

Giving Voice to the Voiceless in Environmental Gene Editing

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“If the river could talk, it would say to us ‘Let me flow, let me splash, let me do what I should do. This is my blood, this is flowing through my veins. I’m part of an entire environment and I have a part to play in that.’”¹

From 2005 to 2009, the Boardman River Dams Project considered the fate of four dams along the main stem of the Boardman River, which resides along the lands where the sovereign nation of The Grand Traverse Band of Ottawa and Chippewa Indians live, and is also located in Grand Traverse and Kalkaska counties in Northwest Lower Michigan. The Grand Traverse Band call the river Ottaway and it has always been considered sacred and essential to the tribe’s spiritual beliefs. Over time, the entire river became known by European settlers as the “Boardman River” for Captain Harry Boardman who established a sawmill on the river in the early 1800’s. The logging era, which completely deforested the area (to provide construction for Chicago), was devastating to the river’s aquatic habitat leading to the extirpation of Michigan Grayling in the river. After logging, the five dams were built between 1867 and 1921, and the dams were used to generate hydroelectricity providing a large percentage of Traverse City’s electrical needs. In 2005, the Traverse City Light and Power company decided to relinquish its licenses to generate electric power. Part of the Settlement Agreement mandated a process of collecting community input on whether the dams should be removed (Michigan Department of Natural Resources 2005).

What emerged was a multi-year process that included funding for significant community outreach to bring in as many voices as possible to the deliberative the open question about what should be done with the dams. Rather than asking for “approval” or “input” on an already developed plan for the river and the dams, the implementation team² instead started the process by asking “what does the community want? What does the river mean to you? How should our region exist with the river?”

Over 200 public meetings were held with over 1,000 people participating. A documentary film about the collaborative process and the larger project called “The Ottaway - A River Reborn,” specifically asked: “Who determines the worth of a river?” The response: “it depends on who you ask and who you talk to” (website: <http://theboardman.org/media-center/videos.html>).

Participatory deliberation, whereby the perspectives of diverse publics and experts enjoin to guide decision-making is a powerful mechanism to ensure just decisions; it can help to ensure that those most likely impacted by the decision – both its benefits and burdens – have a voice in the process (Schlosberg 2004). Participatory deliberation can also transform the dominant narratives underpinning environmental conservation, particularly in the West, to create a more inclusive and rich discussion about the environment, and how we as humans relate to it.

Deliberation over the release of genetically engineered organisms into the environment will be greatly influenced by how deliberants view their relationship with non-human nature. Because the engineered organisms in question and the ecosystems they are part of are simply too complex to fully understand, the influence of underlying value systems, such as the human relationship with nature, is amplified in such decision-making (Brossard et al. 2019). In the face of uncertainty, the normative lens through which a decision-maker weighs the risks, benefits, and empirical data of a decision becomes a powerful influencer of how a decision is reached (Kuzma 2004). With the same empirical data in hand, someone with a

commodified relationship with nature or speciesist approach may come to a very different decision (likely, supporting policies that move forward with release) as to someone who subscribes to an ethic that gives nature intrinsic value and sees humans as part of a broader ecological community (likely, a more precautionary approach) (Palmer, McShane, and Sandler 2014) (Kofler 2019).

Furthermore, since decisions to gene edit the environment will have multi-generational impacts, how decision-makers view their role on the planet, from a temporal standpoint, will also influence their decisions (Kuzma and Rawles 2016). How a decision-maker connects, if at all, with their ancestors and those persons yet to come could influence their ability to think long-term and weigh equity across generations. Intergenerational impacts are of particular importance when considering gene editing interventions that could forever alter wild species and ecosystems.

As authors, we subscribe to an ethic that gives non-human nature intrinsic value and appreciates the interconnectedness of species and ecosystems. We concur with moral arguments that make a case for the ecological citizen, which can be used as a potential tool for superseding anthropocentrism (Gray et al., 2020). We see humans as part of those systems. Both of us are deeply concerned about our planet's deteriorating health, and the consequences of that deterioration on humans and non-human wellbeing. We believe new technologies like environmental genetic engineering can become an important tool towards a healthier planetary future, but only if developed with diverse inputs and wielded with respect and humility towards the non-human world and future generations.

Accordingly, we fear that if deliberations about genetic engineering in the wild do not encourage participants to consider the wellbeing of those outside their own communities, this technology could cause more harm than good. Decisions to release genetically engineered organisms into the environment absolutely must include the opinions and expertise of diverse participants. And special attention must be given to structurally marginalized perspectives in environmental decision-making (people of color, indigenous communities, the poor, women, and children) (Kofler et al. 2018). However, we propose that the circle of participation be further expanded. To encourage reelection on the human relationship with nature and to build awareness on issues of intergenerational equity, those without voice must also be included in deliberation. Representation of the voice of nature and the voice of future generations is required to ensure safe and just decisions about genetic engineering in the wild.

How to include the voiceless

To date, there are three main strategies for including the voice of the voiceless in environmental decision-making processes: (i) create legal personhood to nonhumans; (ii) appoint persons or particular groups to speak on behalf of the voiceless; and (iii) create visual or audio mechanisms to speak on behalf of the voiceless (Dandy and Porth, 2021). We review and critique the literature for each of these strategies below. As with most attempts to represent the views of larger groups or entities, each of these strategies has limitations. Yet, we argue that the limitations do not negate the benefits and importance of attempting as best we can to give voice to the voiceless. While the first strategy is unique to including the voice of nature, the latter two also incorporate the voice of future generations. We also interviewed key participants involved in the extensive deliberative process around the Dam Removal Project for the Boardman/Ottawa River. We use this empirical case to understand if and how the voice of the voiceless were heard.

i) Legal Personhood to Nonhuman Entities.

While the concept of granting legal status to nonhuman beings and ecosystems has been around for nearly a half century, governments' granting personhood status to natural entities is a relatively new

phenomenon (Stone 1972). In the last decade, numerous communities and nation-states have granted legal status to nonhumans or whole ecosystems. Some recognize the rights of nature in state or local constitutions. For example, both Ecuador in 2008 and Bolivia in 2010 constitutionalized rights of nature. Other natural entities have been recognized through judicial means.

2014 marked the first time a natural entity was afforded legal rights in the U.S. That year, the Little Mahoning Watershed in Grant Township in Pennsylvania passed a Community Bill of Rights Ordinance that banned fracking waste injection wells (Cameron La Follette 2019). The idea is to shift the concept that each individual has a bill of rights to individuals having a bill of rights for the community s/he resides in; that is, the right to clean water, clean air, and/or sustainable energy. In this case, the Community Bill of Rights allowed the community the right to be free of pollution and environmental degradation from fracking. When the oil and gas company Pennsylvania General Energy (PGE) sued the Township for passing the Community Bill of Rights, the Little Mahoning filed a motion to defend its community-level right in the lawsuit. Today it is one of many townships across Pennsylvania that have passed similar Community Bill of Rights Ordinances, including Pittsburgh which passed legal status to its ecosystem in 2016 (Perkins 2017).

Since then several other ecosystems around the world have achieved legal rights. In 2017, three rivers--the Whanganui River in New Zealand and the Ganges and Yamuna rivers in India--were given the legal status of persons (O'Donnell and Talbot-Jones 2018). These are the first examples of legal rights granted to "specific, identifiable, bounded natural feature (a river and its catchment)." Not surprisingly, creating enforceable legal rights for nature is complex; in part because it demands identifying guardians who can legitimately speak on behalf of nature, and figuring out how to enforce the rights of nature. In the three cases reviewed by O'Donnell and Talbot-Jones, rights were granted to the river systems alone--not indiscriminately to nature as a whole, and specific guardians were appointed to act on the rivers' behalf (Ibid: 8).

What do we learn from experiences to date with granting legal status to nature? While it is too early to make any definitive claims, one conclusion seems clear: that legal standing does not substitute for inclusive deliberative processes and the need to give voice to the voiceless, in this case nature. First, the New Zealand case illustrates that while granting legal personhood status to a river allows the river to sue the state (or a corporation) if environmental harm has occurred, it does not substitute for the need to create deliberative inclusive processes to inform decision-making regarding management and sustainability of the river. The role is granted to the strategy group, which is defined in fairly common ways as a participatory stakeholder group.

Second, while legal standing may be incredibly useful to protect ecosystems from unwanted interventions (such as genetically engineered organisms), legislative or judicial acts to create legal standing typically only occur after the development of a social movement, and community demands for such legal status. Pittsburgh's City Council member, Ben Price, who led the charge to pass the Community Bill of Rights, acknowledged that the rights of nature law would not have passed without substantial organizing in the community (Perkins 2017). In other words, a river or community does not obtain legal standing without first figuring out how to give voice to the voiceless.

Environmental water law and legal expert, Erin O'Donnell, also concurs that legal status is not a substitute for community deliberation--either before or after nature is granted legal standing (personal conversation, February 23, 2019). This is an important point because, while legal standing could be an essential strategy for a community (or nation) to protect nature, inclusive public deliberation that explicitly includes, and considers how to include, the voice of the voiceless will still need to occur.

ii) Grant Representation to Speak on Behalf of the Voiceless

Some argue that human representation of non-humans already occurs because humans that have internalized the interests of nature are already at the table (Goodin, 1996). This view has been convincingly argued against from a theoretical perspective, but—most importantly—from an empirical perspective as evidenced by human’s widespread exploitation and endangerment of non-human entities (IPBES, 2019; Gray, 2020). Thus, when we discuss human representation of non-humans it is not to be interpreted as duplicative; that is, meeting human and non-human interests and needs. This point is particularly important when we discuss indigenous representation of nature. One representative should not be asked to represent tribal interests and speak on behalf of nature, though these interests may significantly overlap. It is important that whomever is selected to speak on behalf of nature that this person is allowed to speak wholly on behalf of nature (Dobson, 1996).

In all three river cases, a legal human representative was appointed to speak on behalf of nature (or in these cases the particular river). In New Zealand, the Whanganui river is represented by a guardian, “who is required to act and speak to the benefit of the river’s health and well-being.” Interestingly, the Act requires that this guardian consist of two persons, one appointed by the Crown, and the other by Whanganui Iwi, but are required to act as one. In India, the High Court of Uttarakhand established the Ganges and Yamuna Rivers as minors under the law, which acknowledges that they cannot speak for themselves. Interestingly, while New Zealand appointed guardians, which included a Maori representative, to speak on behalf of the Whanganui River, Uttarakhand appointed specific positions within state government to act and speak on behalf of the Ganges and Yamuna River and their tributaries (O'Donnell and Talbot-Jones 2018). Arguably one of the most crucial questions in the implementation of granting legal status, and in setting up a decision-making system more generally, is determining who (or what organizational entity) should speak on behalf of nature.

Determining who (what person or position or group) should be granted guardianship to speak on behalf of nature and future generations is a value-laden question with no single answer (Donoso, 2017). Many suggest that indigenous people should be given the right to speak on behalf of nature, because thinking of nature as a being unto itself--that does not need human agency or a relationship with humans--is often synergistic of the spiritual belief systems of many indigenous groups. The New Zealand case is in some ways an example of this, however it is noteworthy that they legally granted guardianship to two persons--one representing the Crown and the other representing the local Maori tribe--to act as one person representing the Whanganui River. We do not know yet for the Whanganui River, or for the other two rivers, how the people actually chosen to play this role feel about speaking on behalf of the river, whether the two people chosen in New Zealand, or the government officials in Uttarakhand, India, have been able to speak in harmony about the river’s interests, and how they go about representing the river. These are important questions for future research. However, we can look at a case in which a long inclusive deliberative process was developed to consider the fate and management of a river in the U.S. in which there was no official granting of representation for the voiceless. When official guardianship is not denoted, is the voice of the voiceless heard?

Lessons from The Boardman/Ottawa River Dams Ecosystem Restoration Project

From the very first meeting of the Boardman River Dams Project in 2005, the organizers were intentional about wanting to empower all participants. Every meeting was led by a neutral facilitator. The team members sat alongside other audience members and set up several working teams, asking each participant what they wanted to be involved in and how they could contribute. The meetings were always open to the public and most participants attended the meetings over several years.

According to the participants we interviewed,³ none of this would have happened, without having the time and space to develop meaningful relationships. They felt it was important to run the meetings in a casual informal way so that everyone felt included, valued, and had time to get to know one another. For example, they would always make sure there was food available--often making it a potluck--so that the meeting was often shared over food and participants would start each meeting getting to know one another on a personal level.

For many respondents, relationship building was particularly important for creating a sense of trust and humility to accept hearing opinions different from their own, but especially the voice of the voiceless. When we asked, 'Was the voice of nature heard in this collaborative process?' Every person immediately mentioned the Grand Traverse Band (GTB) and how tribal members would bring in the voice of nature. In contrast to the processes set up in New Zealand and India, in which the Maori were formally designated as a "representative," to speak on behalf of the Whanganui River, the GTB was not formally asked to play that representative role. Nonetheless, participants including tribal and non-tribal members, viewed GTB's role as naturally speaking on behalf of the Ottaway River and its larger ecosystem.

In the documentary film "'The Ottaway - A River Reborn Film,'" One participant remarked, "when people think of rivers, they always think of their relationship to the river. It is people-centric, it is all about how I feel about how this river looks. No one, or very few people, really look at it from the river's point of view." The "very few people" he was thinking of are tribal members. Below is a sample of how tribal members would speak on behalf of the River in the film:⁴

Although tribal members were not formally asked in the documentary whether they felt comfortable playing a representative role to speak on behalf of nature, their comments suggest they would feel comfortable because it was described as their natural way of thinking about the river.

One tribal member asked rhetorically, "Who did you ask? [when the dams were built?]" And answered: "Nobody asks the river, the eagle, the beaver, the otter, the deer, the birds. The river is speaking to us, and that is what the native Americans listen to--Mother Earth."

Another tribal member also mentioned how showing non-native people how they listen to the voice of nature may help to illustrate the GTB's unique tie to nature.

"They [the river and all living beings around it] all had a voice, and someone [in the tribe] would listen to that voice...maybe now you'll understand how important it is that we live here and how tied together we all are in this place."

JoAnn Cook, who was elected to the Tribal Council of the Grand Traverse Band from 2012 to 2016 spoke specifically about this representative role:

"We know the river has a voice through us. In our work, and in the songs, and the ceremonies that we do on her behalf...[we do those things] in her words. We know that she's alive, that the water is alive, and that the spirit of that water comes to us and talks to us, and that we are speaking on her behalf."

In any process in which a human is designated to speak on behalf of nature, the question of *who* is designated to speak will be critical. To return to the question we started this section with: when official guardianship is not denoted, is the voice of the voiceless heard? According to our interviewees, the voice of nature was heard because it worked naturally for members of the GTB to speak on behalf of nature. In

part this occurred because speaking on behalf of nature is integral to their belief system, but also in part because this role was accepted by others due to the trust and relationship building. We argue in this essay that explicit representation of nature is necessary, and we believe it would have been more appropriate to have officially asked members of the GTB to play a representative role for the river (though in fairness the representation of nature was not considered a priori—recognition of this emerged out of their process), but the Boardman River example suggests that, similar to increasing cultural understanding, increasing understanding of this unique voice of nature comes over time as relationships and trust is built.

As one respondent put it, “Because we had built such strong relationships through this process, we were able to develop *emotional* ties to understanding different perspectives.” Tribal members also mentioned the importance of building trust. “Seeing this river come back, makes me feel really good about all the groups and people that made this happen. They say it takes a village to raise a child, it takes more than that to bring this earth back and to clean it up.”

Who Speaks on Behalf of Future Generations? In our interviews with participants in the Boardman/Ottawa River Project, we also asked whether the voice of future generations was heard in this collaborative process? When we mentioned this perspective there was less agreement that this was the natural purview of native peoples. However, when reviewing the meetings minutes and the voices on the documentary film, the only group that mentioned the importance of including the voice of future generations was again the tribal members. For example, when discussing the river, one tribal member said, “Restored means that the other relatives also have a chance to live better (showing bald eagle and bears), their life has a chance to improve. It’s not about us. It’s about everything that surrounds us like fish nation, deer nation, bird nation, all the living things, and then *generations to come*.” Indeed, part of the GTB’s charter (or mission) is to consider not only the well-being of tribal families, but future generations (Grand Traverse Band of Ottawa and Chippewa Indians).

iii) Create Visual/Audio Mechanisms to Represent the Voiceless

Empty chair

Providing an empty chair in the deliberative space to represent missing voices in one way to encourage consideration of the perspectives of those missing. Empty chair technique is a tool used by some psychologist for grief counseling - an empty chair can represent the missing friend or relative and allow for conversations to be held with those who are no longer present. It is also a technique that has been used in corporate meetings. Jeff Bezos, CEO of Amazon Inc. has been known to dedicate an empty chair in meetings to represent the customer, as “a way of visually compelling every meeting participant and every discussion to reference Amazon's customers” (Koetsier).

Reserving an empty chair in deliberations for an ecosystem or to represent future generations could help to broaden their consideration beyond their present-day, human community. Ease of implementation and low cost makes this strategy attractive for already cost-intensive deliberative events. It also doesn’t require designation of a human representative to speak on behalf of the voiceless, and thus provide an unbiased representation of those not present. However, an empty chair obviously has its limitations - it may serve to broaden who is considered by those present, but it doesn’t allow for the needs and wellbeing of voiceless entities to be integrated into decision-making processes. It could, but the needs and wellbeing of the voiceless would have to intentionally included on the agenda; perhaps repeatedly on the agenda, so that the views of the empty chair are considered for each agenda item.

Recording Nature

Sound and video recordings of nature can also serve as a placeholder for missing non-human community members. Using media to encourage consideration of non-human nature can help to broaden the perspectives of deliberants.

One tribal member interviewed in the “The Ottaway - A River Reborn Film,” spoke to this power of sound and how it shapes her relationship with the river.

“I can hear her giggling, but I can also hear birds and life that’s around here.”

However, one drawback can be, as Todd Kalish, who participated in the Boardman river deliberations, pointed out, that an empty chair cannot convey the unique voice of nature or the emotion that GTB members were able to bring on behalf of nature. (personal interview, March 2, 2020).

Conclusion

The collaborative process of the Boardman River Dams Project was used to come to a shared decision to remove the dams in 2009. Inclusive deliberation continued throughout the planning process and removal of dams, from 2009-2019, and they are still meeting today to discuss the building of a fish ladder and the 2018 Boardman River Watershed Prosperity Plan for future management of the watershed. Because there was a history of distrust between people in the Traverse City region of European descent and tribal members, people we interviewed believed this process was particularly important for building trust and understanding across different ways of thinking. Several of the participants interviewed highlighted the importance of relationships. Three mentioned that their best friends today are people they met through this process.

Just as inclusive and intentional participatory deliberation can catalyze new relationships across cultures, it can also provide an opportunity for deliberants to explore their relationship with non-human nature and in doing so foster an environmental ethic rooted in respect and humility for the Earth. Similarly, giving voice to future generations can encourage deliberants to think beyond the present, and consider the long-term impacts of the environmental interventions under consideration.

While there is no perfect method of including the voice of the voiceless, there are enough strategies today with positive outcomes to argue that a truly inclusive approach must include the voiceless (Dandy and Porth, 2021). There are also other suggestions for representing the voice of the voiceless, such as employing actors, that we did not have the space to critique and consider here. Nonetheless, arguments suggesting that we don’t know enough about how to do it, or that it is too complicated to do it well are no longer legitimate, since the alternative is to continue to ignore these critical perspectives (Gray et al., 2020). Moreover, the more we attempt to include the voice of the voiceless in deliberative processes, the more we will learn about what works well, what the limits of various strategies are, and how this varies by context (because the outcomes are likely to be context specific). This growing knowledge base will help us move closer to a fully inclusive process to consider essential questions about multiple life forms and their ecosystems.

Notes

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¹ See documentary film titled "The Ottaway – A River Reborn." Quote from JoAnn Cook, former Council Member of the Grand Traverse Band of Ottawa and Chippewa Indians. Website: <http://theboardman.org/media-center/videos.html> (website accessed on March 3, 2021).

² The implementation team included representatives from: Grand Traverse Band of Ottawa and Chippewa Indians; City of Traverse City; Grand Traverse County; Michigan Department of Natural Resources; Michigan Department of Environmental Quality; Michigan Hydro Relicensing Coalition; Traverse City Light and Power; and, U.S. Fish and Wildlife Service. It also included the following Ex Officio members: Conservation Resource Alliance; Grand Traverse Conservation District; Grand Traverse County Road Commission; The Charter Township of Garfield; and, Watershed Center Grand Traverse Bay.

³ We spoke to six persons who regularly participated in the deliberative process over a long period of time, three of who were there at the first meeting in 2005. They represented the following groups/organizations: Grand Traverse Band of Ottawa and Chippewa Indians; City of Traverse City; Michigan Department of Natural Resources; Conservation Resource Alliance; and a citizen.

⁴ A documentary film was made about the collaborative process and the larger project called "The Ottaway - A River Reborn Film." The quotes below are from that film. See website: <http://theboardman.org/media-center/videos.html> (website accessed on March 3, 2020). I use the quotes from the film, to illustrate how it was natural for tribal members in particular to raise the voice of the river. In other words, this was not something that someone needed to ask specifically about to hear the voice of the river.