

12 Art custodians of our rivers

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So, what is one to do when a beloved river that once rushed past mighty cities now trickles from one diesel irrigation pump to another? Or when the glacier at the head of a river slowly retreats into its mountain cirque and sinks away, and a riverbank that once was a cottonwood swale sweet with birdsong is now only a cliff of broken concrete along a darkly muttering river?

Kathleen Dean Moore (2010, 54)

Introduction

The idea that nature can become art in a literal sense precedes the 21st century. It dates to the Land Art and Earthworks movements of the late 1960s that saw artists move out of the studio and museum and away from traditional media and the commercialization of art. Land Art artists adopted the earth as both canvas and medium for often monumental site-specific projects. If these were produced in natural settings, they were not always ecological. As Beth Carruthers observes: "Far from embodying sensitivity to, or awareness of, bioregional complexity, much Land Art of the 1960s and 70s involved what we now recognize as tremendous imposition on local eco-systems" (Carruthers 2006, 6). For example, if the most famous and stunning earthwork sculpture, Robert Smithson's "Spiral Jetty" (1970) in Great Salt Lake in Utah, was meant, in part, to garner attention to environmental damage in the lake's northern section, the process of moving 6,650 tons of earth and rock to create the 4.6 m-by-460 m sculpture obviously constituted a massive manipulation of the terrain. Thus, much land art effectively still operates within the modernist paradigm of human domination over nature, despite often seeking to re-establish a harmonious relationship between humans and the natural world.

Art that specifically addresses environmental issues is called ecological art or EcoArt and, somewhat confusingly for those outside of the art world, is not generally called environmental art. Ecological art possesses a plural mandate, helping to explain the diversity of art practices the category encompasses. It seeks to highlight, protect, and, sometimes, restore vulnerable or damaged ecosystems, while simultaneously advocating a new or renewed, more equitable modus

vivendi between humans and the rest of nature. It is this ethical philosophical aspect underwriting EcoArt that ties it to numerous other environmental movements like ecofeminism or deep ecology, and to contemporary philosophers such as Heidegger, who equally call for a shift away from anthropocentrism and the concomitant technological mastery of nature (Callicott 2004; Hartford 2009). Repositioning the world as a set of interconnected living systems of which we humans are not masters, but simply a part, elucidates why rivers, one of the most visible of the Earth's complex and vital natural systems, form not only sites for environmental analysis and remediation, but also serve as a key metaphor for an environmental epistemology.

Water is central to the EcoArt movement for the simple reasons that, as writer and curator Jennifer Heath neatly sums up, "Water is the world's most crucial and precious resource, the basis for all earthly life. Its preservation and protection is our greatest environmental challenge" (Heath 2014, 6). Even before discussions of climate change emerged, environmentalists were preoccupied with water problems caused by industrialization such as pollution and overuse. Artists too addressed water issues early on, for example, Joseph Beuys's performance-action to clean up the Elbe River in Hamburg back in the early 1960s, or Helen and Newton Harrison's projects on watersheds in the 1970s that already integrated a bio-remedial or restorative dimension (Ingram 2013).

The many realities of climate change: from increased droughts and storms, rising sea levels and melting ice caps, to the drying up of water sources caused by raising temperatures, or to the plausible spectre of war over water rearing its ugly head, have clearly imprinted the dire future consequences of inaction on human consciousness; but not enough, unfortunately, to sufficiently rouse political, corporate, and individual will to action. Economic interests, the quest for easy living, and the rampant consumerism of which we are all guilty prevail over stewardship of the earth whose very resources enable our excess.

Ecoartists have therefore to produce work, which, in addition to being ecological, must incorporate a pedagogical and political dimension. They have been quite successful to date in that governments, activist groups, and local, national, or international environmental organizations are increasingly recognizing the positive impact that art and artists can have on environmental policies and practices. Numerous organizations have now been established to bring scientists and artists to work together for the sake of climate change and other environmental issues; amongst them are Cape Farewell (UK), Common Ground (UK), ArtsCatalyst (UK), Ars Bioarctica (Finland) Symbiotic A: Center for Excellence in the Biological Arts (Australia), EcoArts Australis, the Australia Network for Art and Technology, and the National Science Foundation Antarctic Artists and Writers Program (USA).

However, if the crisis of water and ecology more generally needs art as many scholars now claim (McKibben 2005), both scientists and artists understand that meeting contemporary environmental challenges requires a multi-pronged approach and, more importantly, concrete action, new regulatory systems, and a profound change in human thought and practices. To introduce and assess the

diverse ways in which ecoartists are addressing the endangered ecologies of rivers, and their effects on those communities dependent upon them, this chapter examines a set of specific river art projects: Basia Irland's "Receding/Reseeding" (2009) and "Gathering of Waters" (1995–2000) on the Río Grande and Watershed Sculpture team Daniel McCormick and Mary O'Brien's "The Nature of Art" (2015) on the Truckee and Carson rivers in Nevada. Please note that, while I have specifically chosen these artists to highlight the rich spectrum of ecological art, limitations of length alone have prevented me from including other artists who have done vital work on rivers, their surrounding wetlands, or on other waterways; such as Betsy Damon, David Haley, Dominique Mazeaud, Aviva Rahmani, Lillian Ball, Ichi Ikeda, Tim Collins, and Reiko Goto, to list only a few.

Rivers possess metaphorical resonance across cultures. A subject of art, poetry and literature, and a site of ritual, relaxation, and religion, the flowing waters of the Earth's rivers provide the clearest mirror of human life and experience. Echoing the fluid systems of our own bodies, rivers have often symbolized life and life cycles, manifesting simultaneously our connection to and oneness with the world, and our inability to ever really see the whole picture. Awareness of the unique symbolic and cultural capital of rivers and water, more largely, informs the work of the artists treated here, particularly that of Irland, emphasizing that this evocative dimension of rivers must be considered in answering the larger theoretical questions underwriting the study, namely whether art is indeed capable of changing the world by changing us, or of articulating the interdependence at the heart of life and life systems obscured by present forms of knowledge, and of helping to open up a way through the water crises plaguing the planet in the 21st century.

Basia Irland: remembering and remediating the Río Grande

Basia Irland, who grew up along Colorado's Boulder Creek, is an Albuquerque-based multidisciplinary artist and Professor Emerita of Art at the University of New Mexico, where she founded the Art and Ecology Program. Like Watershed Sculpture, Irland has dedicated her life and art to water. Focusing on rivers, her art addresses myriad water issues from water rights and waterborne diseases to water pollution and scarcity. Underwriting Irland's films, performances, community actions, scrolls, archival objects, installations, and sculptures is the need to teach people about, and bring them together around, the importance of respecting and preserving water. Working with biologists, ecologists, and environmental groups, but also politicians, civil servants, architects, civil engineers, and musicians, Irland has been undertaking water art projects for over thirty years around the world, including in Europe, Africa, Southeast Asia, South America, Canada, and, of course, the United States. Her projects aimed at heightening awareness of waterborne diseases alone have taken her to Egypt, Ethiopia, India, and Nepal. The *art* outcomes of these outreach endeavors range from scrolls bearing greatly magnified depictions of deadly, albeit 'beautiful' pathogens, to her film *Bilharzia*

Blues (2000), featuring musicians who tell the story of the disease caused by the parasite schistosomiasis in several languages.

Irland's work reflects the core notion of EcoArt that change comes about not only by fixing ecological problems, but also by altering the very way of thinking from which they emerge. The artist employs several strategies in her attempt to be a catalyst for this deeper, longer-term change: education, community building, reconnecting individuals with their sources of water, and integrating celebratory and ritualistic aspects into her art events as a way of framing water as sacred. Irland's art is therefore inherently ecological, although some work is more palpably or concretely so like, for instance, her building of rainwater harvesting systems. To paint an adequate picture of the range and multidimensionality of Irland's work I will discuss two projects on the Río Grande: the launching of Irland's ice books on the river in 2009; and the social art project that lasted from 1995 until 2000. It is important to note, that both these projects are part of larger and ongoing series, "Receding/Reseeding" and "Gathering of Waters" respectively, that involve the same work accomplished along other rivers and waterways: for example, the most recent "Receding/Reseeding" event was at the River Maas, which forms the border between Belgium and the Netherlands (2016), and the most recent "Gathering of Waters" took place on the Portneuf River, Idaho (2016).

First, however, we turn to the Río Grande, a river with an almost mythical appeal because of its importance in North American Native and Colonial history. The Río Grande or "Big River" is the "5th longest waterway in North America" (Penn 2001, 224). With a length of 1,885 miles or 3,034 kilometers, and possessing many tributaries, it constitutes one of the most important waterways of the southwest United States and northern Mexico, where it is known as the Río Bravo del Norte or "Furious River of the North". From its source in the San Juan mountains of southern Colorado, it flows through the states of New Mexico and Texas before reaching its mouth in the Gulf of Mexico. The Río Grande forms a natural border between the United States and Mexico, where it partially outlines the states of Chihuahua, Coahuila, Nuevo León, and Tamaulipas. The slew of twin cities along the river border reflect the tremendous economic disparity between the two countries. This disparity explains why the Río Grande, a relatively shallow river, now serves as a crossing point for innumerable Mexican migrants seeking a better life on its northern banks and beyond (Penn 2001, 226).

The Native Americans and even the early Hispanic settlers who established themselves as farmers along the Río Grande employed simple irrigation ditches called acequias in Spanish that had little impact on the river and its ecosystem (Phillips et al. 2011, 38). Damage to the river began with the American takeover of the region in the mid-19th century that saw modern technology and an exploitative commodification of nature penetrate the area. The authors of *Rein-ing in the Río Grande: People, Land, and Water* (Phillips et al. 2011) convincingly argue that many of the ecological problems still afflicting the river today are to be traced back to the building of the railway system in the late 19th century that

supported the industrialization of the Grand Río Basin. Deforestation, devastating to the river and its ecosystem, was not only caused by the sheer volume of wood needed for building the vast network of railway tracks, but also by “the timber barons” who cleared the forests, made their fortune and left, and by the “cattle barons” who sent in millions of animals and caused overgrazing (Phillips et al. 2011, 79). Wealth seeking newcomers looked down on subsistence farming; instead, they instituted large-scale farming made possible in the arid area only by building huge canals to divert water from the river.

The Río Grande responded to these pressures by oscillating between running dry or frequently flooding, both due, in fact, to aggradation, meaning the rise in the river bed that occurs when there is too great a load of eroded sediment, silt and soil in the water, caused here by the stripping of the vegetation that would normally capture the excess material. Huge dams were also built, and, if these reduced the sediment in the water, they caused new problems such as the waterlogging and salinization of fields. Technology was again employed to ‘fix’ the problems by, one, the creation of irrigation districts that concentrated on the “construction of massive levees, elaborate diversion works, and a network of drains” and, two, the complete reengineering of the river “straightening and channelizing it, even excavating it far below the water table to suck back the water lost by seepage from the aggraded original channel” (Phillips et al. 2011, 200). While the straightening of the Río Grande made water delivery downstream more efficient and prevented flooding, no one considered “the dry winding channels of its previous self-created course” or “the fish, the birds, the plants that had formerly depended on the myriad of habitat niches along the diverse meandering channels” Phillips et al. (2011, 139). In sum:

With each technological fix, the original Río Grande receded a step and so did its intrinsic ecological and aesthetic values. By the 1960s the straight, narrow Río Grande, confined between high banks and surrounded by towering levees and dense thickets of saltcedar, was seen by the citizens of Albuquerque only as a fit site to dump their refuse. Today, the general consensus is that reliance on technology went much too far. In line with river restoration efforts throughout the country, more jetty jacks are being removed with cranes, and levees are being relocated to expand wetlands.

(Phillips et al. 2011, 200)

The birth of the environmental movement has meant that dozens of restoration projects for the Río Grande and accompanying legislation have seen the light of day. These have had some positive impact on water quality and quantity, riparian biological diversity, endangered species, and native fauna and flora in the river basin. However, despite these successes, Phillips et al. (2011, 168) conclude that “real restoration has not been achieved”. They explain:

Thousands of acres of riparian habitat remain under dense stands of non-native shrubs. Efforts to restore the links between in-channel and overbank

zones, using high flows to reroute the river, are greatly hindered by houses that have been built on the floodplain, restricting the high flows to fairly pitiful levels. Along most stretches of the river the riparian habitat is confined by levees to a narrow strip along its banks.

Restoration efforts are particularly difficult in the case of the Río Grande because the river straddles several states and two countries and has been at the center of a long history of conflicts over water allocation and competing interests and demands. Continued urbanization along the river places far too great a demand on the river’s waters, and the already felt symptoms of climate change only add more uncertainty to its future. This short history of the Río Grande mirrors that of all other rivers whose ecosystems have also been adversely affected by industrialization, water overuse and the human impetus to engineer nature. Depicting the realities that ecological artists are courageously challenging, the story equally sets the context for Irland’s social art projects along the fabled waterway.

The book is a recurring motif in Irland’s work. The artist began by making books in wood to which she added natural elements. However, Irland’s ‘books of nature’ came to be carved out of ice and floated down rivers. The whole series of frozen river water books is entitled “Receding/Reseeding” referring to the seeds, pods and grasses adorning the covers or pages of the books that are sent on a journey to replenish the river banks with native species. The title was born with the first ice book project in 2007 on Boulder Creek that was part of art critic and curator Lucy Lippard’s groundbreaking show “Weather Report” about climate change held at the Boulder Museum for Contemporary Art in Colorado. As Irland explains, the impetus for the work was environmental: “I was inspired to create *Tome I* due to the fact that the Arapahoe Glacier is melting so fast, and it provides about 70% of Boulder’s drinking water, so when it has disappeared, from where will the city obtain its water?” (Personal communication with the artist, June 10, 2016).

Landing where they will as the ice melts, the seeds hopefully take root along the river banks. Irland consults with specialists beforehand to identify the native species that would be the most beneficial in restoring the ecosystem of each river and its wetlands. If up until now, the artist has left it up to nature to place and plant the seeds, she intends to install monitoring systems on the seeds in the future to collect data and assess the scientific impact of the ice books. Irland describes the intended bio-remedial benefits of the “Receding/Reseeding” series’ intended revegetation in these terms:

When an ecosystem is restored and the plants grow along the riverbanks, they give back to us by helping sequester carbon, mitigating floods and drought, pollinating other plants, dispersing seeds, holding the banks in place (slowing erosion), creating soil regeneration and preservation, acting as filters for pollutants and debris, supplying leaf-litter (for food and habitat), promoting aesthetic pleasure, and providing shelter/shade for riverside organisms, including humans.

(Irland n.d)

In the case of the Río Grande books' launch at Albuquerque, New Mexico in June 2009, what Irland calls "the ecological language" or "riparian text" of the ice sculptures was composed of Fremont cottonwood seeds (*populus fremontii*), desert willow (*chilopsis linearis*) seeds and seed pods, lemonade berry (*rhus trilobata*), and riparian grasses. Moore (2013, 54), in an article on Irland's work, makes the parallel between seed and text. She writes:

A seed is a conveyance system for information. It is words taken wing – words written in the language of adenine, cytosine, guanine, thymine, ancient instructions clasped between hard covers, everything needed to carry a story to a new place where it can take root. Long before writers figured it out, seed-bearing plants had found a way to convey to the next generation wisdom accumulated over millions of years.

Irland produced eleven books. Ten were floated down the Río Grande, while the 300 lb (136.1 kg) ice book "Tome II", bearing cottonwood seeds, was simply set on the bank because it was the season for the latter to take root (Figure 12.1). Left to melt, it "recreated, in microcosm, the right conditions for cottonwood seeds to grow" (Irland n.d.). The Río Grande, like so many other American rivers, had been straightened, preventing its yearly overflow on to the floodplain: cottonwood seeds would therefore land on dry ground, unable to sprout and grow. While the actual making of the ice sculptures is done in the artist's studio, the launching of the ice books is a social, participatory event, bringing together different communities concerned with their water source who would otherwise never meet. Among the eighty or so participants who attended the launch of the Río Grande ice books were "artists, farmers, acequia majordomos, college students, professors, hydrologists, Pueblo members, and hundreds of interested watershed citizens" (Irland n.d.). These meetings, in which participants exchange views on their river's fragile ecology and the importance of native species in restoring its watershed, aim at establishing common ground, facilitating future collaborations and reducing conflict over water rights and other pressing water issues related to the "Big River". This type of community building, inherent in much ecological art, is also vital to Irland who acknowledges that "it is the people with whom I work who keep me going" (Irland n.d.).

The ice books fulfil all the criteria required to be labelled as EcoArt: they are site-specific ecological tools, they involve community building and education, and they try and recast the human relationship with the rest of nature. Like Watershed Sculpture's structures, the artefacts are temporary aesthetic objects and their production possesses a performative and participatory dimension related to performance art, and to what Joseph Beuys called "social sculpture" in which process, social relations, and politics intersect to effect change. The artist showcased her Río Grande ice books' project in a group exhibition at the socially committed Albuquerque 516 Arts Gallery that ran from August 1 to September 19, 2009, and in which she exhibited photographs of the books and their launch, projected a film on her ice book series, and displayed an actual ice book left to melt in

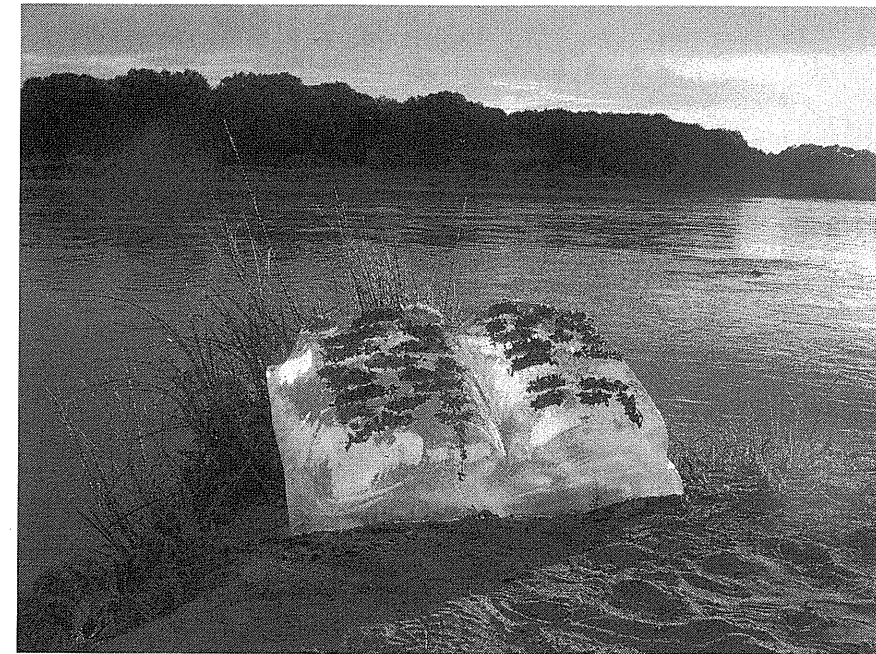


Figure 12.1 Basia Irland. Ice Book TOME II at Dusk. Frozen river water with Fremont cottonwood, 300 pounds, Río Grande, Colorado, 2009.

Source: Author's photo reproduced with the kind permission of the artist

a bucket where the dropped seeds would later sprout and then be returned to the river. Irland always takes full advantage of the art apparatus to communicate her message, most recently in her 2015–2016 solo retrospective show *Reading the River*, at the Museum de Domijnen in the Netherlands that recently published *Reading the River: The Ecological Activist Art of Basia Irland* (2017).

The best known of Irland's projects along the Río Grande is "Gathering of Waters", a five-year-long art project "in which people symbolically carried the waters of the Río Grande/Río Bravo from source to sea", something the river can intermittently no longer do on its own (Gerber 2003, 43). A canteen bottle known as the River Vessel was passed down the whole length of the river; at each stop a celebration would be held in which a little water would be added before being passed to the next community downstream (Figure 12.2). As Irland's documentary film on the project reveals, people carried the River Vessel in multiple ways: on foot or on horseback, by boat, raft or canoe, by car, truck or plane or, still yet, by hot air balloon. At the end of the journey at Boca Chica, a Zuni Pueblo woman handed the River Vessel to Irland waiting in the river. The artist held it up towards the sky as an act and sign of gratitude and respect, before

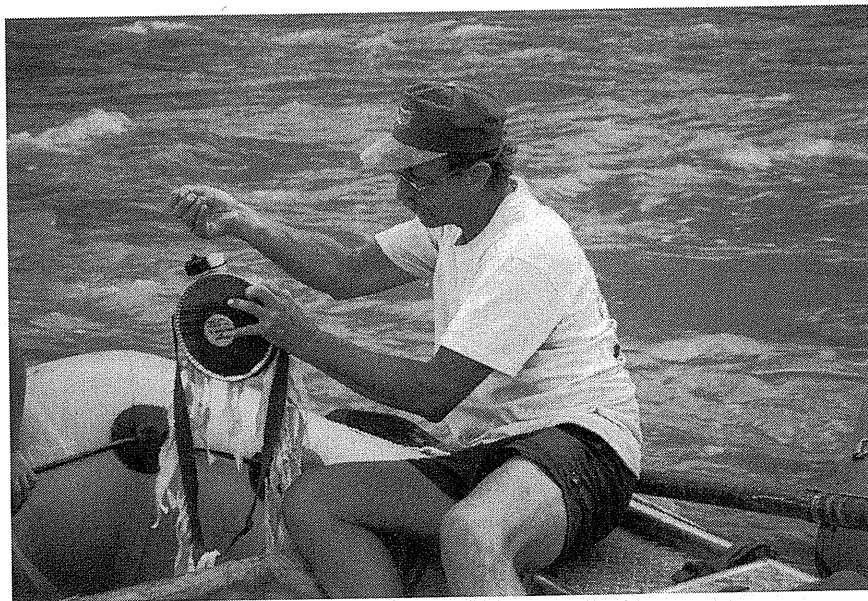


Figure 12.2 River guide adds water to the Canteen.

Source: Author's photo reproduced with the kind permission of the artist

ceremoniously pouring the water into the sea. Accompanying the canteen was a logbook in which participants, inevitably present at the river, would write down their thoughts. These confirm that a "Gathering of Waters" achieved its aim of reconnecting individuals and communities with their river and of raising appreciation of its plight. In her article on Irland, Lisa Gerber quotes several logbook entries that invoke blessings on the water or meditate on its meaning, for example, the one by Matt Schmaden who writes that "we are all connected by the life force of the River - by its nurturing and the legacy of its agelessness and its diverse peoples - and we must give it strength" (Gerber 2003, 48).

A "Gathering of Waters" cut through social, linguistic, cultural, racial, and economic barriers, bringing diverse people and communities together and creating lasting relationships to help save the Río Grande. As Irland says, the participants mirrored the river by "forming a kind of human river" (Irland n.d.). This is social sculpture at its best. While not art in the traditional sense, it is art in the transformative sense, namely a process with the potential of altering how we think about and relate to water. The project's success resides largely in the feelings the project instigated in people towards the river and the actions it spurred. Participants engaged in human creative expression and activity when they travelled with the River Vessel, held ceremonies or clean-up sessions, planted trees, wrote logbook entries, or read poems as did Irland when she crafted small clay

canteens for all the project's participants or made her "Portable Repository", a backpack of ponderosa pine and recycled wood that serves as an archive of the project. In it, one finds maps in many languages, water samples from the Río Grande, hydrographs and photographs, a video about a "Gathering of Waters", as well as tiny cast silver sculptures of the endangered silvery minnow that once filled the Río Grande. In "Portable Repository", science and art again meet.

The work documents the project and provides useful information, but can also be exhibited as a kind of sculpture in art galleries and museums; "Portable Repository" is now, in fact, part of the Museum of New Mexico's permanent collection. Aesthetically and conceptually, the piece reflects important currents within contemporary art that posit art as open-ended, mobile, and interdisciplinary, rather than as an autonomous and hermetic object or field. In addition to performance art and social sculpture referred to earlier, "Portable Repository" evokes a branch of contemporary art, which American art critic Hal Foster describes as possessing an "archival impulse" that seeks to "make historical information, often lost or displaced, physically present" usually through installations incorporating found images and objects (Foster 2004, 4). In Irland's case one might replace the adjective 'historical' with 'geographical' or 'ecological'. The point is that this type of gathering of objects and/or data is an artistic strategy used by other contemporary artists. Finally, "Portable Repository", like the many other portable sculptures that document Irland's participatory art projects, is Irland's archival assemblage of found and manmade objects, and historical, geographical, and scientific data; a human scale installation whose very portability prevents its aesthetic reification. As a physical manifestation and witness of the project, the piece remediates the relationship between humans and rivers, respectful of and reciprocating the gift of water.

Watershed Sculpture: living sculpture on the Truckee and Carson rivers, Nevada

Daniel McCormick, half of the San Francisco-based Watershed Sculpture team, received his Bachelor's degree from the College of Environmental Design at the University of California, Berkeley. Prior to this, he studied sculpture at the University of California, Santa Barbara, including under James Turrell, known around the globe for his art installations produced using light, color, and space. Turrell left a deep and lasting impression on the young McCormick, not so much artistic as philosophical. His partner, Mary O'Brien, who studied studio art, environmental communications, and political science brings, like Daniel, additional skill sets needed for ecological interventions in which art and design, science, policy, and politics meet. Daniel and Mary had worked together in the field of bio-remedial art for decades before founding Watershed Sculpture in 2008. The two effectively met twenty-five years ago, when they were both involved in a restoration project of an urban creek in San Francisco. As the name reveals, Watershed Sculpture specifically broaches problems experienced by urban and rural compromised watersheds, elucidating why they prefer the expressions remedial

art or bio-remedial art over EcoArt, as these refer specifically to “works which restore or recover lands, waters, naturally occurring systems and habitats” (Caruthers 2006, 3).

Many of Watershed Sculpture’s ecological interventions are characterized by large sculptures made of riparian materials that are woven together employing a basket weaving technique and then placed strategically on sites to abet problems of flow, floods, habitat, and sedimentation (Averett 2015). As the artists explain:

We are compelled by the idea of using sculpture in a way that will allow the damaged areas of a watershed to reestablish themselves. As it has evolved, our art has become focused on strategically congregating sculptural components made from riparian materials back into the watershed. They are intended to give advantage to the natural system, and after a period of time, as the restoration process is established, the artists’ presence becomes less and less apparent.

(<http://watershedsculpture.blogspot.com>)

The works, functional and beautiful in their own right, also have zero negative impact on the environment, and evolve to aid in its recovery over time. The sculptures not only harmonize with the surrounding nature, but re-become nature, merging with the landscape out of which they were originally born. The humility of the structures contrasts with the hubris of much contemporary art and architecture and reflects the duo’s ecocentric, rather than anthropocentric, worldview whose propagation and adoption many ecologists consider as the solution to our current environmental problems.

Like Turrell, McCormick and O’Brien deem that art must move beyond aesthetics and bring about change (Selz 2006, 235). The sculptures or interventions of the two artists who consider the watershed “a found object that is to be respected, even revered” focus exclusively on “restoring ecological balance” (Selz 2006, 235). They redefine art: no line here separates conservation or natural systems and art, thereby fully dissipating the traditional nature-culture divide. From this perspective, the art might be said to occur only once the handwrought structures have been transformed by the new growth covering them and become reintegrated into the site and its ecosystem. A critical shift has here taken place: instead of nature being transformed by humans to become culture, cultural man-made artefacts – albeit here made of natural material – are purposed to become nature. The duo feel no need to leave traces or marks of their individuality and then to equate this with art. Their ecocentric perspective that appears rooted in a systems-based thinking and approach, also rejects the dichotomy long upheld in science, philosophy, and art between subject and object or self and world. This vision of the world and of our place in it underwrites ecological art and philosophy, and is very much related to indigenous world views and therefore also to the contemporary indigenization of knowledge project that cannot, unfortunately, be broached here for reasons of length. For the artists, art and nature as well as perhaps art and the artists are neither separate, nor self-sufficient. Instead, they all

form part of larger organic systems, thereby framing existence – whether of world, nature or self – as being produced through its connectivity and interaction with all else. Watershed Sculpture effectively embeds a post-anthropocentric philosophy in their art not only conceptually, but also physically and materially.

Daniel and Mary have worked on various urban and rural watersheds in the United States, mostly in California, but also in the states of Louisiana, North Carolina, and Nevada. The discussion will, however, here be restricted to “The Nature of Art” project (2014–2015) along Nevada’s Truckee and Carson rivers. Part of an overall larger restoration effort, Watershed Sculpture’s restorative structures were executed in collaboration with The Nature Conservancy of Nevada and the Nevada Museum of Art’s Center for Art + Environment. The artists, with the help of hundreds of volunteers, produced and inserted structures at the McCarran Ranch Preserve on the Truckee River, and at the River Fork Ranch Preserve on its sister river, the Carson. These two rivers are linked by the Truckee Canal built as part of the Newlands Project just after the dawn of the 20th century (1902).

The Truckee River runs northeasterly from Lake Tahoe, California, to Pyramid Lake, Nevada, and traverses many landscapes on its 140-mile (225.3 km) course from the Sierra Nevada Mountains to the Nevada desert. Its flow is essential to the communities along its banks, providing drinking water, generating hydropower, irrigating crops, while enabling fishing and other water sports, and maintaining a vital ecosystem for plants, fish, wildlife, and humans. However, echoing the history of the Río Grande, farming, logging, human engineering of the waterway, and unchecked urban growth and development have made it prone to droughts and flooding, affecting both the human and non-human communities it sustains. The Truckee’s century-long history of damage and intervention has left its toll. The State of Nevada Division of Water Resources identifies the Truckee’s major water-related issues as being water diversion (e.g. the Derby Dam for the Newlands Project), lack of upstream storage areas for periods of drought, the growing demand of water in the Reno-Sparks Metropolitan area, and problems relating to water quality, flow, and allocation (State of Nevada 2013).

The Nature Conservancy has restored four areas or properties along the Lower Truckee. Daniel and Mary’s structures are part of the McCarran Ranch Preserve project near the city of Reno, whose restoration, still ongoing today, began in 2003. The problems witnessed at the McCarran Ranch Preserve, as elsewhere along the Truckee, stem mostly from work in the 1960s to straighten the channel as a method of flood control that caused the groundwater “to drop beyond the reach of riverside vegetation”, and caused the “loss of approximately 90% of the riparian forest and as much as 70% of bird species” when compared to 1900 levels (Nevada Nature Conservancy 2016a). Native fish population was also nearly decimated. The conservation team has undertaken many steps to restore the Truckee’s ecosystem. It has reconnected the river to its floodplain to mitigate flood damage and lowered the floodplain while “slightly raising the river’s bottom, and narrowing its width to re-create conditions that can support native vegetation” (Nevada Nature Conservancy 2016a). It has also reconstituted meanders

to enable a natural flow pattern, and brought back native plants to cool the water and improve its quality as well as created riffles and pools to provide habitat for fish.

In spring 2014, after spending time researching the site and river, Daniel and Mary, in concert with Conservancy scientists, began conceiving, designing, and building four remedial sculptures for the McCarran Ranch Preserve, all made from tree cuttings found on site and installed in the river's riparian zones. The following descriptions of Watershed Sculpture's structures are fully based on my personal communication with the artists. The artists built the "Avian Habitat Resource Sculpture" (2015) after seeking advice from and discussing their designs with Elisabeth Ammon, an ornithologist and Executive Director of the Great Basin Bird Observatory whose expertise resides in the restoration of riparian habitats. The structure, made to attract both migrant and resident birds, such as Bewick's Wrens, House Wrens, and Yellow Warblers, is a five-foot sphere of woven cottonwood branches "wrapped with excelsior, coir and human hair" inside of which is staked a 12-foot (3.65 m) perch made of fir and cottonwood (Pers comm 2016). The perch is vital because, as Ammon observes, wetlands are often lacking perches for birds that "like to sit up high and look down to observe insects and fish" (Averett 2015). In fact, while the artists were still crafting the avian habitat, a couple of House Wrens made their nest in the cavity at the top of the carved cottonwood log. The structure also offers habitat and nesting resources to other species: invertebrates, insects, and small reptiles like the Western Fence lizard. The fact that the presence of all these species is beneficial to birds only further underscores the interconnectedness inherent in all ecosystems.

"Multi-Systems Habitat Sampling" (dimensions are variable 2015) consists of three sculptures. First is a fascine, meaning a bundle of bound long sticks or branches used to strengthen embankments and prevent erosion. Made of red willow native only to a small area of Nevada that includes the McCarran Preserve, it has been inserted into the shore of a flood control pond where it provides home and shelter to several small species. Second, is an 'island' of cuttings fastened to the pond's bottom and possessing a perch used by Red-wing Blackbirds and Yellow-headed Blackbirds. Third is the "Log Indicator" sculpture, a partially buried, dead cottonwood tree "segmented in a Fibonacci sequence pattern". The artists carved a small cavity in the top of each section, filled it with a high nitrogen soil mixture to abet the process of decay and capped each one with a carved wooden knob. In addition to encouraging the tree's decomposition, the piece was designed to attract microorganisms, small invertebrates, insects such as nesting ground bees, reptiles like snakes, amphibians like frogs, and birds in an area of little growth.

The third work installed at the McCarran Ranch called "J-Hook Braided Log" (2015) is built in a reengineered, historic scour channel and joins the separate parts of a fallen cottonwood tree to act as a fascine that slows down flooding by guiding water overflow into the upland area of the floodplain. Filling with twigs and leaves, "J-Hook Braided Log" also traps silt and creates habitat. Daniel and Mary use here, as they often do in habitat-enhancing works for

riparian zones, the technique of weaving live-staked Arroyo willow that will allow the willow to grow through and around the sculpture, thereby stabilizing the scour channel, preventing erosion and providing a home for birds – the Willow Flycatcher in particular – and small mammals and reptiles. Two cottonwood branch fascines positioned on opposite banks of a backwater make up the fourth structure on the Truckee River. "Was a Tree" (2015) was conceived to capture biodegradable materials and provide habitat and shelter for Wood Ducks and Western Pond Turtles and other reptiles. However, Daniel and Mary's description of the work reveals other functions of the piece and, more significantly, the necessity for ecological artists to understand each site's specific ecosystem and wildlife:

The walls and fascines are constructed so that they also provide the growing willow saplings shade and protection from browsing deer and foraging beaver. Parts of the sculpture in the water function as turtle crawls. Turtles inhabited the crawls immediately. In addition, the fascine and walls are designed for turtle nesting. Muskrats interact with the sculpture. Snakes use it to sun themselves.

(Pers comm 2016)

The most ambitious work undertaken as part of "The Nature of Art" project is, unhesitatingly, the "Flood Plain Wall" (2014) built for the River Fork Ranch, an 800-acre (323.75 hectares) preserve on the Carson River, near Genoa, acquired by the Nature Conservancy of Nevada to protect wetland, meadow, and riparian habitats damaged directly by overgrazing and indirectly by the river's dredging (Nevada Nature Conservancy 2016b). However, since operating the ranch, the Conservancy has successfully restored or created almost 40 acres (16.1874 hectares) of habitat. The revegetation project supports the region's diverse wildlife – bald eagles, sandhill cranes, leopard frogs, monarch butterflies, and mule deer – prevents erosion of the river's banks, and filters pollutants from the water (Figure 12.3).

Rivers need a place to flood when their flow peaks. Floodplains decrease flooding of developed areas downstream, replenish groundwater aquifers and purify water naturally by collecting silt and pollutants. Their protection is central to the restoration project at River Fork Ranch that now safeguards 800 acres (323.75 hectares) of floodplain. McCormick and O'Brien designed and built "Flood Plain Wall" (2014) to rebuild the floodplain, stabilize banks, slow down floodwaters as well as revegetate the area; over a thousand willow stakes were planted in its making, thereby simultaneously creating a habitat. Set in a restored slough of the Carson, the work's two woven sections, a bifurcated piece 240 ft (73.2 m) long, and a smaller 40 ft (12.2 m) structure, were specifically engineered "to create a willow stand of sufficient size to address the specific habitat requirements of the Willow Fly Catcher" (Pers comm, Mary O'Brien, 2016), but also to provide a home to the endangered Western Pond Turtle and other small reptiles or mammals.



Figure 12.3 River Fork Ranch Flood Plain Wall.

Source: Author's photo reproduced with the kind consent of the artists

The sheer scale of the "Flood Plain Wall" demonstrates that it would be impossible for McCormick and O'Brien to weave their structures alone. Even if it were feasible, it would occlude the community involvement that both ecoartists and conservationists recognize as indispensable to the environmental movement. The artists depend on volunteers who not only build the sculptures, but also play a role in their upkeep and the examination of their progress. The structures for both the McCarran Ranch Preserve and the River Fork Ranch required hundreds of volunteers – businesspeople, activists, students, and other concerned citizens – and thousands of hours. For the artists, this social, participatory aspect of the work is integral to its overall concept and aim. As Mary O'Brien states, "We consider the collaboration an ingredient of our art process, and we're pleased to become a part of the community in this way" (Pers comm 2016). The exhibition featuring "The Nature of Art" project held at the Center for Art + Environment at the Nevada Museum of Art in Reno, Nevada, from December 6, 2014 to April 5, 2015 enabled further outreach; over 47,000 people visited the show, confirming the still relatively untapped potential of the coupling of art and ecology.

"The Nature of Art" project shows that ecoartists are not masters in a studio isolated from the world, but rather are members of an interdisciplinary team for whom scientific research, data and knowledge of the terrain are of prime importance. The Nature Conservancy deems the endeavour a success; it has, in fact, asked Watershed Sculptures to produce an additional sculpture this year. The

straightforward and efficient bio-remedial dimension of Daniel and Mary's sculptures constitutes its greatest asset, offering much hope in the light of current, calamitous climate prognostications and realities. The duo's woven structures prove that seemingly simple, low-tech solutions can have a profound beneficial effect on our rivers and ecosystems without causing, like technology, additional problems, as they equally make manifest the complex oneness of riparian ecosystems in which rivers, their wetlands, native flora and fauna, and human activity are completely intertwined. They also exemplify the benefits of the marriage of art and science in the cause of ecology. Bill Fox, Director of the Nevada Museum of Art's Center for Art + Environment, effectively considers their partnership with The Nature Conservancy as "a model for increasing the role of art in the world by integrating it into the work of environmental organizations" (Pers comm 2016).

Conclusions

The art examined in the present study provides a slice of what is encompassed by the category of ecological art as well as the kind of art projects initiated with the loving aim of protecting our rivers and, by extension, the myriad species – including humans – that they sustain. EcoArt, often produced in conjunction with environmental scientists, can possess a bio-remedial component as seen in the case of Irland, but, more importantly, in the exemplary work undertaken by Watershed Sculpture.

Remedial art, espoused by a growing number of artists worldwide, proves that art can literally change the world for the better. Given the ecological crisis facing humanity, the need to demand our communities and governments, as well as the art apparatus, to facilitate and widely implement restorative art projects cannot be sufficiently stressed. However, if we are to successfully tackle current environmental challenges, humans also need to change. Sacha Kagan expresses this idea using a computer-based metaphor, "The global crisis of unsustainability is not only a crisis of the hardware of civilization, it is also a crisis of the software of minds" (Kagan 2012, 10). Framing art as a process and means to change human minds and habits elucidates the centrality of education, collaboration, and community building in Irland's and McCormick and O'Brien's work, as in that of ecoartists more generally. Akin to bioremediation, these three strategies necessarily involve real facts, figures and logistics. function and functionality are not necessarily direct, overt, or mechanical and, effectively, the pedagogical, collaborative, and communitarian aspects of ecological art are themselves rooted in deeper philosophical concerns seeking to transcend and transform the worldview and classification of knowledge propounded by modernity.

The art projects examined herein implicitly ascertain the need to widen the definition of art, both in terms of the types and number of practices it encompasses. This proposition initially appears in line with modernity in that modern and contemporary artists have been consistently pushing the parameters of what constitutes art; as French philosopher Jacques Rancière states, "Doing art means displacing art's borders, just as doing politics means displacing the borders of what

is acknowledged as the political" (Rancière 2012, 149). But EcoArt is neither interested in redefining art for art's sake, nor striving to be avant-garde – perhaps already an impossibility – a very concept invented by modernism. If it stretches the parameters of what constitutes art, it is solely for the aim of drawing attention to fragile ecologies and the problematic philosophy and practices at their root.

The varied practices of ecological art all aim to recast the relationship between humans and the rest of nature by moving beyond the modern utilitarian and mechanistic worldview that reduces nature "to dead matter in motion" and "a system of inert parts to be externally controlled" (Mpanya 2011, 136). Irland, and McCormick and O'Brien all make art that is intended to deconstruct the ideologically constructed divisive wall between the human and non-human worlds, and to actually see the world through the eyes of (non-human) nature. In each project discussed, the artist is not asking "Who am I?", but rather, "Who is the river, and what does she need and want?" In postcolonial terminology, one would say that the artists are giving voice to the minoritized or subaltern subject of nature. The artists manage, however, to move beyond deconstruction and critique and propose a truly post-modern worldview in which the world or, indeed, the universe is posited as an irreducible whole, akin to the late scientist's David Bohm's theory of "unbroken wholeness" (Mpanya 2011, 139).

The holistic worldview promulgated by ecological art explains its capacity to point the way forward, conveying not only the interconnectivity of the human and non-human worlds, long understood in both indigenous and pre-modern worldviews, but also the inseparable bonds among art, science, epistemology, politics, social organization, and the natural environment. The three custodians of the rivers – Irland, McCormick, and O'Brien – have already understood this and their art, akin to rivers and all other natural systems, ask us to transcend an anthropocentric worldview to experience, instead, oneness and harmony with the perpetual movement and ever-unfolding present of the world and its nourishing, life-giving waters. They corroborate Kagan, who argues that art is not just a medium, but instead constitutes "the active process of interdependences between different dimensions of human crisis that draws us into the search for pathways to a post-fossil fuel age, and on to a new era of human development based on an aesthetics of sustainability" (Kagan 2012, 7). Whether that new era ushers in depends, of course, not on art but on us, the human agents who make it and appreciate its message.

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