ETHNOBIOLOGY AND CONSERVATION

OPINION

Ethnobiology and Conservation, 10:16 (18 February 2021)
doi:10.15451/ec2021-02-10.16-1-9
ISSN 2238-4782 ethnobioconservation.com

Gender and ethnic equity: what can we learn from ancestral and indigenous peoples to deal with socio-environmental issues?

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ABSTRACT

The socio-environmental crisis that we are currently experiencing requires integrative research approaches and actions. Ethnobiology has important potential in this regard, both for its interdisciplinary nature and for recording the relationship between humans and the environment at different times and places. In this way, this opinion essay aims to discuss what we can learn from ancestral societies and Indigenous peoples for the establishment of a more equitable and sustainable world, considering the intersection between gender and ethnic groups. We will begin by examining archaeological data of societies in Old Europe and how domineering and patriarchal societies have been established. We will discuss a few findings about pre-Columbian peoples in America that reinforces the existence of more equitable societies. We add discussions related to gender, in the context of Indigenous peoples, and reflect on the importance of the feminine and of the complementarity in social relationships. Finally, we discuss the role of ethnobiological research in this context and the ways of collaborating to support values that favor the establishment of equitable societies, which are fundamental to address the challenges of this era of change.

Keywords: Ethnobiology 5; Indigenous People; Local Communities; Feminism.

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SIGNIFICANCE STATEMENT

In this opinion essay we argue about the importance of considering ethnic and gender equity to deal with socio-environmental issues, as we experience different interconnected systems of oppression that affect our relationships with environment, between races, ethnicities, and genders. We can learn about different ways of relating to each other, from several ancestral and current indigenous peoples who live and lived in societies with a greater equity between genders. In ethnobiology, we suggest that the contribution to build more egalitarian societies with gender equity and respect for cultural diversity can be made through two main axes that need to be expanded: collaborative and emancipatory relationship with IPLC; and gender and feminism discussion.

INTRODUCTION

The importance of integrative actions for biodiversity conservation and sustainability has long been discussed, which are related to political, economic, social, and cultural aspects of the societies. The biocultural perspective seeks this integration, recognizing the interconnection between biological and cultural diversity (Maffi 2001), and the importance of incorporating Indigenous Peoples and Local Communities (IPLC) in decision-making and conservation processes (Baldauf 2020).

Ethnobiology can address these needs both for its emphasis on studies of the knowledge of IPLC and its interdisciplinary ability to describe the relationship between humans and environments at different times and places (Wolverton 2013). In addition, the potential of ethnobiological approaches for solving environmental and cultural problems arises precisely from the source of these problems, which is a crisis of values in our society (Fernandes and Sampaio 2008). We need to recognize that the history of efforts to dominate nature is also the history of the subjugation of humans by other humans (Horkheimer 2002) and if we want to change our trajectory as a society, we need to change the way we relate to ourselves and to the environment.

This form of relationship based on oppression and domination, interconnects different biological, cultural and social categories, such as gender, race, ethnicity, and class (Federici 2017). In other words, there is an intersection between different systems of oppression (intersectionality), which needs to be considered when trying to reduce historical asymmetries.

The importance of considering aspects of equity associated with conservation is evident in the Convention on Biological Diversity (CBD 1992), both from a gender, as well as cultural and ethnic perspective. The CBD, in addition to recognizing the importance of IPLC in the conservation of biodiversity and guaranteeing the right to share benefits of the access to biodiversity through their knowledge, also recognized the fundamental role of women in conservation, guaranteeing their rights to participate in decision making.

In addition, we emphasize the importance of the gender perspective to deal with socio-environmental issues, since this relationship (between masculine and feminine and between males and females) is the basis for other social relationships. The way society structures these fundamental relationships affects the entire social system, its institutions, and its values (Eisler 1987). In other words, a more egalitarian society between different peoples and individuals, and of human beings with environment, needs to modify the subjugation relationship of the feminine. This recognition of the interconnection between environmental problems and the oppression of women is addressed from the perspective of ecofeminism (Gaard 2011). Beyond that, feminist studies and struggles have highlighted, for decades, the established asymmetries between gender relations, in a process associated with land privatization, colonization, capitalism, and the domination of women bodies (Federici 2017). When talking about men and women, we are not just focusing on these polarities as binary genders, as criticized by feminist studies (Butler 2003), but we also consider that there is a lot of diversity between these two extremes and beyond them.

The current context of oppression and environmental degradation was even exacerbated with the gender inequalities presented by the Covid-19 pandemics (King et al. 2020). In this scenario, we can ask if it would really be possible to build more equitable and sustainable societies. In this essay we will argue, based on data from scientific literature with ancestral and indigenous peoples, that it is possible to gradually rebalance these asymmetries, since there is a register of societies that are established in more symmetrical and equanimous structures. We will focus on the gender perspective, and how it is experienced with equity in some ancient and current cultures, providing an opportunity for this intersection between gender and ethnic groups.

Our central question is what can we learn from ancestral societies and Indigenous peoples for the establishment of a more equitable and sustainable world, considering gender symmetry as a key issue. We will begin by examining some archaeological information on the societies in Old Europe and how dominant (patriarchal) societies were being established. We will also put in perspective recent findings about the pre-Columbian Peoples in the Americas and the existence of some equity societies, adding to this debate a few contributions of anthropology in gender analysis among Indigenous peoples. Finally, we will address the role of ethnobiological research and reflect on ways to collaborate in establishing values and societies based on equity that can be effective to deal with socio-environmental issues.

METHODOLOGICAL APPROACH

In this essay, our starting points are Eisler's (1987) and Maturana's (2004) discussions on equitable societies, contributions from feminist studies (Gaard 2011; Federici 2017; Ribeiro 2019) and the current debate on the fifth phase of ethnobiology (Wyndham et al. 2011, Wolverton 2013). We also base our arguments on the debates about the gender issues in archaeology (Jácome and Furquin 2019), anthropology (Rosaldo and Lamphere 1974), indigenous studies (McGregor 2005), and ethnobiology (Pfeiffer and

Butz 2005; Silva et al. 2019). Based on these starting points we identified other literature that addresses and broadens the discussions on the transformations of human societies and provided insights to discuss the changes in values we now need, focusing on equity - from gender to ethnic (Saini 2017; Baldauf 2019; CIMI 2019).

The text was structured to answer some central questions about gender and ethnic equity that relate to ethnobiology: Are there examples of more equitable societies in the past of humanity? How is the perception of gender and the importance of the feminine in indigenous peoples nowadays? How can ethnobiology be considering these questions about gender and ethnic equity?

The perspectives presented in the text reflect the personal view of the authors, South American women with biological and anthropological backgrounds, and our research trajectories in ethnobiology. As an opinion article, we do not seek to exhaust the examples of equitable societies, but to add our perspective to this complex debate. When choosing case studies, we also seek to give visibility to female researchers, who represented more than 2/3 of the bibliography of this article, and to give focus to Latin American researchers incorporating indigenous voices.

A story that is not usually told: The archaeological existence of equitable societies from Old Europe to Pre-Columbian peoples

In the last few decades, gender and feminist approaches have offered critical discussions on the basis of our society's organization (Butler 2003; Federici 2017). These discussions also influenced science, mainly due to the increased presence of women in academic spaces (Saini 2017), and brought a new perspective to archaeological and anthropological data of ancient and Indigenous societies, contributing to the reinterpretation of how these societies were organized. In this section, we visit some archaeological studies of societies of Old Europe and also of pre-Columbian America as a few illustrative examples of trajectories of different human societies, from the perspective of equity.

Much of what we have learned in our basic and higher education in South America reflects the exploitation and degradation of human societies among themselves and of the environment. There are many historical examples of human societies being competitive, exploitative, and dominant. Some authors recognize that although both cooperation and competition are critical in human evolution, a universal feature of human groups is the existence of status or dominance hierarchies (Buss 2015). Examples of exploitative and dominant societies are those that dominated the process of colonization of the Americas, the slavery of Indigenous and African peoples, the fascism in some societies during World War II, and the dictatorship regimes. This part of the story is well known: how human societies have grown on the basis of resource appropriation, the invasion of other territories, slavery, and the subjugation of women by men. But this is only one part of the story. What is often unnoticed in the human history of societies is that they are not fundamentally dominant: this way of relating has emerged, become established, and expanded in recent centuries (Maturana 2004).

Gimbutas' (1973) studies of Neolithic and Bronze Age cultures in Old Europe addressed the differences between the ancient European system, which was centered on the Mother Goddess and the woman figure (matristic), and an Indo-European patriarchal (androcratic) European model that supplanted the matristic model. Archaeological data found in Old Europe indicated that these equitable societies existed from the Paleolithic period to about 4,000 BC, and were prevalent in large stretches of Old Europe and the Middle East. These societies did not fortify their villages and did not use weapons as adornments; they had economic equality and did not establish asymmetrical hierarchies (between men's and women's graves). They were based on agriculture, with communal fields, and tenure was not a central element. Social relationships were grounded in cooperation between men and women—life was not centered on control and appropriation. The belief system of Ancient Europe focused on the agricultural cycle of birth, death, and regeneration embodied by the feminine principle, the *Mater Creatix* (Gimbutas 1973).

These equitable societies were in turn decimated by the invasions of Indo-European peoples, such as the Kurgans who came from the east. Archaeological evidence shows that several waves of invasion began about 7,000 BC until these peaceful societies were totally dominated (Eisler 1987). The Kurgan system consisted of socially stratified, pastoral patrilineal units living in small villages or temporary settlements surrounded by large pastures. From studying that invasion, we learn more deeply the history of dominance of the patriarchal peoples in Europe who subsequently came to invade and dominate the peoples of other continents. Fermini (2017) highlights that the process of domination of women and their bodies is associated with the process of privatization of the lands, which generated the separation between public and private, and the devaluation of activities carried out at the community level. It was in this perspective of colonization of lands, peoples and women, that our Western society was expanding.

The presence of more equitable societies that considered the relationships between men and women was also recorded in archaeological data in pre-Columbian America. With the perspective of gender and feminism in archaeology, Jácome and Furquin (2019) analyzed different Brazilian studies, going against the long-standing traditions in Western thought that regard patriarchal domination as a universal aspect of human sociability. Archaeological studies of *sambaquis* (archaeological sites dating from the Early and Middle Holocene periods, ca. 12,000-3,000 BP, formed by a heap of shells and other food resources and artifacts, sometimes also used for burials) concluded that distinct labor activities between men and women would have been based on nonhierarchical systems of cooperation (Gaspar et al. 2011). These studies analyzed artifacts that represent the roles of the buried individuals, and are present in both female and male burials. Artifacts usually related to male hunting activities (bone and lithic axes) were equally present in female and male burials in *sambaquis*. The plasticity and absence of rigidly defined gender roles was identified as a feature of *sambaquis* societies, suggesting a cooperative behavior among *sambaquis* builders (Gaspar et al. 2011). Gaspar et al. (2011) emphasized that even when social equality is a strong aspect of a society, this does not mean that it occurs absolutely, because in practice, there are also contexts of asymmetry, or inequality, reflecting social life. The central issue is that asymmetry did not primarily define the established relationships in these societies.

In Marajoara occupations in the Lower Amazon, archaeological evidence revealed complex pre-Columbian matrilineal societies from ca. 400 to 1,400 BC. Studies of funerary contexts conclude that social distinction was not based on the hierarchy between men and women (Schaan 2013). Marajoara society was defined as chiefdoms (*cacicados*) in which the hierarchy was matrilineal, while leadership was a male role (Schaan 2013). Thus, archaeological analyses indicate a complementarity between men and women and not a system of subordination or domination. In addition, the presence of urns with female representations, used in both female and male burials in Marajoara societies, is an allusion to the cycles of life and a connection between life, birth, and death (Schaan 2013), resembling those pre-patriarchal European cultures.

Indigenous Peoples as societies with greater equity: learning from gender approaches

Indigenous societies have also experienced cultural changes that have influenced their relationship between men and women and with the environment. The idea of possession, whether of resources, women, or other human beings, expanded along with the patriarchal culture of domination (Maturana 2004). American indigenous peoples faced the European colonization process, which dissolved a large part of their population and disqualified their knowledge and ways of living, but through a process of resistance and resilience they kept alive central aspects of their cultures. In this context, some core values of equitable societies are still kept alive among some Indigenous peoples, and these groups can be seen as guardians of practices and values that can underpin more egalitarian societies. We need to avoid seeing them as an useful reservoir of knowledge to Western societies, but as examples of ways of living and relating with the environment and human beings that can show us changes in the way we to be and to act. For that, when we look at these societies it is necessary to change our cultural lenses, because we are often seeing disparities and asymmetry between genders when there is, in fact, complementary.

In anthropological research, the current approaches to gender issues can reveal non hierarchical and equitable relationships between human beings and the environment. Research about Indigenous peoples has long highlighted the differences between the roles played by men and women through the biased lenses of our patriarchal culture. This male bias was reported in the 1970s by authors such as Rosaldo and Lamphere (1974), discussing anthropological studies that punctuated the sexual segregation of space and activities of Indigenous peoples, restricting the women to the spheres most linked to the domestic domain (e.g. daily food preparation, caring for the home and children) and the male roles as agents of contact with the outside world. In the ethnographic context, even though there are asymmetrical relationships in which the separation between public and private spheres is visible, these separations do not define that some social roles are more important than others, but rather are complementary. For Fermini (2017), the devaluation of the private sphere arises with the enclosure of the land, in which public work is now monetized and then valued, while community work—usually of women's spheres—is now devoid of value.

Indigenous peoples such as Javaé and Guarani in Brazil, and Maya in Guatemala, recognize the prestige of the women differently. Gender building among the Javaé people (Rodrigues 1999) is based on an as-

sociation between femininity and alterity, which may be one way to understand the tenacity of the physical and cultural survival of this group. Rodrigues (1999) revealed the centrality of Javaé women and their immense power, whereas men—despite their ritual prestige as shamans and in the men's house—does not possess equal prestige as women in everyday activities, domestic life, and decision-making.

In Guatemala, Mazariegos (2012) described indigenous intellectual Mayan women, showing their responsibility in the transmission of cultural values: "it is the woman who retains the use of traditional clothes, of speaking the mother tongue [...] they change to adapt to political and economic change, but also to preserve their traditions" (Mazariegos 2012: 178). Women also articulate the links between the generations from their bodies (Mazariegos 2012). These relationships demonstrate both the appreciation of the power of these indigenous women, and the importance of complementarity in these relationships, illustrating the rationale behind more equitable societies.

Among the Guarani, the largest ethnic indigenous population in Brazil, the women are considered *cunhá karai*—warrior women—who act as holders of specific knowledges and wisdom. They are intellectual and political coordinators and, above all, are defenders of their people and of their culture. The *cunhá karai* are women who prepare their bodies, souls, and spirits to face the challenges posed by new contexts (Melo 2014). In the Guarani villages of Santa Catarina, women play a central role in the transmission of the feminine knowledge associated with safeguards, diets, and the liminal phases of life. In the relationship between Guarani women and the land, they are responsible for managing the fertility cycle of the land and also of the group, its production, and material and symbolic reproduction (Ciccarone 2004). They are responsible for caring for the indigenous maize (*avatchiete*), a central plant for the Guarani, through planting and harvesting, with the exchange of varieties as they move between villages. In everyday life, women's actions identify their powerful qualities and sensitivities to messages from the "other world." However, until today few studies do not reserve women to the domestic sphere (Melo 2014).

The (re)positioning of the masculine and feminine in the indigenous universe must be considered in the current context, due to several new factors: promotion of indigenous rights, access to formal education, interethnic marriages, women's experiences in the public and political spaces and within indigenous movements, new economic practices, and new violence contexts. Thus, even in the current scenario, the asymmetry does not define these social relationships, and these peoples can teach us, through their practices, about the ways to achieve complementarity, partnership, and a non-exploitative relationship with our Mother Earth. In this context, we share an excerpt of a document from the Indigenous Women's March, a movement that reunited 2,500 women from 130 different Brazilian Indigenous peoples in August 2019 (CIMI 2019):

> "Throughout these years we dialogued with women from various movements and realized that our movement has a specificity that we would like it to be understood. The movement produced by our fighting dance considers the need for a return to the complementarity between the feminine and the masculine, without, however, conferring an essence for men and women. Machismo is another epidemic brought by the Europeans. Thus, what is considered violence by non-indigenous women may not be considered violence by us. This does not mean that we will close our eyes to the violence that we recognize happening in our villages, but rather that we need to take into consideration, and the purpose is precisely to counteract, problematize and bring critical reflections about everyday practices and contemporary forms of political organization among us. We need to dialog and strengthen the power of indigenous women, reclaiming our matriarchal values and memories so that we can advance our social issues related to our territories."

McGregor (2005) highlights the role that indigenous women play in environmentalism and sustainability, stating that it is women who will determine the future, as they have the power to create and recreate. By continuing to live traditional knowledge responsibly, they are maintaining the values that sustained their ancestors and will sustain their people and the future of nations.

The role of ethnobiology research in the perspective of equity

Ethnobiology researchers must think and act to contribute to building more egalitarian societies with gender equity and respect for cultural diversity. In this way, we suggest a careful look at the perspective of equity in ethnobiology, through two main axes that need to be expanded in academic spaces: collaborative and emancipatory relationship with IPLC, and gender and feminism discussion.

Collaborative and emancipatory relationship with IPLC

The rights of the IPLC and the need for collaborative work is a discussion that has been going on for at least three decades in ethnobiology. At this moment that we are entering the fifth phase of ethnobiology (Wyndham et al. 2011), it becomes urgent interdisciplinary work in partnership with IPLC to deal with socio-environmental issues in this era of great changes. We need to get out of the asymmetry between the researchers (holders of academic knowledge) and the researched (holders of empirical knowledge), since this is the result of relations of domination.

There are already many examples of participatory initiatives in ethnobiological research that contribute to biological conservation and the empowerment of communities in the management of their resources (Hanazaki et al. 2012; da Fonseca-Kruel et al. 2019; Baldauf 2020; Rodrigues et al. 2020). An example is the recent work by Rodrigues et al. (2020), referring to a survey in quilombola communities in which all stages of the project were carried out in a participatory manner, including the planning and dissemination of results. In addition, Baldauf (2020) organized a book that systematizes several examples of participatory initiatives with benefits both to IPLC and to the conservation of biodiversity.

These are examples that show the importance of these initiatives and the need to strengthen them. Furthermore, it is important that those partnerships goes beyond involvement in the research itself (which we are still far from achieving), and must spread to academic spaces and conferences, opening positions for IPLC to be both students and masters. As Baldauf (2019) emphasized, we need to overcome the subject-object dichotomy and gives way to solidarity.

We consider it essential that the participation of IPLC in universities be expanded. An example is the public policies on quotas in undergraduate courses for Indigenous and Traditional people in Brazil that allow these peoples to be active participants in science and to contribute to changing the values and world views of professionals in training (Melo 2014). Baldauf (2019) also comments on the indigenous presence in universities, both in regular courses and in specific ones designed for Indigenous peoples, situating them as protagonists in the generation of academic knowledge. Although this is only a small step, these initiatives play an important role in building less asymmetrical relationships within academia. These opportunities allow for the emergence of authors such as Souza (2020) and Timóteo (2020), both indigenous Mby'a Guarani women who approach the wisdom of women in their culture.

We also need to create ways to provide opportunities for traditional sages (masters) to be recognized as such within the academic context at universities. Thus, the asymmetry of knowledge is subverted by creating opportunities (also for non-indigenous students) to learn from these traditional masters and to recognize their importance as guardians of knowledges, wisdom, and values that can be critical to the challenges of modern society. When Krenak (2019), a Brazilian indigenous leader, writer, and master, was asked about the current crisis for Indigenous peoples, he replied: "It's been 500 years that the Indians are resisting, I'm worried about the whites, how are they gonna do to escape this?"

The solutions cannot be based on the prospect of colonization and appropriation of knowledge, but by sharing spaces that allow us to experience this other way of relating, associated with traditional ways of life.

Gender and feminism perspectives and some practical suggestions

So far, the gender and feminist perspectives in different areas of science have highlighted the role that women play in the academic community by bringing a fresh look and new ways of doing science (Pfeiffer and Butz 2005; Saini 2017). Apart from the contributions of women in science, these studies also show the imbalances in the scientific community and how much we need to advance, not only in doing science, but also in the approaches used with IPLC when we consider gender issues.

In the context of research on traditional and local knowledge, the gender approach is not a new subject, however, for a long time gender has been used only as another factor that influences these knowledges (Pfeiffer and Butz 2005), without generating an empowering discussion for Indigenous women (McGregor 2005). For the ethnobiological research in Brazil, Silva et al. (2019) analyzed the gender asymmetry and showed that the disparity does not appear in the number of publications between men and women, but in the greater presence of male as senior researchers, who are in the coordination (power) of research groups. Furthermore, most of the female researchers felt discriminated against in the academic environment due to their gender. Gender discussions have expanded in ethnobiology, and ecofeminism can be seen as an important path in this new phase of ethnobiology (Ladio 2020). Within the perspective of ethnobiology, ecofeminism can leverage the arguments toward the importance of biocultural diversity.

Ecofeminism, when approached politically and not in an essentialist way, can effectively collaborate to overcome the different relations of domination that sustain Western society, between gender, ethnicity, class, and with the environment. Studies

of traditional knowledge and gender have emphasized that women have a fundamental role in the management and conservation of biodiversity (Agarwal 1992, Howard 2003) and that considering gender equity has brought more effective results in conservation actions (Cook et al. 2019; Raimi et al. 2019). An example is the field experiment carried out by Cook et al. (2019) which involved 440 forest users from Indonesia, Peru and Tanzania. The results showed that groups with a gender quota (at least 50% of the members were women) kept more trees in response to a payment intervention for ecosystem services and shared the payment more equally than groups without this gender equity.

On the other hand, as very well approached by an editorial of Nature Climate Change (2019), the inclusion of women in the decision-making process will only promote gender equity if it is complemented with efforts to free women from various responsibilities often attributed to them, for example care activities. In other words, gender changes should not only impact women, because if the role of women changes, the role of men must also change.

In the academic context, considering the feminist perspective of intersectionality and plurality (Ribeiro 2019), it is important to open places of speech and listen to IPLC women, because the demands for equity for white and middleclass women are different from those of black Latin American, and of indigenous women. It is fundamental that as researchers, instead of speaking on behalf of IPLC women, we listen to them and learn from their perspectives and values. Moreover, the academic research being carried out by these IPLC women in academia may soon bring us new views of equity and valorization of the feminine.

Additionally, a few practical actions can be suggested to overcome the inequalities of gender and ethnicity in several areas of science, including ethnobiology and conservation studies. Besides opening spaces for debate and closing the gaps to include more women, other genders, as well as IPLC and other minorities, one should ask about representativeness of the references cited in papers: what is the proportion of genders represented? What is the proportion of IPLC as authors in your references? What is the proportion of non-white authors cited in your references? Is this under-representation an inertial expression of the current dominant profile?

Finally, we would like to emphasize that gender and bias discussions are not just an issue for women. Discussing the role of the women (feminine) in science also requires discussing the role of the men (masculine) and of all the variations between these two polarities. Similarly, discussing the role of diverse ethnic groups and other minorities in science also requires discussing the role of white people in science (Eddo-Lodge 2017). Thus, we need men to join these discussions too, because if we really want to establish partnership societies, it is necessary for the female and male, and other genders, to face together their differences and complementarities. Partnership and equity is the basis of relationships to overcome this environmental crisis and this era of great changes.

CONCLUSION

Ancestral and Indigenous societies offer evidences that our current social arrangements for domination and subjugation should not be naturalized as inherent in humans, but rather depend on historical and cultural processes, and thus show us that we have much to learn from other cultures. As researchers, teachers, and citizens, we urge to encourage the values that guide equity and symmetry in relationships mainly in the scope of favoring the authentic collaboration and emancipation of IPLC, and the expansion of gender discussions in science. Thus, it is important to expand the research efforts in the context of intersectionality and plurality of gender in science, and ethnobiology has a lot to contribute in this regard.

These arguments are even more important in the recent context of Covid-19 pandemics. For Vandebroek et al. (2020) we are now forced to rethink our priorities in ethnobiology and to envision new epistemological trajectories. Within this reshaping of discussions, we can gradually move towards the establishment of a more sustainable and equanimous world by valuing and respecting biological and cultural diversity, and contesting all forms of oppression. Finally, we remind that all these ideas reflect the authors' trajectories, perspectives, and our place of speech; and the voices of IPLCs and indigenous authors are very welcome to add to this debate.

ACKNOWLEDGEMENT

We thank all Indigenous Peoples and Local Communities for presenting us to alternative ways of relating with each other and with the environment; we thank them for all their resistance over the centuries and for their relentless pursuit of respect and equity. S. Zank thanks L. Torres for introducing Societies based on Partnership perspective into her worldview. N. Hanazaki thanks to CNPQ for a research productivity scholarship. C.R. Melo thanks to CAPES for a postdoctoral fellowship. We thank G.D. Blanco, R.H. Ludwinsky, D. Cantelli, H. Assis, and B.S. Santos, who provided important insights for the manuscript.

REFERENCES

Agarwal B (1992) **The Gender and Environment Debate: Lessons from India.** *Feminist Studies* doi: 10.2307/3178217.

Baldauf C (2020) **Participatory Biodiversity Conservation.** Springer; 1st Edition.

Baldauf C (2019) **From the colonialist to the "autobotanical" approach: the evolution of the subject-object relationship in ethnobotanical research.** *Acta Botanica Brasilica* doi: 10.1590/0102-33062018abb0343.

Buss D (2015) **Evolutionary psychology: The new science of the mind.** Psychology Press.

Butler J (2003) **Problemas de gênero: feminismo e subversão da identidade.** Rio de Janeiro: Editora Civilização Brasileira.

Ciccarone C (2004) **Drama e Sensibilidade: Migração, Xamanismo e Mulheres mbyá.** *Revista de Indias* 230: 81-96.

CIMI (2019) **Documento final da marcha das mulheres indígenas "Território: nosso corpo, nosso espírito.** https://cimi.org.br/2019/08/marcha-mulheres-indigenas-documento-final-lutar-pelos-nossos-territorios-lutar-pelo-nosso-direito-vida Accessed 20 October 2020.

Convention on Biological Diversity – CBD (1992) https://www.cbd.int/doc/legal/cbd-en.pdf. Accessed 20 October 2020.

Cook NJ, Grillos T, Andersson KP (2019) **Gender quotas increase the equality and effectiveness of climate policy interventions.** *Nature Climate Change* doi: 10.1038/s41558-019-0438-4.

Da Fonseca-Kruel VS, Martins L, Cabalzar A, López-Garcés CL, Coelho-Ferreira M, van der Veld P, Milliken W, Nesbitt M (2019) **Biocultural Collections and Participatory Methods: Old, Current, and Future Knowledge.** In: Albuquerque U, de Lucena R, Cruz da Cunha L, Alves R (eds) Methods and Techniques in Ethnobiology and Ethnoecology. Springer Protocols Handbooks. Human Press, New York, pp. 215-228.

Eddo-Lodge R (2017) **Why I'm No Longer Talking to White People about Race.** London: Bloomsbury Publishing.

Eisler R (1987) **The chalice and the blade.** San Francisco, CA: Harper Collins.

Federici S (2017) **Calibã e a bruxa: Mulheres, corpo e acumulação primitiva.** São Paulo: Elefante.

Fernandes V, Sampaio CAC (2008) **Problemática ambiental ou problemática socioambiental? A natureza da relação sociedade/meio ambiente.** *Desenvolvimento e Meio Ambiente* 18: 87-94.

Gaard G (2011) **Ecofeminism revisited: rejecting essentialism and re-placing species in a material feminist environmentalism.** *Feminist Formations* 23 (2):26–53.

Gaspar MD, Klokler D, DeBlasis P (2011) **Traditional fishing, mollusk gathering, and the shell mound builders of Santa Catarina, Brazil.** *Journal of Ethnobiology* 31(2): 188-212.

Gimbutas M (1973) **Old Europe c. 7000–3500 BC: The Earliest European Civilization Before the Infiltration of the Indo-European Peoples.** *Journal of Indo-European Studies (JIES)* 1: 1–21.

Hanazaki N, Zank S, Pinto MC, Kumagai L, Cavechia LA, Peroni N (2012) **Etnobotânica nos Areais da Ribanceira de Imbituba: compreendendo a biodiversidade vegetal manejada para subsidiar a criação de uma Reserva de Desenvolvimento Sustentável.** *Biodiversidade Brasileira* 2: 50–64.

Horkheimer M (2002) **Eclipse da razão.** São Paulo: Centauro.

Howard PL (2003) **Women & Plants. Gender Relations in Biodiversity Management & Conservation.** Londres: Zed Books Ltd.

Jácome C, Furquim L (2019) **Gender and Feminism in Brazilian Archaeology.** In: Smith C (eds). Encyclopedia of Global Archaeology, Springer, New York, pp. 1-13.

King T, Hewitt B, Crammond B, Sutherland G, Maheen H, Kavanagh A (2020) **Reordering gender systems: can COVID-19 lead to improved gender equality and health?** *The Lancet* 396: 80-81.

Krenak A (2019) **Ideias para adiar o fim do mundo.** *Companhia das Letras.*

Ladio AH (2020) **A new set of tools for Ethnobiologist in the COVID-19 Pandemic.** Ethnobiology and Conservation doi: 10.15451/ec2020-07-9.29-1-8.

Maffi L (2001) **On Biocultural Diversity.** Washington, DC: Smithsonian Institution.

Maturana HR (2004) **Conversações matrísticas e patriarcais.** In: Maturana HR, Verden-Zoller G (eds). Amar e brincar: fundamentos esquecidos do

humano- do patriarcado à democracia. Palas Athena, São Paulo, pp. 25-100.

Mazariegos D (2012) **Mulheres Mayas na Guatemala: relações de poder, gênero, etnia e classe.** In: Sacchi A, Gramkow MN (eds). Gênero e Povos Indígenas.

McGregor D (2005) **Traditional ecological knowledge: an Anishnabe womans perspective.** *Atlantis: Critical Studies in Gender, Culture & Social Justice* 29: 103–109.

Melo CR (2014) **Da universidade à casa de rezas guarani e vice-versa: reflexões sobre a presença indígena no ensino superior a partir da experiência dos guarani na licenciatura intercultural indígena do sul da mata atlântica.** PhD Thesis, Universidade Federal de Santa Catarina, Florianópolis, Brazil.

Nature Climate Change (2019) **Gender in conservation and climate policy.** *Nature Climate Change* doi: 10.1038/s41558-019-0448-2.

Pfeiffer JM, Butz RJ (2005) **Assessing cultural and ecological variation in ethnobiological research: the importance of gender.** *Journal of Ethnobiology* 25: 240-278.

Raimi MO, Suleiman RM, Odipe OE, Tolulope SJ, Oshatunberu M, Olalekan AS, Makanjuola CB (2019) **Women Role in Environmental Conservation and Development in Nigeria.** *Ecology & Conservation Science* doi: 10.2139/ssrn.3425832.

Ribeiro D (2019) **Lugar de fala – Feminismos Plurais.** São Paulo: Pólen.

Rodrigues PM (1999) **O surgimento das armas de fogo: alteridade e feminilidade entre os Javaé.** Dossiê Mulheres indígenas. Estudos Feministas 7.

Rodrigues E, Cassas F, Conde BE, da Cruz C, Barretto EHP, dos Santos G, Figueira GM, Passero LFD, dos Santos MA, Gomes MAS, Matta P, Yazbek P, Garcia RJF, Braga S, Aragaki S, Honda S, Sauini T, da Fonseca-Kruel VS, Ticktin T (2020) **Participatory ethnobotany and conservation: a methodological case study conducted with quilombola communities in Brazil's Atlantic Forest.** *Journal of Ethnobiology and Ethnomedicine* doi: 10.1186/s13002-019-0352-x.

Rosaldo M, Lamphere L (1974) **Woman, Culture and Society.** Stanford University Press, Stanford.

Saini A (2017) **How Science Got Women Wrong-and the New Research That's Rewriting the Story.** Beacon Press.

Schaan DP (2013) **Cronologia das transformações das paisagens amazônicas.** III Encuentro Internacional de Arqueología Amazónica,Quito, Ecuador.

Silva TC, Medeiros PM, Hanazaki N, Fonseca-Kruel VS, Hora JSL, Medeiros SJ (2019) **The role of women in Brazilian ethnobiology: challenges and perspectives.** *Journal of Ethnobiology and Ethnomedicine* doi: 10.1186/s13002-019-0322-3.

Souza J (2020) **O Sentido das Artes/Artesanatos: O olhar das mulheres Guarani sobre os usos do artesanato e rituais. Undergraduate thesis, Universidade Federal de Santa Catarina.** Centro de Filosofia e Ciências Humanas. Licenciatura Intercultural Indígena do Sul da Mata Atlântica, Florianópolis, Brazil.

Timóteo GM (2020) **Kunhangue arandu rekó, ta´ánga re a´egui nhembopara: sabedoria dos ciclos de vida das mulheres guarani em pinturas e palavras.** Undergraduate thesis, Universidade Federal de Santa Catarina, Florianópolis, Brazil.

Vandebroek I, Pieroni A, Stepp JR, Hanazaki N, Ladio A, Alves RRN, Picking D, Delgoda R, Maroyi A, van Andel T, Quave CL, Paniagua-Zambrana NY, Bussmann RW, Odonne G, Abbasi AM, Albuquerque UP, Baker J, Kutz S, Timsina S, Shigeta M, Oliveira TPR, Hurrell JA, Arenas PM, Puente JP, Hugé J, Yeşil Y, Pierre LJ, Olango TM, Dahdouh-Guebas F (2020) **Reshaping the future of ethnobiology research after the COVID-19 pandemic.** *Nature Plants* doi: 10.1038/s41477-020-0691-6

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

Wyndham FS, Lepofsky D, Tiffany S (2011) **Taking Stock in Ethnobiology: Where Do We Come From? What Are We? Where Are We Going?** *Journal of Ethnobiology* 31: 110-127.

Received: 04 November 2020
Accepted: 12 February 2021
Published: 18 February 2021