



*Guest Editorial*, part of a Special Feature on [Challenges to Understanding and Managing Cultural Ecosystem Services \(CES\) in the Global South](#)

## Challenges to understanding and managing cultural ecosystem services in the global South

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**ABSTRACT.** Cultural ecosystem services (CES) have been proposed as the “intangible and non-material benefits that people enjoy from ecosystems”, and the literature has been expanding on how CES are defined, identified, valued, and incorporated into policy. However, the literature on CES has a strong geographical bias toward Europe and North America. In this Special Feature, authors examine how and in what ways CES concepts and frameworks have applicability in diverse developing country settings, and the particular challenges that CES approaches face. By looking at CES across different contexts in the global South, the articles emphasize the usefulness of a range of methodologies for eliciting and valuing CES; the importance of CES for a variety of people, including urban dwellers and Indigenous peoples; and the need for more practices and programs for ecosystem management that incorporate CES. Overall, the articles in this Special Feature show that research focusing on the global South can make positive contributions to the growing CES literature by drawing attention to key challenges such as power and inequality in access to CES, pressures from social and environmental change on CES, and the importance of relational and other culturally diverse values elicited through appropriate methodologies.

**Key Words:** *conservation; cultural ecosystem services; developing countries; well-being*

### INTRODUCTION

The Millennium Ecosystem Assessment (2005) defined cultural ecosystem services (CES) as the “intangible and non-material benefits that people enjoy from ecosystems”; since this seminal work, a rapidly expanding body of literature has explored how CES are defined, identified, valued, and maintained (Trainor 2006, Chan et al. 2012, Hiron et al. 2016). The diversity of experiences that societies and cultures around the world have with regard to nature has spurred strong interest in assessing and comparing these dynamics cross-culturally (de Groot and Ramakrishnan 2005). Subsequent CES research has identified numerous cultural, spiritual, social, and religious benefits originating in myriad knowledge systems and their engagement with specific environments (Chan et al. 2012, Daniel et al. 2012). CES are considered an important component of the ways that humans positively value their interactions with nature, which can translate into support for environmental policies, economic development through tourism and recreation, and direct social benefits such as better health and well-being (Masterson et al. 2019).

However, there has been little attention to CES concepts and research in the global South, with a strong geographical bias in the research literature toward Europe and North America (Milcu et al. 2013, Hiron et al. 2016, Gould et al. 2019, Kosanic and Petzold 2020). What accounts for the paucity of attention to how CES are defined and conceptualized in less developed country settings, and what might be the particular problems that CES frameworks face in policy and practice there? There is a need to understand CES in developing country settings in particular because of the strong interlinkages and overlap between biodiversity and cultural diversity there (Sterling et al. 2017). This important biocultural diversity throughout the global South has led to pluralism in local value systems regarding definitions, understandings, and practices of CES (Roux et al. 2020).

In this Special Feature, we examine how and in what ways CES concepts and frameworks have applicability in diverse settings of the global South and the specific challenges CES researchers and practitioners face. The nine papers explore CES as a concept in different parts of Latin America, Africa, and the Asia-Pacific region, and across ecologies, including urban parks, restored forests and plantations, marine and terrestrial protected areas, wildlife hotspots, and agricultural landscapes. Among the many topics, authors examine different methodologies for eliciting and valuing CES, the range of values rooted in social-ecological relationships that constitute CES, and practices and programs for ecosystem management that incorporate CES. The Special Feature was organized by the Thematic Group on Cultural Practices and Ecosystem Management of the Commission on Ecosystem Management, International Union for the Conservation of Nature.

The case studies in this Special Feature affirm the importance of cultural practices and values related to both material and nonmaterial benefits from nature, as well as the need to consider appropriately what factors are counted as CES in different contexts. Further, the case studies also critically engage with questions of *whose* CES are counted, and the equity and distributional dilemmas that may arise from access to culturally shared resources. Overall, the articles in this Special Feature show that CES concepts have important resonance in the global South, although care must be exercised to understand the contextual complications of using this framing. In turn, studies that focus on the global South can make positive contributions to the growing CES literature by drawing more attention to key challenges such as power and inequality in access to CES, pressures from social and environmental change on CES, and the importance of relational and other culturally diverse values that need to be understood through appropriate research methodologies.

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## SITUATING CULTURAL ECOSYSTEM SERVICES IN THE GLOBAL SOUTH

### Definitions of cultural ecosystem services

Discussions over what CES are and how they can be defined have occupied scholars since the Millennium Ecosystem Assessment (2005) first brought attention to this category as the “non-tangible benefits” from nature. For many scholars, the importance of CES is as a conceptual way to express the “symbolic, experiential and virtuous realm of human interactions and understandings of the natural environment” (Fish et al. 2016:208). CES are essentially coproduced by people’s interactions with ecosystems and reflect subjective senses of quality of life and relational values with other living entities (Comberti et al. 2015). CES can also serve to transmit shared understandings regarding relations with nature (Schnegg et al. 2014); for example, maintenance of traditional Indigenous environmental knowledge has been seen as a type of CES (Queiroz et al. 2017).

However, for some scholars, CES concepts use framings in technoscientific ways (e.g., the term “ecosystems”) for what some people would consider “nature” or “place” (Kirchhoff 2019). The idea of “services” also sits uncomfortably against many values and worldviews, as it may imply an anthropocentric or instrumental framing that is culturally inappropriate (Kirchhoff 2012, Scholte et al. 2015), and for some, concepts such as stewardship or reciprocity would provide more understandable terms (Winthrop 2014, West et al. 2018). In other instances, the concept of CES may be incommensurable with specific worldviews, particularly for Indigenous peoples, who may have a vision of cultural obligations to nature rather than receiving services from it (Pert et al. 2015). In these cases, the idea of CES may actually reinforce a culture–nature divide by assuming that nature’s benefits can be divided into distinct categories (Pröpper and Haups 2014) or that practices toward nature are done for “conservation” without an understanding of their deeper cultural meaning (Lyver et al. 2017).

There have also been many discussions over what should be included in the category of CES. Scholars have suggested the need to move away from a catch-all for nontangible benefits to something more clearly defined and contextually useful (Hirons et al. 2016). For example, oftentimes, CES is used as a term to capture “social benefits” from ecosystems (Schmidt et al. 2016). The CES literature has particularly discussed how to distinguish between values, benefits, and services, and how these vary across cultures and contexts. Services have been defined as the components of nature (processes and natural assets) that produce benefits for people (the outcomes or contributions that people receive), whereas values are the “preferences, principles and virtues” that influence how humans experience, interact with, and appreciate these benefits (Chan et al. 2012). CES are thus not static but should be seen as dynamic and processual (Pröpper and Haups 2014), given that they are not “*a priori* products of nature that people utilize for a particular benefit to well-being”, but rather “*relational processes and entities that people actively create and express through interactions with ecosystems*” (Fish et al. 2016).

### Geographic focus and topics

Most of the work on CES to date, including recent special issues, has focused on Europe and North America (Bryce et al. 2016,

Cooper et al. 2016). Although there are increasing numbers of empirical case studies of specific CES in developing countries (Rasmussen et al. 2016), there is less attention to comparing them with the global North or explaining what elements of CES appear particularly to resonate in specific cultural contexts. The overall CES literature has also tended to have an outsized focus on recreational, tourism, and amenity values. Practices such as wildlife watching, recreational hunting and fishing, use of green space, and ecotourism receive numerous mentions. In addition, CES related to sense of heritage and identity have become commonplace, such as appreciation of landscapes, aesthetics, and sense of place, while the symbolic and heritage values of certain species are also of note (Amberson et al. 2016). CES benefits related to quality of life and well-being include physical and mental benefits of green spaces and nature (Amberson et al. 2016). CES from food and agroecosystems are also increasingly noted in the literature, including foods of cultural importance, social practices of collection, and recognition of appellations relating to place (Winkler and Nicholas 2016). For spiritual and cultural values, sites for religious purposes, burial grounds, bequest values, and other landscapes for cultural transmission are important (von Heland and Folke 2014). Finally, educational CES include learning, language instruction, and formal and informal education facilitated by engagement with nature (Mocior and Kruse 2016).

However, many of the CES that are of particular interest in the global South are less common in the literature (Stålhämmar and Pedersen 2017); for example, a recent systematic review found that “social relations, knowledge systems and cultural diversity received the least attention” (Kosanic and Petzold 2020). Cultural practices and values, such as religion and spirituality, taboos and myths, alternative epistemologies and ontologies, and other cultural issues are rarely invoked by scholars working on CES; works on cultural practices and values related to nature often do not use the language of ecosystem services (Zent 2013). The dominant focus of CES literature on recreation and leisure time activities, in many cases, have reflected Western notions of cultural production and value (Pröpper and Haups 2014). It has also been methodologically easier to measure and quantify recreational CES, such as through economic benefits related to tourism, than other intangible values (Allan et al. 2015). However, there are also tensions between recreation or amenity values and other place-based forms of CES, such as cultural and spiritual values embedded in landscapes of Indigenous peoples (de Groot and Ramakrishnan 2005, Pascua et al. 2017), meaning that there may be a risk that attention to recreational value as a primary CES could displace other cultural values or privilege wealthier users or outsiders.

Thus, one benefit of more case studies of CES from the global South is the potential for shifting focus away from recreational CES. There are many other CES that are considered important in developing country settings, such as supporting maintenance of social and community relationships, social cohesion, intergenerational bequest values, cultural transmission, community resilience, or other alternative epistemologies and ontologies related to cultural practices (Barnes-Mauthe et al. 2015, Gould et al. 2015, Oleson et al. 2015, Gould and Lincoln 2017, Lyver et al. 2017). Many of these values are related to conserving ecosystem processes for future generations and tied to

the concept of irreplaceability; hence, many of these CES cannot be valued or compensated monetarily (Manero et al. 2022).

### Methodologies and valuation

CES have been challenging to measure because they are often considered “subjective” (Daniel et al. 2012), leading to important discussions in the literature regarding what methodologies are most appropriate. A number of qualitative and quantitative methods are used to identify and understand the CES that people use and value. These methods range from physical measurements of health benefits from being in nature or observational data on numbers of people visiting parks (Russell et al. 2013) to methods based on spatial mapping, including Geographic Information Systems (Nahuelhual et al. 2014, Alvarez-Codoceo et al. 2021), public participation in mapping (Darvill and Lindo 2015), geotagged social media and photographs (Richards and Friess 2015, Tenerelli et al. 2016), or recording of physical marks on landscapes. Surveys and interviews of perceptions, use, and values are a common method for collecting both qualitative and quantitative data (Zhang et al. 2016), with some authors using Q methodology (Pike et al. 2015) or social network analysis (Kilonzi and Ota 2019) to gauge consistency across interview responses. Other methodologies have been used to explore shared CES values, including deliberative juries, workshops, scenario planning, immersive theater, computer visualizations, or the arts (Orenstein et al. 2015, Szucs et al. 2015, Edwards et al. 2016, Schmidt et al. 2017). However, many of the qualitative methodologies can be time consuming and more expensive than surveys or mapping, particularly in the global South (Zhou et al. 2020).

There are numerous ways values toward nature can be expressed, from intrinsic (Batavia and Nelson 2017) to instrumental (de Groot and Steg 2007), with increasing numbers of studies recognizing relational and reciprocal values as well (Chan et al. 2018, Jax et al. 2018). Relational values recognize that people often see themselves in shared relations with nature, or that nature facilitates opportunities for extended social relationships with others (Himes and Muraca 2018). The idea of value pluralism seeks to capture multiple views of nature and its benefits (Arias-Arévalo et al. 2017). Particularly for instrumental values, there have been different approaches to attaching monetary values to CES, including both revealed preferences (e.g., travel cost methods to value recreation sites or hedonic pricing to assess real estate values near particular landscapes) and stated preferences methods, including willingness to pay surveys or social media engagement (Barrena et al. 2014).

However, these methods may not be appropriate in the global South, especially where travel is difficult, private property markets are unclear, social media use is low, or monetary valuation is culturally inappropriate (Chan et al. 2012, Kenter 2016, du Bray et al. 2019). Further, even where monetary valuations can be elicited, they are often underpinned by shared social values such as intrinsic or relational values (Kenter et al. 2016), and thus are neither solely individualistic nor instrumental. These relational values can be more important than other values; for example, one study of a watershed in Colombia noted that > 90% of respondents mentioned relational values (e.g., the symbolic values of rivers), whereas only 2% mentioned instrumental values (e.g., monetary benefits from river protection; Arias-Arévalo et al.

2017). These relational values often underpin “intimate, mutual” relations and practices of care toward nature (Diver et al. 2019). For example, for some communities, ecosystems benefit from a reciprocal exchange with humans; while humans obtain many services, they also in turn provide services back to ecosystems through management and cultural practices (Comberti et al. 2015). In such cases, collective valuation of CES is likely more important than individual perceptions (Chan et al. 2018, Jax et al. 2018), and thus deliberative methodologies, which place emphasis on process, participation, and communication, may be more appropriate than other methods (Raymond et al. 2014).

Several of the articles in this Special Feature provide examples of how methods can be made more participatory for the global South. For example, Allen et al. (2021) explored alternative methodologies for eliciting CES, including photovoice, dialogue workshops, and participatory mapping, and found that these deliberative methodologies could help articulate shared community values to overcome conservation challenges. Hunter and Lauer (2021) used a photo elicitation survey to assess different ecosystem services as well as to evaluate an instrumental survey method, finding that many methodologies in and of themselves may limit discussion of cultural valuation issues, necessitating attention to reflexivity and awareness of the limitations of certain methods.

### KEY CONTRIBUTIONS OF STUDIES FROM THE GLOBAL SOUTH TO CULTURAL ECOSYSTEM SERVICES

Given the need for more critical reflections on the importance of CES to human livelihoods and ecosystem management in the global South, this Special Feature brings together scholars and practitioners working on CES across Latin America, Africa, and the Asia-Pacific region. In addition to focusing on the global South, many contributors are from or based there, providing needed diversity of perspectives and deep local understanding. These theoretically informed and empirically rich articles highlight the wide range of both nonmaterial and material CES that can be encountered in developing countries across different ecosystem types, from highly managed systems such as rooftop gardens or working landscapes to more natural ecosystems in marine and terrestrial protected areas. The articles unpack some key CES such as sense of place, mental and physical health and well-being, and opportunities for learning, as well as exploring CES that are less considered in the literature, such as patriotism, bequest values, and ethical relations with animals.

Across all the articles, authors discuss how to engage with CES in contextually meaningful ways, including questioning if CES is the right term to capture the range of relational values held, ranging from familial ties in Costa Rica, intergenerational values in Kenya and French Polynesia, and social cohesion in Bangladesh. The authors also draw on multiple methods for their research, ranging from participatory mapping, photovoice and photo elicitation, model-based reasoning, qualitative interviews, and quantitative surveys. Together, these articles present the concept of CES as useful, but show how contextual conditions matter for how cultural values shape ecosystem management and benefits in diverse contexts. Several key themes emerge from these cases from the global South, which we believe will make significant contributions to the CES literature as a whole and help to lead it

in new directions. These themes include the need for more diversified categorization of CES contributions to well-being; increased understanding of the ways that access to CES can change over time, including through inequities; and how improved recognition of CES can contribute to improved ecosystem management, despite pressures and changes.

### Cultural ecosystem services contributions to well-being

Concepts such as well-being and resilience have been linked to many types of ecosystem services benefits. The Millennium Ecosystem Assessment (2005) highlighted well-being in terms of security, basic material for a good life, health, and good social relations; access to and management of CES can affect all of these components (Pleasant et al. 2014, Bullock et al. 2018, Kosanic and Petzold 2020). For example, erosion of traditional crops and foods, which provide not only nutritive but also cultural benefits, can lead to well-being deficits (Zimmerer et al. 2015, Ficiciyan et al. 2018). Use of CES also helps to maintain social relationships and facilitate transmission of knowledge, which can be essential for sense of well-being and connectedness to community and across generations (Queiroz et al. 2017, Kilonzi and Ota 2019). There is also increased attention to urban settings of the global South, where contributions to mental and physical well-being are important given that these fast-growing areas can stimulate high demand for urban green space-related CES (Sahakian et al. 2020, Montes-Pulido and Forero 2021, Sen and Guchhait 2021). CES can also be crucial to specific vulnerable populations such as refugees (Gladkikh et al. 2019), and loss of CES-related ties and associations can be extremely negative for well-being (Dou et al. 2020). However, these outcomes from CES loss are often overlooked in models and monetary valuations of ecosystem services, particularly if assumptions are made about how preferences made by poorer people have less value than those made by wealthier people (Hirons et al. 2016).

Several articles in this Special Feature explore how CES contribute to well-being. McElwee et al. (2022) show how, in central Vietnam, CES emerge from both provisioning of material goods in the landscape (food, medicines, and culturally important craft goods) as well as immaterial benefits such as sense of pride and patriotism. Sense of place contributes to comprehensive well-being in several articles; it is composed of cognitive and affective elements as well as physical and social ones, as Selfa et al. (2021) show for the working landscapes of Argentina. Sense of place is a clear CES benefit, even in urban areas where multiple diverse communities mingle, as Sultana and Selim (2021) point out. In India, the concept of “lifeworlds” is used by Paul and Jones (2021) to highlight the multiple definitions and specificities that emerge out of human–nature interactions between the Yanadis and the arid landscapes they inhabit. Such affinities are particularly important in grounding Yanadi identity and providing the material benefits that enable them to survive in often challenging climates and landscapes as well as overcome the social marginalization they face.

There are also tradeoffs between material aspects of well-being and social and cultural ones. In French Polynesia, degradation of coral reefs on the island of Moorea due to overfishing, pollution, and climate change has led to the realization that instrumental approaches to this ecosystem have undervalued other intrinsic and relational values such as identity and subsistence needs

(Hunter and Lauer 2021). In Kenya, Unks et al. (2021) show that the focus of conservation projects around Amboseli National Park has been to supply financial benefits to nearby Maasai communities, but this has had the unintended effect of increasing inequalities and exclusions, as well as changing communities’ relationships with animals, which has led to more demand for a strict separation of wildlife and people. The authors argue that taking a relational values approach would have improved pluralistic understanding of CES and the complexities of nature–culture interactions, rather than the instrumental values approach of conservation nongovernmental organizations. A more positive example is provided by He and Guo (2021), who discuss how Tibetan communities living in Pudacuo National Park in southwest China have been allowed to continue cultural practices that maintain CES as part of park management, which has improved the villagers’ well-being outcomes as well as reducing conflicts between locals and park authorities.

### Changing histories of cultural ecosystem services access

Access to and availability of CES are in decline in many areas because ecosystem conversion contributes to loss of CES or societal and cultural changes undermine CES, even when landscapes are stable. There is a need to understand the ways in which rapid environmental changes in the global South, from unsustainable urbanization or commodity production to climate change, will continue to put pressure on CES (Dou et al. 2017). Pollution in traditional waterbodies has changed cultural rituals in India (Chowdhury and Behera 2021), while desertification and increasing pressures on drylands in China have led to restoration that is not informed by CES values (Dou et al. 2021). Other changes that affect CES access can also include loss of cultural identity, language erosion, inability to secure land rights, and violations of justice and equity; for example, access issues related to dislocation from landscapes have been common in many areas, whether they are a result of colonialism or fortress conservation (Pascua et al. 2017). When people are excluded from the benefits of nature, they suffer related effects of loss of or disconnectedness from CES (Dou et al. 2020). Relatedly, there is a need to improve the understanding of power within communities and how it shapes subjective experiences of CES (Dawson and Martin 2015, Lakerveld et al. 2015). There is often inequity in who is able to access CES; for example, it is often a small number of (often wealthier) people who benefit from recreation (Martinez-Harms et al. 2018), whereas other types of CES are more used by those who are poorer or more marginalized.

In this Special Feature, such issues of equity, access, and environmental change play out in different ways. For example, in southern India, Paul and Jones (2021) examine the conflicts between state authorities and local communities over cultural valuation of forest resources because the Indigenous Yanadi community is dependent on natural resources but is excluded from their management, with the state’s lack of interest in CES compounding this exclusion. Changes related to migration and other social challenges also are affecting the ways in which local ecosystems are understood, valued, and managed, such as in Vietnam, where increasing pressure to send young people to work abroad may affect their sense of place (McElwee et al. 2022). In Argentina, former pampas lands have experienced a boom in eucalyptus plantations, which have altered provisioning of local ecosystem services as well as aesthetic perceptions of landscapes,

leading to conflicts between different CES values among residents (Selfa et al. 2021).

In turn, CES frameworks and concepts can be useful for highlighting patterns and processes of environmental change and identifying better adaptive solutions. For example, using diverse methods such as photovoice to capture change in supply of ecosystem services can be used to provide early warning systems and to help communities devise improvements to ecosystem management (Allen et al. 2021). Notions of culture and knowledge as being adaptive can help to address questions of how to deal with CES that are being diminished by climate and other environmental changes, as noted in the case of Moorea (Hunter and Lauer 2021) and in southwest China (He and Guo 2021). In Dhaka, Bangladesh, improved understanding of the myriad CES obtained by different communities could be used as a basis to advocate for more public participation and increased political support for urban green spaces (Sultana and Selim 2021).

### **Cultural ecosystem services to improve management of ecosystems**

How nature is managed on the ground for the production of CES, and how management could be improved through policy and other engagements, are important topics of research because recognition and management of CES can strongly help to inform conservation decision-making and ecosystem management practices (Lyver et al. 2017, Gould et al. 2019). As He and Guo (2021) write, “a deep engagement with cultural norms and practices require[s] a contextualized approach to understand the embeddedness of local cultural meanings and needs within the surrounding biophysical ecosystem.” There is a particular need to understand how CES are considered in ecosystem management decision-making in the global South, including how governance situations that might be constrained by more limited budgets or contested authorities could productively incorporate CES concepts.

In southwest China, local park authorities who paid attention to and incorporated local CES in their management strategies found that it paid dividends (He and Guo 2021). Particularly because protected areas in the global South are often placed in zones with high biocultural diversity, there is a strong need to understand local cultural values for landscapes, but too often, these parks focus management priorities on exclusion or on recreation by outsiders, rather than locally meaningful CES. By thoughtfully understanding and integrating CES into protected areas management, managers can both increase success in biodiversity conservation and improve local well-being, contributing to ecotourism and reduced conflicts. In Costa Rica, researchers found that by helping communities to articulate multidimensional CES values through deliberative processes, the outcomes could be used locally to inform environmental decision-making (Allen et al. 2021). In urban Dhaka, local officials have mainly advocated for densification and infrastructure development where local people have not been involved in the conception, planning, or implementation. As an alternate approach, understanding how CES values shape the perceived importance of and preferences for urban green space and its management could improve both urban ecosystem benefits as well as increase participation of local residents (Sultana and Selim 2021). Further, where CES are not given attention by authorities, outcomes can include alienation

of communities from nearby landscapes that have provided both material resources and spiritual, cultural, and social capital, as has happened to the Yanadi community in southern India (Paul and Jones 2021) and Maasai ranches around Amboseli National Park in Kenya (Unks et al. 2021).

### **CONCLUDING REMARKS**

Through a variety of case studies, this Special Feature explores the ways in which CES concepts can be expanded and used in different cultural contexts and what difficulties might be encountered in doing so. Through topics including place attachment and sense of identity, cultural life worlds and relational values, challenges to economic valuation, and ways to improve conservation through recognition of cultural practices, these articles highlight the usefulness of CES concepts for discussions of sustainable development in the global South. They also identify the challenges, such as in measuring intangible values and choosing appropriate methodologies. Together, the articles in this Special Feature present the concept of CES as useful but show how contextual conditions matter for how cultural values shape ecosystem management and benefits, serving as a focal point for both practitioners and scholars wishing to understand better the concept and application of CES in diverse contexts.

Many of these CES are likely to be even more important, particularly in urbanizing areas, as the world emerges from the COVID-19 pandemic. Interactions with nature were a particularly important coping mechanism for many during this crisis, whether it was through walks in green spaces or provisioning of culturally important foods and medicines. However, once again, the focus of much of the research on COVID effects on CES have taken place mostly in the global North and wealthier countries (Grima et al. 2020, Ugolini et al. 2020, Yap et al. 2022). Therefore, our call for increased attention to CES in the global South and across diverse ecosystems and communities remains important, and we hope that other researchers will take up this charge and expand the CES literature in new and diverse ways, contributing both to improved ecosystem management, as cultural practices are recognized for their value, and expanded appreciation of the multidimensional benefits provided to humans from CES.

*Responses to this article can be read online at:  
<https://www.ecologyandsociety.org/issues/responses.php/13427>*

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*There are no data associated with this guest editorial.*

## LITERATURE CITED

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