



The Four Ways of Eco-global Criminology

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Abstract

In charting out the 'four ways' of eco-global criminology, this paper discusses the importance of recognising and acting in regards to the differences evident in (1) ways of being (ontology), (2) ways of knowing (epistemology), (3) ways of doing (methodology) and (4) ways of valuing (axiology). The paper assumes and asserts that global study of environmental crime is essential to the green criminology project, and particularly an eco-global criminology approach. Specific instances of criminal and harmful activity therefore need to be analysed in the context of broad international social, political, economic and ecological processes. The article outlines the key ideas of eco-global criminology, a perspective that argues that global study must always be inclusive of voices from the periphery and margins of the world's metropolitan centres, and critical of the social relations that sustain the epistemological as well as material realities and legacies of colonialism and imperialism. Yet, in doing so, there arise many paradoxes and conundrums that likewise warrant close attention.

Keywords

Eco-global criminology; environmental harm; Indigenous experiences; elder knowledge; eco-justice.

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Introduction

One of the outstanding contributions of 'southern theory' (Carrington, Hogg and Sozzo 2016; Connell 2007) is that it propels us to consider the importance of the periphery in assessing knowledge and experiences that too often are interpreted solely from a universalising 'northern' perspective. Acknowledgement is needed, therefore, that the geographical and metaphorical 'south' likewise has its contributions to a needed global dialogue about 'what is' and 'what ought to be', about what and who counts or should count, and about the state of the planet generally.

These considerations are likewise of central concern to eco-global criminology (White 2011). Eco-global criminology refers to an analytical framework that focuses on the interrelated matters of the ecological (the 'eco'), the transnational (the 'global'), and justice (the 'criminology'). Its substantive focus is transgressions against ecosystems, humans and animals. Underpinning eco-global criminology is acknowledgement that contemporary social arrangements are constituted as relations of power and sectoral interests. Equally important to this perspective is the notion that 'what we know' and 'how we know' are intrinsically socially patterned and constituted. That is, interpretations and responses to environmental harm require careful contextualisation as different social interests are frequently at play, with diverse understandings of any particular issue in any given situation. From an eco-global criminology perspective, it is *context* that is crucial.

To speak of crimes against the environment or eco-crime (ecological crime) is to acknowledge some kind of specificity in the act or omission that makes it distinctly relevant to environmental and criminological considerations. What marks out eco-global criminology from other green criminological perspectives (see South and Brisman 2013; White and Heckenberg 2014) is the attention given to specifically ecological considerations of harm (the lawful but awful) rather than criminal definitions (the unlawful) as such, as well as its global perspective on issues and events. The major threats to planetary wellbeing presented by climate change, diminished bio-diversity and pollution are considered core issues. Arising from the eco-global perspective is an enhanced appreciation of the need for collaboration involving individuals, groups and countries from different geographical regions. Such collaborative efforts are vital in regards to research, investigation and exposure of environmental harm and victimisation. They are also essential in responding to issues and trends, and especially for engaging in action supportive of progressive social and ecological change.

Yet, the complexity of the issues relating to environmental harm demands more than simply application of a multi-method approach to their study and appreciation that these harms and crimes are interconnected and intertwined in various ways on a worldwide scale. *Thinking* and *doing* are complex and multifaceted, reflecting vastly different situations and circumstances and yet simultaneously embodying shared aspects of the human condition (and, indeed, the nonhuman condition). Fundamentally, for an informed and empowering approach to eco-justice, a vital task is to expose and unpack 'how we know what we know' and to critically reflect on the ambiguities, paradoxes, opportunities and blind alleys that such an exercise inevitably entails.

In charting out the 'four ways' of eco-global criminology, this article discusses the importance of recognising and acting in regards to the differences evident in (1) ways of being (ontology), (2) ways of knowing (epistemology), (3) ways of doing (methodology) and (4) ways of valuing (axiology). In discussing these various 'ologies', the paper grapples with the difficulties posed by attempts to be inclusive of voices from the periphery, including the dispossessed, the young and the elderly, and especially those that are critical of the social relations that sustain the epistemological as well as the material realities and legacies of colonialism and imperialism. The 'voices' of Nature are also of relevance to the discussion. These difficulties are not solely logistical, cultural, linguistic and/or financial. As the paper discusses, issues of essentialism and reductionism also loom large in any project that purports to tackle environmental harm in the

ways suggested by eco-global criminology. The article uses certain exemplars to illustrate the problems and limitations of trying to apply notions of 'inclusion' uncritically and without due regard for context and contestation.

Ways of being

In discussing the complexities of ontology or ways of being, this section focuses mainly on Indigenous experiences. It begins with the idea that environmental victimisation can be uniquely experienced by Indigenous communities. That is, the specific material and cultural positioning of Indigenous people within certain landscapes is vital to understanding the nature of their environmental victimisation. For example, in New South Wales (NSW), a contractor to Ausgrid (an energy provider) damaged an Aboriginal rock engraving while undertaking excavation works for a new electrical substation. In the court proceedings (see *Chief Executive, Office of Environment and Heritage v Ausgrid* [2013] NSWLEC 51) an affidavit was tendered by an Aboriginal leader that said that:

The proper protection of Aboriginal culture and heritage is of deep importance to the NSW Aboriginal Land Council and Aboriginal communities in NSW. In this case, the harm that has occurred due to the engraving being sliced in half means that the engraving can never be replaced. The destruction of Aboriginal sites, such as has occurred in this instance impacts on the ability of Aboriginal peoples to connect with a living culture of the past. These sites tell important stories for Aboriginal communities and must be protected to provide Aboriginal people with opportunities to strengthen and maintain culture now and in the future. (*Ausgrid* at [55])

The phrase 'connect with a living culture of the past' is particularly important here. This connotes a dynamic and continuously vibrant relationship between local Indigenous communities and the land upon and within which they live. Central to this is the idea of 'land' or 'country' (Connell 2007; Graham 2008). In New Zealand, similar sorts of assertions are also made in regards to Maori relationships with Nature, including rivers (Morris and Ruru 2010).

Indeed, the special relationship between Indigenous communities and land/Nature finds expression in a number of different places and ways worldwide, a point made by Suzuki (2010: 71) when he observes:

Whether it's in the Amazon, the Serengeti, or the Australian outback, Aboriginal people speak of Earth as their mother and tell us we are created by the four sacred elements: Earth, Air, Fire, and Water. I realized that we had defined the problem incorrectly. I had pressed for laws and institutions to regulate our interaction with the environment when, in fact, there is no environment 'out there', separate from us; I came to realise that we *are* the environment.

It is thus not a question of humans owning the land, or the land owning humans: it is far deeper than this. These expressions of connection and interrelationship have profound implications for understanding and responding to desecration of Indigenous lands and waters. So, too, do declarations on the rights of Mother Earth, which stem in part from the efforts of Indigenous peoples worldwide to gain international recognition and acknowledgement of the Earth-People connection (United Nations Economic and Social Council 2010). The Earth is experienced as sacred and vital, a source of spiritual strength and wholeness, and part of a harmonious unity between land and human. Fundamentally, acknowledgement of distinctive spheres of thought, attitudes, social relations and styles of behaviour in regards to Indigenous ontology means that taken-for-granted assumptions regarding Indigenous people's lived experiences, from a

'whiteness' or non-Indigenous perspective, need to be challenged, especially in the light of their connection with land/Nature (Watson 2015).

Yet there are two significant question marks about this scenario that also have to be addressed. The first relates to the fact that the 'Indigenous experience' is in fact highly variable, and this has implications for how one interprets Indigenous connections with Nature, including through 'traditional' activities. As part of this consideration there is a need, as well, to consider global knowledge transfers involving Indigenous people and how this might impact upon daily practices.

Consider, for example, fishing (see White 2008). What is actually meant by the word 'traditional' in this instance? This can refer to quite different aspects of traditional fishing, such as: *who specifically* (Indigenous Australian, Indigenous Indonesian, Papua New Guinea, Torres Strait Islander); *how specifically* (methods, techniques and technologies); and *where specifically* (traditional fisheries for particular coastal groups). From an eco-global criminological perspective, conflicts can arise when modern technologies are utilised for what used to be simply subsistence fishing. The use of motor boats, nets and fishing rods, and sonar equipment, for example, allows for overexploitation to occur. The unrestrained exploitation of resources may be due to employment of new technologies, perceptions of resources being boundless, and where management is believed to be beyond human control (Caughley, Bomford and McNee 1996). Moreover, overexploitation may be generated in the new methods of production themselves. For example, on the one hand, the mobility, range and efficiency of 'traditional' fishing are all enhanced through modern methods and technologies. On the other hand, these technologies generate the need for cash to supplement subsistence (for example, buying the boat and petrol for the boat). The net effect is pressure to fish beyond immediate consumption needs. That is, traditional fishing today often has an interface with the cash economy: fish to eat, and fish to sell to subsist (Altman, Bek and Roach 1996; Caughley, Bomford and McNee 1996).

This observation serves to highlight the interplay between the 'modern' and 'traditional' in ways that make non-Indigenous perception of Indigenous ontology that much harder to interpret and understand. Moreover, the impact of colonialism on Indigenous experience also has to be recognised. Many Indigenous people, for example, do not have an 'intrinsic' connection to the land. For them, there is no 'country' as such. This is especially the case for children who were taken from their families and communities at an early age: the 'stolen generations' (see Paradies 2006). It is also applicable to Indigenous people raised on missions and as Christians, which in turn lead to profound misunderstandings and conflicts within Indigenous society, as evident in disputed claims amongst Indigenous women about 'Hindmarsh Island' in South Australia being a place for 'secret women's business' (Gelder and Jacobs 1997; Mead 1995). On top of this, there is the phenomenon of young Indigenous people being influenced by transnational media (via satellite technologies and the Internet) in ways that undermine community, encourage disrespect of elders, and incorporate some of the worst aspects of Western culture: the youth gangs of Wadeye in remote desert of the Northern Territory being a case in point (White 2013a). Not all Indigenous experiences are the same, and presumably this also extends to their relationships with Nature.

The second query stems from how to interpret the experiences of those non-Indigenous people who may likewise experience Nature in a particularly profound and unique fashion (relative to the Western norm). With respect to this, non-Indigenous experiences of Nature can occasionally appear to mirror those of the Indigenous. For instance, Hamilton (2014) raises several questions that aim to broaden the scope of 'environmental victim' in ways that allow other voices and other agendas to be considered, particularly in restorative justice types of forums. Writing in relation to the clearing of native vegetation and threatened species, he asks:

The environment, consisting of the endangered plant, is obviously the victim but can this be extended to conservation groups who seek to protect the environment,

or even those who enjoy looking at the plant species in the natural environment? If the circumstances were appropriate, with a willing and acceptable offender, would a restorative justice conference with such conservation groups and plant enthusiasts be one way of imparting knowledge and understanding to the offender?

Maybe the net should be cast wider to include National Parks and Wildlife Rangers in the conference, as they are indirect victims of the aforementioned offence because they have had their good work in protecting the environment undermined by the commission of the offence. (Hamilton 2014: 270)

Nonetheless, these interests notwithstanding, there seems to be a significant difference between Indigenous and non-Indigenous relationships to land/Nature. The distinctiveness of Indigenous ways of being (and ways of knowing) is reflected, for example, in laws such as those that provide for the protection of Aboriginal heritage (for instance, the *National Parks and Wildlife Act 1974 NSW*) and in court processes which privilege their voice in relation to this (Hamilton 2008; White 2015).

But both non-Indigenous Earth Law proponents and radical environmentalists might beg to differ that somehow their visions of Nature, and their experiences of Nature, should somehow be devalued by comparison with Indigenous connections with 'country'. Recent research on the revelatory experiences of forest activists and anti-whaling activists – due precisely to the development of a close relationship with natural objects (such as trees) and creatures of the sea (such as whales) – highlight the emphatic and profound closeness of these activists with Nature (Cianchi 2015). They identify *with* Nature, and in so doing do not see themselves as separate *from* Nature. The parallels with the Indigenous experience described earlier are compelling.

Even this superficial overview provides an indication that matters of ontology deserve close critical scrutiny. Essentialism that is too inclusive ignores the multiple voices within a community (that is, amongst and between Indigenous groups), and that which is too exclusive ignores the visceral level experiences of those who interact with Nature on a different plane to many others living in the West (that is, amongst environmental activists).

Ways of knowing

Discussion of epistemology or ways of knowing needs to take into account different ways of knowing. For example, this can include the 'rational' (that is, science, logic and factual knowledge) and the 'affective' (that is, emotions, the irrational and self-denial). It can include knowledge 'of' and knowledge 'about'. For the most part, this section considers a particular type of knowledge that is often ignored in many accounts of environmental harm: namely, elder knowledge. But before doing so, it is instructive to consider other forms of contested knowledge relevant to understandings and perceptions of the environment.

Eco-global criminology focuses not only on humans as environmental victims but the nonhuman as well (White 2011, 2013b). This refers to natural objects such as rivers, mountains and oceans, as well as flora (plant life) and fauna (animal life). Consideration of the nonhuman environmental object incorporates discussion of individual landscape features and specific living entities, through to particular eco-systems. Any particular ecosystem is made up of both abiotic components (air, water, soil, atoms and molecules) and biotic components (plants, animals, bacteria and fungi). The place of nonhuman environmental victims is increasingly important within green criminology more generally and within the emerging area of jurisprudence broadly referred to as Earth Law or Wild Law (Cullinan 2003). In each instance the concern is to emphasise the intrinsic value of the nonhuman and to establish new recognitions of and protections for the nonhuman in law and legal proceedings.

There are two relevant issues worth considering here. The first involves asking who can or should speak for and on behalf of whom. Relevant questions include 'whose voices' are or should be heard in forums such as courts; how this ought or might occur; and, specifically, how and to whom does non-human nature communicate its needs. These are partly matters of standing and representation. But they are also about 'speaking on behalf'. If the nonhuman is to be acknowledged in law as a 'victim', then the nonhuman must be able to convey, in some way, the nature of their victimisation. In other words, the non-human victim needs a human translator to speak on their behalf about the nature and consequences of the harms suffered (Stone 1972). In practice, this means advocates must give voice to the concerns of those such as trees, soil, bees, orchids, rivers and lakes who cannot articulate what is happening to them. Increasingly, including within environmental courts, it is acknowledged that there is much to learn by bringing the nonhuman into the dialogue about ecological health and wellbeing that affects all (Besthorn 2004, 2012; Preston 2011; Schlosberg 2007).

But whose voice 'on behalf' should count? By way of illustration as to the difficulties in trying to answer this, it can be noted that a 'river' may be defined in spiritual and cultural terms by an Indigenous community; be viewed primarily in terms of water flow according to the narrow Eurocentric conceptions common in Australian courts; be seen as being constituted by its channel banks and channel bed according to the science of geomorphology; and be conceptualised as inclusive of riparian zones, which relate to the observed influence of the river on the biota within and adjacent to the river, from an ecological perspective (see Davies et al. 2011; Morris and Ruru 2010; Taylor and Stokes 2005). There are debates over who should speak morally *for* Nature, and debates over who should speak authoritatively *about* Nature.

In practice, an extensive range of expertise and technologies is drawn upon by bodies such as courts in assessing environmental harm. The kinds of experts present at hearings, for example, include, among others, terrestrial ecologists, biologists, experts in aerial photography, environmental scientists, fauna ecologists, agricultural consultants, natural history and environmental consultants, veterinarians, ornithologists, wetland ecologists, frog biologists, plant ecologists, plant ecology and restoration experts, and arborists. In a similar vein, many different methods and techniques are utilised in pursuit of knowledge about environmental harm, including site visits; photographs; taking of investigative samples by compliance officers; measuring the trunks of trees; and aerial photographs and satellite images. Specific expertise is required in regards to different kinds of environmental harms (for example, pollution, clearfelling of trees, wildlife trafficking), and this is complicated by issues pertaining to thresholds and baselines, identification of species, and degrees of vulnerability.

Issues of epistemology do not only arise in regard to disputes over who should or should not speak, and in what capacity, in regards to matters of environmental harm. The vital importance of listening and learning from many different sources is highlighted as well when considering the contributions of 'elder knowledge'. This refers to the stories told by older members of community, the content of which can be highly revealing of what once was, and what could be again. Consider, for example, the significance of elder knowledge in relation to understanding and responding to concerns about intergenerational equity. In gauging the state of the environment a range of scientific studies may be drawn upon. So, too, might stories from the elderly (Suzuki 2010: 63).

A documentary on fishing, *Empty Oceans, Empty Nets*, shown on PBS in 2002, featured an interview with a young skipper on a swordfish boat from Boston who stated that there are still plenty of swordfish. Based in Boston, she travels to Newfoundland, where she reported hearing that a 200-pound swordfish had been caught. 'There are still big ones', she said. The film then cut to an interview with a grizzled fisherman who must have been in his eighties. He recounted that he used to fish just 5 or 6 miles out of Boston and would throw back anything under 200 pounds! Two fishers with radically different baselines. To the young skipper, a trip

all the way to Newfoundland was standard procedure, while a 200-pounder was a big fish. (In fact, the average size of swordfish before 1963 was 266 pounds; it had fallen to 133 pounds in 1973, and to 90 pounds in 1996).

Substantial changes have occurred across a range of environmental indices. Many of these are and have been measured using scientific methodologies. However, as this story indicates, a jolt of elder knowledge may also usefully put things into broad perspective as well as have considerable emotional impact.

Elder knowledge is also used to marshal challenges to 'official' knowledge. In Hobart, Tasmania, for example, an elderly woman named Poppy Lopatniuk began to agitate around toxic dump issues when she noticed that people in her street, and her household, were falling ill at seemingly disproportionate rates and of unusual illnesses. She made a link between the old rubbish tip and the health of local residents. However, those in power felt that the 'evidence' did not support Poppy's claims and concerns. For example, the Cancer Register was used by the Health Department to dismiss the problem (there is not an unusual pattern of cancer types and rates over the locality as a whole) *rather than* to suggest the need for more precise analysis of the clustering of local cancers and other ills (Poppy found in excess of 40 cancer diagnoses mostly in the two small streets on either side of the landfill area). Official examination of the issues was oriented toward general conclusions that legitimised inertia on the issues. But Poppy 'knew' that something was wrong. This was embedded in her actual life experiences, her relationships with real live, flesh and blood family members and neighbours, and her time spent living in the area. In 2012, Poppy published her story in a book titled *Tomorrow's Children*. She was 85 at the time. The key message of Poppy's book is that we ignore our Elders and Elder Knowledge at our collective peril.

Ways of doing

Methodology refers to ways of doing things. One of the foundations of eco-global criminology is the necessity to engage with others in the process of doing. That is, eco-global criminology is ultimately a social exercise (involving not only people but also eco-systems, plants and animals). This necessarily means that such research embodies certain ethical decisions and responsibilities, and a need to respect what it is we are doing and with whom we are doing it. For example, how is it possible to be sensitive to situation and context if you are not actually talking and engaging with local people? The notion of outsider/insider is a real and meaningful distinction that is forged in the crucible of local experiences, longstanding cultural traditions, relationship to imperial power, and positioning in the wider global political economy. Bridging the gap requires dialogue (not monologue), listening (not lecturing) and give-and-take interchange (not just giving, or just taking) (White 2009: 236).

In terms of potential sources of knowledge, it may well be that it is local residents, local workers and laypeople generally who are more conscious of environmental risk than the scientist or the politician. Some indication of this is provided in a study of interaction between scientists and English sheep farmers in the wake of the 1986 Chernobyl nuclear accident in the Ukraine (Wynne 1998). The study highlighted the accurate, detailed and contextual knowledge of the local farmers, even though the scientists considered this layperson knowledge to be lacking in precision. Those who are closer to the 'coal face' and who have lived and worked in the same area for years are frequently those who notice the small changes that are the harbingers of things to come. In a similar vein, social networking can be brought into positive and productive surveillance of endangered flora and fauna, with community members providing instant alerts when criminal violations are occurring. Citizen scientists can also be recruited to undertake testing of water and waste at factory outlets and tip sites. Computer assisted mapping can help to track the movement of animals, plants, toxic materials and other substances around the world.

Yet this occurs in social and political contexts that can be extremely dangerous for activists and researchers alike (Clark 2009; Global Witness 2014).

Informed expertise is built upon processes that expand the horizons of knowledge and that, as part of this, incorporate the insights of people from many different backgrounds. This requires openness to the interplay between class, race, ethnicity, gender and other social variables in differentially positioning people (individually and collectively) in regards to social location and situated knowledge. It also demands adoption of multiple methods of study and a wide variety of ways in which to engage in dialogic social relationships (see, for example, Banerjee and Bell 2007; Dodson, Piatelli and Schmalzbauer 2007). It is important, as well, to not 'read off' the knowledge that people have of the world simply by assuming that certain ways of 'doing' lead to particular knowledge outcomes. For example, Indigenous people do not 'think the same way' just because they are Indigenous and/or just because they may have a connection to 'country'. This is illustrated in the political divisions within Indigenous (and non-Indigenous) communities when it comes to debates over economic development versus environmental protection.

There are also other social and cultural considerations that impact upon the doing of knowledge production. For example, in undertaking research in Fiji and Tonga on how communities respond to natural disasters such as cyclones, Johnson (2015) lived and worked in the small communities on remote islands. During one trip she brought her two young children with her as well as her partner. Her status as 'mother' and 'parent' opened up interesting opportunities to talk with local women about all manner of issues. Simultaneously, her presence as a 'white' 'Australian' 'researcher' also granted her certain status with the male leaders of the community. In essence, she lived a series of contingent and contextualised identities (Johnston 2015). She was 'woman', 'mother', 'researcher' and 'outsider' depending upon circumstance and with whom she was interacting. Perceptions of her shifted according to situational factors but, in each instance, she had to be conscious of her own responsibilities and accountabilities, depending upon the nature of the exchange. Both identity and knowledge exchange was a continuous process of negotiation and dialogue.

Ways of doing also extends to matters of scientific standards and social difference, the generalisability of certain types of knowledge and experience (for example, Indigenous connections to 'country'), and assessment of the judgements made by holders of traditional knowledge (such as farmers, fishers and loggers). In regards to these, there are the methodological problems associated with *partial* knowledge (that is, knowledge that is incomplete since it is limited to only one kind of domain expertise, such as soil testing, rather than drawing upon different sources of data such as patient records); *skewed* knowledge (that is, knowledge that is in some way biased even if accurate within its own terms of reference, such as sampling techniques that include water testing at the optimum non-toxic outflow time rather than random testing throughout a day or specified time period); and *distorted* knowledge (that is, knowledge that is more akin to propaganda, being ideologically based, as in *ad hominem* or personal attacks against specific protagonists rather than addressing the underlying issues as such) (White and Heckenberg 2014: 249).

As an illustration of the fluidity of knowledge and knowledge production, the potential risks and special vulnerabilities of children to environmental harms can be examined. Children are especially vulnerable compared to adults, for example. It has been observed that:

While acknowledging that childhoods around the world are very different and that children do not comprise a self-evidently unitary group (any more than do 'women' or 'people of colour'), we can still see ways in which the special characteristics of children's biology and development represent a foundation for regarding children as a special category of environmental victims. (Stephens 1996: 75)

They also confront bigger risks: 'Special attention should be devoted to children because they are generally more vulnerable than adults to environmental hazards. They breathe more air and consume more food and water relative to their size than adults, their bodies are still developing and they have little control over their environment'. The message is that children are not 'little adults' and are especially vulnerable to environmental hazards, to the extent that 'Recent estimates suggest that almost 90% of the global burden of disease from climate change is borne by children' (World Health Organisation 2009: 12).

Children also face differential risks. For instance, in the use of pesticides to prevent the spread of disease borne by mosquitoes, there are 'hidden' costs that may not be factored in. For instance, children and those with chemical sensitivities will suffer disproportionately if chemicals are sprayed, since they are more vulnerable than others to ill effects arising from the treatment. In such circumstances, the crucial questions are not only 'how many will be harmed' but also 'who will be harmed'? (Scott 2005: 56). To appreciate this, we need to be conscious of differences within affected populations. The risk assessment process by which 'safe levels' of exposure to chemicals and other pollutants are assessed is highly problematic, and incorporates a range of ideological and moral assumptions. As Field (1998: 90) comments, 'The use of the apparently reasonable scientific concept of average risk, for example, means that data from the most sensitive individuals, such as children, will not be the basis for regulation, but rather data from the "statistically average" person'. Thus, science provides grounds upon which we may base judgements but these grounds are not necessarily neutral in terms of social impact.

Ways of valuing

The term axiology describes a concern with the normative: that is, with ways of valuing. Here a crucial concern of eco-global criminology is appreciation of the 'value' of the nonhuman as well as the human. In other words, the essence of the eco-global criminology project is the fight for social and ecological justice. At the heart of investigations into transnational environmental harm is the question of whose knowledge of 'wrong' is right? In other words, whose voices are going to be heard and which kinds of evidence are to be given credibility? It is rare that evidence of harm is uncontested and that proof of environmental harm is simply a matter of 'let the facts decide' (White 2008). There are several different types of knowledge including scientific, common-sense, experiential and technical. As this article has also indicated, there are many different sources of knowledge in addition to scientific disciplines, including the knowledge of the layperson; the knowledge of workers such as farmers, fishers, and loggers; the knowledge of Indigenous peoples in diverse settings; and the knowledge of technicians who use particular instruments to measure and appraise aspects of the world around them.

Yet whose knowledge counts – as colonial history attests, contemporary forms of exploitation reinforce, and the challenge posed by elder viewpoints and children's vulnerabilities confirm – is subject to contestation. These observations are especially pertinent when considering the knowledge produced, held and transmitted by traditional land users and Indigenous communities in relation to their particular environments (Robyn 2002). These same voices and perspectives are also those most likely to be subjugated and marginalised in the face of transnational corporate quests to exploit natural resources (Gedicks 2005).

Biopiracy provides an example of this as it is also linked to the exploitation of resources and knowledge. It can be understood in relation to 'traditional knowledge of the uses of plants' (TKUP) and the usurpation of ownership and control over plants using Western legal and political institutional mechanisms (such as patents) and forums (free-trade agreements). As explained by Mgbeoji (2006), corporate interests have used two methods to take what they want: institutional and juridical mechanisms (such as patents); and gendered and racist constructions of non-Western contributions to plant development and use (such as 'traditional' methods versus 'scientific').

Most important, the legal and policy factors that facilitate the appropriation of indigenous peoples knowledge operate within a cultural context that subtly but persistently denigrates the intellectual worth of traditional and indigenous peoples, especially local women farmers. Cultural biases in the construction of knowledge provide the epistemological framework within which plant genetic resources developed by indigenous peoples are continually construed as 'free-for-all' commodities – commodities that are just waiting to be appropriated by those with the cunning and resources to do so. (Mgbeoji 2006: 6)

Thus the exploitation of traditional knowledge and people's resources is accomplished through entirely 'legal' means.

By contrast are approaches that recognise and cherish the environmental value of traditional knowledge. This includes, for example, forest-related knowledge associated with the use and management of forest species, and the broader understanding and management of forest ecosystems. In essence, traditional users have over many years developed their own technological understanding of their environment, and this is exhibited by those who live and work intimately with and on the land (and rivers, lakes and oceans). Examples of such knowledge include use of herbal medicines, nutraceutical products, food and beverage. For many, the forest exists as a site of not only wood products (for cooking, for furniture, for musical instruments) but non-wood products such as medicines, foods, spices, fodder for animals and for a multitude of other purposes including aesthetic and spiritual (Food and Agriculture Organization of the United Nations 2011). Conservation measures that do not acknowledge traditional human users and their systemic contribution to biological diversity and ecological wellbeing may well be oppressive and counter-productive (Brisman, South and White 2015). This, too, is of major concern to eco-global criminology.

There are other issues worthy of attention as well. The eco-global criminology interest in eco-justice finds expression in the notion that all things have the right to 'be' and to 'do' in ways that reflect their core or defining trait or characteristic, including abiotic or non-living entities such as rivers. For instance, Earth Law as applied to a river would incorporate the following conception of rights:

A fundamental river right (that is, the riverine equivalent of a human right) would be the right to flow. If a water body couldn't flow it wouldn't be a river, and so the capacity to flow (given sufficient water) is essential to the existence of a river. Therefore, from the perspective of the river, building so many dams across it and extracting so much water from it that it ceased to flow into the sea, would be an abuse of its Earth rights. (Cullinan 2003: 118)

Similar interests are apparent in the area of animal law, in which concern has tended to revolve around interlinked issues pertaining to animal welfare and animal rights, as well as duty of care on the part of humans toward nonhuman animals (see, for example, Ascione 2010; Francione 2008; Singer 1975). Others have argued that plants, too, should be included within the realm of human moral consideration, and that some Indigenous cultures recognise plants as persons and thus as appropriate recipients of respect and care (Hall 2011).

Surrogate victims (namely, humans) have in some instances been accepted by particular courts as representing a nonhuman entity that has been harmed. For example, the 'environment' is considered a 'victim' in New Zealand law and environmental court judicial practice and in one instance a river was represented at a restorative justice conference by the chairperson of the Waikato River Enhancement Society (Hamilton 2008). Public interest environmental litigation has also been used to establish future generations as victims of environmental crime, with the victims also including the environment and non-human biota, although the success of such

litigation is contingent upon where cases are tried and under what circumstances (contrast Mehta 2009, for example, with McGrath 2008). A recent decision by India's Minister of the Environmental and Forests to ban dolphin shows is significant as well, with the Central Animal Authority issuing the statement that 'Cetaceans ... should be seen as "non-human persons" and as such should have their own specific rights' (Bancroft-Hinchey 2013). The enhancement of animal welfare laws, plus legal reform and court decisions in some jurisdictions that lean toward formal recognition of particular species as rights-holders (for example, dolphins, whales and apes), is indicative of broad trends toward both legal standing and appreciation of the victimisation experienced by nonhuman entities (Mumto 2014).

For present purposes, recent developments are of particular interest in that they raise interesting philosophical and practical issues. For example, in New Zealand the Whanganui River became a legal entity in 2012, with a legal voice that involves local Maori people speaking on its behalf (Shuttleworth 2012). The importance of this is that it formally acknowledges 'agency' on the part of the river in and during legal proceedings. The Maori relationship with Nature has been expressed as follows:

Indigenous peoples throughout the world have strong connections to the flowing freshwater of rivers. For instance, Maori – the Indigenous peoples of Aotearoa New Zealand – view many rivers as tupuna (ancestors) and invoke the name of a river to assert their identity. There is a deep belief that humans and water are intertwined as is encapsulated in common tribal sayings such as 'I am the river and the river is me' and 'the river belongs to us just as we belong to the river'. (Morris and Ruru 2010: 49)

Yet, the notion of specific rights also opens the door to contestation over these rights. For example, rivers are now being conceptualised as possessing rights in at least two different ways: firstly, as above, in relation to stewardship populations, such as Indigenous people, in which there is a presumed unity of the river with the Indigenous population. The people and the river speak as one.

Secondly, however, rivers may have rights conferred upon them via specific and targeted legislation that states that *this* river has protected status and certain rights by virtue of the legislation, and that its interests are autonomous from Indigenous claims and stewardship. For example, in Queensland, the purpose of the *Wild Rivers Act 2005 (Qld)* was to (a) preserve the natural values of rivers that have all, or almost all, of their natural values intact; and (b) provide for the preservation of the natural values of rivers in the Lake Eyre Basin. It was repealed in November 2014. *Wild Rivers* was supported by the Labor Party, scientists and environmentalist groups such as the Wilderness Society but heavily contested by some local Indigenous leaders and communities who argued that it deprived Indigenous people of economic opportunities. As prominent Indigenous leader Noel Pearson stated: 'Traditional owners should decide whether they want conservation or a mixture of both. We don't want this unilaterally imposed on them by political deals in Brisbane' (see Fraser 2014; Rebgetz, Arthur and Agius 2014). The legislation was intended to give these rivers particular rights (for example, analogous to the Earth right to 'be'). However, these were constructed in a way that both separated the rivers from the local Indigenous people (contrary to conceptualisation of the People/Nature unity) and superseded Indigenous rights to the rivers. So whose rights should be privileged in this kind of situation, and why?

For eco-justice criminology, responding to these issues demands some type of criteria in weighing up the interests, options and consequences of particular courses of action. At a minimum it requires attention being given to the specific interests, harms and rights involved. Put simply, there is a need to provide the basis upon which to privilege some interests over others, in given circumstances and situations (for example, rather than all species being treated the same or as

having in essence the same rights or worth). It may well be that there is no general, fixed criterion or method for ascertaining moral priority. But the necessity for judgement means that decision-making is best served by an awareness of why certain rights are contested, the competing interests that underpin such processes, and the paradoxes and unintended consequences of any choices that are made. A metaphorical balancing up of moral weight is always going to be complex and far reaching (White 2013b).

Conclusion

At one level, the response to the issues, problems, limitations and dilemmas presented in this article are quite simple: we need more dialogue, more sharing of ideas, more collaborative research and more careful listening, and this has to happen across many different knowledge and skill domains. Eco-global criminology in fact has a mandate to foster global cooperation insofar as the driving concern is achieving eco-justice in ways that involve addressing both legal and illegal acts and omissions that do environmental harm, wherever these may occur.

Yet, there is still one final conundrum that requires further consideration. This is the conundrum posed by 'commonsense' thinking. For the commonsense has the uncanny ability to bring together a wide range of fragmented, paradoxical and outright contradictory ideas into the one unified but messy framework. To some extent, the commonsense can be explained in terms of the non-thinking 'obviousness' of *habitus*: that is, entrenched ways of being, thinking, doing and valuing that broach little critique or second thought. But the 'commonsense' is also fostered by hegemonic ideological processes that both allow and deny the existence of phenomena such as global warming and climate change. What is 'good', 'fair' and 'just' is thus liable to mean many things simultaneously.

One aim of eco-global criminology is to try to bring some sensibility to this clutter; to provide a coherent, critical narrative to the commonsense embedded in those concrete practices that are rapidly destroying the very basis of life as we know it.

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