Dandelions are divine

Begun as a guest homily at a local Unitarian Universalist Church, this essay discusses the significance of Henry David Thoreau's 1851 proclamation, "In Wildness is the preservation of the world." It outlines the efforts that have been made, in the nearly 170 years since, to embody that Wildness – efforts across literature, philosophy, theology, science, medicine and agriculture. This new perspective represents a better way of understanding our origins and the very nature of the unfolding, creative, emergent universe. It demands that we rethink our basic assumptions about the relations between human beings and the other-than-human world. Thoreau's proclamation and modern evidence for its correctness also offer a path of reconciliation to ancient wisdom, and opportunities to heal a wounded Earth and our wounded selves.

We are in the midst of an exciting new story being told – and by 'new' I mean about 170 years old (*cf.* Mowe, 2016). It is a story about the way things are and how they came to be; a story in which our much-touted human ingenuity plays a bit part and divinities have only supporting roles. *Wildness* is at the center of this new story. A perennial imagination: creative, improvizational, partially lawless, alive and full of surprises. A wildness with desire, agency and a will to act – present not just in those agents we call 'self-conscious', but in all things from quasars to quarks, cells to ecosystems.[1]

Wildness

In the spring of 1851 Henry David Thoreau first said, "In Wildness is the preservation of the world" (Thoreau, 1862). He said it to what must have been a very confused audience at Concord's Lyceum. For those in attendance, wildness was the very opposite of their world. Wildness was where demons lived: a dark, forbidding and dangerous place. At that time it was not enough to avoid such places; it was every good New Englander's sacred duty and secular right to subdue the wild wherever it was found, to drive it out of its dark corners, to transform and improve it into a pastoral landscape of crops and livestock, towns and villages. Thoreau's talk that evening must have sounded like lunacy and blasphemy, not just against his audience's fundamental religious beliefs, but against their fundamentalist beliefs in human superiority and the power of human technology to remake the world.

Surely we have made some progress since Thoreau spoke those words? But the evidence is mixed and in some cases points to matters being far worse now than in previous centuries. It leads to the dismal conclusion that even at our most ecologically aware and educated best we are little better and maybe worse than Thoreau's perplexed listeners.

Weeds

I recently attended a gathering of environmental studies faculty and students at a small liberal arts campus in New York State's Capital Region. We were outside on a lovely greenspace eating healthy, local food and talking about the sorts of things that environmental studies students and faculty talk about. In this group there was a young boy, four or five years old, who was running around with the familiar fluffy white globe containing the seeds of future dandelions (*Taraxacum officinale*).

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As someone who is both an admirer of Thoreau and who grew up surrounded by the American fondness for lawns, I found myself conflicted. Here was this bit of wild nature, impatient for the wind to scatter its seeds, hitching a ride on a child's urge to play. The common dandelion is the very definition of wildness. It is a perennial plant with tap roots that can grow to a depth of ten feet (3 metres), which, if broken, will send up new shoots (Hourdajian, 2006). Its flower head looks like one blossom, but in fact its hundreds of yellow petals are each complete flowers. Bees and birds love dandelions, but their pollination work is unnecessary since dandelions reproduce asexually (Bradbury, 2015). They can survive in almost any climate and at elevations ranging from sea level to 12,000 feet (3500 metres). Introduced to North America from Eurasia for their nutritional and medicinal value, dandelions contain more vitamin A than almost any other fruit or vegetable. The blossoms can be made into wine; the roots, roasted and ground, used as a coffee substitute (Zachos, 2017). Beautiful in its own way, all parts of the plant have been used for medicinal purposes (Ferree, no date). What a perfect plant! What a wonderful example of wild nature's willful power to preserve itself and to contribute to its surroundings!

But there was another side to the argument, one better known and with stronger sentiments in its favour. I was on a college campus mostly free of such dandelions; a campus that surely spends time and money keeping its lawns looking the way they have for generations, even though much of the US is not hospitable to turf grasses, none of which are native species. But certainly no one in this company would alert the parents and urge them to better control their son's behavior. Should I? More drastically should

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I distract the boy, reprimand or restrain him somehow, this devil child behind the innocence – costing the college money, spreading a vicious weed and this only weeks before graduation ceremonies when the grounds have to look their best?

The facts were on the side of intervention. Annually, lawn care is a $40 billion industry in the US, where 90 million pounds (40 million kilos) of fertilizer and 78 million pounds (35 million kilos) of pesticides are used annually just to keep lawns thriving, bright green and free of insect pests and weeds. Lawns also consume massive amounts of water – more than US farmers use to grow wheat, corn or any other agricultural crop (Staff, 2011). The boy may as well have been spray-painting graffiti on one of the college buildings. He too was wildness itself and acting in the spirit of Thoreau. But he was on the wrong side of cultural values that run deep, even among the ecologically aware students and faculty in attendance that evening.[2]

The 10,000-year problem

Half of all the plant species now growing in North America can be classified as weeds, and agriculture is a leading cause of species extinction worldwide (Millennium Ecosystem Assessment, 2005). How did things come to be this way? Here is a very compressed answer. Ancient and indigenous understandings of a wild, creative and sacred Earth were interrupted, driven underground and nearly eliminated by the slow development of annual-disturbance grain agriculture 10,000–12,000 years ago. With its powerful dualisms pitting crop against weed and livestock against predator, it established attitudes that nature was to be subdued or ignored. And it warned in no uncertain terms that any plant, animal or person interfering with agriculture's need to expand would be evicted, enslaved or exterminated. Because expand it must. The thinking goes something like this: surplus food feeds more people and more people need more surplus food. This is called 'growth' – and it exhausts the soil and makes it unproductive.

The people who harvested the unprecedented energy bounty from extracting soil carbon to grow annual grain crops created large, complex, energy-intensive cultures beginning around 5000 years ago. We study their contributions to philosophy, literature, the arts and sciences, and theology. We point to their works as hallmarks of human civilization, and their influence can be seen in many national and global cultural, educational and political institutions, including the justification and acceptance of dominion over the human and other-than-human world. When our thinking is binary – either/or – it is an echo of the attitudes that began with agriculture. And it is so entrenched in our intellectual, cultural and spiritual DNA that it is mostly invisible to us.

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This is a good time to re-state Thoreau's dictum that in Wildness is the preservation of the world. Why? Wildness is the universe's metabolism of continuous process and productivity. It produces atmospheres, elements, energy-conversion systems like photosynthesis, cells, organs, organisms, ecosystems, social systems, consciousness and self-consciousness from the simplest of ingredients. Over and over again. It is an unprecedented good not just for humans, but for all beings across the galaxies, big or small – be they atom, cell, molecule, plant, animal, ecosystem or ecosphere.

Worldview evolution

Thoreau and the Transcendentalists – and the Romantics before them – were onto this. They read ancient scriptures from around the world and this allowed them to see and experience the natural world with fresh eyes and new perspectives. From there we can chart the course of an ongoing movement toward embodying wildness, not just in poetry or mythology but across the sciences, policy, medicine, manufacturing and agriculture. It can be described as a Copernican revolution, and like Copernicus's insight to put the Sun, not the Earth, in the centre of the solar system, it turns our perspective inside out. With it comes a new age of discovery.

Charles Darwin publishes *On the Origin of Species* in 1859, a radical reconfiguration of the origins and processes behind life. The US's 19th century wilderness movement helps create national parks in the American West, and back east New York State constitutionally declares a part of itself "forever wild." Evolutionary biology and quantum physics in the first half of the 20th century point to a world of process, probability, chance and creativity; and philosophers and theologians seek to explain this world with new systems of thought. Alfred North Whitehead's philosophy of organism is one such system, and it spawns new fields in process philosophy and theology. New voices and ideas emerge in agriculture and ecology: Aldo Leopold, Liberty Hyde Bailey, Sir Albert Howard, J Russell Smith, Eugene and Howard Odum, J Stan Rowe, and James Lovelock to name a few. Twentieth century advances in ecology, evolutionary biology and agro-ecology make possible an alternative agriculture that mimics nature, rather than attempting to subdue it.

Fast forward to 1976. Wes Jackson, a plant geneticist and one of the early founders of the modern environmental movement, returns to his native Kansas to start The Land Institute (https://landinstitute.org/). Jackson and his small team of scientists have sought to solve what Jackson calls the 10,000-year-old problem of agriculture: the mining of soil-carbon with annual disturbance, monocultures and annuals; and with permanent erosion and loss of ecological integrities as a necessary result. Soil, Jackson suggests, is more important than oil. His solution is to replace annual grain crops (that currently take up 70–80% of all the acres in agriculture worldwide) with perennial varieties, and to grow them in mixtures or polycultures that mimic prairie and savanna grassland ecosystems without annual disturbance of soils. After 40 years of slow and steady work, The Land Institute has developed a perennial intermediate wheat grass they call 'Kernza'. It is still a few years away from being made available to farmers, but it is already being grown in test plots around the world and used in food and beverage products in the US. Perennial varieties of sorghum, wheat and sunflower are also being developed at The Land Institute; and around the world, partner institutions are working on perennial varieties of upland rice and other food crops.

Jackson envisions a future when all grain crops are grown in agro-ecosystems, in mixtures, perennially. It is on the horizon. Imagine: our agricultural landscapes not scraped bare every spring and treated with fertilizers and herbicides. More prairie than plough, it is a truly alternative agriculture in which nature's wild wisdom is mixed with human cleverness and humane understanding; where conservation is a consequence of agricultural production, not something that has to be sacrificed to it.

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This approach has found other applications. Janine Benyus introduced the world to the concept of 'biomimicry' and highlighted its use in energy production, manufacturing, medicine and computing (Benyus, 2011). The Microbiome Project at the Mayo Clinic (https://is.gd/9IdE8y) is just one example of medical researchers studying human microbiomes in order to understand their influence on a host of illnesses including gluten insensitivity and rheumatoid arthritis. It is part of the larger reconceptualization of humans not as individuals but as ecosystems. If that sounds far-fetched keep in mind that each of us is composed of about 30 trillion cells and we are host to, according to the most recent study, roughly the same number of bacteria – not to mention numerous fungal, viral and archaean communities in, on, and around our bodies (Sender *et al.*, 2016). We compete and cooperate with these microbiomes and they with us. That is an ecosystem! This echoes Paula Gunn Allen's beautiful statement that "snowflakes, leaves, humans, plants, raindrops, stars, molecules, microscopic entities all come in communities. The singular in reality cannot exist" (Allen, 1992: 107). Philosopher James Feibleman puts it this way: "The smallest human isolate is a culture, not an individual" (Feibleman, 1951: 416). The test for this, he suggested, was long-term or generational survival. An individual cannot reproduce, but a culture, a community, a system can. They can endure. And so our notion of community expands well beyond the human.

Every day there are reports of new discoveries of plant intelligence (Mancuso, 2010), or of the ability of plants and trees to communicate utilizing fungi (Stamets, 2008). Underwater microscopes show coral dancing, fighting and feeding one another (Antonio, 2016). Bacteria communicate with one another (Bassler, 2009). New scientific evidence demonstrates the mental capacities of birds (Jackson, 2016) and the ability of plants to 'count' (Frank and Gorman, 2016). Quantum biology and astrobiology are emerging scientific fields, and ecological economics is working on new concepts and systems that have the potential to understand the value of a bee's or a worm's work to the ecosphere; and to create human prosperity without consuming and poisoning the planet. Technical terms like 'emergence', 'ascendency', 'self-organizing criticality', 'preadaptations' and 'downward causation' are used to make scientific sense of it all. One of the leading thinkers in this movement, Stuart Kauffman, has dared to bridge the gap between science and religion by giving the relentless creativity of the universe a simple name: God (Kauffman, 2008). Wes Jackson thinks we need an entirely new term for the study of this creativity – 'Ecosphere Studies' – and a new curriculum to go with it (see https://is.gd/PgWmBU).

Ecospheric thinking even shows up in Pope Francis's Encyclical Letter Laudato Si': *On care for our common home* (https://is.gd/6CBHH8) – a document that to my old Catholic eyes seems often on the edge of doctrinal heresy. But nearly 170 years after Thoreau it is a way of thinking that has a lot of support and evidence. It is a perspective, in other words, with the power to shift paradigms, to overturn the status quo and present us with better choices for the future.

The perennial imagination

After a 10,000-year extractive interlude we can once again place the wild, perennial work of the ecosphere back in its proper place as the sole source of creativity in all things. There is still much to do, and we wish we could speed things along. But when such a transition arrives in its full expression, changes will come quickly, like a wooden floor giving way after years of hidden decay and rot. This re-centring of the Ecosphere has the potential to heal the ecological and social wounds begun by agriculture and that continue unabated in modern global capitalism; the potential to make us less dependent on destructive extraction; to help us establish standards of morality and justice that protect human dignity *and* our fellow, other-than-human

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Earthlings; and to inspire us to find grace, beauty, love and even divinity in a living, unpredictable – and yes, *wild* – universe. A dandelion in the hand of a young child. Thoreau was right: In Wildness is the preservation of the world.

I will give the last words to Daniel Martin of Martin's Family Farmstand (https://martinsfarmstand.com/), outside Potsdam, NY, USA, describing his technique for growing strawberries. He wrote in a 2016 post on his webpage:

> I grow these berries without any chemicals. One of the things that I do to minimize insect problems is to not mow the adjacent areas more than I need to while the berries are forming and sizing. Wild plants grow in these areas and they give habitat for a diverse community of beneficials and also work as trap crops. Even if it is not nicely manicured I think this wildness is lovely in its own way and produces good berries.

It is hard to argue with that. ■

Notes

1 This essay began as a guest homily at the Unitarian Universalist Church in Canton, NY, USA. I have largely kept the tone of an oral presentation throughout.

2 No children were harmed (or even scolded) in the making of this essay.

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