology and the environment. The second is to analyze the behavioral patterns involved in the development of a particular territory with a particular technology. The third is to determine to what extent the behavioral patterns required for environmental development affect other aspects of the culture (Steward 1989).

In the above analysis, we can see an inheritance relationship between the theory of Economic-Cultural Type and environmental possibilism. The revised Economic-Cultural Type theory also seems akin to the Cultural Ecology theory, which is considered the first paradigmatic theory in ecological anthropology. We believe that the perfection of the Economic-Cultural Type theory is an example of Chinese scholars' theoretical self-consciousness in the context of their own country, and has had a lasting impact on Chinese ethnological and anthropological research in three respects. Firstly, it provides a theoretical framework for understanding the diversity of the Chinese culture and ecological environment. Based on this theory, Song Shuhua incorporated factors such as ecological environment, livelihood, *minzu* history and living status to put forward the concept of the "Eight Chinese cultural ecological regions" (Song 2002). Secondly, it underpins and enriches the theory of "diversity in unity of the Chinese nation". Yang Shengmin noted that the semi-closed and inward-facing environment in China obstructs its transportation with the outside world, but ensures relatively close connections between different regions and *minzus* within China (Yang 2009a). These connections are, above all, symbiotic and complementary relationships of economic-cultural types. According to the characteristics of Chinese history and culture, Zhang Haiyang combined the classification of economic-cultural types, historical ethnic regions, and language (dialect) pedigrees to develop a theory of "China's unitary and diversified economic-cultural typology system". He believed that the diversity of Chinese culture is rooted in the country's ecological environments and different livelihoods (Zhang 2006). "Diversity" provides the basis for exchange and promotes "unity". This idea is reflected in Mr. Fei

Xiaotong's *The Pattern of Diversity in Unity of the Chinese Nation*. In the "Diversity in Unity of Regions" section, he emphasizes the economic complementarity of agricultural and pastoral areas and the significance of semi-agricultural and semi-pastoral economies in between two economic areas (Fei 1989). Thirdly, it lays the theoretical foundation for studying changes in the relationship between social culture and ecological environments.

## **The 1980s and 1990s: the adaptation model and reflections on development**

The 1980s and 1990s witnessed the expansion of ecological anthropology in China. A group of young researchers devoted themselves to understanding and explaining the relationships of local peoples and societies with ecological environments, developing the theoretical paradigm of the "adaptation model". These young talents witnessed China's achievements in socioeconomic development after its reform and opening to the outside world. They observed great changes in the relationships between culture, society, and environments in the process of modernization, and the environmental and social consequences arising from the changes. Reflections on this are often manifested in their theoretical constructs.<sup>4</sup>

In the history of Chinese ecological anthropology, Yin Shaoting's research on the slash-and-burn agriculture of ethnic groups living in the mountainous areas of Yunnan is highly significant. Slash-and-burn agriculture was a common economic-cultural type for ethnic groups living in mountainous areas in southwest China. However, this has long been stigmatized as "primitive agriculture" and "deforestation to reclaim wasteland". If this is the case, how is it possible that this agriculture has been passed down for thousands of years? With this question in mind, Yin Shaoting made six trips to Mount Jinuo in different seasons from 1983 to 1987 to study the slash-and-burn practice of the Jino people. He noted that "the key lies in the ecological environment. Therefore, by adopting the principles of ecology and analyzing fieldwork findings, I have come up with a comparatively ideal theoretical framework (Yin and Geng 2016)". The core of this theoretical framework was that slash-and-burn agriculture was regarded as a unique aspect of farming culture created by the forest ethnic groups, and that humans had adapted to the local environment through technology, social organization, and cultural concepts, thus creating a balance between the humans and the forest. This culture is composed of many elements, including the ecological environment, social culture, technology, output, auxiliary livelihoods and commodity exchange. Each major cultural element includes several sub-elements. These elements constituted the slash-and-burn human ecosystem, which consisted of the two subsystems of "human" and "environment". Humans

---

<sup>4</sup> Some of the literature in this section were published or made public after 2000, but the research had been basically completed before 2000, or it has an obvious successive relationship with the previous research by the scholars and belongs to the category of the two themes of the "adaptation model" and "the cost of development" discussed in this section.

act on the environment subsystem through the society and technology subsystems, while the environment subsystem acts on humans through the output, auxiliary livelihood and commodity exchange subsystems. Due to a relatively stable relationship between the human population and forest resources, this system has maintained a balance (Yin 2000).

Those who are familiar with the Ecological Anthropology theory may find Mr. Yin's analytical path very similar to that of Roy A. Rappaport, the founder of ecological anthropology. Rappaport takes groups of people, not aspects of culture, as his units of study. Groups of people and other animal and plant communities are just "species" in an ecosystem, and the continuous flow of energy between species keeps this ecosystem in a state of equilibrium. This does not mean forsaking culture altogether, but rather seeing it as a means of regulating the relationship between peoples and the ecological environments in which they live. For example, the Tsembaga people regulate the relationship between tribes, and between people and the environments in which they live through periodic "pig feasts". This ritual has become a set of regulatory mechanisms to maintain the stability of the ecosystem (Rappaport 2016). Obviously, what Yin Shaoting intends to explain is no different from Rappaport's theory, which is essentially a systematic theory with the "adaption model" at its core. Yin Shaoting began his research on slash-and-burn agriculture in the late 1970s and early 1980s. At that time, there was no literature in China systematically introducing Western ecological anthropology theories and methods, nor access to Rappaport's original works — only theoretical self-awareness inspired by ecology.

Another manifestation of Yin Shao-ting's theoretical consciousness was visible in his expansion from synchronic research to diachronic research, which benefitted from China's rich historical records of slash-and-burn farming by ethnic groups living in mountainous areas of southwest China, as well as his experience of changes in slash-and-burn farming itself during the process of rapid modernization. In the series of studies on slash-and-burn agriculture in Yunnan, Yin Shaoting made full use of historical materials to reconstruct the history of slash-and-burn agriculture by different ethnic groups living in mountainous areas of Southwest China, and then recorded and analyzed changes since the 1950s. In his own words, his research is "both diachronic and synchronic", that is, diachronically outlining and describing the historical and contemporary changes in slash-and-burn agriculture, and synchronically analyzing how ethnic groups living in mountainous areas achieve balance with mountains and forests through such agriculture. After 2000, Yin Shaoting remained committed to research on the change in relationship between the culture of the ethnic groups living in mountainous areas and the ecological environment. We will expound on this content later.

After the mid-1980s, theories such as cultural ecology, human ecology and cultural materialism were introduced to China through translation, stimulating ecological anthropology research in China. Among them, Steward's 'The Concept and Method of Cultural Ecology' had a particularly large impact, and representative studies have appeared in both northwest and southwest China.

Yang Shengmin was one of the pioneers to apply cultural ecology to the study of societies living in arid areas (mainly Uyghurs living in oases). In his article "Uyghurs in Turpan: An Ecological Anthropological Observation", Mr. Yang talked



about how he started ecological anthropology research in the first place: “The most important result from more than ten years of observation and thinking was not the understanding of the Uyghur culture, but a perspective of observation and interpretation, that is, the relationship between the natural environment and culture (or rather the ecological anthropology perspective)” (Yang 2001). Through the analysis of ancient society in Turpan and field survey of the present society, Yang put forward six characteristics of the Uyghur society in Turpan, which were all directly related to the harsh, arid natural environment. Here we would like to list two characteristics as examples to illustrate Mr. Yang’s analysis. One is “laying focus on business and being good at business”. In his view, the local agricultural production was constrained by the harsh environment, lack of arable land, high input and low output, and its location in the Silk Road hub, rendering local people more willing to choose commerce. The other is that it is a “small scale and closed society” as scattered small oases are not sufficient to support large-scale societies (Yang 2001).

Yang Shengmin also adopts the perspective of the relationship between the natural environment and cultures to analyze the relationship between the environment and family of the Tajiks on the Pamir Plateau. The Tajiks live on the eastern slope of the Pamirs Plateau, which is characterized by its harsh natural environment, frequent natural disasters, and barren lands. Therefore, the local people choose to live on pastoralism as their main livelihood, supplemented by agriculture. To cope with the demand for labor in production and life and mitigate the impact of natural disasters, the Tajiks have formed robust family organizations to ensure survival and development through mutual assistance within families. This leads to some cultural customs that aim to strengthen family stability and cohesion, such as intermarriage of close relatives, low divorce rates, disapproval of family separation, respect for the elderly, family solidarity, and mutual assistance. The importance of family also derives from some important social and cultural characteristics, such as less influence of religion, weak commodity awareness and less emphasis on administrative power. Yang Shengmin’s analysis is obviously influenced by the Cultural Ecology theory, meaning that the characteristics of a society or a culture can be explained by relationships between the people and the ecological environment. In places with strong environmental constraints, this relationship is often manifested as “causality”, that is, the social and cultural characteristics are the result of adaptation to a specific environment (Yang 2005).

Guo Jiaji’s research on the rice-farming culture of the Dai ethnic group in Xishuangbanna was also obviously influenced by the Cultural Ecology theory. According to him, the rice-farming culture system of the Dai ethnic group, the livelihood of whom was rice farming, was the result of adaptation to the natural environment of Xishuangbanna. Balance with the natural environment depends on various social and cultural regulators, including resource management systems, farming etiquette, spiritual beliefs and complementary relationships among ethnic groups in mountainous areas. This research made breakthroughs in two respects. Firstly, it paid attention to the influence of Shanba ethnic relations on the rice-growing cultural system of the Dai people and revealed that the target to be adapted to should extend from the natural ecosystem to the social system. Secondly, it directly dealt with the destruction of ecology, the inefficiency of rice farming and the disintegration of the rice-farming



cultural system. Therefore, it is not only necessary to reconstruct and explain the balance relationship model using Cultural Ecology and Ecological Anthropology theories, but also to explore the current predicament and solution for the model of balanced relationship with the application of development theory (Guo 1998).

The above studies share two important assumptions. The first is that the local people have a sociocultural system adapted to the ecological environment, which balances the relationship between humans and nature. The second is that the relationship between the local people and the ecological environment has undergone major changes due to the promotion of China's modernization, while the local people have faced the dual dilemma of social transformation difficulties and environmental degradation.

Therefore, the problem to be addressed here is how this "dual dilemma" arose. One approach is to present the changes in the relationship between local societies and ecological environments in the description of social transformation, and to identify the mechanisms of the dilemma. One typical example is Cui Yanhu's research on the re-socialization of settled nomads in Xinjiang's pastoral areas. He took the settlement of nomads as an "organized sociocultural change", in which nomads go through a process of re-socialization that differs significantly from those of their traditional sociocultural counterparts. From the perspective of the ecological environment, the settled nomads no longer deal with the ecological environment of grazing pastures, but that of farming. The nomads must adapt to the new environment, primarily due to changes in environmental behaviors and perceptions (Cui 2002). Cui Yanhu's analytical approach is a typical "process perspective", i.e. the process of understanding the history and changes in the relationship between population, resources and environment, which was the core issue of processual ecological anthropology in the 1970s and 1980s (Orlove 1980). One of the difficulties in process analysis is how to coordinate the two trajectories of changes in social and ecological environments. The solution is to attempt to understand the environmental behaviors and decision-making of the group, so as to build a connection between human society and the environment. This is essentially why the changes in environmental behaviors and perceptions are emphasized. Cui later advocated for the study of "Ecological Anthropology of Oasis" as he believed it necessary to pay attention to the particularity of the geographical features of oases in arid areas, as well as the relationship between ecology and society, and between livelihoods and the environment. He stressed the necessity not only of paying attention to the ecological environment process of small scale ecological regions, but also to analyzing sociocultural changes in small societies, and revealing the relationship between the two (Cui 2011).

Obviously, changes in ecological environments and social change are not originally driven by something within the society, but are, to some extent, the result of national modernization endeavors and development strategies. This testifies to the importance of state presence. Cui Yanhu also examined the process of ecological environment and social changes in the dimension of the "national-local" relationship, that is, dealing with changes in environmental and social relationships in the political and economic ties between the locality and the state, or the locality and the globe (Basset 1988). To get the local people out of the "dual dilemma", it is

necessary to address problems at both the local and state levels. Cui Yanhu pointed out that, first of all, at the micro-society level, the relationship between population, resources and environmental conditions, environmental behaviors and perceptions, and local development decisions must be handled well (Cui 2000). Then, it is necessary to adhere to ecological decision-making at the policy design level, that is, to factor in ecological environment as one of the most basic elements in decision-making, and take the following three factors as important and indispensable aspects for overall consideration in decision-making: intervention of resource development in the ecological environment, the stability of the ecological environment during the development process, and the sustainability of both ecosystems and development (Cui 2001). This means that ecological decision-making should be promoted simultaneously at the macro and micro levels. In our recent interview with Professor Cui, he talked about the importance of national respect for indigenous cultures and involvement of indigenous knowledge in local decision-making, as well as the importance of “transforming” indigenous knowledge in the ecological progress (Cui and Luo 2018).

To summarize, China’s ecological anthropology research has been theoretically connected with the West at this stage. While the credit partly goes to the translation of Western ecological anthropology theories, it is mainly due to the academic awareness of Chinese researchers based on their native experience. It not only forms the theory of the “adaptation model” to explain the relationship between local people and the environments in which they live, but also makes an in-depth analysis and reflects on the “dual dilemma” of local groups of people in the process of development.

## **The first decade of the twenty-first century: knowledge, change and power**

Entering the twenty-first century, research on ecological anthropology in China has expanded to the “Xiang-Qian-Gui” region (Hunan, Guizhou and Guangxi provinces), northeast China and Inner Mongolia, showing a thriving trend of development. Research on the new region not only adheres to the theoretical approach of the previous stage, but also focuses on local ecological knowledge, ecological environment changes, and the power relations behind them. During this period, Chinese ecological anthropology was further connected with western theories, and theories of indigenous knowledge, historical ecology, and political ecology were translated and introduced to China. From the perspective of theoretical evolution, three aspects are particularly worthy of attention. The first is that it is important to discover, record and review the rich ecological knowledge of China’s ethnic minorities, so as to provide local experience in management of ecological disasters and maintenance of ecology. The second is the attempt to use the theories to analyze the changes in the relationship between local society and their ecological environment, and discover the reasons for these changes. The third is that it is important to reflect on the process of marginalization of local ecological knowledge and to analyze the

distribution of environmental and social costs caused by these changes among different groups, which is essentially an issue of power.

In the field of ecological anthropology in China, the Chinese ecological anthropologist team of Yang Tingshuo and Luo Kanglong at Jishou University have made important contributions to the discovery, recording and review of indigenous ecological knowledge. Their research can be traced back to two books published in 1992, *Southwest China and Basin and Nationality (Ethnicity) Culture & Niche*. They have not been mentioned in the previous parts as their discussion of “ethnicity, culture, and habitat (niche)” is in line with the study of indigenous ecological knowledge. Their books contain a large number of records of local people’s indigenous ecological knowledge, such as the traditional Miao phenological calendar, as well as knowledge of plants and animal habits and its utilization. More inspiringly, they attempt to explore the relationship between “ethnicity, culture and habitat”, arguing that “each *minzu* or ethnicity, in order to survive, must find material and spiritual sustenance from the random assemblage of its own systemic culture”, and that “this man-made external environment, processed by and corresponding to a particular culture, is the habitat of this *minzu*” (Yang and Luo 1992). Yang compares the relationship between humans and the environment to a “parasitic relationship”, in which humans require resources from nature to meet their biological needs and construct a secondary environment according to their culture, but must also be compatible with the ecological environment and responsible for the stability of the ecosystem. This “parasitic relationship” is achieved through culture, or specifically, through indigenous ecological knowledge (Yang and Sun 2016). Different *minzus* even live side by side according to ecological differences. Therefore, sayings like “The Miao live on high mountains, while the Bouyei live by the river” have become popular (Yang and Luo 1992). This means that, due to the environment they live in, neighboring *minzus* form different cultures and methods of transforming their habitats. Although “culture” here is a composite concept, its most important component is undoubtedly indigenous ecological knowledge, which is the key to local people maintaining balance in their relationship with the ecological environment in the long run. All these pieces of knowledge are local, and different, even if adjacent to one another, as they are embedded in the distinct relationship between the group and the environment.

Generally speaking, the discourse on the relationship between “ethnicity, culture, and habitat” is the theoretical basis for the study of indigenous ecological knowledge. Yang Tingshuo’s definition of indigenous knowledge illustrates this point: “Indigenous knowledge refers to the traditional folk culture passed down within a *minzu*, and its scope of application is limited by the territory”; while “the ecology-related wisdom and skills developed through generations of adaptation and accumulation are all contained in the indigenous knowledge of different parts of China” (Yang 2004). This focus on indigenous ecological knowledge comes from the authors’ concerns about the frequent ecological disasters in the karst landscape of southwest China. On the one hand, disasters are frequent and rocky desertification is severe, and on the other, modern ecological governance measures have failed. However, the local Miao, Bouyei and Yi ethnic groups have collections of ecological wisdom that have helped them to survive, as well as systems of strategies and knowledge to cope with rocky desertification. This shows that using indigenous ecological

knowledge to maintain ecological security is one of the most effective tactics (Luo 2010). The research team believes that if the knowledge can be “used properly and smartly” and if the unreasonable utilization of resources can be changed, the ecological environment will be restored and human society will develop sustainably. In recent years, the team has extended its research to the intangible heritage of agriculture, hoping to discover its “ecological value” and expecting the discovery to be adapted and utilized in the development of ecological civilization. For more than two decades, the team has spared no effort in discovering, recording and reviewing the ecological knowledge of various ethnic minorities in the Yunnan, Guizhou, Guangxi and Hunan provinces, achieving remarkable results and making great contributions. However, their research displays a tendency of “saving everything with indigenous knowledge” (Du 2019) and exaggerates the role of indigenous ecological knowledge in responding to ecological disasters and maintaining ecological security.

Ecological anthropologists often feel like they are racing against time as indigenous knowledge is disappearing so fast that sometimes it is too late to collect and record it. Why does this knowledge disappear? “Embeddedness” is a prominent feature of indigenous knowledge, that is, empirical knowledge embedded in the daily production and life practices of local people (Ellen and Harris 2005). Once the society and the ecological environment in which it is rooted change, the loss of knowledge is inevitable. Therefore, both Yin Shaoting and Yang Tingshuo advocate for the study of “eco-environmental history”, which explores the changes in the relationship between local societies and their ecological environments from a diachronic perspective, hoping to discover the causes of contemporary ecological disasters. Since 2000, Yin Shaoting has promoted the study of “eco-environmental history” of groups without a written history. Tapping into local resources, he attempted to use ethnography to present the environmental adaptation model of local society and the process of its cultural construction. He then worked backwards from this point to find out how this model and the culture, as well as the relationship between this construction process and the external world, had been developed (Yin and Tomoya 2006). He also established several eco-villages to protect the culture of ethnic minorities, in which the government, scholars, and villagers worked together to discover and sort out local traditional knowledge, and guided villagers to protect and inherit knowledge through archives and exhibition rooms (Yin and Wu 2009). Yang Tingshuo, on the other hand, took a historical perspective and made full use of the literature over time. He tried to reconstruct the impact of national policies and measures in border expansion on ethnic resource utilization, seeking to analyze the changes in local ecological environments and their social and ecological consequences. In 2009, Yang published an article emphasizing the social and cultural attributes of ecological disasters. He focused on rapid ecological changes and even disasters caused by social factors, as well as the key role of ethnic culture in research related to eco-environmental history (Yang 2009a, b), which resonated broadly throughout the academic community.

The importance of diachronic study is increasingly confirmed. It tends to examine the changes in relationships between local societies and ecological environments through the process of the incorporating research targets into the national system. The Oroqen people living deep in the Daxing’anling and Xiaoxing’anling

Mountains in northeast China have attracted the attention of many scholars. For example, Ma Guoqing reviewed the national policies in this region since the Qing Dynasty, including those on forest development, settlement, migration, industry conversion and hunting bans, and analyzed how these policies led to great changes in the local ecological environment and Oroqen people's livelihoods, society, and culture (Ma 2007). He 2005 and Wang 2014 also focused on the changes in the relationship between the Oroqen people and the forest ecosystem. In addition to the impact of the country's development and its policies, they especially emphasized the critical role of migration and agricultural expansion in the degradation of forest and grassland ecosystems since the late Qing Dynasty.

These studies reveal two important aspects of research into ecological change. Firstly, adopting a long-time perspective. This is because the relationship between population, resources, and the environment and its changes cannot be observed or sufficiently analyzed in a short period of time. Secondly, paying special attention to the country's development, policies, and relevant local practices. Starting with the national system, it has been widely accepted by the academic community to deal with changes by integrating government development behavior, relevant policies, local society and ecological environment into an overall framework of analysis. This approach has been applied to research on the mountainous areas in southwest China and grasslands in the north.

In the study of contemporary ecological anthropology, it is important to identify how to distribute costs resulting from environmental changes among different groups. In the case of the Oroqen people, they have to adapt their livelihood and lifestyle when policies change, which is difficult for the local hunters. This leads to problems such as deteriorated economic conditions, difficult social transformation, and ecological degradation. Such problems are almost inevitable in the process of "state-oriented reproduction of indigenous social order" (Ma 2007). As a matter of fact, problems do exist in various regions. Nomads, nomadic farmers, hunters, and fishermen may need to adjust their livelihoods, social structures and cultural perceptions due to changes in ecological environments, and rebuild their relationships with them. This means that local people may have to bear more of the costs of environmental change and may end up in a relatively vulnerable position. As a result, researchers suggest that local people should have a say and engage in the process of ecological migration, conservation and environmental governance. They call for strengthened research on the discovery, conservation, and conversion of indigenous ecological knowledge. Meanwhile, the stigmatization of local people should be avoided, for example, blaming them for forest and grassland degradation. In his study on ecological migration in Otog Banner, Inner Mongolia, Ren Guoying proposed the establishment of a mechanism to guarantee ecosystem services for poverty alleviation, and to pay attention to the "local discourse" and indigenous knowledge of ethnic minorities (Ren 2005).

To summarize, theoretical studies in the first decade of the twenty-first century featured two prominent characteristics. Firstly, they emphasized the strong influence of national policies, and attached importance to the study from the diachronic perspective. Secondly, they showed a strong tendency towards criticism and humanistic concern. Studies in this period often reflected on what local people and their

knowledge had encountered facing the national system and the drive for modernization. While emphasizing the important value of indigenous ecological knowledge, the research also called for and expected fundamental changes in local people's livelihoods and the ecological environments in which they live.

## New research fields and outlook

In the past decade, research fields of ecological anthropology in China have continued to expand, showing a new pattern of "covering major regions of the country and expanding to new research fields". In this section, we shall review the development over the past decade, analyze how these changes may contribute to the development of ecological anthropology theory, and provide a brief outlook on the direction of theoretical development in the near future.

Looking back on the development of ecological anthropology in China over the past decades, we can see a route from southwest to northwest China, and then to the "Xiang-Qian-Gui" region (Hunan, Guizhou and Guangxi provinces), northeast China, and Inner Mongolia. However, there are still many parts of China that need to be explored (such as the southeast coastal areas, the Yellow River, and Yangtze River basins). We also see that ecological anthropology studies in China mainly focus on ethnic minorities, with a lack of research on the society of the Han ethnic group. These two shortcomings have been more or less remedied in the last decade. For example, Zeng Shaocong has repeatedly pointed out that ecological anthropology in China neglects coastal areas, and has written articles seeking to re-examine "the marine environment and coastal society in southeast China" from an ecological anthropological perspective, which has made him a pioneer in the study of marine ecological anthropology in China. In fact, oceanity is one of the basic attributes of economy, society and culture in the southeast coastal area of China. "The duality of land and sea" is the key to understanding ethnic society in this region, and can be observed from the following perspectives: mixed livelihood of traditional agriculture and marine industry (such as coastal agriculture, beach aquaculture, etc); special social structures in marriage and family (such as bilateral families<sup>5</sup> and adoption customs<sup>6</sup>); special social organizations (such as pirate and shipboard organizations); unique seaborne culture and folk beliefs (such as worshipping Mazu, a Chinese sea goddess) (Zeng 2012). Zeng Shaocong also encouraged his PhD candidates to engage in ecological anthropology research in different regions. Some of his students choose rocky desertification areas in southwest China, grassland areas in Xinjiang, the Sanjiangyuan (literally "Source of Three Rivers") area in Qinghai, and some chose the coastal area of Fujian province and the Yangtze River basin. Some

<sup>5</sup> "Bilateral families": The overseas immigrants from the southeast coast had a wife in their hometown, and got remarried in their new settlement, and the two families are usually called "bilateral families".

<sup>6</sup> Adoption custom: In the southeast coast of China, there exists a tradition of overseas immigration. Whether a family has a son or not, they often adopt another son, who will go abroad to make a living and send the money to the family, not for carrying on the family name.

students are engaged in the study of minority society, while others are engaged in the study of Han society. Some of their research results have been published and compiled in the *Ecological Anthropology Research Series*<sup>7</sup> edited by Zeng Shaocong. There are also another three ethnographic works of ecological anthropology in *Zijin Anthropology Book Series*<sup>8</sup> edited by Fan Ke, which focus on Inner Mongolia grasslands, and traditional agricultural areas in Central and Northeast China. Such ecological anthropological studies of Han society may also provide new insights for anthropological studies in this field. From this perspective, two important theoretical issues must be addressed in Chinese ecological anthropology in the near future: First, how to break through the limitation of single-site and single-regional research and carry out cross-regional theoretical dialogue based on the solid ethnography of each region; Second, how to conduct dialogue and enrich the research of ecological anthropology with the theories of the Han society, and the ethnic groups living in mountainous areas of southwest China and the grassland areas of north China.

Over the past decade, the research topics of ecological anthropology in China have also been expanded. The focus is still the relationship patterns between local society and the ecological environment, indigenous ecological knowledge and ecological culture, and environmental degradation, but topics such as disasters, nature reserve building, climate change, environmental change, biodiversity, and dam construction have come to the fore. From a theoretical point of view, scholars engaged in ecological anthropology, especially young scholars, draw more inspiration from political ecology and environmental anthropology, and conduct studies following the line of “nature-culture-power” and “local society-national system-globalization”. These ethnographic works focus on a “local world” in the context of a larger society, which presents a complex picture of changes in the relationship between local society and the ecological environment. They also try to reflect on and respond to global environmental and social issues. In recent years, some new western ecological anthropology theories have been translated into Chinese, indirectly promoting a shift of Chinese research theories. This also reflects the important trend of ecological anthropology increasingly engaging in and giving voice to important public issues. Taking disaster-related research as an example, Li Yongxiang has published a number of important articles introducing western anthropology research on disasters, and analyzed the case of the “8·14” landslide debris flow in Xinping Yi

<sup>7</sup> The *Ecological Anthropology Research Series* edited by Zeng Shaocong has been published by China Social Sciences Press since 2014, including: *The Grassland Ecosystem and Nomadic Culture on the Tibetan Plateau: A Tibetan Husbandry Township* by Shan Jinfeng (2014), *Dam and Epidemics: An Ecological Anthropology Research of Water Conservancy in the Jing River Basin* by Yuan Li (2014); *Coastal Resource Development and Social Changes of Villages: An Ecological Anthropology Study Based on Zhuta Village* by Wu Zhennan (2014); and *Vanishing Grasslands: History, Society and Ecology of a Grassland Community* by Luo Yi (2017).

<sup>8</sup> The three mentioned books in the *Zijin Anthropology Book Series* edited by Fan Ke and published by Intellectual Property Publishing House are: *A Silent Revolution: Genetically Modified Crops and the Social Change of a Village in Central China* by Hu Yanhua (2016); *Disembedding “Nature”: Environmental and Social Change of a Pastoral Area in Inner Mongolia Since 1949* by Zhang Wen (2016); and *Truth and Power: An Anthropological Study on Peasants’ Environmental Protests* by Si Kailling (2016).



and Dai Autonomous County, Yunnan Province.<sup>9</sup> Zeng Shaocong also offered an in-depth interpretation of the drought in southwest China from 2009 to 2010 from the perspective of ecological anthropology, reflecting on issues such as how humans can live in harmony with nature and how to achieve real sustainable development (Zeng 2010). Environmental risk has become a part of contemporary society. Nowadays, local societies are facing many environmental problems such as environmental degradation, ecological disasters and loss of biodiversity. Some environmental problems have even become more common, and have a profound impact on societies and the environment. Ecological anthropology must reflect on and respond to these “old problems and new challenges” in the era of globalization from theoretical perspectives.

China has entered a new era of promoting ecological progress. This has created not only new opportunities for the great development of ecological anthropology in China, but also new challenges. As a result of profound changes in China’s economic and social development, the relationship between man and nature and the relationship between locals and the ecological environment in which they live are undergoing and will continue to undergo a new process of long-term reconstruction, which will help address environmental degradation, ecological disasters, loss of biodiversity, and other major problems affecting the process of building a community with a shared future for mankind. These new developments will provide a solid basis for study of ecological anthropology, which, in turn, should take on the responsibility of recognizing, understanding, and better utilizing profound changes in the relationship between man and nature in this new era. On the other hand, the “challenge” refers to whether China’s ecological anthropologists have the ability to take on this mission and what they can do to achieve the goal. This requires new theoretical breakthroughs, which should include at least three aspects: First, the importance of connecting indigenous ecological environmental discourse with ecological civilization discourse, which is essentially a question of how to connect the discourse of the relationship between local culture and nature with that of ecological civilization. Secondly, the necessity of integrating indigenous ecological knowledge with modern scientific knowledge to better deal with contemporary ecological and environmental problems. Thirdly, efforts should be made to interpret the ecological civilization, based on the Chinese culture, from the perspective of ecological anthropology, and constantly promote theoretical awareness and innovative development in Chinese ecological anthropology.

**Acknowledgements** Not applicable.

<sup>9</sup> Professor Li Yongxiang has published a number of papers on anthropological research on disasters in recent years, mainly including: The Review on the Anthropological Research on Disasters, *Ethno-National Studies*, 3, 2010; What is a Disaster: an Anthropological Clarification on the Main Concept of Disaster Studies, *Journal of Southwest University for Nationalities (Humanities and Social Science)*, 11, 2011; A Review of Anthropological Research on Disasters in China, *Journal of Southwest University for Nationalities (Humanities and Social Science)*, 8, 2013. In addition, he published *Anthropological Study of Mudslide Disaster: A Case Study of “8.14 Mud-rock Flow” in Yi-Dai Autonomous County of Xinning, Yunnan Province*, Intellectual Property Publishing House, 2012.

**Authors' contributions** Shaocong Zeng puts forward the outline of the paper and writes the first, the second, and the fourth sections. Yi Luo writes the second and the third sections. The author(s) read and approved the final manuscript.

**Funding** This paper is a phase achievement of three projects: a key project of National Development and Reform Commission in "Cultivating Ecological Culture and Enhancing the Soft Power of Ecological Civilization" (Year 2013), and a major program of Fujian Philosophy and Social Sciences Planning in "Research on the Ecological Environment and Regional Culture in Western Taiwan Straits Economic Zone" (No. 2011Z014).

**Availability of data and materials** Not applicable.

## Declarations

**Ethics approval and consent to participate** Not applicable.

**Consent for publication** Not applicable.

**Competing interests** The authors have no potential conflicts of interest.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Basset, J.Thomas. 1988. The political ecology of peasant-herder conflicts in the northern Ivory Coast. *Annals of the Association of American Geographers* 3: 453–472.
- Cui, Yanhu (崔延虎). 2000. On the study of sustainable development of micro society in Northwest China (西北地区微型社会可持续发展研究). *Journal of Xinjiang University (Philosophy, Humanities & Social Sciences)* (新疆大学学报) 2: 41.
- Cui, Yanhu (崔延虎). 2001. The ecologic policy-making and the large-scale development of Xinjiang (生态决策与新疆大开发). *Etho-national Studies (民族研究)* 1: 29–36.
- Cui, Yanhu (崔延虎). 2002. Re-socialization of settled nomadic pastoralists (游牧民定居的再社会化问题). *Journal of Xinjiang Normal University (Edition of Philosophy and Social Sciences)* (新疆师范大学学报) 4: 76–82.
- Cui, Yanhu (崔延虎). 2011. Issues on oasis ecological anthropology research (绿洲生态人类学研究的若干问题). *Journal of Original Ecological National Culture (原生态民族文化学刊)* 2: 2–8.
- Cui, Yanhu, and Yi Luo (崔延虎, 罗意). 2018. Ecological decision-making, ecological civilization construction and ecological anthropology: An interview with professor Cui Yan-hu (生态决策、生态文明建设与生态人类学——崔延虎教授访谈录). *Journal of Original Ecological National Culture (原生态民族文化学刊)* 1: 33.
- Du, Jing(杜靖). 2019. Eco-anthropological studies in China in the past 70 years (中国生态人类学70年研究理路与反思). *Journal of Hubei Minzu University (Philosophy and Social Sciences)* (湖北民族大学学报) 6: 10–23.

- Ellen, Roy, and Holly Harris. 2005. Introduction. In *Indigenous environmental knowledge and its transformations: Critical anthropological perspectives*, ed. Roy Ellen, Peter Parkes, et al., 4–5. Amsterdam: Harwood Academic Publishers.
- Fei, Xiaotong (费孝通). 1980. On the identification of China's minzu (关于我国民族的识别问题). *Social Sciences in China (中国社会科学)* 1: 147.
- Fei, Xiaotong (费孝通). 1989. *The pluralistic integration of the Chinese nation (中华民族多元一体格局)*. Beijing: China Minzu University Press, 11.
- Guo, Jiaji (郭家骥). 1998. *A study of the rice culture of the Dai people in Xishuangbanna Dai autonomous prefecture (西双版纳傣族的稻作文化研究)*. (trans. Zhang, Wenli). Kunming: Yunnan University Press, 135–148.
- He, Qun (何群). 2005. *Environment for the survival of an ethnic minority: Oroqen people in China (环境与小民族生存——鄂伦春文化的变迁)*. Beijing: Social Sciences Academic Press.
- Lin, Yaohua (林耀华). 1997. *General theory of studies on minzu (民族学通论)*. Beijing: China Minzu University Press, 79, 79–80, 84–87.
- Lin, Yaohua (林耀华). 1999. *Lin Yaohua's scholarly statements (林耀华学述)*. Hangzhou: Zhejiang People's Publishing House, 143.
- Luo, Kanglong (罗康隆). 2010. Local ecological knowledge and preservation of regional ecological environment (地方性生态知识对区域生态资源维护与利用的价值). *Journal of South-Central University for Nationalities (Humanities and Social Sciences) (中南民族大学学报)* 3: 43–48.
- Ma, Guoqing (麻国庆). 2007. Exploitation, state policy and ecology and living of hunter-gathered society: A case study oroqen of northeastern China (开发、国家政策与狩猎采集民社会的生态与生计——以中国东北大小兴安岭地区的鄂伦春族为例). *Academia Bimestris (学海)* 1: 32, 34.
- Orlove, S. Benjamin. 1980. Ecological anthropology. *Annual Review of Anthropology* 9: 235–273.
- Rappaport, A. Roy. 2016. Pigs for the ancestors: Ritual in the ecology of a New Guinea people. In (献给祖先的猪——新几内亚人生态中的仪式(第二版)). (Trans. Zhao Yuyan), 2nd ed., 14. Beijing: The Commercial Press.
- Ren, Guoying (任国英). 2005. Anthropological reflections on ecological migration in Otog banner, Inner Mongolia (内蒙古鄂托克旗生态移民的人类学思考). *Heilongjiang National Series (黑龙江民族丛刊)* 5: 38–44.
- Song, Shuhua (宋蜀华). 2002. On the connections among the ethnic cultures, eco-environment and the sustainable development (论中国的民族文化、生态环境与可持续发展的关系). *Guizhou Ethnic Studies (贵州民族研究)* 4: 15–20.
- Steward, H. Julian. 1989. *Theory of culture change: The methodology of multilineal evolution (文化变迁的理论)*. (trans. Zhang Gongqi), 49–51. Taipei: Yuan-Liou Publishing Co., Ltd.
- Wang, Junmin (王俊敏). 2014. *Between living and traveling: Changes of nomadic, hunting and fishing culture and ecology (居游之间:游牧、采猎、渔捞三型游文化变迁与生态重塑)*. Shanghai: Shanghai Sanlian Bookstore Co., Ltd.
- Xia, Jianzhong (夏建中). 1997. *Theoretical school of cultural anthropology: A history of cultural studies (文化人类学理论学派:文化研究的历史)*. Beijing: China Renmin University Press, 71–73, 82–83.
- Yang, Shengmin (杨圣敏). 2001. The Uyghurs in Turpan: Observation from ecological anthropological perspective (吐鲁番的维吾尔人——一个生态人类学角度的观察). In *21 century: Cultural consciousness and cross-cultural communication—Sociological anthropology series: Volume 21 (21世纪:文化自觉与跨文化对话(二)——社会学人类学论丛:第21卷)*, ed. Ma Rong, Zhou Xing (马戎, 周星). Beijing: Peking University Press, 805, 820.
- Yang, Shengmin (杨圣敏). 2005. The environment and the family: The cultural characteristics of the Tajik people of China (环境与家族:塔吉克人文化的特点). *Journal of Guangxi University for Nationalities (Philosophical and Social Science Edition) (广西民族学院学报)* 1: 2.
- Yang, Shengmin (杨圣敏). 2009a. Reasons and foundations for China to be a unified multi-ethnic country (中国作为多民族的统一大国有必然的原因和深厚的基础). *Ethnic Forum (民族论坛)* 10: 16.
- Yang, Tingshuo (杨庭硕). 2004. On the ecologic value of regional knowledge (论地方性知识的生态价值). *Journal of Jishou University (Social Sciences Edition) (吉首大学学报)* 3:24.
- Yang, Tingshuo (杨庭硕). 2009b. The traps and misunderstandings in the field of environmental ecological history researches in China at present (目前生态环境史研究中的陷阱和误区). *Nankai Journal (Philosophy, Literature and Social Science Edition) (南开学报)* 2: 8–15.
- Yang, Tingshuo, and Kanglong Luo (杨庭硕, 罗康隆). 1992. *Southwest China and basin (西南与中原)*. Kunming: Yunnan Education Publishing House, 75, 83.
- Yang, Tingshuo, and Qingzhong Sun (杨庭硕, 孙庆忠). 2016. Ecological anthropology and the study of indigenous ecological knowledge: An interview with professor Yang Tingshuo (生态人类学与本土

- 生态知识研究——栢庭硕教授访谈录). *Journal of China Agricultural University (Social Sciences Edition)* (中国农业大学学报) 1: 5–23.
- Yin, Shaoting (尹绍亭). 2000. *Man and forest: Swidden agriculture in anthropological perspective (人与森林——生态人类学视野中的刀耕火种)*. Kunming: Yunnan Education Publishing House, 14.
- Yin, Shaoting (尹绍亭). 2012. Ethno-ecological studies in mainland China (1950–2010) (中国大陆的民族生态研究(1950–2010年)). *Thinking (思想战线)* 2: 55–59.
- Yin, Shaoting, and Yanhu Geng (尹绍亭, 耿言虎). 2016. An interview with prof. Yin Shaoting on the local development of ecological anthropology: A review of the slash and burn cultivation research in the past thirty years (生态人类学的本土开拓: 刀耕火种研究三十年回眸——尹绍亭教授访谈录). *Journal of Poyang Lake (鄱阳湖学刊)* 1: 49–50.
- Yin, Shaoting, and Tomoya, Akimichi (尹绍亭, [日]秋道智弥). 2006. *Studies on the eco-environmental history of anthropology (人类学生态环境史研究)*. Beijing: China Social Sciences Press.
- Yin, Shaoting, and Nier Wu (尹绍亭, 乌尼尔). 2009. Eco-museum and ethnic cultural eco-village (生态博物馆与民族文化生态村). *Journal of South-Central University for Nationalities (Humanities and Social Sciences)* (中南民族大学学报) 3: 28–34.
- Zeng, Shaocong (曾少聪). 2010. Southwestern drought studies from the perspective of eco-anthropology—take Yunnan Province for instance (生态人类学视野中的西南干旱——以云南旱灾为例). *Guizhou Social Sciences (贵州社会科学)* 11: 24–28.
- Zeng, Shaocong (曾少聪). 2012. Marine environment and coastal society in Southeast China from the perspective of ecological anthropology (生态人类学视角下东南地区的海洋环境与沿海社会). *Social Sciences in Yunnan (云南社会科学)* 5: 5–10.
- Zhang, Haiyang (张海洋). 2006. *On China's cultural diversity & Chinese identity (中国的多元文化与中国人的认同)*. Beijing: Publishing House of Minority Nationalities, 181.

## Comments

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.