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Teaching Environmental Scientists From Country:

Integral Wisdom for a New Australia

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Teaching From Country (TFC) took as one of its primary tasks the following challenge: "What is a helpful conceptual framing of issues involved in our work that is valid in Yolŋu terms and supports translation into academic contexts?" This paper explores one dimension of this: how can Indigenous Ecological Knowledge (IEK) be "translated" so as to better prepare dominant culture environmental scientists to collaborate with Indigenous people in caring for land and country? IEK has been a topic of considerable interest among conservation scientists – and other scholars for decades (e.g., Dwyer, 1994; Posey, 1999; Rappaport, 1984). Realizing its potential has proved elusive. I would like to propose that greater insight can be derived from understanding IEK's context within an integral wisdom tradition, as well as its traditional pedagogy of initiation. TFC has proven that it has much to contribute to cross cultural understanding, and I believe it can assist in addressing this specific question.

This paper draws from insights in two of my academic fields of interest: Science, Technology & Society (STS), and "religion and ecology," or more properly, the "greening of religions." This latter field has only recently emerged from anthropology, religious studies, environmental studies and human ecology, but has the potential to open up fresh perspectives on IEK, and so help TFC grapple with the challenge of translation. Ultimately, I wish to join with TFC in the hope that it can make a contribution to redressing the exploitation of Indigenous peoples by my dominant European culture, by fostering authentic collaboration toward mutual goals. This paper begins by identifying a few of the challenges to fostering partnerships with IEK, then introduces some perspectives from the "greening of religions," then offers some challenges to TFC based on these perspectives, and concludes by proposing that the lessons derived from TFC can contribute to the preparation of environmental scientists with a broader, equitable, humane, and culturally sensitive vision of "caring for country."

Challenges to "using" IEK in environmental management

From Australia and the Northern Territory, Christie (1991) argued that the distortions and abstractions of Western science can be tempered when partnered with IEK. His study demonstrates how Indigenous knowledge can open up new perspectives on environmental science and management. In her study of different and divergent ways of knowing and firing regimes, Verran

(2002) illuminates the real obstacles to collaboration between Indigenous land management practices and Western-trained scientists and their institutions. This case illustrates the pervasiveness of assumed universal "scientific truths," the resultant disjunctions, and the potential for frustrating collaborative approaches. When juxtaposed, these two papers frame the possibility and problems in translating Yolŋu knowledge into contemporary land management. As a pair, they form a microcosm of the challenges of creating environmental initiatives informed by IEK. It should be noted, however, that the problem negotiating science and local knowledges to improve environmental management is a broad, important and fruitful domain of study in rural sociology (Kloppenburg, 1991), anthropology (Dove, 2006), Science, Technology & Society (Phadke, 1999), and environmental studies (Warner, 2007).

Scholars have debated the actual value in -- and the potential for perverse outcomes from -- using IEK in environmental management (Posey and Plenderleith, 2004). By perverse outcomes, I mean the potential of initiatives to have the opposite effect of the benefits intended. This is unfortunately a common outcome of cross cultural initiatives. One significant line of scholarly critique argues that pre-existing asymmetries of social power inevitably doom collaboration and re-inscribe exploitation by members of dominant cultures, and that concerns with Indigenous knowledge divert attention from redressing neo-colonialism (Agarwal, 1995). The Convention on Biodiversity and other international agreements are advanced as legal protections for Indigenous peoples, their cultures and knowledges, although the obstacles to enforcement are very real (Fourmile, 1999; Posey 2001).

A recurrent theme in these literatures is the mis-apprehension of IEK by dominant culture scientists. A general narrative is as follows: IEK is special data about a place or organism, evolved over millennia from intimate Indigenous socio-ecological relations, and this knowledge can contribute to modern, ecologically rational, landscape management. This site-specific data can thus "contribute" another "data set" to the more powerful yet abstract biologically-informed knowledge. In this line of thinking, IEK provides another data set, another set of facts, that can inform resource management, all within the cognitive framework of Western scientists, i.e., without questioning the hegemony of Western science (Christie, 1991; Merchant, 1980; Verran, 2002). This provides yet another opportunity for dominant cultures to extract (knowledge) resources without compensating Indigenous peoples for what should be properly be understood as their intellectual property (Posey, 2001). Verran (2002) reports that Australian government ministries have the mission of "collecting" aboriginal knowledge, or "harvesting" traditional knowledge (Christie, 2007).

Drawing from his experience in the Northern Territory, Wohling (2009) offered an array of critiques of how dominant culture Australian environmental scientists and their institutions misuse IEK. He does not argue that IEK is itself problematic, but that it may not be an appropriate mode of knowing for managing contemporary landscapes, especially given its situated character and the disruptive impact of colonialism on Indigenous communities and ecosystem integrity. Wohling attacks the tendency among White scientists to essentialize IEK, which occurs when knowledge is extracted from specific local human communities of knowers, and from locally known landscapes. He argues:

> The result has been the co-opting and compartmentalizing of IK [Indigenous Knowledge], taking what is essentially a varied and dissimilar array of local, secret, and sacred knowledge and transforming it into a universal wisdom. In Australia, the result has been a lack of debate about exactly what the limitations of IK are in regard to contemporary natural resource management. Somewhat more disturbing are attempts to apply highly localized and contested sets of knowledge to landscape-scale threatening processes (Wohling, 2009, 4).

He describes the result as perverse: government environmental ministry and research scientists attempt to use IEK to prescribe environmental management, but concurrently, the voices, agency, and participation of Indigenous people are diminished. Wohling proposes several remedies: affirming the social agency of Indigenous people, curtailing the tendency of scientists to use IEK for prescriptive purposes, and fostering genuine knowledge exchange between ecologists and Indigenous peoples. Wohling's contribution is helpful in that it extends the critique of dominant culture scientists mis-perceiving IEK as merely environmental data in the Northern Territory. However, he does not actually propose a comprehensive remedy for the problem of "IEK as environmental data." His proposal to "affirm the social agency of Indigenous people," while admirable, does not go far enough.

Traditional IEK, while quite valuable, appears unable to properly guide contemporary environmental management ***when it is "managed" by dominant culture scientists***. In fact, it may mis-lead scientists when divorced from its community of origin. As part of her work with TFC, Helen Verran has translated the concept of "cognitive authorities" (Addelson, 1994) into "knowledge authorities," and TFC is a viable example of what this means in cross-cultural education. TFC has affirmed the situating of knowledge within a human community, with specific people recognized by Yolŋu and educational communities. In so doing, TFC has demonstrated that knowledge sharing can be done in a way that upholds traditional community ownership. Insisting that IEK be grounded in knowledge authorities has the best chance of assuring that IEK is not (mis-) interpreted as merely an environmental data set. Insisting on the centrality of knowledge authorities, as TFC does, offers the best chance of properly representing Indigenous knowledge as performative, local, and collectively owned by specific communities (Christie 2007).

But more integral approaches to representing and translating Indigenous ways of knowing only addresses part of the problem. The tendency of environmental scientists and policy makers to suffer from selective, narrow, and partial perceptions of IEK is the consequence of how we train scientists in dominant culture universities. These confer degrees on students who are trained to respect Indigenous knowledge, but politely filter out and disregard its integral character, its social, moral, aesthetic, and cosmological character, which are generally assumed to be irrelevant to "modern, scientific" land management.

The majority of my work as a teacher over the past 5 years has been instructing environmental science and studies majors at Santa Clara, a Jesuit Catholic University. My classes problematize the framing of environmental issues exclusively in terms of science and policy, and explore ethical, spiritual, and avocational responses. I receive students who have taken high school and introductory university environmental science classes, and I am struck by the fragmented, non-integrated character of their received understanding of environmental problems and solutions. This should not be a surprise. It is a consequence of the design of modern universities. We produce students with disaggregated approaches to knowledge. My university espouses an integrated approach to education, but it does not really question the hegemony of the academic disciplines, nor provide adequate strategies for linking, comparing and appropriately integrating different ways of knowing. Even so, this university does provide some resources and support for integrated approaches to learning, which is much more than most.

Indigenous spiritual traditions, sacred earth and integral wisdom

I would like to propose that the "problem of translation" that TFC seeks to remedy could be strengthened by drawing insights from the "Greening of Religions." Over the past decade, scholars from around the world have consolidated disparate research activities in diverse disciplines into a more coherent academic community addressing the relationship between religious cosmologies (or

worldview or belief systems) and environmental behavior. In the words of Taylor (2005), a leader in these initiatives, scholars from diverse disciplinary backgrounds have struggled for decades to convincingly explain why the connections between religious identity and environmental behavior is usually and in general weak, but in some cases apparently strong and directly motivating.

Several remarkable scholarly initiatives have advanced this field. The most notable have been the Forum On Religion and Ecology (FORE) at Harvard University, and the creation of the International Society for the Study of Religion, Nature and Culture (ISSRNC). FORE sponsored the Religions of the World and Ecology conferences, which hosted more than 800 scholars, religious leaders, and environmental specialists from around the world in series of symposia 1996-1998 (Tucker and Grim, 2009). These spawned ten edited volumes that brought significant coherence to this area of inquiry. Of note to Teaching From Country is the volume "Indigenous Traditions and Ecology" (Grim, 2006). An inter-disciplinary network of scholars created the ISSRNC to address cross-cutting questions such as: "what are the relationships among human beings, their diverse religions, and the earth's living systems? And, what constitutes ethically appropriate relationships between our own species and the places, including the entire biosphere, which we inhabit?" (Taylor, 2007). The society sponsors a journal, an annual international conference, and the Encyclopedia of Religion, Nature and Culture.

The scholarly debate in this area was opened in 1967 by Lynn White's infamous essay, "The Historic Roots of Our Ecological Crisis." He was the first to argue that religious worldviews indirectly and directly shape environmental beliefs and behavior. Although White made many, many problematic and erroneous claims (see Carroll and Warner, 1998), he made a profound scholarly contribution in his assertion that the historic roots of this crisis can be partially traced to the de-sacralization of the world, in other words, the evolution of Western civilization to no longer recognize the earth as having spiritual or religious significance. Prior to White, no one had ever thought of associating these dimensions of human society. After several decades of debate about White's more problematic claims, scholars moved on to investigate with great interest the "re-sacralization" process, or the efforts by religious groups, leaders and scholars to advance the notion of the Earth having moral and spiritual significance. This is also known as the "greening of religions," or alternatively, the development of religious environmental ethics.

The contribution of anthropologists has been essential to these efforts. In particular, I would recommend a special issue of the Journal for the Study of Religion, Nature and Culture (Snodgrass and Tiedje, 2008), and the work of John Grim (2001; 2006). Many scholars have been guilty of facile assumptions about the inherent good and applicability of indigenous spiritual traditions and their relationship with ecological knowledge. Sponsel (2001) and Grim (2006) have called for more research into the relationship between these dimensions of Indigenous societies. Debates about the relationship between "Indigenous Religions and Environments: Intersections of Animism and Nature Conservation" are reviewed by guest editors Snodgrass and Tiedje (2008). They that more nuanced and robust understandings of the relationship between indigenous people, their spiritual traditions, and ecological knowledge are hobbled by unnecessary dualisms. These have taken the form of oversimplified arguments that indigenous people are either "the world's first conservationists" or, that they are responsible for past and on-going environmental despoliation. Their analysis aligns shockingly well with the dualistic, bifurcated perceptions of the environmental behavior of Indigenous people held by Australian environmental scientists, as reported by Verran (2002).

Snodgrass and Tiedje propose seven ways to escape the "over-simplification of the ethnographic record of indigenous peoples' relationships to their environments" (p. 9), one of which is highly

relevant here. They recommend a more integrated, complete framework that distinguishes between, but nonetheless relates, ecological knowledge and ethical or duty frames. They assert that animism is now properly taking its place with other contemporary religions, and is being examined for its potential to contribute to positive environmental outcomes, along with the other religions in the contemporary world. Of course, to speak of the "greening" of Indigenous spiritual traditions is ridiculous, because Australian Indigenous peoples developed and were guided by a form of environmental ethics millennia before the Greeks articulated what we understand ethics or greening today (Callicott, 1997). There is no need for a "re-sacralization" process among Indigenous nature reverence because it has not suffered de-sacralization.

Thus, the study of Animism or Indigenous nature reverence holds promise for members of the dominant culture and Western-trained scientists, for we can learn from their holistic approach to understanding the world as inescapably charged with the sacred. The holism of Indigenous knowledge systems challenges our Western-trained, partial and fragmentary view, and thus represents a potential gift from traditional cultures to the dominant cultures and their malaise. Note that significant dimensions or layers of Indigenous knowledge are appropriate only for members of that culture group. I am not suggesting that "secret" knowledge be shared with outsiders, but rather the insights and assistance to help dominant culture members to recognize their impoverished, flat and monochromatic cosmology, or religious world view. Cross cultural contact has great potential to provide helpful educational benefits (Christie 1991), but is very difficult to do respectfully.

Grim (2006) argues that the search by dominant culture members for "texts" or codified IEK to inform dominant culture management practices is inevitably self-defeating. Pursuit of "text or language" distorts how indigenous people know and live religion/spirituality. "In fact, these genres may mislead an investigation of indigenous religious life that is primarily narrated, danced, sung, heard in silence, and ritually preformed within the community of life" (Grim 2006, 283). Discussion of indigenous religion and ecology are all too frequently framed in the language and cognitive categories of dominant cultural knowledge systems. These *a priori* marginalize indigenous ways of knowing and ordering knowledge. In its place, he argues for a more integral approach, one that adopts the "lifeway" in its diverse expressions as a more holistic frame, because it encompasses the dynamic relationship between worldview and economy. Lifeway conveys an inherent interdependence between the individual embodied self, the native society, the larger "ecological" community of life, and cosmological beings. Indigenous knowledge cannot be properly represented or translated apart from these dimensions. I offer here a local example of lifeways. April Bright of the Rak Mak Mak Marranunggu conveys a sense of lifeway when she states that "traditional ownership to country for my Mum was everything—everything. It was the songs, the ceremony, the land, themselves, their family – everything that life was about. This place here was her heart. That's what she lived for, and that's what she died for" (Rose et al., 2002).

This holistic vision of the natural world held by most Indigenous people sees land as fully integrated with cosmological meaning and sacred or spiritual significance. On May 6, 2009, when he presented to my Santa Clara University class from country (Trial 24), Yingiya Guyula used the adjective "sacred" 13 times in about 20 minutes. Here are the nouns which he described as sacred: the ***sacred*** water hole (5 times); ***sacred*** digging stick (2 times); ***sacred*** reeds, ***sacred*** place, ***sacred*** dilly bags, and ***sacred*** beings; big ***sacred*** tree; and "the knowledge and wisdom that had been handed down generation after generation is regarded as ***sacred***" (emphasis mine). I am not sure how well my class grasped the significance of what they heard, but I do not wish to single them out for criticism, for it is quite difficult for dominant culture members to appreciate the significance of the sacred dimension of life without some orientation. Indeed, much of the colonization of the

Americas and Australia depended upon Europeans dismissing the beliefs of Indigenous peoples in the sacred dimension of land.

This knowledge cannot exist apart from the knowledge authorities living in relationship to the landscape. This knowledge is passed on, as Yingiya explained, by oral means through collective experience. In this sense, IEK must be performed to be transmitted, or reproduced within the somatic person (Grim 2006). Here is how Yingiya described the education process:

> …we always learn from old people. We never we sit down in class and ask questions. It is only when an old man, the senior leader as my older leader, as my wäwa, or brother decides when it's time to teach about land, and then he calls the people and starts telling them stories about the land. That's when they start to. He knows and feels confidence at these people are gonna carry on the job of being the next leaders. As the old people are getting older they pass the story on to be carried on for the next generation (Yingiya, Trial 24).

This suggests that IEK has an alternative epistemological basis, and requires an alternative pedagogical approach. IEK can never be just data, can never be just facts. One does not so much learn "the facts" of IEK but they must be ritually initiated into it (Wohling, 2001). A member of this culture must be ritually initiated into this tradition of knowing. It assumes a community membership and an alternative consciousness.

The recognition of the land as sacred necessarily obliges people to discharge their duties within the community (social and environmental). Indigenous ecological knowledge necessarily includes a moral or ethical dimension. These words, however, are problematic, because dominant culture members assume ethics to have structure and orientation consistent with the ancient Greeks. Rose (2006) is a notable exception. "Sacred duties" may be a more apt expression than morals or ethics. What are key components of these sacred duties, or ethics? Deborah Bird Rose et al.'s County of the Heart conveys a very strong ethic of reciprocity. If humans take care of the land, the land will take care of humans. A Maori (Henare, 2001) proposed the following criteria for governing human behavior in society which apply equally in relationship to the land: kinship, compassion, hospitality, and reciprocity. Henare asserts that for Maori, the best images for understanding duties to the natural world are holism, and a spiral of life, with humans in center but encircling all other forms of metaphysical reality. This points us to the cosmological dimension of Indigenous spiritual practice.

One cannot fully understand Indigenous knowledge systems without properly appreciating the inextricable dimensions of sacredness and moral responsibility. It is not possible to speak of Indigenous knowledge without affirming these dimensions, which contribute to their integral character. In this sense, Indigenous nature reverence is a wisdom tradition because its knowledge cannot be divorced from the obligation to live and act in accord with its moral and spiritual dimensions (see Smith, 1991, and Murphy, 2002, for introductions wisdom traditions).

I would like to propose that the term "Indigenous knowledge system" be replaced with ***Indigenous wisdom tradition***. Originally, the term "Indigenous knowledge system" recognized its integral character, and affirmed its holistic approach (to address the mis-perception by dominant culture members that it is idiosyncratic). The unintended consequence of this has been that the term has been used by scientists conceptualizing IEK as environmental data capable of being divorced from its spiritual and moral dimensions. This alternative framing as a wisdom tradition would dampen the temptation of environmental scientists and institutions to gather or harvest "IEK" as environmental data. It would emphasize knowledge authorities, and the need for proper ritual initiation into "knowing." The concept of an Indigenous wisdom tradition may offer significant

advantages over "IEK" to conceptually frame Yolŋu cultural practices and support more appropriate practices in its translation into academic contexts.

Implications for Teaching From Country

The term Indigenous wisdom tradition may better convey the spiritual and moral dimension of Indigenous cultures, and their symbolic, non-rational, non-scientific relationship between humans and the land, mediated by ritual practice, or prayer. This alternative framing holds out several advantages over the term "Indigenous ecological knowledge." It communicates the ethical and cosmological dimension of knowledge. It would be less susceptible to being mis-perceived as environmental data, in other words, it would more likely to be acknowledged as integral. Its historical conveyance would be brought to the fore.

This may be quite compatible with the approach of TFC. Yet to use Indigenous wisdom tradition does suggest several questions. How comfortable are dominant culture educators incorporating wisdom, ethics and indigenous spiritual practice into teaching? Or, how open are anthropologists and other scholars to incorporating the sacred into their studies? Clearly, some are (see Grim 2001), but many are not. For example, an Annual Review of Anthropology article "Indigenous peoples and environmental politics" (Dove, 2006) made no reference to Animism or any Indigenous spiritual practice.

Do the Yolŋu knowledge authorities wish to share more knowledge of the sacred, of their ritual obligations, of their spiritual practice with members of the dominant culture? Given the history of cultural exploitation of Indigenous traditions, there are many good reasons to restrict access by dominant culture members to these. It may be best for spiritual practice, prayer and ritual to be only shared by Indigenous people with each other. This is necessarily a decision that must be retained by Indigenous communities. One consequence of not sharing these -- and dominant culture members not perceiving them -- is that this essential dimension of knowledge is filtered away, or stripped out, because it is not "translated" outside the context of its cultural context. This may pose something of a dilemma. To keep all sacred knowledge secret results in dominant culture members being unable to see its integral character, yet to make it public might result in yet continuing exploitation or misuse. There is no simple solution to this.

Were both parties to agree that sharing this dimension would be beneficial, more questions would arise, specifically about Indigenous pedagogy. A holistic approach to knowledge translation in the Yolŋu tradition necessarily involved ritual initiation. Thus questions arise for the Yolŋu knowledge authorities: what is the relationship between the manner of teaching Yolŋu youth described by Yingiya and what you are doing with TFC? In essence, this would be asking you to help members of the dominant culture to recover a more complete, integral approach to our humanity? Do you want to help us recover a sense of wisdom? And, would it ever be appropriate to understand what you are doing through TFC as initiation? Ritual initiation into wisdom of members of the dominant culture? And for academics: being initiated into a wisdom tradition generally requires letting go of old ways of seeking, thinking, and doing—are we really prepared for that?

Conclusion: the challenge of extending TFC

TFC provides a terrific opportunity to help overcome the unnecessary dualisms that pervade dominant culture understanding of Indigenous people and their knowledge systems. I would like to argue that some of the flawed thinking on the part of Western scientists trying to "use" IEK, some of the commodification of indigenous knowledge, might be overcome if it can be presented in a more integral way with a sense of the sacred, and its moral and wisdom dimensions. This could present, I argue, a more fundamental challenge to members of the dominant culture. If Indigenous

knowledge were described as a wisdom tradition, it might not be subject to the misperception that it can be readily incorporated into Western scientific knowledge systems. Thus, I would like to propose that the Australian educational institutions launch a program to teach environmental scientists at university through a TFC-type program. TFC can enhance the skill set, indeed wisdom, of a new generation of environmental scientists.

TFC has the potential to help train a new generation of scientists, land managers and public ministry officials with a more nuanced and more complete understanding of the true character of Indigenous people and their knowledges, and the critical necessity of knowledge authorities. I believe that before any environmental scientist use the term Indigenous Ecological Knowledge, they should learn to appreciate the broad, complex and integrated ways in which knowledge is embedded in Indigenous cultures.

A "new generation" of environmental scientists trained with cross cultural competency is critically needed, because ready or not, Australia is launching 56 new Natural Resource Management Regions (Caring For Country, 2009). These will become the primary locations for negotiating the "use" of "Indigenous ecological knowledge" into the future. These IRM regions are likely to further commodification of land and Indigenous knowledge, unless there are concrete initiatives to staff them with people able to negotiate the cultural divides in Australia. Teaching From Country provides a template for training students this way. Are Australia's educational institutions prepared to support this approach to training a new generation of environmental scientists?

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