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PAPER ABSTRACTS

KEYNOTE

'Let's look under the city': On the hiddenness of infrastructure

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A familiar trope in environmental discourse criticizes our failure to recognize nature as the hidden foundation upon which the human world stands, and argues that by tracing back the sources of (e.g.) our food or heat to their origin in something prior to or below the urban world we might develop a more adequate understanding of our place in nature. Yet if we pay attention to what the world of the city is actually "grounded upon" we find that what is below it is a hidden *built infrastructure* – not nature or earth at all but rather a complex mass of pipes, wires, tubes, tunnels, etc. of which urban citizens are barely aware but which they constantly employ. My suggestion will be that the linear, reductionist picture that insists we must be able to trace the food on our plates back to the farmland that produces it, or to trace the water in our faucets back to the distant aquifers that make it possible, should be replaced by a more complex account that drops the idea of foundations and recognizes that electric conduits and pipes are just as necessary in providing food and water, and just as hidden. Nothing is available to us without the mediation of other things; but those other things themselves are also mediated by yet other things -- it's *mediations all the way down¸* and "down" here might need to be understood quite literally, as "under our feet." We may be culpable for failing to notice the objects and processes we rely on for everyday urban life, but there's no reason to think those objects and processes are not themselves built ones.

Deflating deflation: what malls really teach us about nature

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Independent Scholar

Steve Vogel's very provocative book, Thinking Like a Mall (TLAM), presses for a deflationary view of nature and its value. As its perfect foil, TLAM presents a McKibben-like theory of nature's goodness according to which: (a) nature is good insofar as it conforms to some static, Golden Ideal; and (b) all

persons are endowed with reverse Midas touch: no matter how lightly or indirectly applied to nature, it necessarily alloys nature's goodness. TLAM readily dispatches this indefensible view, which it then positions as one pole of a dichotomy: Views that find the key to nature's goodness in its being set apart from the world of human endeavors are indefensible. We must therefore look elsewhere for its goodness. And we need not look far: According to TLAM, human beings are essentially steroidal beavers that cannot suppress their impulse to continually engage in constructing their environs. What many want to call "nature" is not separate from, but rather part of, this construction zone. Therefore, according to TLAM, the central normative question regarding "the environment" – "nature" included – concerns only the goodness of what we build.

This argument is not sound. But it is worthwhile understanding why, because in articulating its errors, the key to a better understanding of nature's goodness emerges. This better theory is rooted in why and how TLAM's pivotal dichotomy is false: Nature's goodness might yet be coupled to places in nature being set apart and "let be" – that is, precluded from being a human project or the site of one – without regarding these places as preserves for some Golden Ideal vulnerable to humankind's reverse Midas touch. And by focusing on the goodness attached to "letting be" of places set aside rather than on their particular ecological properties or on how well they mimic some Ideal, we may arrive at a theory of nature's value that (i) avoids embracing any such Ideal, (ii) evades TLAM's deflationary argument, and yet (iii) gives reason to endorse many elements of "the environmentalist agenda" (as characterized in Defending Biodiversity) that are commonly seen as lacking any single unifying principle. Furthermore, it accomplishes this without resorting to questionable attributions of "health" and "autonomy" to ecosystems and without building a moral theory on a more questionable aesthetic one.

Finally, this different theory of nature's goodness provides a vantage point for sighting errors that underlie much of what is called "nature conservation." A notable case in point concerns TLAM's recitation of Andrew Light's decade-old argument for restorations: some restorations restore the restorers' felt connection with their environs; this makes those restorations good. This argument errs by inferring the goodness of a thing directly from a normatively unimportant, non- normative psychological supposition about attitudes towards it. A "letting it be" understanding of nature's value lets us see that this argument errs in another way: It ignores the normative importance of asking whether some place ought to be made into, or site, a restoration project – or project of any kind – in the first place.

Ecosystem health, ecological organicism, and naturalistic accounts of health

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While many environmental ethicists and ecologists emphasize the need for a concept of ecosystem health as a practical guide for environmental conservation (e.g. Callicott 1995; Nelson and Vucetich 2012; Palmer and Febria 2012), the concept is often criticized as involving an implicit (and ill-advised) commitment to an organicist view of ecosystems (Ehrenfeld 1992; Suter 1993; Jax 2010). Although this criticism has been influential, it however remains unclear why one should accept this criticism's underlying assumption that the concept of health is restricted to organisms, or why the differences between organisms and ecosystems would disqualify the latter as candidate bearers of health (Dussault Under review). The aim of this presentation is to discuss the latter issue in relation to two naturalistic theories of health developed in the philosophy of medicine, namely Christopher Boorse's (1975, 1997, 2014) biostatistical and Jerome Wakefield's (1992, 2014) harmful dysfunction theories. Discussing ecosystem health in relation to those two theories will make the issue more apt for philosophical

scrutiny, by indicating possible reasons for why the difference between ecosystems and organisms would make the ascription of health to ecosystems problematic.

I will start by identifying similarities and dissimilarities between ecosystems and organisms which appear relevant to the issue of whether health can be applied to ecosystems. I will argue that ecosystems resemble organisms in that, like organisms, they are functionally organized entities. However, I will also identify two important differences between organisms and ecosystems pertaining to their functional organization: (1) the fact that the functional organization of ecosystems cannot be interpreted along the lines of the selected effect theory of function (Odenbaugh 2010); (2) the (related) fact that ecosystems exhibit a lower degree of part-whole integration than organisms.

Next, I will discuss how those differences between ecosystems and organisms raise challenges for the conceptualization of ecosystem health through the prism of Boorse's and Wakefield's theories. First, the loose part-whole integration of ecosystems conflicts with the linkage made in those two theories between the health of an entity and the normal functioning of its parts; and, second, the inapplicability of the selected effect theory of functions to ecosystems makes it difficult to ground a notion of normal or proper ecosystem functioning in relation to which ecosystem health could be defined. I will end by proposing a way to meet the first of these challenges, which I call a "holistic reformulation" of Boorse's theory of health. This holistic reformulation relocates the criterion of normality in Boorse's theory from the level of the parts to that of the whole. This holistic reformulation, I will argue, makes Boorse's theory better applicable to both ecosystems and organisms. Reviewing some criticism of Wakefield's theory of health and setting the issue in the broader context of the normativism/naturalism debate in the philosophy of medicine, I will then downplay the importance of the second challenge by noting that it also arises in the case of organismic health, such that it does not concern ecosystem health specifically.

KEYNOTE

Helping wild animals harmed by climate change? Convergence and Divergence in animal ethics

Clare Palmer

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Anthropogenic climate change poses significant threats to many individual sentient wild animals. However, whether any ethical responsibilities to wild animals might arise from these threats has not yet been much explored. In this paper, I argue that animal ethicists who take sentient animals' moral status seriously are likely to converge on the view that, other things being equal, we have moral responsibilities to assist wild animals made vulnerable to climate change. However, I also argue that these ethicists are likely to diverge significantly in terms of the strategies they believe would actually fulfil such moral responsibilities. This divergence flows from theoretical disagreements, in particular over whether the anthropogenic origin of climate change is in itself of moral importance, and how to weigh vulnerability and suffering over different animal generations. To support this argument, I consider three plausible strategies for helping wild animals: rescue and rehabilitation, habitat restoration, and assisted migration, showing why different theoretical approaches to animal ethics may converge on supporting some of these strategies, but diverge on others. These theoretical differences mean that

many climate adaptation strategies to assist vulnerable individual wild animals are likely to be contested, even between animal ethicists.

De-extinction, genetic rescue, and seeing the forest for the trees

Jennifer Welchman

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Public discussion of de-extinction projects has focused on long dead iconic species, e.g. aurochs, mora, woolly mammoths. Proponents argue resurrection technologies offer potentially useful new tools for conserving wild species. Many environmental philosophers have demurred, arguing that support for such technologies is neither rationally nor morally justifiable on conservation grounds, for some or all of the following reasons. [1] Animal suffering would be unavoidable. [2] Reintroduction of extinct species into ecosystems adapted to their absence would be disruptive. [3] The costs make it affordable for only a very few "foundational" species. [4] It is just another 'techno-fix,' by which humans try to avoid addressing the social causes of environmental degradation (pollution, GHG emissions, etc.) [5] Technological de-extinction of *wild* species is in principle impossible, and [6] These projects are hubristic exercises motivated by desires to dominate nature.

Others (e.g., Palmer) have raised doubts about some of these objections. I will argue none are compelling regarding de-extinction projects aimed at members of a largely neglected category of extinct species, i.e., "the living dead," those not yet absent from the wild but "functionally extinct." In North America, the ranks of the living dead include many ecologically vital forest trees. Due to epidemic fungal diseases, many keystone tree species (e.g., American Chestnuts, Elms, Butternuts, Black Walnuts, & White Pine, among others) are either functionally extinct or soon will be.

I will argue that genetic resurrection of functionally extinct forest trees is not only rationally and morally justifiable for wildlife conservation, we should see ourselves as morally obliged to support it in the following cases. [1] Concern for animal suffering should lead us to favor not reject de-extinction since trees can't suffer but associated species do/will suffer from their decline. [2] Concerns about ecosystem disruption should likewise lead us to support not reject de-extinction. [3] The trees in questions are foundational species whose genetic rescue would pay dividends in biodiversity conservation. [4] Efforts to genetically rescue trees such as the American Chestnuts are not reprehensible techno-fixes since they are not caused by social practices we can 'fix' by other social means. Fungal tree epidemics, like flu epidemics, are by-products of the global movement of materials and persons, preventable only by banning international travel and trade. [5] The contradiction alleged assumes an extreme and implausible view of all human interventions in the lives of other beings, i.e., that every intervention converts the being affected – or its progeny – into an artificial species. This is implausible as it also entails that the progeny of sick or injured wildlife which have received rehabilitative treatment are also artificial bio-objects. Genetic rescue is a therapeutic intervention that does not reduce its recipients to artefacts. [6] The strategy is not inherently hubristic. It is consistent with holding range of anthropocentric and non-anthropocentric ethical theories.

I will conclude that given the seriousness of the conservation threat forest epidemics pose, genetic resurrection of functionally extinct species such as the forest trees discussed here *is* a reasonable strategy to pursue (albeit cautiously.)

Why we need an ethics of ecological robots

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Researchers in various disciplines have been using emerging robotics technologies for environmental research and exploring ways of integrating robots into ecosystems as a means of responding to accelerating environmental, climatic, and biodiversity changes. These efforts introduce unprecedented ethical and practical concerns. Yet, surprisingly, such applications of robots have received almost no attention in the ethics literature to date. This talk aims to hasten the exploration of valuable applications of robotics for environmental protection and engineering, and provoke discussions about the ethical, practical, and sociopolitical issues they may present.

After a concise overview of the different types of existing environmental robots and unique issues they present, our discussion will focus on rapidly expanding efforts to create robots to serve as organism proxies and play select ecological functions. In particular, we will examine the potential dangers of attempts to mechanistically reduce biological organisms to a limited set of traits and ecological functions. Consider, for example, biomimicking pollinator robot swarms and proxy apex predator robots. Such "ecological robots" may become extremely efficient at pollinating or culling ecologically detrimental population growths. However, their potential unintended ecological ripples may be disastrous. We will consider the unprecedented forms of competition such robots could introduce. We will also discuss concerns related to the fact that the organisms such robots mimic do not just serve the functions these robots mimic, but play many ecological roles: by having co-evolved behavioral profiles that see them as triggers for epigenetic and developmental responses; by being sources of food and detrital material; and by serving as vectors for the transfer of functionally important bacteria, diseases, and parasites. Through this discussion we will consider numerous potentially harmful ecological ripples and uncertainties about the adaptive responses such biomimicking robots may trigger in natural populations, and highlight a host of ethical and practical concerns they raise. Finally, we will build on previous work on ecological robots and functional biology to outline a perspective with resources to help address such concerns.

KEYNOTE

Visible Growth and Invisible Peoples:
How Definitions of 'Community' Influenced Food Security at Dalles 38C Indian Reserve, 1900 – 1975.

Brittany Luby

University of Guelph

After years of fishing along Winnipeg River, Jacob Strong of Dalles 38C had never seen anything like it: garbage that hung from his nets and sturgeon belly-up on the water. In the mid-1950s, however, Mayor Ratuski and members of Kenora Town Council seemed blissfully unaware of destroyed nets and dead fish. During Ratuski's term, Kenora residents celebrated how electricity made "life more interesting, more comfortable and pleasant" – that water regulation would suspend industrial waste near someone's home seemed unlikely. Indeed, local news reports affirmed that Lake of the Woods carried waste away from water users: waterways operated to benefit "locals." Scientific publications acknowledged (albeit discouraged) dilution as an effective waste management system for low density

regions like Kenora. The problem, however, laid in Ratuski's definition of "community" and how Council approved waste systems to serve "community" needs. Hydroelectric and waste systems were developed to serve Kenora. "Community" boundaries were determined by non-Native settlement and industrial production. Problematically social boundaries countered environmental boundaries: disconnected in municipal thought and practice, Kenora and Dalles 38C were intimately connected by the northwesterly flows of Winnipeg River. This presentation examines how socially limited perceptions of the river system allowed for largely unregulated dumping of effluent, sulfite liqueur and wood fibre into Winnipeg River and how a failure to identify source pollution compromised Anishinaabe diets and, by extension, Anishinaabe health without comment.

William Cronon in Africa

Yolandi Coetser

UNISA University of Johannesburg

Many environmentalists argue that to award the natural world significant moral consideration, we first need to preserve non-human animals and wilderness in as natural a state as possible. Alternatively, William Cronon argues that to look after the natural world does not entail returning the world to as natural a state as possible. In this paper, we argue that the emphasis placed on the notion that we do right by the natural world if we leave it alone and wrong by it if we 'intrude' seems misguided (especially given the current state of what is left of the natural). In light of Cronon's critique of the insistent value that we have placed on the preservation of wilderness and wildness - through sustaining the dualistic vision of humans vs. nature-as-other – we aim to show that a similar approach taken towards the management and ethical treatment of wildlife in Africa may present us with a new, pragmatic, and effective environmental philosophy. In so doing, we will also invoke some African environmental ideas, which reiterate Cronon's anti-dualist view of nature.

What is the Ecoaesthetic

Andrew Gemmell

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What is to be made of the plurality of aesthetic dimensions presented by ecological and environmental theorists? How is Anna Tsing's scholarly multisensory *noticing* different from Timothy Morton's "interconnective, causal-perceptual" *attunement* or Daniel C. Remein's ecopoetical *decoration* or Ronald E. Ignace's *le tslexemwiwelcstnes re tmicw* ('when I came to my senses about the land') or Ronald Hepburn's desire to eliminate "the grosser anthropomorphisms and animisms" from environmental aesthetics or Aldo Leopold's insistence in 'The Land Ethic' (1949) that ecological consciousness must be framed "in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." In what ways are these ecological and environmental aesthetic positions related? Are these dimensions or fields, to speak with Merleau-Ponty, caused by or causal of the ethical, the economic, the juridico-political? Do they maintain or reformulate entrenched ontological binaries of inner and outer, of human and non-human, of nature and artefact, of environment and ecology? In short: What is the normative function of the aesthetic?

This paper is a three-part progression: first, a rough typology of the academic study of environmental and ecological aesthetics; second, a conversation between Charles Sanders Peirce's

hierarchy of the normative sciences and Maurice Merleau-Ponty's (following Don Beith's recent work) aporetic institution of generative passivity, the purpose of which is to engage certain themes in environmental philosophy (deep ecology, new animism, bioregionalism, social ecology) and recent ecological theorists (Mick Smith, Daniel C. Remein, Timothy Morton, others), noting the underlying structures of a non-anthropocentric normative primacy of the eco-aesthetic; concluding with two Indigenous thinkers: Secwepemc professor Ron Ignace and Michi Saagig Nishnaabeg professor Leanne Betasamosake Simpson. How does the function of the aesthetic in their thought differ from the above (and each other)? Ignace writes of the formative aesthetic moment of *tslexemwilc* ('when I came to my senses') and *le tslexemwiwelcstnes re tmicw* ('when I came to my senses about the land') which relates intimately to how "the sense of Secwepemculecw as organized and visualized in place names and landforms is tied up in an aesthetic experience of organized shapes of the land and in the memories of living and travelling in that familiar landscape of aesthetically organized shapes." Simpson underlines the presence and emergence of embodied knowledge by locating *debwewin* (truth) in *gdi-nweninaa* ('our voice, our sound'), locating the voice in the *nindoodemag* kinship system. *Contra* Hepburn's eliminative intentions regarding the anthropomorphic environmental aesthetic, Simpson describes *nondoodemag* as (among other things) a tradition of treaty-making with non-human animal and fish clans, and a formulation of Nishnaabeg historiography and sovereignty according the transmigration of eels.

The central suggestion of this paper is that these social, familial, ethical, political, historiographical, and even logical structures are grounded in (to use Peircean terms) a fundamental aesthetic normativity implicate to (i.e., the possibility of) concepts such as *noticing, attunement, decoration*, and the aesthetic appreciation of both artistic and natural beauty. A point underlined in the work of Ignace and Simpson.

KEYNOTE

The trouble with biodiversity

Mark Vellend

Université de Sherbrooke

Biodiversity is the umbrella concept meant to embrace all of what conservationists aim to conserve. However, most conservationists have strongly held preferences about states of nature that don't necessarily align with greater biodiversity. For example, when the number of non-native species increases faster than the rate of decline of native species, local biodiversity – by any scientifically defensible definition – goes up, while ascribed conservation value typically goes down. In recent centuries, species extinctions at the global scale have outnumbered species originations, but at all other scales of observation biodiversity changes have been highly variable among regions and taxa, with increases far more common than one would be led to believe from state-of-the-world pronouncements made by conservation scientists and practitioners alike. This causes trouble for the concept of biodiversity, and for conservation arguments based on a premise of general local biodiversity declines. Conservation scientists thus often find themselves in a philosophical quagmire whereby deeply held values potentially conflict with a commitment to drawing conclusions only based on empirical data. The interface between conservation science, policy, and action is thus fertile ground for studies in the philosophy, sociology, and behavioural economics of science.

The value of biodiversity: The instrumental value of ecosystem services

Sophie Bretagnolle

Université Paris-Sorbonne

The concept of ecosystem service is increasingly used to assess the value of biodiversity and ecosystems. The Millennium Ecosystem Assessment proposed a definition that is still rather accepted in the scientific sphere: "ecosystem services are the benefits humans obtain from ecosystems" (MEA, 2005). The usability of this concept with the aim of revealing what is valuable for humans depends on its link with anthropocentric instrumental value. However, instrumental value is often criticised for not being as adequate as intrinsic value for protecting the environment (McCauley, 2006; Schroter et al., 2014; Maris, 2014). Because intrinsic value gives a value to biodiversity and ecosystems for themselves, it is not biased by human interests (what is valuable for humans) as opposed to the anthropocentric instrumental value. Some authors answer to this criticism saying that instrumental value is more efficient to make decisions regarding environmental protection because it can be measured, prioritized and traded off (Justus et al., 2009). Thus, instrumental value would be a more adequate concept than intrinsic value for protecting the environment. Nonetheless, if instrumental value is always anthropocentric, any trade-off between human and non-human interests will always favour humans. Therefore, it makes the protection of the environment dependent on human interests undermining its capacity to protect non-human entities.

I will defend that attributing an instrumental anthropocentric value to ecosystem services can be done in agreement with a will to protect the environment if it admits two conditions. First, instrumental values that are traded off must be both anthropocentric and non-anthropocentric so the interests of the different entities present in the environment can be taken into account. Second, a hierarchy must be established between two kinds of benefits that are stressed thanks to instrumental value. The benefits satisfying vital needs should have priority on benefits satisfying non-vital needs, thus protecting the more vulnerable beings.

First of all, we can find in the literature a description of the concept of ecosystem service as able to highlight the interdependence between humans and ecosystems (Daily, 1997; Maris et al., 2016). It suggests that some of those services are able to benefit humans and non-humans (cf. life-support functions or support services). However, in this case, interests of non-human stakeholders are taken into account simply because they accidentally converge with human interests. To avoid this situation of dependence, we need to use non-anthropocentric instrumental value so it represents non-human interests. Secondly, we are already seeing the emergence of reflections about priority of some services that benefit to humans. The case of poor populations, women or children that are more vulnerable and dependent of ecosystem services for instance (cf. Target 14 of Aichi targets) is an example of interests that would need special consideration. This reflection is articulated upon an intuition of legitimacy arguing that benefits satisfying vital needs have priority on benefits satisfying non-vital needs.

These two conditions will help us to take into account non-human interests more accurately and create a guideline to decide which benefits should be promoted first.

Irreplaceable design: The non-instrumental value of biological variation

Brendan Cline

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Many environmentalists believe it is wrong for us to cause the extinction of species, and that we ought to make sacrifices to protect threatened populations. There are a range of instrumental, anthropocentric justifications for these attitudes, yet some environmentalists want more. It is unclear if more is to be had.

One might think of species as individuals whose continued existence is valuable. However, the fluidity of species boundaries and their lack of functional integration calls this idea into question. Similarly, the continuity between ancestral and descendant forms, and the heterogeneity among conspecifics makes it unpromising to construe species as crisp natural kinds. Such considerations might lead one to doubt that species are mind-independent fixtures of reality. Concerns then arise about the coherence of attributing intrinsic value to species while doubting the existence of species.

In this paper, I articulate a coherent basis for (a) non-instrumentally valuing biological variation while (b) accepting antirealism about species. If (a) and (b) are compatible, it follows that (a) is compatible with the view that even if species exist, they are not the kind of thing that possesses intrinsic normative significance.

According to my proposal, the proper target of environmentalists' evaluative concern is the *irreplaceable design* that is embodied by the individuals that make up a (putative) species. It is the *design* that matters, not the species as such. This approach can capture and justify many environmentalist attitudes about the value of biological variety without requiring that we include species in our ontology.

Perhaps *the* central environmentalist commitment is that, *ceteris paribus*, a world with (i) *n* individuals of species X and *m* individuals of species Y is much better than a world with (ii) *n+m* of X and 0 of Y, even if individuals of X and Y have similar intrinsic properties. The irreplaceable design view holds that more diverse worlds are better because they contain more irreplaceable design, and thus more value.

Many think it is worse to lose species that are more unique. The irreplaceable design view endorses this judgment, since most of the design represented by less unique forms will still persist in related lineages. The loss of more unique forms represents more permanently lost design.

Something important seems to be lost when threatened populations must be extricated from their native habitats for safekeeping. The irreplaceable design view (partly) explains this by highlighting the fact that much of the design embodied by an organism is suppressed or distorted when it is confined to captivity.

Finally, there is a particular urgency attributed to protecting endangered populations. The current proposal legitimizes this sense of urgency, emphasizing the irreplaceability of the value that stands to be lost.

Each of the attitudes canvassed here seem to make little sense if there are no species. However, the irreplaceable design approach is capable of making sense of them even if there are no species. It thus represents a viable path for species antirealists to coherently value biological variation non-instrumentally.