Making Earth, 1969–70
Six color reproduction prints of a performance at Pepper Canyon Outdoor Studio at UC San Diego

Survival Piece V: Portable Orchard, 1971
Two photographs of the installation at CSU Fullerton

Photo documentation of *Portable Orchard* with harvesting and feasting at the Art Gallery at CSU Fullerton, 1971
PowerPoint of historical photographs, prepared for the exhibition by Justin Lane-Lutter

Future Gardens grew out of *Making Earth* (1969–70) and the *Survival Pieces* (1971–72) in that they continued the Harrisons' idea of artwork that expresses ecological messages of human survival in a rapidly changing environment. In their later thinking about the global impacts of climate change, however, the Harrisons realized that better adaptation strategies were needed.

Making Earth, a private performance that took place over four months at UC San Diego's Pepper Canyon Outdoor Studio, was Newton's initial personal effort to make topsoil, which was becoming endangered in many places. The ritual-like outdoor daily "happening" is well known today through documentary photographs. It involved a potent assemblage of organic matter, including "sand, clay, sewage, sludge, leaf material, and chicken, cow and horse manure," and followed a set of prescribed movements and gestures. Newton, shirtless, wearing blue jeans and sporting long hair and an overgrown beard, is framed against the backdrop of the La Jolla coast busily shoveling, touching, smelling, and tasting the earth. He later reflected on this performance: "I saw a hand shovel as a metaphor for creating earth (as opposed to an overreaching steam shovel, a tool for destroying earth)."

Portable Orchard (1971) was an installation with harvesting and feasting commissioned by the Art Gallery at CSU Fullerton. The work was composed of eighteen hexagonal redwood boxes, each four feet in diameter and three feet deep (essentially a cubic yard of earth), planted with assorted citrus and avocado trees and topped by a hexagonal redwood artificial light box. Grounded in ecosystems research, *Portable Orchard* was another experiment that imagined a radical lifestyle reorientation to assume personal responsibility for one's own food production and protest harmful and exploitative industrial agriculture—ultimately, indeed, a bid for survival. It anticipated the Harrisons' vision of portable ecosystems and assisted species migrations occurring within the context of widespread future ecological restoration.

Given the manifold effects of climate change, *Portable Orchard* assumes an even larger role today, suggesting alternative harvest-producing solutions for surviving the temperature increase caused by global warming. *Making Earth* and the *Survival Pieces* can be understood as paths for action and also as potent metaphors revealing scenarios of a changing planet in an altered future.

Courtesy the Harrison Family Trust

Future Garden Part 1: Green House Europe, 1995

The Garden of Hot Winds and Warm Rains, 1995
Blueprint

The Garden of Hot Winds and Warm Rains, 1995/2003–8
Colored pencil on paper
Courtesy Roel Arkesteijn

Walking from an Endangered Meadow into a Garden of Hot Winds and Warm Rains, 1995
Blueprint and photo, mixed media, collage

Endangered Meadows of Europe site plan, 1995
Blueprint

Serpentine Lattice, 1995
Blueprint

You Pedal You Purify, 1995
Blueprint

Perturbation and Collapse, 1995
Blueprint

Virus, Ozone, 1995
Blueprint

Extreme Measures, 1995
Blueprint

Garden of Hot Winds and Warm Rains, Compassion, 1995
Blueprint

Early prototypes of *Future Gardens* first appeared in 1994–95 as sketches, drawings, and blueprints for a proposed greenhouse, when the Harrisons were invited to be resident artists at the Kunst- und Ausstellungshalle der Bundesrepublik Deutschland Museum in Bonn. They developed an elaborate design for a quite tall greenhouse, approximately twelve feet in height, which would cover a significant portion of the museum's six-foot-wide perimeter walkway. They collaborated with the paleobotanist Wilhelm Barthlott, director of the Botanical Institute and Botanical Gardens at the University of Bonn, and two of his graduate students to investigate what could live in the region if the temperature rose approximately three degrees Celsius. The proposal outlined three possible futures—*The Sisyphus Garden*, *The Garden of Extreme Measures*, and *The Garden of Hot Winds and Warm Rains*—to describe the expected climate and create an experience that would help visitors picture the outcome of these complex events as they walked through the structure.

Given the projected budget of several million deutschmarks, museum director Wenzel Jacob canceled the greenhouse plan. Thus, this work exists today as blueprint designs and a beautiful color drawing, *The Garden of Hot Winds and Warm Rains* (1994–2008), completed by Viera Westergaard and Gabriel Harrison, then artist-associates at the Harrison Studio.

The Garden of Hot Winds and Warm Rains depicts two possible futures: one ecosystem based on a warm, dry landscape, the other on a warm, wet landscape, both imagined in the next hundred years, when the Earth has heated up and the oceans have risen. The idea of this future garden was to explore "an eco-cultural collaboration" in which "the garden produces food for human consumption in a complex interdependent ecosystem." *The Garden of Hot Winds and Warm Rains* was envisioned next to the companion artwork *Endangered Meadows of Europe*, a so-called representational field sculpture exhibiting wet, dry, and stone meadows that would speak to changes in agricultural practices associated with loss of biodiversity and meadowlands.

Courtesy the Harrison Family Trust

Conceptual design for Future Garden Part 2: A Mother Meadow for the Parks of Bonn, 1996–97
Digital print of a photo-text panel

Endangered Meadows of Europe, Bonn, 1996
PowerPoint of historical photographs, prepared for the exhibition by Justin Lane-Lutter

Endangered Meadows of Europe (1996) became the sole installation of the German endeavor, taking up more than forty thousand square feet at the center of at the Kunst- und Ausstellungshalle der Bundesrepublik Deutschland Museum's rooftop in Bonn. The artists designed a series of narratives about European meadows, displayed as a living, continuously changing color field.

In the process of working on this installation, the Harrisons were introduced to Wolfgang Schumacher, a professor of geobotany and specialist in meadows. He knew of a four-hundred-year-old meadow several hundred kilometers away, in the Eifel region, that was slated to be lost to a major road development. Instead of letting it be destroyed, the artists saved this green space by transplanting it to the museum roof. The resulting living meadow exhibition was accompanied by structures erected on the path to display a series of many-layered stories in tile showing fifteen meadows from other parts of Europe, complemented with poetic texts narrating conversations between the artists, scientists, and meadow masters, as well as the history and cultural function of meadows. When the original exhibition ended, the living rooftop was transferred to a park along the Rhine River in Bonn and seeds were spread in other local parks, improving the green infrastructure of the entire city by increasing biodiversity and reducing the use (and cost) of mowing, fertilizer, and weed killer.

Endangered Meadows of Europe presented a future no longer based on extraction but on practices of production that sustain rather than deplete interdependent ecosystems, thus modelling a harmonious collaboration between human cultures (civilization) and the Life Web (Newton's term for the cultures of nature, which he considered a sentient living being).

Courtesy the Harrison Family Trust

Sagehen: A Proving Ground, 2015
Mixed media and digital print on paper

Exemplifying the concept of *Future Garden*, *Sagehen: A Proving Ground* is a fully developed art project based on the Harrisons' notion of assisted migration of species in response to accelerating global warming. A multigenerational, fifty-year collaborative endeavor to conduct research in the Sagehen drain basin of the central Sierra, the project seeks ecological responses to in some measure replace the value once provided by glaciers and snowmelt to river systems and the ecosystems and human cultures that depend on them.

Sagehen: A Proving Ground models the implementation of a simplified first-succession ecosystem intended to follow the glacier as it retreats. This involves physically moving groups of plant species like wild rose and red fir to higher ground, with the aim of helping the seedlings adapt both to the warming effects of climate change and to growing at different altitudes.

The sites are located on the grounds of the 8006-acre Sagehen Creek Field Station maintained by UC Berkeley. With help of Bret Hall, research director at the Arboretum and Botanic Garden at UC Santa Cruz, and his student team, thirteen thousand seedlings were planted in five designated plots in summer 2011. Each site was located approximately 541 feet above the next, at an elevation between 5577 and 5905 feet. In testing the ability of a representative group of plant species (the "resilience ensemble") to survive heat, drought, flood, and altitude variation, the experiment has so far been successful, with the ensemble not only enduring harsh conditions but showing promising growth.

Nevada Museum of Art, gift of the artists

Sagehen: Independence Lake Watershed, 2014
Video animation by Derek Norpchen, 3:45 min.

The area in which this drama plays out is the Independence Lake watershed, immediately adjacent to the Sagehen watershed in California's Sierra Nevada mountain range. The two screens playing simultaneously show the same region, but express two dramatically different projected outcomes based on two very different management policies carried out over one hundred years, given what we know of global warming: on the left, typical forestry management practices, and on the right, assisting the migration of species. The left screen shows a high-entropy, low-resilience ecosystem, while the right screen shows a low-entropy, high-resilience, and more complex ecosystem.

Courtesy the Harrison Family Trust

First sketch for Tibet is the High Ground, 1991–93
Drawing on paper and map on canvas

Sketch for Tibet is the High Ground, 2009
Archival pigment print on canvas

Proposal for Tibetan Plateau: The Missing Peace, 2006/2016
Three digitally enhanced maps of Tibet

Tibet is the High Ground (1991–93, 2007–12) is another work with a complex backstory that the Harrisons later viewed as an important example of a *Future Garden* dealing with preemptive planning and the assisted migration of species. Commissioned and first shown in 1993, it responded to the Dalai Lama's personal request to help him design a peace park on the Tibetan Plateau. Studying watersheds of seven major rivers that nourish much of China and Asia—the Indus, Yellow, Yangtze, Salween, Mekong, Brahmaputra, and Ganges—the Harrisons discovered that the mass cutting of forests in the Himalayas had caused erosion and dramatically reduced both the purity of the rivers and their ecological well-being. In response, they chose not to develop the peace park and instead advocated for the formation of a transnational group to save the rivers; they also proposed an entirely new work exploring the idea of an "analogue" forest to replace the over-cut woodlands. Even though the analogue forest would be only 20 percent as complex as the original depleted ecosystem, it would behave in much the same way.

The artwork created for *Tibet is the High Ground*, today referred to as *Part I* (1993), was completed in the form of a world map on canvas showing Tibet, the so-called Roof of the World, renowned for its stunning snow-covered mountains, and an exquisite large pencil drawing of Tibet's glaciers and rivers, offering a lyrical meditation on the effects of global warming on snow-covered regions.

Examining the effects of climate change in the Himalayas, the new Tibet work, or *Tibet is the High Ground, Parts II, III, and IV* (2006/2016), depict the region without political borders, proposing that geopolitical entities in the area put aside their differences and unite their resources to counter the drastic deterioration of glacial melt. As a result of this rapid glacier reduction, rivers originating in the Tibet region will become much more erratic in their flow, since rainwater is less predictable than slow and constant glacial melt.

Three large-scale maps visualize the drastic transformation resulting from loss of snow coverage in the mountains. *Parts II* and *III* depict Tibet turning from white to dark brown—a disaster of a cosmic proportion were it to happen. *Part IV* presents the greening of Tibet as a viable solution to the problem posed by global warming. The artists not only drew attention to the impact of climate change on the region's water supply, but also proposed a solution based on the adaptation and upward migration of species. Their principal idea involved reintroducing the forests and grasslands that had dominated an interglacial period thousands of years ago, when the climate was warmer. The specific plan was to assist the migration of a palette of species and create a 772,204 square-mile "sponge" to normalize rivers and secure the lands from flood and drought.

Courtesy the Harrison Family Trust

Future Garden for the Central Coast of California, 2018–ongoing
Three photo text panels, digital print on vinyl

Future Garden, 2018
Video, 3:40 min.
Produced by the UC Santa Cruz Arts Division

In 2018, the Harrison Studio received grants to fund another *Future Garden*, this time in the Arboretum and Botanic Garden at UC Santa Cruz. Newton, with help from research director Bret Hall and other staff, began to propagate plant ensembles inside three donated Buckminster Fuller–style domes. This research experiment was designed to test novel ensembles for heat resilience at a fifty-year predicted temperature increase. Each greenhouse maintains a unique ensemble at 5 to 7 degrees Fahrenheit above the annual average. As species that cannot survive such conditions die off, they will be replaced as the experiment develops. This study focuses on testing a diverse group of plants that should ideally survive in arid and hot regions, comprising a scaffold of species that will act as replacements as others die back. The *Future Garden* intends to make a serious contribution to the well-being of local biotic communities fifty to seventy-five years from now.

Courtesy the Harrison Family Trust

Making Earth, 1980–81
Video, 34:30 min.

This interview with Newton and Helen Harrison, conducted following their 1977–78 *Art Park, Spoils Pile Reclamation Project* undertaking, begins with their rituals around making soil, then explores the evolution of their ecological approach to art and art making.

Courtesy the Harrison Family Trust