8 What do we mean by a relational ethics?

Growing a relational approach to the moral standing of plants, robots, and other non-humans

Mark Coeckelbergh

Introduction: The question concerning "relational" ethics

What does taking a "relational" approach mean in and for plant ethics? Relational ethics has become something of a buzzword recently, but it is not always clear what people mean when they use the term. In addition, the contexts in which the term is used are very different, including for instance care ethics (e.g. Noddings 2012), animal ethics (for an overview see Henderson 2009), robot ethics (Coeckelbergh 2014), and now plant ethics.

This paper clarifies what meanings of "relational" are already in use in plant ethics, and then discusses new meanings of "relational" for plant ethics by drawing connections to robot ethics, a topic of growing importance in the philosophy of technology. The focus is on the issue concerning moral standing: what is the moral standing of plants? Building on previous work in this area (Coeckelbergh 2012, 2014; Coeckelbergh and Gunkel 2014), I question the very ways in which the notion of moral standing is typically understood in ethics, arguing that it is too distant and detached, and that even relational approaches to the ethics of plants such as ecological and network approaches are at risk of taking in too detached a notion of "relational" – at least if they are meant as a metaphysics and insofar as the ethical reasoning they propose is based on the ontological properties of plants.

My own proposal comes in three steps: (1) include the subject in the question, leading to a first-person perspective and drawing attention to my relation to the entity; (2) start from the needs of the other (second-person perspective), and ask not "what kind of moral standing does this entity have?" but "what do you need and what can I do for you?"; and (3) replace the detached model of the viewer observer (which is still implied even in the other-oriented approach) with the model of the active and practical relation to the entity. This focus brings us back to the life world, the world which we live and experience rather than the world as constructed by abstract moral or scientific theory, and a world where the

question regarding moral standing actually matters. Finally, I propose the Wittgensteinian concept of "form of life" (Coeckelbergh 2017a, 2017b; Wittgenstein 2009) to think about change in plant ethics. I also argue that the ethical question regarding plants and other non-human entities has a societal and political dimension, and add that art can help us find new possibilities of relating to plants and other non-humans.

Existing relational approaches in plant ethics and their problems

One way of taking a relational approach to plant ethics is to start from a relational view of the world – a relational metaphysics. This could be, for instance, an ecological view that emphasizes that plants, animals, humans, and indeed any other living being are always related to other living beings. Many people working in animal ethics and plant ethics would subscribe to such a view. Plants, for instance, are clearly not isolated "things" but living beings that are part of a larger ecological and relational whole, sometimes called the ecosystem. "Relational" here refers to what we say about the nature of being. It is not entirely clear how this metaphysics should generate an ethics (a typical question here is whether one can ever derive an "ought" from an "is").

In environmental philosophy, an important approach that represents this way of thinking is Deep Ecology (Naess 1973), which relies on metaphysical holism. (Sometimes, deep ecology is also associated with the work of Martin Heidegger, as in Zimmerman (1986); but I will not discuss that view here.) The basic thought behind Deep Ecology is that if we understand that each living entity is related to a living, ecological whole, then we should take into consideration the consequences of our actions on all such living entities out of concern or respect for the whole of which they are parts. This can be extended to plant ethics: one could argue that plants deserve moral standing since they are part of an ecological whole. Whether this means that all plants have a right to live and what, for instance, a no harm principle would imply for plants are different questions. My point here is just that regardless of whatever specific ethical argument one makes from within Deep Ecology, this argument will be based on a relational metaphysics of ecological wholeness.

Similarly, an ethics of technology could argue that moral standing of artifacts such as robots depends on the relational whole in which entities are embedded (Coeckelbergh 2012). So-called "individual" robots are in fact embedded in environments and are related to other technologies. It might be objected that this analogy between plants and robots is inappropriate because robots interact with their environment whereas plants do not. Yet there is scientific evidence that plants can register and adaptively respond to changes in their environments. Consider for instance the literature on plant intelligence (e.g. Mancuso and Viola 2015; Trewavas 2014), which argues that plants are not passive but adapt to their environment and signal opportunities and threats to one another. One could plausibly say that this entails that plants are "relational" or have "relational" properties in a strong sense: not only do they relate to other living beings as

beings that are "passively" part of an ecological whole, but they also "actively" relate to those other beings and to that whole as they "perceive" their environments and "communicate" with other beings in these environments. Marder (2012), for example, has written of 'plant intentionality'. Perhaps plants are more like animals than we think, or perhaps they have a special kind of "life-form" of their own (here meant in the biological sense) that is, for example, much more mobile than we think (in fact, whether we want to call plants mobile or not will largely depend on the timeframe that we adopt: by human standards they seem to be very slow). In addition, plants and technologies are related. Influenced by Latour (2005), one could argue that robots are not isolated entities but are part of socio-technological networks or systems. For example, Johnson and Miller (2008) have made such an argument about autonomous computer systems. This can also be applied to plants: plants are not only related to other living beings but they are also embedded in socio-technological networks and systems, including humans but also technologies and infrastructures (e.g. water technologies and infrastructure). Plants are thus always related to humans and non-humans.

On these relational views, the moral standing of plants cannot be defined apart, and receives its relevance from, these larger wholes. Plants as living organisms may surely be viewed as morally relevant, but there is no such thing as "individual" plant life. Living means relating; there is always dependence on other living and non-living entities. In addition, if one believes that from this property of relatedness follows a duty to take care of plants, then the question of how this duty is to be fulfilled will inevitably already be asked from within a specific socio-technological context, which has specific technological means available to take care of plants and particular social rules, games, practices, and meanings available to understand and structure that moral enterprise: for instance the practice of gardening (Di Paola 2017).

Another way of understanding the notion of relational ethics is to point to the relationship that we (as individuals or collectives) may have with a plant, or some ensemble of plants as in a garden – a relationship of care, for example. Just like one can have a relationship with another human being, it may be argued that one can have a relationship with an animal, a plant, a place, a monument, or a robot. What matters here is not so much the metaphysics of wholes or networks but the relationship that we humans – particular humans – have with the plant (and other entities). If there is a relationship, then moral obligations and virtues may be connected to that relationship. For instance, if the plant in the office is my plant, not in the sense of being my property but in the sense that I have a special, personal relationship to it, then I may have a duty of care for it, or it could be said that my character will be shaped by how I treat the plant – depending on the ethical framework used. Here the plant is a different sort of moral patient than in the case of (deep) ecology: it is not only passively or actively part of a whole or a network; it is also part of a relationship, particularly a personal relationship and a relationship of care. In the case of the office plant, I care for the plant as well as the relationship. This may give me a further duty

of care, and influence my virtue. This may not be the case for another person who does not have this personal relationship to this particular plant – but who may have other plant relationships. Relationships to plants, in turn, are part of social and cultural practices, such as gardening or forestry. There are already practices, norms, and ways of life that have to do with plants: there is already a culture of plants. For example, I am not the first person ever to take care of an office plant; there is already a practice and a culture. One could also link this approach to an ethics of care more generally (e.g. Gilligan) and to virtue ethics (e.g. MacIntyre, but also in environmental ethics, for example Sandler and Cafaro 2005); but then one would want a virtue ethics that is more inclusive than usual, and involves not just humans but also animals, plants, and other living beings.

More work is needed to discuss these theoretical directions, but the socio-technical, care, and virtue approaches are interesting for my purposes since they already mark some steps towards a less abstract way of thinking about moral standing than do approaches that revolve around a metaphysics of plants (even when the metaphysics is itself relational). These more relational understandings of ethics encourage us to consider the question of the moral standing of plants in relation to other entities, including the human. Let me develop this thought and argue that the question of what moral standing plants (and robots) have should not be asked in the abstract but rather placed in the context of the relation that we have with the entities in question.

Alternative directions, or how to get closer to plants and other entities

The relational approaches presented above are typically minoritarian in philosophical debates on moral standing, which tend to focus instead on the properties of entities. The reasoning often goes as follows:

> Property p is sufficient for moral standing m
>
> Entity x has property p
>
> Therefore, entity x has moral standing m

This is problematic, since it detaches us from the concrete relationships and contexts in which the question of moral standing arises and, worse, from the "patient" itself: as moral observers and reasoners, we take a god's eye point of view, a "view from nowhere" (Nagel 1986). Similarly, when we describe the entity as part of a larger whole, it seems as though we can have an overview of this whole, as though we stood outside or above it. So we end up reasoning about plants as though we had nothing to do with plants.

This detachment is an ethical problem in its own right. Of course abstract moral reasoning may not license harms done to plants; its outcome may be the proclamation of a duty to respect plants, for example. But the point is that the

very *procedure* of detached reasoning can create the conditions for moral distancing. As I argued in previous work (Coeckelbergh 2012), only when we take moral distance from an entity can we violate, harm, use, and abuse it. The distance makes the violence possible. For example, if we only talk about animals in the abstract, we can more easily kill them – usually *have* them killed – than if we personally knew particular animals, in the sense of having a personal relationship with them (e.g. with pets). Moreover, by the same procedure, we also turn humans into abstract entities that become unrelated and distant to the entity in question. Thinking that we can be situated outside or above the whole and reasoning as if we were can have severe moral consequences, as it makes us judges of what can and cannot be done to Earth and the beings that inhabit it. If this worry needs to be framed in terms of moral theory at all, one could say that this is problematic from a virtue ethics point of view (and perhaps it could also be framed in deontological and consequentialist terms). But perhaps *theory as such* is also problematic, in so far as it distances us from the entities under consideration.

This problem is especially acute for those approaches that are based on a metaphysical view of the world or a scientific view of the entity. The metaphysician takes an outsider point of view, as though she is not part of the ontological order. The scientist – as scientist – takes a so-called "objective" point of view: this enables her to describe plants, their properties, and their relations; but it also detaches her from concrete plants and the experience we have of them and the relationship we may have with them. How can this problem be remedied?

First, instead of considering the properties of entities (e.g. plants) from an outsider's perspective, the relational ethics that I propose includes the subject in the picture and understands so-called "objective" properties as constructed by our interpretations. Importantly, this move away from ontology (what is) and towards phenomenology (experience) and hermeneutics (interpretation) does not make the moral standing of entities *merely* subjective. The ascription of moral standing is always both subjective and objective, as it is the outcome of the interaction between subject and object. The subject-observer matters to the outcome of the ascription process, but so does the object. What the moral standing of the plant is depends both on me and the plant: it depends on my interpretations and on what interpretations the plant affords as I relate to it. The question, then, is no longer "what moral standing does the entity have?" but "what standing do we ascribe?", "what makes this ascription possible?", and "what are we assuming when we say this and that about the entity?". In this respect, it matters greatly what kind of language we use to talk about plants. For example, do we call a plant a "thing" and use "thing" language, or do we name it as we would a city or a human? How and why do we use the word "weed" with respect to some plants and not others when, biologically speaking, we may in fact be talking about very similar entities?

Elsewhere, I have proposed a transcendental argument to conceptualize this approach (Coeckelbergh 2012) – with "transcendental" understood not in the abstract sense that typically belongs to aesthetics and metaphysics but in a more

material and practical sense: we must critically investigate and evaluate the conditions of possibility of our ascriptions of moral standing. These conditions can be linguistic, technological, and cultural at the same time. For example, we may consider how gardening practices, crop-breeding technologies, ways of speaking about plants, and the rules and norms embedded in our culture turn certain plants into weeds. The ascription of moral standing is the outcome of a process that engages all these tools and media. The question that is relevant for plant ethics then is no longer what the plant "is" and whether that justifies ascriptions of moral standing, but how we "make up" its moral standing. This enables us to take a critical perspective on how we relate to plants – for instance, on how we "make" particular plants into "weeds" (undesirable and expendable) by means of our language and practices.

This first step is still characterized by a first-person perspective, which we incorporate but also surpass with a second step. In the lifeworld and in practice, we do not only observe plants or talk about them from a distance and in the abstract. We also actively relate to them – when we eat them, for instance, or when we come to look at and treat them as companions. We can thus try to further reduce moral distance by taking on a second-person perspective: the perspective of "the other", as Lévinas (1969) dubbed it. Whether the other is a plant, a robot, a human being or any other entity, we start from the needs of the other and the "face" of the other as we meet it in concrete encounters (i.e. we start from the demands and the appeal of the other), and what we ask is not "what kind of moral standing does this entity have?" but "what do you need, and what can I do for you?". For Lévinas, this approach applies only to humans. But we can also apply it to other entities, for example animals (Coeckelbergh and Gunkel 2014). At least *potentially*, animals can be others, and so can plants. For plant ethics, then, the question is if plants can appear as others and, if so, how to respond to the plant as other.

This other-directed approach further helps our exploration of our relationship with a plant and its ethical dimension. Is the plant a mere means for the formation of my character, as some virtue ethics approaches may suggest, or is the plant totally other, as a Lévinasian account expanded beyond the human would imply? And is the plant similar to me in important ways, or is it radically different? Most likely, we will want to find middle ground with respect to both these questions. The plant should not be a mere means for my character formation: the good life should include the flourishing of both me and the plant. And the plant is not totally other: it is a living being like me and has similar needs – it also needs water, for instance. Concerning many of my needs, I can surely relate to plants. However, insofar as they are different and remain other, perhaps I cannot use plants merely as means and I cannot reduce them to, say, general categories of biology or metaphysics.

In Lévinas there is an encounter with the other, but this still entails some distance. I have an encounter with the plant, but it remains alien to me, as though there was no further relationship, no history, no narrative that connects us. Therefore, I propose that we take a third step and replace the model of the

viewer-observer with that of the active and practical relation to the entity, a relation which has a history and a narrative of lived experience. What matters then, ethically speaking, is not only a particular "encounter" or "situation" as such but our on-going engagement with the entity: how we actively and practically relate to it, and the ethical possibilities that arise out of this relation. The question, then, is not "what moral standing does this entity have?" but "what can I do with you?", "what needs to be done now in regards to you?", and similar. What matters is not a particular response at a particular moment in time (the encounter) but, rather, how to shape, understand and live a larger practical relation with the entity. This relation has a history and a narrative, and we can consider the whole of our relation to the other, rather than a specific aspect or moment of it, in light of this history and narrative. This opens up questions on how to treat a particular plant, or robot or any other entity, what skills and know-how are needed (Coeckelbergh 2015) and, because we are reflecting on how to continue and shape relations that have histories and narratives that overlap with our own, generally on how we live our lives and think of ourselves.

The detached perspective of the moral philosopher and observer is thus replaced by that of the active practitioner and sense-maker: we find ourselves in the lifeworld, understood as a practical and relational space where the question of what to do for and with a plant matters. In this lifeworld, notice, there is not only an "I" but also a "we". Plant ethics is also a matter of asking "what shall we – as a collective – do with plants?". The question how to relate to plants and other non-humans is also a political, societal and collective question. Many theories in ethics presuppose an individual decision maker, but there are also decisions that need to be made as a community and as a society. This requires an ethics that involves specific ideas about communication and participation. (This aspect could be further developed by discussion various philosophical frameworks, including, for instance, virtue ethics and communitarianism.)

This move to morality-in-practice and morality in the lifeworld and society does not mean that we simply immerse ourselves in the everyday, without further reflection. If the proposed approach to moral standing is still to be ethical, philosophical, and critical, it needs to take *some* distance. By using language, we can take some distance and question our practices. As said, this can be done by revealing, constructing, and critically questioning the conditions of possibility of those practical relations and their contexts. We can question our current relations to plants by critically examining the language that we use when we talk about them (and perhaps also to them). Proposals by philosophers to talk about plants in different ways, for instance as persons (Hall 2011) rather than things, can be interpreted and developed as interventions in, and comments on, not only our uses of language but also the activities, practices, and rules that are connected to these uses of language.

One example of language use that works as a condition of possibility for our thinking about plants is our use of thing-language, as already noted. Another is our very use of the word "plant". Just as Derrida (2008) questioned the word "animal", we can question the word "plant", which seems to be too generalizing

and possibly incongruous with what we presently know about plants. For instance, the knowledge that plants seem to be a kind of very slow-moving *animal* (see for instance plant scientist Jack Schultz's claim in a recent interview (Gabbatiss 2017)) can lead to new uses of language, new explorations of how to best talk about plants. Or one may choose to better define what kinds of plants one is talking about, both in terms of biology and their relation to us. In addition, the term "plant" is ill defined (it is not clear, for instance, where the boundary lies between bacteria and plants, or indeed between plants and animals) and also lumps together an enormous diversity of life forms and relations. One may also add that such a term is itself a tool for the exclusion of other entities: perhaps it is true also of the term "plant" what Derrida (2008, 34) said of the term "animal", namely that it denotes "all the living things that man does not recognize as his fellows, neighbors, or his brothers". It is also important to remember that we should not only look at how philosophers use language to speak about plants: we must also study how all of us, in concrete practical contexts, speak about (and possibly to) plants – for instance during gardening, eating, and outdoor activities (or indeed in the lab, in the office, and so on). Here, philosophers may want to collaborate with the social and natural sciences, working in a trans-disciplinary way.

Turning to concrete practical contexts does not mean the end of ethics or moral philosophy. On the contrary, attending to our moral language, for instance, may lead to new conceptual innovations and a more, rather than less, critical attitude. Perhaps philosophers should use their concepts differently: not to say something about the nature of being, for example of plant being, but rather to say something about us-and-plants, about what we do with plants and what plants do with and to us, and about the history, the present, and the future of human–plants relations. Morality itself has a history: to develop a plant ethics, it is important to also understand that history, and why it has led morality to say this or that about plants. We need to know more about how plants are already treated and related to, and reconstruct what makes these treatments and relations possible. If we neglect all this, these histories and practices and relations will feed and structure our thinking about plants anyway; we better reveal them and reflect on them if we want our thinking and relations to plants to be better informed and more critical. This entails that changes in the ways we relate to and think of plants are path-dependent and thus cannot be changed overnight. After all, once we radically question or even abandon abstract and detached moral reasoning, we'll find ourselves with no external criteria to hang on to. We'll be criticizing our own form of life (e.g. with respect to plants) from within this very form of life.

Forms of life: The "standing" and place of plants and humans in the Anthropocene

In his *Philosophical Investigations*, Wittgenstein used the concept of 'form of life' to express the idea that that our particular uses of language and their meanings

are embedded within a larger whole that structures that meaning – our "form of life" (Wittgenstein 2009). Before we learn to speak there is already a language and there already are ways to use words. These ways grow out from and in turn reinforce the ways in which we do things in our times, society and culture.

The problem regarding distance and abstraction discussed above can be reformulated as a problem that concerns language use. The problem is that we talk about plants and other entities as though they are mainly and merely objects (or moral patients) from which we can easily distance ourselves. As philosophers we use language in certain ways to ascribe a standing to entities. These language uses are part of our activities and form of life, as participants in practices and in a culture that include specific ways of relating to plants, for example scientific and philosophical ways. These larger ways of talking and doing already shapes our thinking about plants, and make it difficult to conceive of radically different ways of thinking and talking about them. Our thinking about plants is shaped by specific activities, practices, and forms of life, such as eating and gardening, that bring with them specific ways of talking about plants and relating to them. Language use, thought, and practical ways of relating to plants are all connected and reciprocally reinforcing.

When we talk about plants and their moral standing, we speak from a position where we have already integrated them within our own human "form of life" and within particular forms of life in certain places, contexts, and practices. As our lives are shaped in specific ways as humans and as members of social-technological wholes, we already relate to plants in certain ways and not others. Questioning our relation to plants, then, also involves questioning ourselves, as persons but also participants in a culture and as humans: it involves, perhaps necessitates, questioning our own form of life. The moral standing of plants crucially depends on their standing within our activities and our form of life. Their standing depends on *where they stand* and, ultimately, on where *we* stand. The question about the moral standing of plants is, for a relational ethics of the sort that I have been describing, also a question about our standing as humans. Where do we stand in relation to plants?

If we turn the question of moral standing, initially understood as a question concerning moral ontology, into a question concerning moral ecology and moral geography, we end up with an approach that transforms the enterprise of examining the moral standing of plants into the enterprise of examining how *I* relate to plants and *we* relate to plants and, in the end, how we *humans*, as relational beings, relate and are related to in general. Moreover, forms of life always change and so will the moral standing of plants, since the entire relational constellation of which both plants and humans are parts will also change. In this sense, plants or other entities have no "standing"; what they are and do is not fixed. This counsels the adoption of an historical perspective: to critically reflect on their moral standing, we have to look at the history of plant-human relations. It opens up the inquiry to several other disciplines beyond philosophy, including anthropology and psychology. But even trans-disciplinary work within academia may not be enough for a thorough re-thinking of human–plant relations.

We will, perhaps, need artists or coders to help us explore new possibilities for relating to plants and, more generally, the natural environment.

Finally, the notion of "form of life" also enables us to link our inquiry on plants to human flourishing. We do not start from a naturalistic or metaphysical view of the properties of plants and their life-form, and link that to the notion of flourishing (Kallhoff 2014); we rather emphasize plants and humans as part of a social-cultural form of life. We can then ask how the flourishing of the plant as a life-form is related to human flourishing, particularly human flourishing as it is intrinsically connected to a social-cultural form of life.

At first glance, this link between human flourishing and plant flourishing only makes sense for plants that are directly integrated in human societies and practices, such as garden plants and plants used for food production (agricultural plants). However, in the context of what is currently often referred to as "the Anthropocene", a notion which is used to stress that human activities have now global geophysical impact on the planet that we inhabit (see for example Steffen et al. 2011), and that the future of humanity and technology is one with the future of the planet, it becomes increasingly difficult to consider plants or anything/anyone else on Earth as unconnected to the human. This means, once again, that to re-think the moral standing of plants is to re-think our entire form of life, which is not only human but also non-human at the same time, involving plants, animals, and all kinds of technologies. In the Anthropocene these human and non-human, natural and cultural, plant and animal forms of life are always and fatally entangled with one another.

Conclusion: Deconstructing plants (and humans)

What is a relational approach to the moral standing of plants? What could such an approach mean for the ethics of plants and related fields? In this chapter, I have first identified some common ways in which the notion of "relational ethics" can be or has been used in plant ethics, particularly in accounts that rest on a relational metaphysics such as Deep Ecology or in accounts that are "relational" in the sense of concerning "relationships". To these existing accounts I have added some understandings of relationality that change the very question of moral standing.

By bringing in notions like alterity, lifeworld and form of life, I have reframed the question of the moral standing of plants and other non-humans as one that concerns our practical and lived relations – not only as individuals but also as collectives, communities, societies – to and with plants. I have argued that pursuing this question must include questioning our uses of language and other conditions that make possible and shape these concrete human–plant relations. The question regarding the moral standing of plants and other non-humans is thus not only about plants but also about us, humans. It is about our life and virtue as persons, about the ways we do things in our societies and cultures, and about the future of humanity and the planet.

To re-think our relation to plants, then, is also to re-think our form of life. And given how dependent our human form of life is on plants, animals, the rest of nature, and technology, this re-thinking includes questioning the nature and future of the whole: a whole hybrid human/non-human form of life, which usually functions as an unquestioned background and "grammar" for our actions, our relationships, and our lives. This is especially urgent in the Anthropocene, when it becomes even clearer that our human fate is deeply entangled with that of plants and other life-forms, and with the future of technology.

The challenge for a philosophical ethics that aims to be "relational", in plant ethics and elsewhere, is now to further develop conceptual tools that may help us critically reflect on the conditions of possibility that shape and structure our relations to plants and other entities. Questioning the very word "plant", as a gesture of deconstruction, is a good start. Questioning the word "human" may have to follow.

Acknowledgements

I warmly thank all colleagues and speakers of the workshop "Plants and Robots" (Vienna 2016) for the great discussions we had. I am also grateful to Marcello Di Paola and Maria Schörgenhumer for their editorial work.

References

Coeckelbergh, M. 2012. *Growing moral relations: Critique of moral status ascription*. Basingstoke/New York: Palgrave Macmillan.

Coeckelbergh, M. 2014. The moral standing of machines: Towards a relational and non-Cartesian moral hermeneutics. *Philosophy & Technology* 27, no. 1: 61–77.

Coeckelbergh, M. 2015. *Environmental skill: Motivation, knowledge, and the possibility of a non-romantic environmental ethics*. New York: Taylor & Francis.

Coeckelbergh, M. 2017a. Technology games: Using Wittgenstein for understanding and evaluating technology. *Science and Engineering Ethics* (online first) Available from https://link.springer.com/article/10.1007/s11948-017-9953-8.

Coeckelbergh, M. 2017b. *Using words and things: Language and philosophy of technology*. New York and Abingdon: Routledge.

Coeckelbergh, M. and Gunkel, D. J. 2014. Facing animals: A relational, other-oriented approach to moral standing. *Journal of Agricultural and Environmental Ethics* 27, no. 5: 715–733.

Derrida, J., Mallet, M. L., and Wills, D. 2008. *The animal that therefore I am*. New York: Fordham University Press.

Di Paola, M. 2017. *Ethics and politics of the built environment: Gardens of the anthropocene*. Dordrecht: Springer.

Gabbatiss, J. 2017. *Plants can see, hear, and smell – and respond*. Available from www.bbc.com/earth/story/20170109-plants-can-see-hear-and-smell-and-respond.

Hall, M. 2011. *Plants as persons: A philosophical botany*. Albany, NY: State University of New York Press.

Henderson, K. 2012. *Relational approaches to animal ethics and the intuition of differential obligations* (Master thesis), University of Victoria.

Johnson, D. G. and Miller, K. 2008. Un-making artificial moral agents. *Ethics and Information Technology* 10, no. 2–3: 122–133.

Kallhoff, A. 2014. Plants in ethics: Why flourishing deserves moral respect. *Environmental Values* 23, no. 6: 685–700.

Latour, B. 2005. *Reassembling the social: An introduction to actor-network-theory – An introduction to actor-network-theory*. Oxford: OUP Oxford.

Lévinas, E. 1969. *Totality and infinity: An essay on exteriority*. Pittsburgh, PA: Duquesne University Press.

Mancuso, S. and Viola, A. 2015. *Brilliant green: The surprising history and science of plant intelligence*, transl. by J. Benham. Washington/Covelo/London: Island Press.

Marder, M. 2012. Plant intentionality and the phenomenological framework of plant intelligence. *Plant Signaling & Behavior* 7, no. 11: 1365–1372.

Naess, A. 1973. The shallow and the deep, long-range ecology movement. A summary. *Inquiry* 16, no. 1–4: 95–100.

Nagel, T. 1986. *The view from nowhere*. Oxford: Oxford University Press.

Noddings, N. 2012. The language of care ethics. *Knowledge Quest* 40, no. 5: 52–56.

Sandler, R. and Cafaro, P. 2005. *Environmental Virtue Ethics*. New York: Rowman and Littlefield.

Steffen, W. et al. 2011. The anthropocene: From global change to planetary stewardship. *Ambio* 40, no. 7: 739–761.

Trewavas, A. 2014. *Plant behaviour and intelligence*. Oxford: Oxford University Press.

Wittgenstein, L. 2009. *Philosophical investigations*. Malden: Wiley.

Zimmerman, M. E. 1986. Implications of Heidegger's thought for deep ecology. *The Modern Schoolman* 64, no. 1: 19–43.