Eden 3: Trees are the Language of Landscape

Work by Tim Collins and Reiko Goto With Chris Malcolm



The Tent Gallery, in Art Space and Nature Edinburgh College of Art, Evolution House University of Edinburgh

Exhibition: April 22 – May 25, 2013

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Chris Malcolm developed the sound design and computer programme .

This work has evolved through collaboration with other artists, musicians, scientists and technicians. The exhibition is partially sponsored by Trilight industries, Glasgow. Engineering support for the development of Eden3 is provided by Solutions for Research, Bedford.

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The image on the front cover: A birch tree on a rock at Rannoch Moor. The image on the back cover: Birch saplings in the Trossachs National Park.

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Eden 3 refers to the evolution of human existence. Beginning with Eden 1 the original human condition was integrated with and reliant upon nature. From there Eden 2 appeared the development of human agriculture, settled farming, land ownership and dominion over living things. Then the technical conditions of industrial culture and its economic systems take precedence until the end of the 20th century when we are faced with environmental global change reports that we have entered the age of the anthropo(s)cene, where humanity effects all things on earth. These latter points are the conditions of Eden 3, the age of responsibility, or what Bruno Latour describes as an emergence of a culture that is 'earthbound'. responsible for actions and interrelationships with all living things in this place.

Exhibition Overview

Tim Collins and Reiko Goto are environmental artists working together since 1985. They have lived and worked in San Francisco, California, Pittsburgh Pennsylvania and in the UK. They are interested in the ways that art and imagination contribute to practical wisdom and democratic discourse about ethics and human values. The Collins & Goto studio is focused upon natural public places and everyday experience. The artists often work in relationship with colleagues in other disciplines, communities of interest and in relation to living things.

As you enter the gallery, the exhibition begins with *Apology* (1987) created just after graduate school in San Francisco. It reveals an early interest in ideas about human empathy and inter-relationship with other species. This exhibition emerges from life in a new studio in Glasgow where the artists began to unpack and re-photograph previous work while developing new works about nature and life in Scotland. The link tying all of this together is a belief in art practice as a means to expand and refine the ideas and experiences that define subjectivity and human relationship to 'living' nature. Goto has said, "*By contemplating nature, I renew my own identity.*"

In this exhibition different ideas and theories are embedded in the artwork. In the first room the work from Pittsburgh Pennsylvania deals with ideas about freedom and emancipation of post-industrial nature, reflecting elements of Collins' PhD. *The Nine Mile Run Greenway Project* and 3 Rivers 2nd Nature are art projects that had robust community interest and public impact that occurred at a planning scale. The work was completed while employed as research fellows within the Studio for Creative Inquiry at Carnegie Mellon University between 1997 and 2005. Moving to the UK empathy became a theoretical focus for their practice of art. Goto's PhD clarified the application of

a theory of empathy, and how it can be recognised in the historic artwork that deals with trees as a subject matter. Empathy becomes an essential step to reshape perception and ones' sense of ethical responsibility for the other. Robert Gordon University in Scotland and the University of Wolverhampton in England supported the initial development of that work.

The title of the exhibition, *Eden 3: Trees are the Language of Landscape* is a two-part phrase. *Eden 3* refers to work begun in 2008, an art-based climate initiative developing critical methods, technologies and artwork that support interrelationship and potential for empathic exchange between people and trees. *Trees Are the Language of Landscape* is an idea that arose while working on a critical approach to forest art practice. The artists reason that if the Ogham is the alphabet of trees then plants and trees are the language, which a landscape uses to expresses itself.

There are changes afoot... The iconic Caledonian Forest of Scotland is well understood as a remnant ecosystem. Culturally it is an idea lost in time, with too few images, narratives, objects and metaphors to affirm import. The artists would argue that the arts and humanities are best equipped to 'imagine-with' communities, to put some models in place that explore the future meaning and value of iconic native forests.

Collins and Goto have begun to understand the forests are again on the move enabled by human policies and actions. Scotland has the newest national parks in the world, 2006 forest policies target 25% forest cover by mid-century and 2003 laws provide public rights to access land and water. The forest 'on the move' is a reference to Shakespeare and the Birnam Wood. Here it is used as a metaphor for natural regeneration and future forest enabled by public interest, human policies and action that will shift the aesthetic perception of landscape in Scotland in the 21st Century.

Caledonian Futures: The Forests are Moving

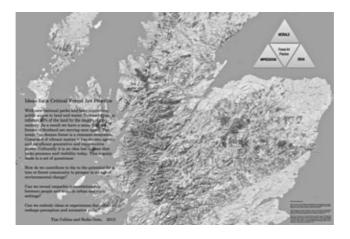
Tim Collins and Reiko Goto Scotland, 2013



Nine Images of the Caledonian Forests of Scotland

The composite image above of the Caledonian Forests consists of nine separate pictures that illustrate Hume's ideas about relations such as resemblance, identity, space and time, quality and numbers, degree, contrariety and cause and affect. The map drawing at the end of this section delineates the current Caledonian Pine woods and the geological/soil conditions that support future forest.

In 2012 Collins and Goto began exploring remnant patches of Caledonian pine forest such as Ballochbuie, Black Wood of Rannoch, Glen Falloch, Glen Affric and others. The process included reading and writing, entering into various dialogues about the relationship between science, art, culture and communities of interest. As they began to think about forests in Scotland the intent was to establish a framework for a critical-forest art practice that embraced



An overview of the project method, set against a map of current Caledonian Pine woods and conditions that support future forest.

current knowledge in science, planning and policy, while looking to elements of philosophy to inform and enable thinking about aesthetic empiricism and the best methods for art-working at scale in a forest landscape. The practice began with observations and photographs of 'extraordinary living things' while considering the components of aesthetic attention. This insight built on work developed in the first of the *Piper-Schelling Experiments* where they asked themselves:

If science informs us of what trees are as a set of things and how they function as a biological organism and a material resource and product — is it aesthetics that is responsible for the pictures in our head, and the potential to differentiate unique and specific experience from the general idea?

Collins and Goto, 2010

This was followed by various readings including David Hume's *Treatise of Human Nature* (1888) where ideas about passions and impressions were helpful when thinking

about forest experience in specific places. The artists sought to enable an aesthetic approach to empiricism and the best methods for art working at scale in a forest landscape. Progress to date includes a set of key questions and some initial answers informing a framework for a Critical Forest Art Practice.

How to contribute to the to the potential for a tree or forest community to prosper in an age of environmental change?

By contributing to the discourse about the cultural import of the iconic Caledonian forest.

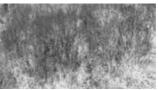
How to reveal empathic interrelationship between people and trees in urban and rural settings?

Explore the relationship between art, aesthetics and public voice in the on-going discourse about future forest forms ethics and virtues.

How to embody ideas or experiences that effect or reshape perception and normative value?

Start by focusing on ideas about art as forest interface in the rural setting and art as forest correspondence in the urban context.





The image on the left: A birch tree on a rock at Rannoch Moor. Image on the right: Birch saplings in the Trossachs National Park.

Lanolin: Do you see Scotland?

Reiko Goto with Sogol Mabadi and Helen de Main Scotland, 2013



Lanolin: Do you see Scotland? (4'x6', fleece)

This artwork is a part of the Caledonia Futures: The Forests are Moving project. It is a commentary on the relationship between landscape, trees and sheep in Scotland. The image of the birch trees (see page 5 right) is also integral to this work. The work emerges from experiences in Loch Katrine with the Native Woodlands Discussion Group in 2010. Walking with a botanist Goto was shown the robust stem and root structures that supported new tree growth once sheep were removed from that area of the new National Park. The removal of sheep from lowland farms and hill farms makes an enormous impact on trees and their ability to regenerate and prosper. Working with an unwashed fleece Goto carefully carded the wool and established the ground for the washed wool Saint Andrew's Cross of the Saltire. The land is the context for culture, and the trees are the language of landscape-that emerges once the pressure of sheep is lifted.

Plein Air

Tim Collins and Reiko Goto Sound composition, and software by Chris Malcolm In development since 2008 the system has undergone iterative design with the support of Baldock, M., Boehm, C., Cullen, C., Hocking, T., and Dagliesh, M. England and Scotland 2008 – 2013



Plein Air: installation in the Ten Gallery with Scots pine, rowan, birch and aspen

Plein Air is an experimental, artwork that explores human relationship with trees. The work has evolved through Goto's PhD study as a platform to understand a tree's role in atmospheric exchange and as a structured approach to empathy and imaginative human response to others. The sculpture consists of a leaf chamber connected to high quality sensors embedded in a traditional painting easel with small computers. The system measures the uptake of carbon dioxide and the release of humidity from a leaf.

Software calculates photosynthesis and transpiration. A sound programme translates data into sound. This sculptural device intends to reveal a tree's silent response to atmospheric changes.

With this artwork the artist-authors sought to explore tree and human empathic relationship by paying attention to shared reactions to environmental conditions such as (light, temperature, humidity and atmospheric carbon dioxide). Trees are alive, yet perceived as non-reactive entities operating within a time scale at the edge of human perception. Humanity affects environment through anthropogenic production of carbon dioxide as a byproduct of industry, transport and development, as well as by breathing. Yet people have little sensitivity to the local, impact, the small-scale cause and effect on atmospheric conditions in our everyday lives. A tree can actively react to small changes (in parts per million) to the amount of carbon dioxide in the air. The research, in both its technical and artistic forms is focused upon elucidating the reactions of trees and creating conditions where attention is guided by aesthetic experience so that empathic exchange might emerge over time.

Chris Malcolm, a computer programmer and sound designer, has been working with Collins and Goto. He has redeveloped the sonic and visual interface for the system. The result is an experience which can be perceived as an evolving sound composition, but where the key data points are clearly heard. The sound is supported by a creative visual interface that reinforces the relationship between bass tones and specific photosynthesis and transpiration data points.

Plein Air: The Ethical Aesthetic Impulse

Reiko Goto and Tim Collins

An exhibition with these digital prints was first shown at Peacock Visual Arts in Aberdeen, Scotland, 2010



Birch-The Dee River Trail (top right), Elm-Robert Gordon University (top right), Elm-The Union Terrace Gardens (bottom left), Maple-and Seaton Park (bottom right)

Collins and Goto explored specific trees with *Plein Air* in different public places between the Don and Dee Rivers in the city of Aberdeen, Scotland. An image of each tree and the sound of the trees' response to CO2 were developed as a part of the exhibition at Peacock Visual Arts.

Spirit in the Air

Tim Collins and Reiko Goto

A four minute video describing the evolution of the second and third sculptural elements of the *Eden3* project 2013



A prototype leaf chamber for Spirit in the Air

This video explains and promotes future work. Spirit in the Air is the second phase of the Eden 3 project. It will engage human to tree relationships through sound that allows users and viewers to sense the response of trees to rapid changes in atmospheric conditions such as carbon dioxide. It is designed as a battery powered hand-held system. This artwork will enable performative experience in parks, groves and forests. The leaf chamber will be redesigned so that the performer's hand and the tree's leaf are intertwined, a series of gestures will concentrate attention on the human/tree relationship. With this project, Collins and Goto continue to investigate and elucidate interrelationship and potential for empathic exchange by monitoring physiological response and sensed reactions to shared environmental context and conditions.

The Piper-Schelling Experiments: A Tree is a Living Thing

Tim Collins and Reiko Goto Philosophical ideas were developed with Pauline Phemister. The time-lapse animation was developed with Adam Proctor. First presented at Peacock Visual Arts, Aberdeen, Scotland, 2010

A Tree is a Living Thing is a time-lapse animation that focuses upon one very large tree set against the Aberdeen City skyline as it reacts to changes that occur over a day. The video opens with view of the sunrise through the spires of Aberdeen. The day goes from quiet and grey to sunny, then cloudy and windy. The tree goes through dynamic changes in relation to both the light and the wind. The sky becomes more and more animated until the piece closes with the sunset reflected in the eastern clouds. The voice over considers ideas relevant to Collins' work on art and the role of artists in the production of aesthetic truth and the distribution of creative freedoms. Complimenting that position is Goto's evolving work on empathy that they both feel provides an interesting intentional framework for practical pursuit of the ethical-aesthetic impulse.



A still from the video, as the morning light illuminates the city. See the video at http://eden3.net/exhibitions/peacock/video/index.html

3 Rivers 2nd Nature

Tim Collins and Reiko Goto STUDIO for Creative Inquiry, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A., 2000-2005

We would claim that the whole region suffered from panoramic myopia. With spectacular views of high hills and bridges, yet no one was really able to see the natural recovery underway there. What we all saw was what was remembered a great industrial estate, and we all assumed that nothing could be good and green along those rivers.

Tim Collins, 2000

3 Rivers 2nd Nature (3R2N), a five year research project, focused on three rivers and 52 streams in Allegheny County, Pennsylvania. The work revolved around cultural agency, discourse theory, and the use of a research-based art practice to advocate for the recovery of the natural environment of the region. The intent was to develop a research initiative that would examine and test the effect that artists can have on the real-world aesthetic conditions



Nine Images of 3 Rivers 2nd Nature
Collins, Reiko Goto, Noel Hefele, et al (2000-2005)

of post-industrial ecology by initiating and developing a process of dialogue and creative authorship. In this project, artists and scientific experts worked with non-profit organizations to develop a new level of attention and interest in water and nature along the Allegheny, Monongahela, and Ohio Rivers in Allegheny County, Pennsylvania, an area which includes Pittsburgh and its surroundings. The plan was to focus upon the idea of green infrastructure as a subject of artist-led interdisciplinary research and analysis integrated with ideas of public discourse.

Research on 3 Rivers 2nd Nature contributed to changes to zoning policies that would protect steep slope wooded land, and riparian woodlands along all the three rivers. The work would enable the assignment of new public parks and strategic land purchases by the Allegheny Land Trust with follow on public access work by other non-profit interests. In this Exhibition Collins and Goto presented four posters:

Nine Images of 3 Rivers 2nd Nature, 2000-2005

The images depict the challenges, opportunities and methods used while working on the rivers. Integrating qualitative and quantitative research methods and an 'on the rivers' approach to the inquiry and public discourse. The team established a presence with a well marked boat on the rivers three days a week; working with scientists to capture water quality data and soil/tree cover conditions. Developing a baseline understanding and database of the 'green and blue infrastructure' of Allegheny County, Pennsylvania. The project was linked with recreational groups, community groups and public access and land conservation groups to deliver research that had potential to shape values and set aesthetic goals for future development on and along the rivers.

Ecology and Recovery: Allegheny County, 2005

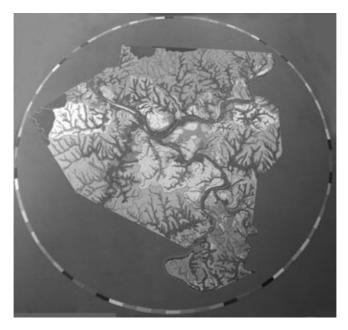
This is an excerpt from one of two final reports that accompanied white papers on land use policy and water quality regulation developed with attorneys within the University of Pittsburgh Environmental Law Clinic. *Ecology and Recovery* focused upon who has access to open space and who does not, as well as the real environmental conditions, opportunities, constraints and zoning policies along the three rivers in Allegheny County, Pennsylvania.

The Living Rivers and Streams of Allegheny County, 2004

A petition/statement initiated during one of *The River Dialogues*. Then refined within our community outreach advisory board and approved by our scientific and academic advisory committee. It became a tool for nonprofit advocates with an interest in protecting nature and enhancing outdoor recreation for citizens.

The Allegheny County Sand Mandala, 3R2N-2005

A sand-painting based on final analysis of the recovering ecosystem in the area. It was a final meditation about place, history, community and the relationship between nature and culture. Each colour represented rivers, streams, floodplains, watersheds and forests along the rivers. As Goto did the work, the audience asked the meaning of the colours and told heer where they lived and what they understood about the place. The artwork was preserented for the 'Groundworks' exhibition curated by Grant Kester. The exhibition contextualized planning scale artworks in Allegheny County amongst an interntional array of social and environmental artists who work in a similar manner with clear intent, creative strategy and actual consequence.



3 Rivers 2nd Nature: Allegheny County Sand Mandala Reiko Goto with Tim Collins and Noel Hefele et al An installation first presented for the Groundworks Exhibition at Regina Gouger Miller Gallery, Pittsburgh, Pennsylvania, U.S.A. 2005

Nine Mile Run

Tim Collins and Reiko Goto, Robert Bingham, John Stephen et al.

STUDIO for Creative Inquiry, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A., 1996-2000

Work on the *Nine Mile Run Greenway* Project began after a public meeting describing the loss of a historic stream to benefit a new development plan. A community based art and design research project ensued contributing to the protection of remnant forest and concept designs that lead to the ecological restoration of Nine Mile Run and its

stream valley. Unfolding over three years, the project team sought to contribute strategic knowledge and in depth experience to public discussions about the development of a new public space. The artwork was embedded in the development of a public imaginary that informed a community plan which was agreed during 'The Final Dialogue' exhibition in 1999. The on-going Nine Mile Run Watershed Association was incorporated as the final act of the project in 2001. The lower valley with 106 acres of land was added to Frick Park in 2013.



The Nine Mile Run Greenway Project: Bingham, Collins, Goto, Stephen et al (1996-2000)

In this exhibition Collins and Goto presented three posters:

Nine images of the project, 1996-2000

The images depict the specific challenges, opportunities and methods used at Nine Mile Run. The problem was 200 acres of post industrial landfill, a remnant stream bed with pollution and raging stormwate flows in relationship to one of Pittsburgh's iconic parks known for its high diversity interior forests and clean streams. Bob Bingham secured an

onsite classroom which became the focal point for an evolving set of creative actions, regenerative land experiments and deep dialogues about future potential. The project team worked constantly with a range of disciplines and community interests to clarify and explore opportunities onsite. Exhibitions and the classroom were all treated as sites of public discourse, collaboration and collective decision maing

Ample Opportunity: A Community Dialogue The Nine Mile Run Greenway Project Philosophy, 1997

The project philosophy was written by Collins, it referenced readings in discourse theory (Jurgen Habermas, Mark Warren, and Richard Sennet) and theoretical approaches to public art (Suzi Gablik, Suzanne Lacy, Heiner Stachelhaus). The text is juxtaposed against a photograph of the Nine Mile Run dumpsite and its remnant valley. The project methods were framed by ideas of sustainability and restoration ecology. The project began over a decade of work in Western Pennsylvania where theories about aesthetics, ecological recovery, and radical approaches to art, planning, and design were tested in discursive-creative practice. The initial work at Nine Mile Run and its focus upon realizing opportunities rather than "fixing" problems became the foundation for new reading and research in the subsequent project 3 Rivers 2nd Nature.

The Journey, 2007

A text juxtaposed against a specific view of the post industrial stream channel. Reflecting on past work, Goto's text describes the process of learning about history, policy, water quality and soil remediation as an artist and a member of an ecological community immersed in aesthetic experience with others. The paper reflects on uncertainty, the co-creation of a community of care and the value of shared leadership. This text was developed for a *Research papers / Leading through practice*, edited by Douglas and A, Fremantle, C. published in a-n Magazine, March, 2007.



Ample Opportunity: A Community Dialogue The Nine Mile Run Greenway Project Philosophy



The Journey

Poison Ivy

Reiko Goto in *Unbound Ground*, Brew House Space 101, Pittsburgh, Pennsylvania, U.S.A. 2001



Poison Ivy (photograph, 11"x17")

I had been thinking that my relationship to nature was too easy and too casual. I decided to befriend a very special plant.

Toxicodendron is the scientific name of poison ivy. Some people have an allergic reaction to the urshiol sap of the plant; raising burn like blisters. The name, "poison ivy" evokes fear for some people.

Poison ivy provides shelter and food to insects, birds and mammals. Homeopaths use the plant for rheumatism, ringworm and other skin disorders, and they consider it to be a powerful remedy. In Japan the plant oil used to produce a type of lacquer called urushi.

The more I learned about poison ivy, the more I realised it had no hateful feelings. Indeed it transformed my own anger. I am still very careful when walking where the plant

occurs in the landscape. I hear the birds that sit safe from human intrusion as they eat the berries. I imagine the caterpillars chomping the leaves and their metamorphosis into moths. I will always remember the day I deliberately chose to have a different kind of relationship with this plant... I carry the strength of the plant with me always, and use it when I experience any negative or hateful feeling. This allows me to relax and enjoy, to walk quietly and listen to all of the others.

A Burdock Jumper

Reiko Goto

Pittsburgh, Pennsylvania, U.S.A., 1994

This artwork was created while Goto was visiting Nine Mile Run. She found burdock (Arctium lappa) seedpods hooked onto her jumper after walking in the area. This biennial plant seemed to travel and regenerate in its own special way. Instead of removing the seedpods from the jumper, Goto added and completed to the plants effort to create the *Burdock Jumper*.



Burdock (Arctium lappa) seeds on a wool jumper

Levitation

Tim Collins

The Headlands Center for the Arts, Sausalito California, U.S.A.,1992



Levitation, a performance by Tim Collins, 1992

An artist is sitting on a sixteen-foot beam balanced eight feet out a third story window. A water trough on the other end of the beam is holding 22 gallons of water, it is leaking. The artist holds his balance against the diminishing weight of the water. Six tape recorders repeat over and over again with increasingly emotional intensity, "levitate."

A sense of balance is an essential skill.

When we talk about balance it can refer to the artist's life and his/her attempts to balance basic need with creative aspiration. We can talk about the metal balance that would drive an individual to sit on a beam outside a third floor window.

We can discuss the compositional balance of the individual framed by the window juxtaposed against the hillside behind him.

We can talk about the balance between the elemental forces of life both within the body and the role of water in the landscape one is not unlike the other, or of any less import.

We can talk about the natural world supporting our societal lifestyle and economic well being, indeed it may seem one's fate is connected to the other; hanging in balance so to speak.

The artist asked each visitor, "Next time you come, bring a gallon of your water; put it in the trough, as I am still reaching for the sky."

Like Oil and Water

Tim Collins & Reiko Goto, 1991 An installation in the exhibition *View Points*, at the Richmond Art Center, Richmond, California, U.S.A.



The White Flag (canvas, 98"x47")



Like Oil and Water, Collins and Goto, 1991 installation at the Richmond Art Center, California, U.S.A.,

The white American flag and a quote etched on a mirror surface were part of an earlier installation called *Like Oil and Water*. The impetus for (but not the focus of) this project was the newly initiated Gulf War against Iraq, set within the context of oil refining industry that permeates the shores of Richmond, California.

In response Collins and Goto were looking for an image of sustenance and individual responsibility. They read the story of Diogenes who lived in a barrel promoting a simple society of the day. They also read excerpts from books describing social ideals and the evolution of ideas about homo economicus with divisive special interests and representation by experts and managers. A large wooden barrel was displayed next to a tower of oil barrels with the sound of the flow of the flow of liquids inside. Within the wooden barrel an old lantern provided just enough light so viewers could see 1000 origami cranes (symbols of peace) reflected against water inside. The white American flag was displayed with the following quote:

What is the matter, you Christian men, that you so greatly esteem so little portion of gold more than your own quietness... If your hunger of gold, be so insatiable that, only for the desire you have thereto, you disquiet so many nations... "I will shew you a region flowing with gold, where you may satisfy your ravening appetites... and when you are passing over these mountains... you shall see another sea...

Hakluyt. (1825) The Historie of the West Indies: containing the Actes and Adventures of the Spaniards in *The Retrospective Review*. (Orig in Latin, translated by Lok, M. London: Baldwin, Cradock and Joy, Paternoster Row. P. 110-111)

Apology

Tim Collins and Reiko Goto, 1987

This work was first presented with the following quote for *Mandala-Healing the Environment*, an exhibition with 40 artists and a group of Tibetan monks. Reiko Goto and Tova Tarr curated the event, seminars and exhibition. Pittsburgh Center for the Arts, Pennsylvania, U.S.A.

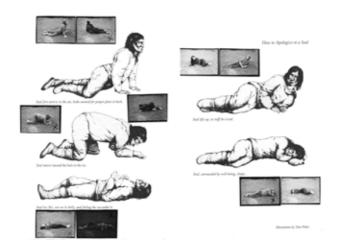


Apology, photo documentation, 1987

Without memory and understanding of the source of our isolation (religion) Without memory and language to describe our collective knowledge (art) We are left to act

upon self, shrouded in the metaphor of dominion Isolated social creatures – seeking a tribe, a herd or a hive

In 1987 Collins and Goto discovered an image of an Inuit man (a hunter) apologizing to a seal. They decided to "feel out this apology" for themselves. To develop this artwork they went back to the idea of communication with other species (Reiko) and the idea of rights for nature (Tim). This physical action reminded the artists that communication would not be always verbal and often transcends species, the reading reminds them that the worlds were defined by boundaries that exist in the mind



The original drawing was from Norman, *H. How to Apologize to a Seal* (1985), in Guss D. (eds.)(1985). *The Language of the Birds*.

California, North Point Press.

Biography

Tim Collins and Reiko Goto Collins are environmental artists, researchers and authors working together since 1985. Over the last fifteen years they have sustained a researchbased approach to art that has focused on the aesthetic conditions of the post-industrial public realm with specific attention to environmental systems such as rivers, forests, and landscapes. The primary themes that inform the research began with the ethical and aesthetic entanglements found in ecological restoration, which brought us to ideas about the emancipation of natural systems from the constraints of industrial culture. This has led to new ideas about empathy between human and non-human entities. The former themes were always pursued in situ, attending to landscape and ecosystem conditions as well as the culture, policies and activities that shaped it. The empathic approach embraces individual living things in nature; working through ideas of subjectivity and subject – object relationships. The most recent work engages the invisible impact of clouds of carbon dioxide on trees.

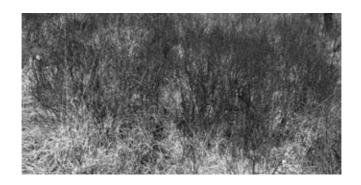
Coming from a studio practice, and various teaching experiences in San Francisco Collins and Goto were on the faculty at Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A between 1993 and 2005. Ten of those years were spent as full time research fellows and primary investigators in the STUDIO for Creative Inquiry. They moved to the UK in the summer 2005 where Collins took up a position as Associate Dean for Research and Development. Collins completed a PhD in art ecology and planning in 2007. Goto completed a PhD focused on art, empathy and trees in 2012. Between them they share skills as artists and authors, Goto also has expertise as a designer, while Collins has expertise as a planner.

Collaborator

Chris Malcolm is a Scottish programming professional with over fifteen years of experience developing vector graphic software for demanding industry clients. He also has an extensive background in experimental music using his programming skills to develop tools and instruments for studio and live performance. Malcolm is recognized within the electronic music scene for his use of retro-computers and consoles to generate 8 bit audio and visual experiences. He is particularly interested in 'chip-tunes', which are centred around synthesizer chips that were integrated into older computers and video consoles in the 1980's; long before the onset of CD quality audio.

The work is driven by a curiosity about human relationships to technology as a tool and a random event generator that opens up new levels of expression that are not available with more traditional instruments. Malcolm claims that the machine inspires the artist, he chooses a platform then works out the limitations of its capability before composing and developing new work. His work is deeply experimental, innovative and rigorous in ways that surprise his peers and audiences alike.

Chris is a member of STFU Music an open collective of electronic musicians and visual artists who use the Internet as their main means of communication. He organized the yearly STFU festival in Glasgow in 2006.



Collins & Goto Studio
Glasgow Sculptural Studios
At The Whisky Bond, Glasgow
http//collinsandgoto.com
http//eden3.net