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Animal Influence I

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Front Cover Image: Karolle Wall, *Yellow Jelly Swirl* © Wall

EDITORIAL

ANTENNAE ISSUE 21

Animal Influence was the title of a conference part of the *Interactive Future* series, organised by Carol Gigliotti, which took place in November 2011 (Vancouver). The conference gathered nationally and internationally recognised artists as well as scholars whose work is influenced and informed by animals, their cognitive abilities, creativity and consciousness. As the introduction of the program stated: "Our particular interest is in how investigations in animal-human relations are affecting the ways in which new media artists are considering broader understandings of other species and creating varying methodologies for experimental art and new media appropriate for these unique circumstances". This issue of *Antennae*, (and the next one, which will be available in September), gathers the great majority of papers delivered at the conference and a selection of artworks which were exhibited at the concomitant art exhibition.

Together, the two issues of *Antennae* constituting *Animal Influence* I & II have been structured in such way to resemble the tri-parted structure of the original conference in which papers were gathered: 'Agency', 'Perception' and 'Consciousness/Compassion'. This last one, for the sake of brevity, has here been surmised by the term 'Mindfulness'. In between scholarly papers, we have placed what's called 'Artist's Pages': a section highlighted by coloured paper in which each individual artist is represented by one or more works (along with an artist's statement) which were on show at the exhibition.

What will become evident to the reader is the great breath and wealth of perspectives, approaches and subjects the conference enabled to surface; a wealth which would have been dispersed if it were not for this publishing project. It is the first time an issue of *Antennae* is entirely dedicated to a conference and it is also with great pleasure that we have collaborated with Carol Gigliotti, who we thank for her kind collaboration, on this occasion. We shall keep this editorial as short as possible and allow Carol to discuss *Animal Influence* in the introduction which follows.

Giovanni Aloi
Editor in Chief of Antennae Project

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INTRODUCTION: ANIMAL INFLUENCE

Animal Influence was the theme of Interactive Futures (IF)'11, held November 17-19, 2011 in Vancouver, B.C., Canada, at Intersection Digital Studios (IDS), at Emily Carr University of Art + Design (ECUAD). Funded by Canada's SSHRC (The Social Sciences and Humanities Research Council), the BCAC (British Columbia Arts Council), and Consulat Général de France à Vancouver, this public outreach weekend of events included an exhibition in the ECUAD's Concourse and Media galleries, a second exhibition at Vancouver's Gallery Gachet, presentations, screenings, performances, live streaming of many of the presentations, and partnering with Antennae to produce this particular issue, reflecting on and documenting this seminal project. Text by Carol Gigliotti

Since 2002, IF has been recognized as an important international venue for new media artists and thinkers. When current Executive Director, Maria Lantin, also Director of the IDS, and Artistic Director, Julie Andreyev, asked me in 2009 to curate IF'11 based on the topics of animal consciousness, cognition and creativity, I was immediately onboard.

The resulting series of events, Animal Influence, engaged with the work and thinking of digital media artists whose work has been influenced by the growing wealth of knowledge on animal agency, cognition, creativity and consciousness emerging from such fields as ecology, cognitive ethology (the study of animal thinking, consciousness and mind), psychology, neuroscience, cognitive science, philosophy, zoology, and others. The workshop offered in-depth conversations and discussions between invited cognitive ethologists, biologists, psychologists, philosophers, artists and public policy makers. Work of many of those involved has helped to shift assumed conventions concerning animal cognition, consciousness, and agency, as well as reveal possibilities for the development of new media art. While there have been a fast growing number of excellent symposiums and exhibitions in North America, Europe, the United Kingdom and Australia that have concentrated on human–animal relationships, to this date no workshop/exhibition has highlighted new methodologies for the development of new media artwork influenced by the growing wealth of knowledge about other species' perceptions of the world. The presentations and discussions, coupled with the exhibitions, performances, screenings and international promotional activity drew in four specific audiences: members of local and international new media and art community of artists; communities of animal related scholars, scientists and public policy makers; audiences from the large contingents of the local and international public interested in animals, human-animal studies and animal advocacy and welfare; and new media audiences interested in new research and developments in digital image, sound, and text, as

Carol Gigliotti
Animal Influence installation view, 2011 © Interactive Futures

well as films, animations, interactive installation, performance, proprietary software, internet-based works, robotics, videos, and mixed reality art works.

Animal cognition, animal consciousness, animal creativity, animal agency! These phrases have been considered oxymoronic for centuries. And in many academic, cultural and scientific conversations they still are. Emerging research in cognitive ethology has been furiously documenting animals' abilities to think, their awareness of themselves and their surroundings, their tool making capabilities, their production of habitats of beauty, their ability to recognize and value various aesthetic qualities, have desires, plan, deceive, and sometimes show great care and compassion for their own and even other species.

How is it that for such long periods of time we have disregarded this knowledge of our fellow species?

Always aware of the power of the non-human world and its influence over us, we enjoy seeing ourselves as the mightiest of beings. Some cultures have understood this non-human power more than others. Richard K Nelson in his book, *Make Prayers to the Raven*, describes how the traditional Koyukon people, living in the villages of Huslia and Hughes on the Koyukuk River, not far below the Arctic Circle in central Alaska,

> live in a world that watches, in a forest of eyes. A person moving through nature – however wild, remote, even desolate – is never truly alone. The surroundings are aware, sensate, personified. They feel. They can be offended. And they must, at every moment, be treated with proper respect. All things in nature have a special kind of life, something unknown to contemporary European Americans, something powerful… (p. 14).

Other perspectives on the power of the non-human have focused on the destructive potential nature holds over human lives and plans. From predation to hurricanes and tsunamis, from viruses to drought and desertification, the devastating realities natural forces can cause have always been the bane of

both rural and urban societies. Human dominion over nature, a way to control and harness the power of nature, has been a major goal for Western civilization since the ancient Greeks. The belief in our species' right to manipulate other life through experiment was in place by the time of the Renaissance. It was the advent of the science-into-technology project developed by Francis Bacon and then René Descartes, however, which allowed the uneasiness still remaining about this right of domination to be overcome. The ultimate goal of science for Bacon was not to understand nature or to gain knowledge of its workings, "but the means whereby human kind could finally bring nature to heel" (Hay, 123).

The violent methods with which Bacon, and those who came after him, activated the 'interrogation' of nature are most evident in the language used to describe these methods. Carolyn Merchant, in her influential book *The Death of Nature*, points to Bacon's proclivity for consistently using female imagery in his descriptions of Nature and the ways in which man will enslave her.
Bacon says:

> For like as a man's disposition is never well known or proved till he be crossed, nor Proteus ever changed shapes till he was straitened and held fast, so nature exhibits herself more clearly under the trials and vexations of art (mechanical devises) than when left to herself (quoted in Merchant, note 9, 317).

Insisting on banishing any qualms about these methods, Bacon argues Nature must be
"bound into service" and made a "slave," put "in constraint," and "molded by the mechanical arts" (quoted in Merchant, note 10, 317).

According to Bacon, nature exists in three forms, - freely, acting badly, and in bondage to man. The first form was the organic view of nature as a living, growing, self-actualizing being. The second form was described by Bacon as "a common harlot." He says, "matter is not devoid of an appetite and inclination to dissolve the world and fall back into the old Chaos" (quoted in Merchant, note 16, 317). Here he sees Nature as the proverbial *bad girl!* The third form was, for Bacon, the desired state of nature: enslaved by art or *techne*, and thus creating something new and artificial. Through these (then) new scientific and technological methods of interrogation, nature could be "forced out of her natural state and squeezed and molded" so that "human knowledge and human power meet as one" (quoted in Merchant, note 18, 317).

Here, the power of nature is recognized, denigrated and forced to comply with human desires and needs. But it was truly Descartes who was responsible for linking these methods to what he would successfully establish as a principle of being, a principle having profound and long-lasting implications on how we think of the non-human world. The dualism of Descartes did not simply separate subject and object, mind and matter, it solidified the dividing line within the human between the rational and the "beastial," and also cemented the divide between humans and the other animals. The notion of *theriophilia*– the view that animals and humans are closely related and are equal in some basic sense and argued by Pythagoras and Plutarch, St. Francis of Assisi, Montaigne and 100 years after Descartes, David Hume – lost out to its counter-notion – *theriophobia*. *Theriophobia* is

> the fear and hatred of animals as wholly or predominantly irrational, insatiable, violent and vicious beings whom man strangely resembles when he is being wicked (Rodman, 20).

Descartes' famous Dictum, *cogito ergo sum*, "I think therefore I am," became the rallying cry for separating the rational mind from the irrational body. The corporeal, both the human body and the physicality of everything non-human, was seen as inert matter – devoid of sensation, mere mechanistic parts to be governed by immutable laws set in motion by God. Like Bacon, Descartes sought knowledge not for understanding the world and our place in it, something previous generations had desired, but instead for furthering what he saw as the more important task of controlling and exploiting nature through the development of science and technology. His goal was, in his own words, to make us "masters and possessors of nature" (Descartes, 41).

In the fifth Discourse on Method, Descartes outlines with remorseless precision his justification for viewing animals as mere mechanisms, unfeeling and soulless. Any kind of investigation of the historical and philosophical foundations of western thought from Descartes onward rests on the comprehension of this pivotal moment, for in this rationalization by Descartes of the moral right humans have for using animals in what ever way they see fit, was the real Cartesian revolution.

The methods of experimental science, those still used and funded in animal laboratories of

Carol Gigliotti
Installation of France Cadet's *Gaude Mihi* © Interactive Futures

all kinds all over the world, were founded on this vision of human superiority. The function of Cartesian philosophy was to clear the way for a science without the constraints of moral guilt about what this meant for other species.

This history, like similar histories of our current predicaments, contains all the beliefs, customs, events and processes with which our current world has been presented to us. In addition, particular histories, like this one, offer us a telescopic view of how these beliefs, customs, events and processes are practiced in what we consider to be essential areas of human endeavor and interest. In this particular history of our modern attitudes towards animals, we can locate a key impetus towards the development of modern technologies, the goal of subduing and dominating a powerful nature whose non-human denizens were constant reminders of us at our worst: "irrational, insatiable, violent and vicious." The irony, of course, is that following that path has led us to environmental disasters of catastrophic proportions, not because animals were or are irrational, insatiable, violent and vicious, but because we have been.

The goal of *Interactive Futures'11: Animal Influence* was to recognize the influence of the growing wealth of new knowledge about animal agency, cognition, creativity and consciousness on the work of new media artists. Emerging from such fields as ecology, cognitive ethology, psychology, neuroscience, cognitive science, philosophy, zoology, and others, this research directly belies the assumptions about animals' minds handed down from the Cartesian foundations of the projects of science and technology. The irony of new media artists creating new forms of response to these very different understandings of animal minds with technologies constructed in direct descent from Cartesian science was not lost on anyone attending the conference, participant or audience member. Working with available technologies such as GPS (geographic positioning systems), interactive social media, interactive animation, interactive video, electronic sensors, underwater sonic recording, software development and robotics, it was clear the artists were searching for something else. Similar to many artists using new media, the artists included in the exhibitions, screenings and

performances of *IF'11: Animal Influence* were seeking new ways of relating to the technology found to be ubiquitous and often problematic in our twenty-first century world. The driving force behind that search for these particular artists, however, is a different understanding of the human place in what we now perceive as a beleaguered and vanishing natural world. What better place to look for and find that understanding than in the other animal nations with which we share this planet? In that sense, among others equally important in this shift, animals have always been, and are now, extremely influential.

Among the many ways I have been considering in support of this argument, my focus for this conference and my future work was/is one formidable way in which animals influence us. The ways in which we understand and relate to animals, are a persistently fruitful avenue for understanding how consciousness, creativity and compassion are intricately linked. Though I would argue with the late ecopsychologist Paul Shepard (1998) on a number of issues, his brilliant insights into the roles animals play in the forming of our consciousness is not one of them. He says:

> Animals are among the first inhabitants of the mind's eye. They are basic to the development of speech and thought. Because of their part in the growth of consciousness, they are inseparable from a series of events in each human life, indispensable to our becoming human in the fullest sense (2).

In response to Shepard, the late writer Ellen Meloy, asks,

> What happens, when, as the experts tell us, at the end of the current millennium most of the plant, animal and bird species we know today are gone? Will this leave us brain-damaged? (41).

My answer is that yes, it will. As we filter our imagination through predominately human-oriented goals and technologies, we risk losing our ability to comprehend the organic, self-reliant creativity we call biodiversity. Biodiversity does not simply surround us, it pervades us. We are one among many of its creative products, and so we also risk becoming, in very real ways, brain damaged if we rid ourselves of all that we consider, wrongly so, not us.

Just one example of this would be the growing global loss of songbirds. Human activities, including hunting, loss of habitat, and the use of pesticides have caused some 500 bird species worldwide to go extinct over the past five millennia. According to a report co-authored by several well-known conservation ecologists and biologists (Pimm), 21st-century extinction rates likely will accelerate to approximately 10 additional species per year unless societies take action to reverse the trend. Songbird species make up approximately half of the total number of bird species worldwide. Songbirds have been singing 150 million years before people. Birdsong is an example of incredible complexity and creativity. Due to the astonishing variations in birdsong, that may be due to the vagaries of history, such as geography, ecology and chance, birds have developed the physiological ability to produce the most complex sounds in nature. Canadian ecologists, John and Mary Theberge tell us:

> Variation can happen in both pitch and volume at speeds that greatly exceed detection by the human ear. We simply cannot engineer any equivalent. A Swainson's thrush…sings a song that includes about forty notes per second. The best we can do with the human voice is about four, and with all ten fingers on a keyboard maybe twenty (67).

What is even more fascinating is that evidence shows that birds can and do receive these messages and then *act* on them. Songbirds sing for a number of reasons, such as mating, defining territory and announcing their presence after a long night. Understanding the complex language of birdsong, the development of the bird song itself and the ability for adult birds to sing appropriately is a learned capability, just as language in humans is learned.

Neuroscientist Leslie Rodgers (2006) tells us:

> Songbirds not only learn; they also use the information that they encounter creatively. Sound learning is also multidimensional—social interaction during the sensitive period is often required for normal song development (n.p.).

But the ability to do that rests on what scientists have entitled mirror neurons, specialized brain cells that appear to enable some animals (including humans, primates, songbirds, and rats, among others species) to reflect the actions and intentions of others as if they were their own. These brain cells also have roles in perception and empathy, the

Carol Gigliotti
Installation of Sandra Semchuck's *Sturgeon River Plains Bison Stewards' Bison Crossing* © Interactive Futures

ability to understand the behavior of others (Iacoboni), components in two highly valued human capabilities, creativity and compassion. The freedom to imagine oneself in the place of any animal, human or not, is a central ingredient of both creativity and compassion.

The fact that we and other animals posses the physiological ability that supports these capabilities is crucial to understanding further that as we disregard the possibilities for creativity, consciousness and compassion of other animals, we run the risk of losing those capabilities ourselves. We have for a very long time committed an error of gigantic proportions by disregarding the power and influence of other animals. One of the most interesting discussions emerging from the two days of the *Interactive Futures'11: Animal Influence* conference involved contrasting perspectives on whether or not we can ever understand other animals' behavior. This is, of course, the "problem of other minds." Coming to prominence in philosophical thought in the early nineteenth century with John Stuart Mill, this particular conceptual concern had its inception in Descartes' separation of body and mind and his refusal to recognize the minds of non-human animals. Various threads of feminism, such as the early work of Christine Overall (1988) and, more recently, Elizabeth Grosz (1994), and a number of Continental philosophers, such as Husserl, Sartre, Merleau- Ponty, did not see "other minds" as an insurmountable problem, or even a problem at all. Feminists often see this "pseudo-problem" as a result of male insistence on individualism, while the early Continental philosophers saw humans essentially as social, psychosocial beings, whose awareness of others is essential to awareness of themselves. What is relevant for this discussion is that scientists like Iacobani (654) are recognizing how neuroscience discoveries of neural mechanisms of imitation and empathy are converging with the cognitive models found in philosophy, the arts and the social sciences. One might add convergence with spiritual traditions as well. What we are learning through neuroscience today is something that groups of thinkers have always known, and that is that we can understand other minds, and those other minds include other

animals. What science is helping us decipher is why that fact cannot be dismissed. We are made to understand each other. It is not too much of a stretch to see why understanding what Henry Beston called, "other nations" might be important as well.

Artists using new media have begun to incorporate the growing body of research from emerging studies in animal behavior, cognition, consciousness and connected disciplines and, in so doing, to ask and attempt to answer a broad array of questions about animals. Our goals were to draw out themes in content and methodologies informing artistic investigations in this area and make more visible and accessible to the public what is often a unique blend of processes, concepts and ideas from many sources. It is these unique, innovative and valuable influences this project sought to document, enhance, and encourage. While the change in human attitudes towards animals has been documented in news media as well as in more academic venues, the idea that animals might possess emotional, moral, cognitive lives is an idea that has been, in the past, either dismissed or associated with metaphorical or symbolic approaches. This emphasis and its combination with technological and media approaches to communicating that emphasis sparked a search for new, provocative, and yet, accessible experiences supporting and encouraging interest and involvement in these ideas.

Three large areas of interest overlapped in all our chosen speakers and exhibitors: perception, agency and consciousness/compassion. Our rationales for selecting people working on these interdisciplinary investigative areas were threefold. First, we wanted to offer a welcoming space in which new media artists could share their novel approaches and methodologies in developing work based on non-human behavior and perception. Second, we were interested in contributing to ongoing knowledge, discussion, and debate in the arts, humanities, social sciences and public discourse concerned with new scientific findings about the cognitive, social and creative behavior of animals, and how those activities may influence human-animal relationships. In fact, a commitment shared by myself and *Interactive Futures* was to highlight new ways of thinking and being with animals respecting that they, like us, are, as philosopher Tom Regan, says, "subjects of a life." That commitment guided all of our major and detailed decisions during the year and a half leading up to the event. One example of this: the entire conference was vegan. Our third rationale was to generate in our participants and audience new interdisciplinary approaches to investigating and representing knowledge about animal's roles in biodiversity that might engender unique solutions to environmental and other problems.

The actual outcome of planning for a large multi-faceted event, as anyone who has done so even numerous times, is never quite the same as one envisions it will be. In the case of *IF'11: Animal Influence*, in my opinion, it was better. This was due to the generous spirits and hard work of many people. We were grateful to the support of ECU's new Vice President Academic and Provost, David Bogen, for his interest and support. Both Maria Lantin and Julie Andreyev were consummate professionals and shared the tasks at hand throughout the year and a half leading up to the fall of 2011, all while continuing to fulfill their multiple duties at ECU. We were particularly lucky to have two graduate students at ECU who provided faultless assistance and without whom IF'11 may not have actually happened. Our Curatorial Assistant, Elisa Ferrari, and our Production Assistant, Stephanie Johnson, were consistently assiduous and gracious throughout the many months, dealing with everything from artist's statements to finding environmentally sustainable coffee cups. Lara Fitzgerald at Gallery Gachet in downtown Vancouver was an excellent partner for the second exhibition. Designer Sandra Hanson and our Web Assistant, Zoe Lee, were particularly helpful in generating promotional materials, both online and off. Our intern, Huan Ming, was indispensible before, during and after the event. A number of technical staff at IDS and ECU provided much needed assistance for live streaming, video documentation (which can be seen here, http://vimeo.com/channels/interactivefutures), exhibition installation, performance technical assistance, digital presentation assistance, and a myriad of other jobs without which we could have not have brought any of this off. Hats off to them and to the many ECUAD student volunteers who stood at doors as human greeters, picked up food for the morning coffee breaks, hung banners and helped to set up food for the opening and closing receptions. The food and monetary donations from a number of Vancouver vegan food establishments and animal rights organizations allowed us to fulfil our commitment to keeping the entire project vegan, and, I might add, absolutely delicious!

When first considering names for the keynote at the workshop of *IF'11: Interactive Futures,* Marc Bekoff's was at the top of the list. Internationally known biologist and author of 22 widely read books on animal consciousness and cognition and agency, he was a perfect first

Carol Gigliotti
Sam Easterson's *Den Cam* in Forefront © Interactive Futures

choice for one of the keynotes, and he graciously accepted. My interview with him published in this issue will give you some idea of the importance of his presence and participation at the conference and events. His keynote set the tone for the entire conference and his generous and intelligent participation, supported by many years of field research, was crucial to discussions about these topics. We were also pleased to be one of the pre-conference events for Minding Animals 2012, of which Marc is an organizer.

Lisa Jevbratt was another easy choice for the artist keynote. Extensively exhibited and published internationally, Lisa is well-known in the new media art world as a software designer and new media artist. In the past several years, she has become immersed in what she calls "interspecies collaboration," both in her artwork and teaching. Her newest project *Zoomorph*, ready in its alpha release for this exhibition, is a suite of software filters for video and imaging software, as well as smart phones, simulating how various kinds of animals see.

While conscious of remaining within the limits of our funding sources' regulations, we attempted, and I think succeeded, in assembling a vibrant interdisciplinary group of presenters fo r the two day workshop, two exhibitions, evening of screenings and the closing evening of performances. Gay Bradshaw, the author of *Elephants on the Edge* and director of the Kerlous Foundation, is both a psychologist and a biologist. Her essay in this issue strikes at the heart of how uninformed we are on the nuances of animals' emotional lives and the effects of their traumas at our hands. Marine biologist, Leesa Fawcett, who is also the Associate Dean of the Faculty of Environmental Studies at York University, offers a fascinating look at the intelligence and creativity in animals that mimic. These three carefully selected scientists were the touchstones for the audience in my vision of the project. They represented, for me, in their long field experience with animals themselves, a counterpoint to the assumptions, stories, myths, dreams, and agendas we bring to our thinking and making about animals.

I had been following the work of the artistic team of Cary Peppermint and Leila Nadir, known as ecoarttech, for at least seven years. Their smart and creative mergings of performance, technology, the natural world and politics are always pushing the boundaries of what it means to be human or animal in today's networked world. Their social media piece, *#TrainingYrHuman*, specifically

developed for this exhibition, is a wonderful example of these traits and their essay here submits insight into their particular take on how complex our relationships with the very individual personalities of the domesticated animals we live with can be.

My colleague at ECU, and Artistic Director of Interactive Futures, Julie Andreyev and her body of work called *Animal Lover*, based on her two dogs, Tom and Sugi, was an important addition to the exhibitions. Julie has been working on this body of work for the last several years and each new piece has been an exciting and meaningful addition. Combining excellent use of videography, social media, interactive installation and computer algorithms, her thoughtful investigations prioritize what her intimacy with them has taught her to consider: their creativity, intelligence and emotional capacity. The exhibit at Gallery Gachet included *Wait*, an interactive installation featuring Tom and Sugi. It investigates with the participant just how fraught that simple word can be.

Joanne Bristol's work has long engaged with her relationship with her cat, Sabre, and interspecies communication and cohabitation. Currently working on a PhD at the Bartlett School of Architecture at the University College of London, Joanne's work in the exhibit, *tune in turn on drop in*, embedded the participant in a feline purring environment, allowing sound to construct an aural feline space in which we could ponder that unique and yet familiar sound of contentment. Her essay, included here, encourages us to rethink notions of space and the built environment though the consideration of animal co-habitants.

Known for his photography and video work, Chris Jones' interactive installation, *Natural Law*, combining the sound of a dolphin whistle inaudible to human ears, a spectograph showing a visual representation of its sound and an audio recording of the *UN 1982 Convention on the Law of the Seas* being read aloud, offered audience members an aural environment of discontent.

Another denizen of the sea, the seal, is the first person visual narrator of Marten Sims video, *Seal Sees the Sea*. The video is shot from what might be the viewpoint of one of Vancouver, BC's Harbour Seals as they swim around the 22km seawall from Burrard Inlet to Kitsalano Beach Park. The playfulness of this approach also reveals to us how our daily activities encroach on the home and lives of other creatures.

Another artist I have been following for many years is the videographer, Sam Easterson. Known for his early animal borne imagery, Sam discontinued that work in 2006 and now plants cameras in natural environments. Having worked as a video naturalist, he is now works as Senior Media Producer at the Natural History Museum of Los Angeles, where he is developing video content for the NHM's new Nature Lab. Julie Andreyev's incredibly interesting interview with him in this issue gives insight into his thoughts about the goals of his work, both personal and professional. He says:

> I believe my job is to help people empathize with animals (and plants) by giving them an intimate view of their lives. …Obviously, you can often get a better idea of who a person is after you visit their house. For me, the same thing is true of non-human animals.

Two videos, Nest Cams and Den Cams, of numerous animals in their nests and dens, welcomed visitors to the exhibit and the ECU concourse gallery, making it clear who exactly were the real V. I. P's of the Animal Influence project.

The work of Bryndís Snæbjörnsdóttir & Mark Wilson is well-known by most readers of *Antennae*, so we were very happy to be able to exhibit at Gallery Gachet the challenging 3 channel video and audio work, *between you and me*. Its involvement with issues of representation and subjection of animals offered viewers means by which to consider the conflicting roles animals play within cultures.

A different perspective on animals and cultures can be found in the work of Merritt Johnson. Though Merritt's important body of work includes video, installation and performance, we included two of her incredibly powerful and visually stunning 2D works, the painting *Escape Attempt* and the drawing on paper *Camouflaged Buffalo*. Her essay in this issue, as she so slyly puts it, "…is an attempt to relate the important information" since she explains writing these stories is not the same as *telling* the stories from Turtle Island she told us last Fall at *IF': Animal Influence*. Merritt told us old stories about the many animal nations of Turtle Island and how we have always been very dependent on their good graces. Contrary to Chomsky's founding of modern linguistics on the idea that speech/language is what separates us from other animals, Merritt says, "[m]y position is that *our* inability to understand does not preclude *their* ability to speak."

The Buffalo Nation and the Bear Nation are featured in Merritt's essay and work, as they are, from a different perspective, in the well-known Canadian photographer and videographer Sandra Semchuck's work. Sandra's work has long been involved with issues around the natural environment and our relationships with animals, especially those

Carol Gigliotti
Installation of Bryndís Snæbjörnsdóttir & Mark Wilson's *Between You and Me* © Interactive Futures

whose homes are above the 42-degree north latitude line. Included in the exhibit at ECUAD was Sandra's most recent and visually stunning piece, *Bison Crossing*, using new lenticular technologies with large lenticular printing presses. Working with the Sturgeon River Bison Stewards using camcorders and sensors, the bison trigger their own images at the Sturgeon River Crossing. A past collaboration with her late husband, James Nichols, and the bear expert, Charlie Russell, produced her powerful film *Aski,* which we were honored to be able to screen during *IF'11: Animal Influence*.

Neil Chung's sculptural work has been involved with our relationships with animals for the last 5 years. This particular piece, *Animal Behavior Playlist*, created specifically for this exhibition, offers viewers a compilation of the hundreds, if not thousands, of videos relating to new research on animals' behavior, creativity, cognition, consciousness and agency. An online participatory piece, Neil is encouraging others to add to this playlist, there by offering online viewers a hub where these revolutionary videos and considerations may be considered.

Since Emily Carr University is located on an island nestled in an inlet of the Pacific Ocean, it is not surprising that many of the works in the exhibition might concern inhabitants of the sea. ***Smack***, a ceramic and electronic-based interactive installation, by Megan Matichuk and Gabrielle Burke, uses the word for a cloud or bloom of jellyfish as inspiration for the consideration of subject/object relations.

Photographer and videographer, Karolle Wall, graciously allowed us to screen four of her intricately luminous videos of the intimate lives of rarely seen sea creatures: the Alaskan skeleton shrimp, in A Matter of Balance; Dendronotus iris, a species of nudibranch (sea slug), in *Dendronotus iris Denronotus balloonis; the* sea nymph, in *Nereus;* and the dance of a nudibranch, in ***'Imush Q'uyatl'un (Walk With Me, Be With Me Slug).*** Karolle's work compels us to draw our attention, as she herself says, "…to our ever increasing need to value patience, caution, and primary observation as significant forms of interacting with the non-human world."

The addictive and mysterious interactive

animations of Myron Campbell are narratives of memory and dreams allowing us portals into those places we have forgotten in which we are all animals. Solving the navigation keys of *Distant Air* bring us closer to a clearer understanding of their meaning, and yet we are left with the questions we always seem to have when pondering the lives of birds in the context of our own lives.

We were also pleased to be able to screen the award winning animation, *The Tannery*, by Iain Gardner. A unique look at the death and afterlife of a fox and the rabbit he meets there, the narrative also allows us a guilty look at the tannery where the fox's skin will be made to live forever, thereby causing our fox no rest in the afterlife.

Paolo Penutti's film, *Rubbernecking,* is a visual and aural poem in the form of a documentary film collage connecting individual realities, all of which are locked unto themselves. Penutti's complex and powerful film proffers an ironic and shrewdly harrowing look at the systems of control in which both animals and humans find themselves.

An extremely generous donation by the French Consulate of Vancouver allowed us to invite an artist whose work has been featured previously in *Antennae* (Gigliotti, 2009a, 2009b), the internationally known artist, France Cadet. We were able to exhibit a relatively recent work, an interactive rocking robot, *Gaude Mihi*, and to bring France to Vancouver for the opening and workshop. *Gaude Mihi* is one of France's redesigned and reprogrammed commercial robot dogs, in some ways similar to the 14 clones of Dolly, the original robots of her well-known pieces, DOG[Lab]1 and DOG[Lab]2, who had the specific characteristics of these species: Dog: 50%, Ewe: 30%, Cow: 15%, Sheep: 5%. *Gaude Mihi*, which means pleasure in oneself, is less about the control of robots (and animals) and more about the possibility of their own agency. As always, Cadet's ironic and ludic take on new technologies is complex and yet clear about the most significant moral questions needing to be asked and answered.

One of the most anticipated moments during the weekend was Deke Weaver's Saturday night performance of *Monkey*, part of his long term series of performances, website and book called *Unreliable Bestiary*. Artist Maria Lux's fascinating interview with Deke in this issue gives the reader a taste of the penetrating intelligence of this consummate writer, performer video, graphic, and spoken word artist. But one has to see Deke perform to appreciate just how far-reaching his talent and perception are. Deke Weaver's addition to the growing canon of artistic works based on our shifting and troubled relationship with our fellow animal nations is nothing short of brilliant. In a 15 minute TEDx talk, Deke explains the goals of the project:

> By 2050 climate change and explosive population growth will push half of the species on the planet into extinction. The lions and tigers and bears of our childhood will be long gone. Central to our myths, embedded in our languages, rooted in our imaginations, what will we do when our dreams disappear? I am trying to find ways of charming people into realizing the complexity and urgency of our situation. I want the project to turn people on instead of shutting them down with fear. *The Unreliable Bestiary* is using humor, poetics and plain old wonder to inspire people to live differently (Weaver).

The workshop was rounded out with presentations from Giovanni Aloi and Rikki Hansen, who both visited through web video chats. Giovanni's interesting and thought-provoking presentation, *Why Look At Plants?* (after John Berger's seminal essay *Why Look at Animals?*) discusses scientific research into plants sensory and communicative properties and contemporary artists' forays into these new discoveries.

Interdisciplinary scholar, curator, and educator, Rajdeep Singh Gill's presentation, *Animal-Human Consciousness, Cognitive Justice, and Earth Democracy* outlined his understanding of consciousness as a shared and participatory relational process, human and non-human, and the important implications this might have for democracy and justice.

Landscape Architect, Kelty Miyoshe McKinnon, in an excellent example of how art and design can have a large impact on ways we may be able to make enormous shifts in our relationships with animals, presented a comprehensive critique of the overwhelming detrimental impact of car culture on wildlife. She offers in the essay in this issue, ***Crossing Species- the ARC Design Competition,*** practical and theoretical considerations of the recent ARC Wildlife Competition: "the first high profile project in the field of architecture and landscape architecture to prioritize the needs of animals." This innovative undertaking allowed us to see, as did all of the presentations, exhibitions, screenings and performances, how crucial it is for us to open up our minds and hearts to animal influence.

I hope you enjoy this issue of Antennae, and take from it inspiration for your own shifts in consciousness, compassion and creativity.

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Dr. Carol Gigliotti, Guest Curator, is a writer, artist and scholar whose work focuses on the impact of new technologies on human relationships with animals and on the lives of animals themselves. It challenges the current assumptions of creativity and offers a more comprehensive understanding of creativity through recognizing animal cognition, consciousness and agency. She is the editor of the book, Leonardo's Choice: Genetic Technologies and Animals and the author of numerous book chapters and journal essays on these topics. Her work is supported by Social Sciences and Humanities. Research Council of Canada, The Sitka Center for the Arts, and The Reverie Foundation, among others. She is Associate Professor in Interactive + Social Media Arts and Critical and Cultural Studies at Emily Carr University of Art + Design, Vancouver, Canada. Gigliotti is on a number of international advisory boards concerned either with media or animal studies.

Agency

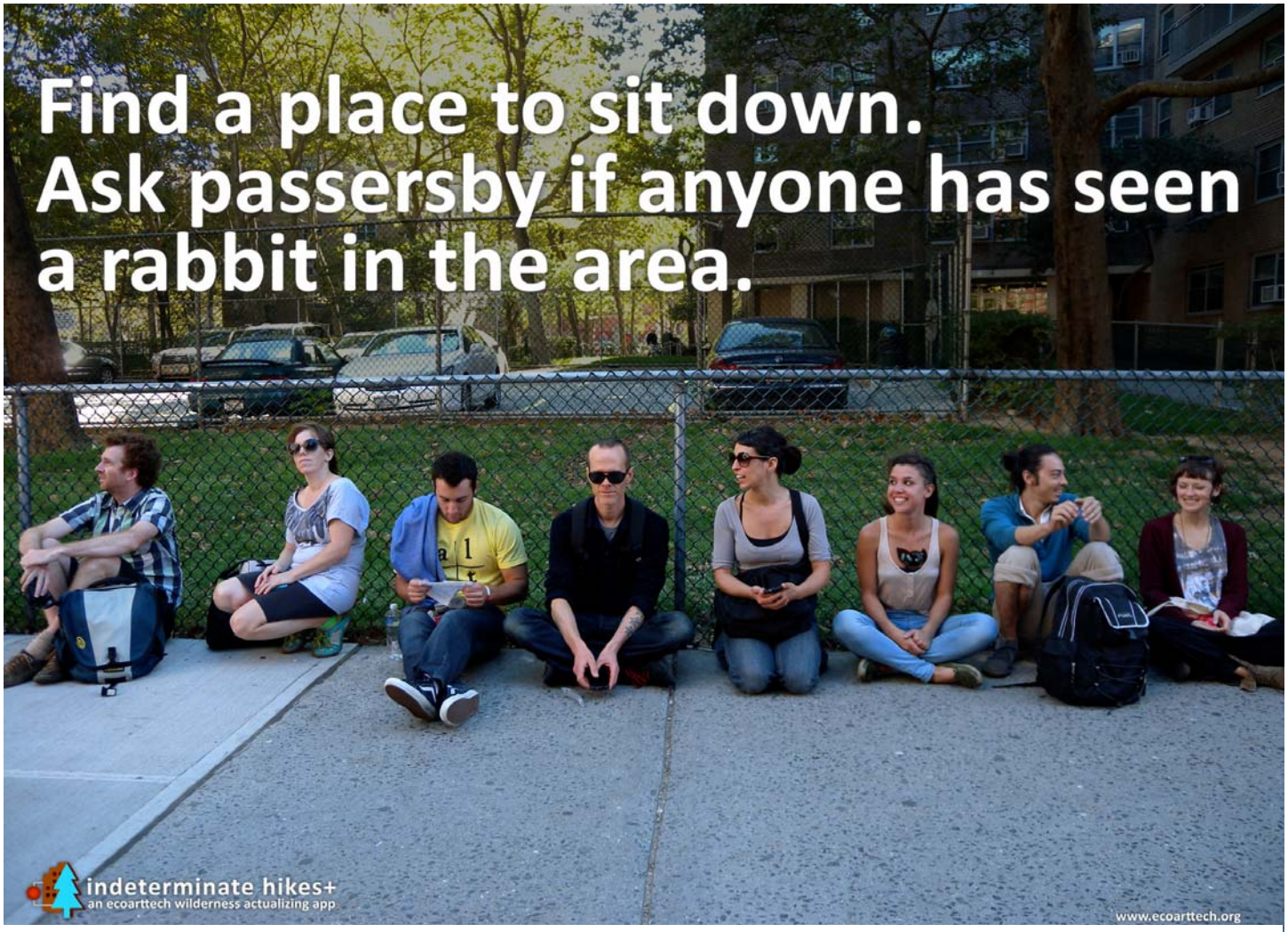
#TrainingYRHuman: AN ANIMAL GENEAOLOGY

The invitation to exhibit work and speak at the Interactive Futures'11: Animal Influence *conference was the impetus for a new social media work by the art/theory group* ecoarttech, *Leila Christine Nadir + Cary Peppermint.* #TrainingYRHuman, *debuted at the opening of the Animal Influence exhibition, and was for Peppermint and Nadir an opportunity to question not only their relationship with one of their group members, Tuffy, a female Akita, but with animals who live with and around humans in general, including wild and farmed animals. Since Akitas, as a breed, are known for their independence and lack of desire to please their human companions, Nadir and Peppermint have found that their dogs have had enormous influence on their lives, challenging many assumptions about the roles of animals in the human controlled world.*
Text by ecoarttech

Posthumanism and Animal Influences

The title of Emily Carr University's 2011 Interactive Futures events—"Animal Influence"—captured, for our collaborative, the indeterminate relations between human animals, nonhuman animals, and the environment—the amorphous, in-flux relations we try to figure in our artwork. The idea that animals might influence humans or that animality might influence or inhabit humanity challenges the long held Enlightenment idea that the humans are free, independent, ahistorical agents with objective control over the world. In his recent book – "What Is Posthumanism?" – Cary Wolf defines the intellectual shift from humanism to posthumanism, introduced by postmodernist thought at the end of the twentieth century, of which "Animal Influences" was a part: "Posthmanism names a historical moment in which the decentering of the human by its imbrication in technical, medical, informatic, and economic networks is increasingly impossible to ignore." As Wolfe explains, refocusing on humans' dependence on and creation by exchanges, systems, and interrelations does not amount to a dismantling of the subject; rather, "the question of posthumanism… actually enables us to describe the human and its characteristic modes of communication, interaction, meaning, social significations, and affective investments with *greater* specificity" (*What is Posthumanism?* xv, xxv; orig. ital.). However, Wolfe points out that paradoxically, posthumanism, as an intellectual perspective, too often "reinscribes the very humanism it appears to unsettle": "debates in the humanities and the social sciences between well-intentioned critics of racism, (hetero)sexism, classism, and all other -isms… almost always remain locked within an unexamined framework of *speciesism*" and the assumption that the "question of the subject is automatically coterminous with the species distinction between *Homo sapiens* and everything else" (*Animal Rites* 9, 1; orig. ital.).

When we founded our hybrid art-theory collaborative, ecoarttech, in 2004/05, our motivation was to work creatively with technology to explore the web of extra-human-ness that shaped, defined, and produced modern human life. We felt that contemporary art-technology practices, indebted to previous entities like E.A.T., or Experiments in Art and Technology, the organization founded four decades ago, often took a congratulatory tone about human innovation; that is, these practices were essentially humanist, celebrating the ingenuity of human technological and artistic inventions. Our version of E.A.T.—Ecology, Art, and Technology, or ecoarttech—sought to posit an ecological and posthuman update to art-technology practices. Rather than celebrating technology and the humans who engage with it creatively, we examine



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(A) Documentary Image from ecoarttech's *Indeterminate Hikes* (mobile phone app), performed in East Village, Conflux Festival, 2010 © ecoarttech

technology's ambiguous role in the quest for a just and sustainable society: how humans are prosthetic animals whose existence is contingent upon "others," both materially and imaginatively, and how technology can displace us from meaningful relationships to environments, and the animals who live in those environments, while at the same time offering new ways to make connections. Rather than viewing the human artist as an independent agent producing inventions devoid of any ecological context, we attempt, through our new media works, to stage the environmental and interspecies relationships that are always already constituting our lives, making them possible, without which we would not be who we are in what Donna Haraway calls "natureculture." In this article, we will show how we attempt to welcome the posthuman influence of animality in our environmental works. We will briefly discuss Cary's early art in the late 1990's and our recent collaborative mobile phone app, "Indeterminate Hikes" (2011/2012), before turning to a more in-depth exploration of *#TrainingYRHuman*, the Twitter-based project we débuted at Emily Carr's Concourse Gallery as part of the "Animal Influence" exhibition.

Early Works

Early in his career, Cary attempted communication with a chicken in his networked performance "Conductor Number One: Getting in Touch with Chicken" (1997). Using telephones, televisions, and the internet, Cary repeatedly "called" the chicken and left her messages on an answering machine, staging the frustrations of exchange between human-animals and animals, as well as the effects of media on communication. In 2006, in one of our first collaborations together, "Wild Info Net," we installed a solar-powered environmental sound installation in the upper Catskills Mountains in New York State, on the Environmental Campus of Hartwick College. The work created a sonic field of information with a constantly playing radio transmission of works by over thirty international artists. The works were the product of the artists

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(A) Cary Peppermint, Conductor Number One: Getting in Touch with Chicken, 1997 © ecoarttech

creating sound art either in the "voice" of the ecological other, either considering their human-animal-ness or attempting to communicate with animals in the woods. Hikers to the site of the installation used wireless technologies and transistor radios to receive the information-art via mp3 downloads and radio transmissions. (See image B.)

Indeterminate Hikes

Indeterminate Hikes +, our more recent (2011/2012) work, is a mobile phone app that transforms the mobile landscape into a series of sites of bio-cultural diversity and wild happenings. Generally devices of rapid communication and consumerism, smartphones, are re-appropriated by IH+ as tools of environmental imagination, meditative wonder, and slow mobility. This mobile app imports the rhetoric of wilderness into virtually any place accessible by Google Maps, creates hikes, and encourages its hiker-participants to treat the locales they encounter as spaces worthy of the attention accorded to sublime landscapes, such as canyons and gorges. Thus the ecological wonder usually associated with wildlife and "natural" spaces is re-appropriated here to renew awareness of the common animals, such as dogs, birds, and humans, and of often-disregarded spaces in our culture, such as alleyways, highways, and garbage dumps. This project extends ecological awareness into mobile spaces, into the places humans actually live, democratizing conversations about environmental sustainability and ecological management that too often occur only in a scientific context. Both in the design of the work, and in the directives suggested to hiker-participants, Indeterminate Hikes + integrates animality into its ecological vision. The app's icons (see image C) include a camera with a tail, a backpacker with antlers and a deer-like head, a magnifying glass with ears, and field notes likened to an animal's prints. As participants hike along the trails provided by the app, through urban and rural landscapes, Indeterminate Hikes provides directives that encourage them to bring nonhuman animals back into their human-animal consciousness: "Ask

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(B) Wild Info Net opening reception in Catskill Mountains with ecoarttech's dogs Tuffy (standing) and Buster (sleeping), Hartwick College Environmental Campus, 2006 © ecoarttech

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(C) Screen grab, Indeterminate Hikes +; (D) Documentary Image from ecoarttech's *Indeterminate Hikes* (mobile phone app), performed in East Village, Conflux Festival, 2010 © ecoarttech

passersby if anyone has seen a rabbit in the area," "Scan the horizon for an animal that has a tail," or "Look for a domesticated animal," among others. (See images A and D.) Whether or not these directives can be literally completed, they stimulate primordial "memories" of the animals who once roamed the earth where our cities now stand.

#TrainingYRHuman

#TrainingYRHuman (2012/2013), the project we débuted at "Animal Influence," is a participatory Twitter-based artwork about the agency of animals who live with human-animals. This work asks participants to tweet animals' strategies for getting what they need and want from humans and was inspired by our two Akita companions, Tuffy and Buster, who are pictured above, and the influences they have had on our lives. We want to emphasize that our relationship to our canine companions acts as a platform for thinking about all animals, including wild and farm animals, many of whom are not so amenable to humanization nor eager to please human beings or willing to pose for pictures or participate in art making. The tendency to focus on relationships to dogs while neglecting to engage other animals can perpetuate a carnist mentality. As Melanie Joy's apt book-title points out, "carnism" is the delusion allowing so many humans to *Love Dogs, Eat Pigs, and Wear Cows* without feeling any personal hypocrisy, contradiction, or remorse. Therefore, our meditation on dogs is undertaken in the larger context of thinking about all animals, not just companion species—a lesson we have learned from our dog-companions. The proximity many of us have to dogs can act as inspiration not only for thinking about their differences and imagining how to live with their unique qualities, as well as to transform ourselves to accommodate their personalities and needs, but also for learning about "significant otherness" in general, as Donna Haraway suggests. In *Companion Species Manifesto,* Haraway articulates how this synecdochical approach to ethical imagination can be taught by our companion species. She asks: "How might an ethics and politics committed to the flourishing of significant otherness be learned from taking dog-human relationships seriously" (3)? In fact, our experiences with the unique Akita dog "breed," a word we use with caution, has forced us to rethink many of the expectations we brought to our relationships with Tuffy and Buster when we adopted them into our family—a rethinking that we now use to question our assumptions about nonhuman animals and animality in general. We feel incredibly thankful for the ways that the special human-dog relationship, an interspecies connection that can teach us about nonhuman animals' consciousness and creativity, has shaken up our stale human behaviors and thought-patterns.

While dogs are far from protected from neglect and abuse in our society, they do receive levels of humanization that other animals do not. Even wild animals appeal to the popular ethical imagination more than farm animals. For example, early in 2012, in a post titled "The 50 Best Animal Photos Of 2011," the social-trend website buzzfeed.com published "a collection of the best animal photojournalism of the year." The photos feature almost exclusively wild animals (primates, lions, pandas, hippos) and companion animals (cats and dogs). Aside from two sheep images and one lamb, the animals humans eat most (pigs, cows, and chickens) are conspicuously absent, denied any representation at all. Yet this tendency to overly humanize dogs can also have damaging effects. The golden-colored Labrador frequently used in the real estate company Coldwell Banker's logo, to represent the ideal human home is one such example.

The Coldwell Banker dog is subservient, easy. S/he fetches your newspaper. S/he looks up at you cutely with puppy eyes, doting. This, in short, is a fantasy: transforming dogs to such pleasing caricatures denies not only their alterity but also their history of use as instruments of war and terrorism. Rather than getting to know them in their differences to our expectations, people too often box dogs into pleasing categories, and the consequences can be tragic. As Haraway relates in her meditation on dogs as work animals and companion species, "the status of *pet* puts a dog at special risk… the risk of abandonment when human affection wanes, when people's conveniences takes precedence, or when the dog fails to deliver on the fantasy of unconditional love" (38; my ital.). On the other hand, this sort of representation is why dogs are saved from being farmed, tortured, and slaughtered in the billions by agribusinesses, scientific research, and consumer-product testing. Breaking from a long line of animal theorists afraid to project human-animal characteristics onto nonhuman animals, biologist Marc Bekoff asserts that historical skepticism of anthropomorphism has provided an alibi for the denial of animals' feelings and thoughts, and the denial of the immense similarities between human and nonhuman

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(E) Dog image used routinely in Coldwell Bank advertisements
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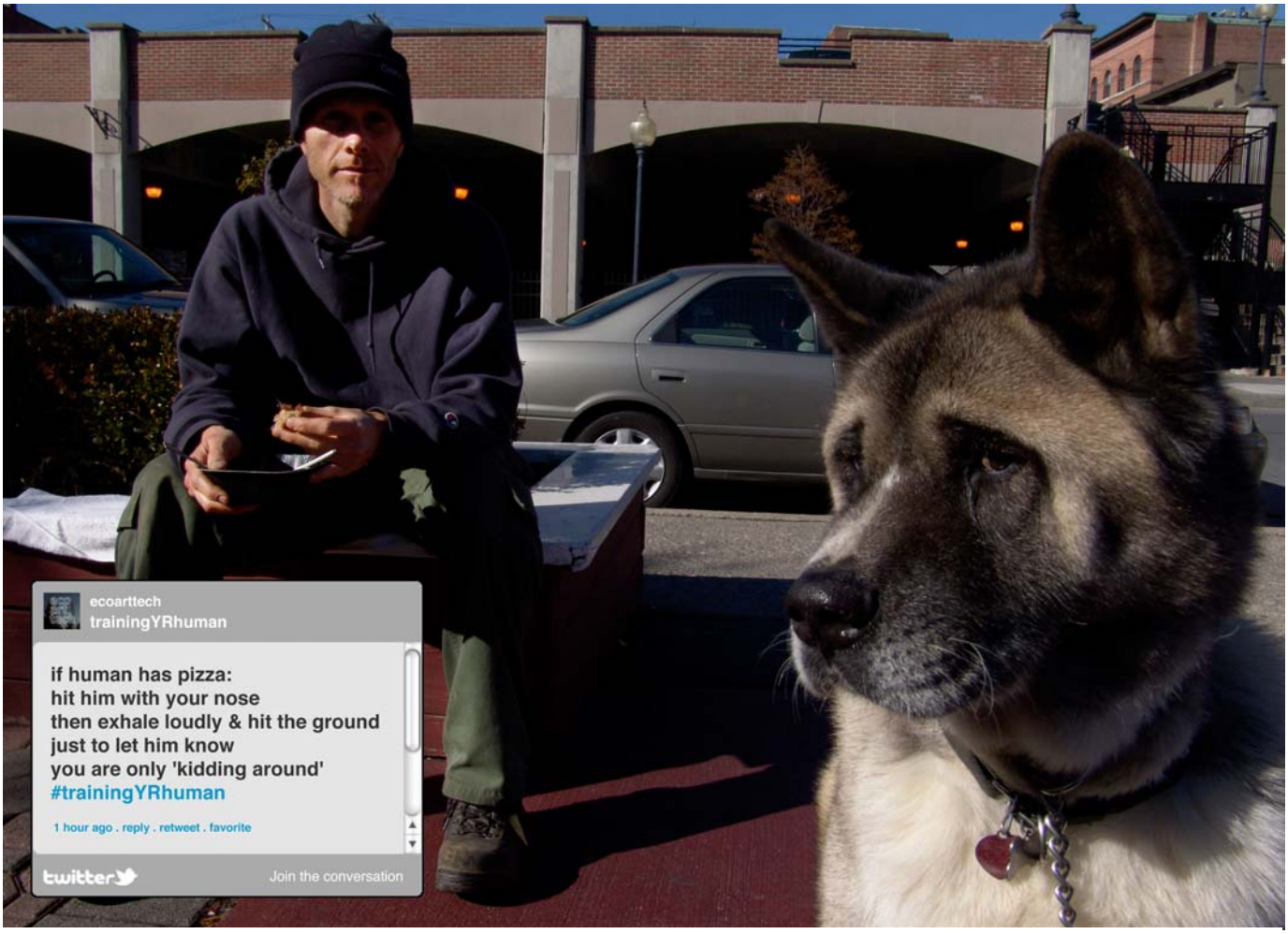
animals, including brain structures, psychology, and cognition: "We're trained to think our personal impressions are too subjective, and therefore must not be right, but when it comes to animal emotions, this assumption is wrong" (56). Anthropomorphism, then, seems at once necessary but also dangerous, requiring a carefully maintained tension between recognizing interspecies similarities while not conforming animals' diverse personalities to selfish human desires.

The reduction of animal otherness into the economy of the human-friendly "pet" is especially dangerous for dogs who do not conform to modern society's demand that dogs be naturally docile at all costs, such as Akitas. As Tuffy and Buster's leaders, it has become common, during our walks, for us to encounter humans who exclaim, "Wow! Your Akitas are so well-behaved! I used to have an Akita." Hoping that the passerby's Akita died of old age, we used to ask, "What happened?" We would invariably receive the response: "Oh, I had to put him down. He bit a kid." Or: "We had to give him up; he attacked my other dog." In 2010, an article published in the peer-reviewed science journal *Nature* confirmed, through genome analysis, what Akita advocates have been saying for many years: that Akitas were re-bred with wolves during their history of domestication, creating many pre-modern traits (vonHoldt et al.). This does not mean that our dogs cannot fit into society. They can, but they need firm leaders who understand the psychology of dominant dogs. Akitas are extremely loyal and loving animals, but they also possess proud, dominant personalities with traits that many humans find difficult to handle, including the tendency to challenge their leaders for the alpha position, the refusal to engage "boring" activities (like fetching a ball over and over), and the refusal to submit to anyone's command except for one human leader who has earned their respect.

As the humans in charge, we have had to how to adapt our behaviors to deal with the needs of a "primitive" breed. First, Tuffy and Buster require a highly organized social order and act out without one: they frequently check to see if we are up to the responsibility of leading the pack, sometimes daily. Part of our pack order also means that Tuffy (our female) must keep Buster (our male) in check and that we must confirm their social positions with our own behaviors. If we give Buster more attention than Tuffy or if he gets fed first, Tuffy has to step in to reassert her dominance over him even more, and this often means the loving kisses she usually showers him with will turn into angry bites and growls until we let her know that, yes, she is on top. Second, Tuffy and Buster do not regard other dogs as playmates—instead, they are either threats or prey—and we have had to learn how to lead our pack in such a way that they do not pose dangers, nor scare our neighbors. For example, as confident leaders, we walk quickly by dogs that cause Tuffy and Buster alarm, acting as if they do not matter, and slowly our dogs have learned to trust our judgment and continue on their way. Third, Tuffy and Buster work continually to protect their pack-members, and we have to carefully manage both casual encounters on the street and guests into our home. Unfortunately, too often Akitas are purchased because they look like cute little teddy bears in "pet" stores and when they grow up and become unmanageable—or worse, bite or injure somebody—they are dropped off at a shelter for being "bad dogs" when the problem all along was bad human leadership. Akitas simply don't fit easily into a modern society which demands docility at all costs. However, with imagination and self-training on the part of their human leaders, they can adapt and become the loyalest of companions.

Tuffy has posed the biggest challenge for us—and is a big inspiration for *#TrainingYRHuman.* With an extremely dominant and headstrong personality, she makes it clear regularly that she finds our commands useless and our behaviors boring and stupid. At the same time, she works hard to integrate herself into modern life and has



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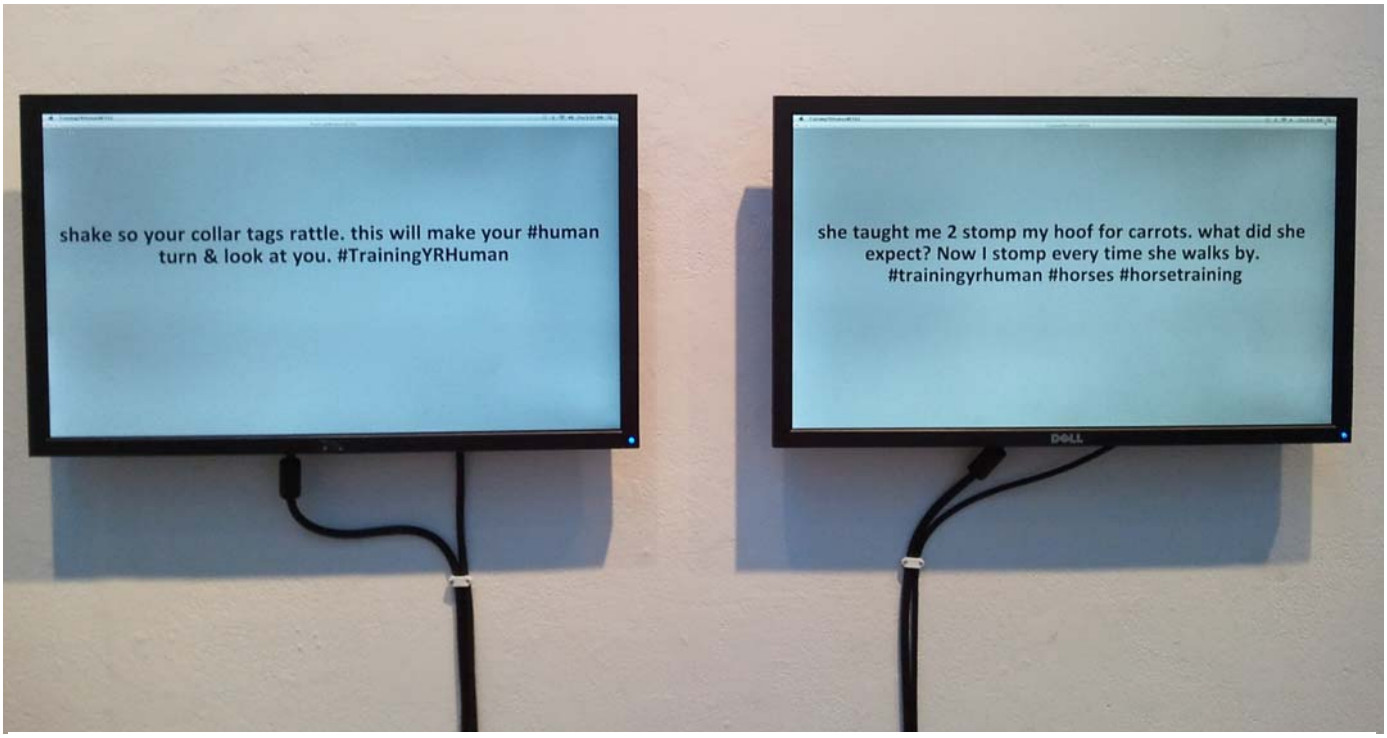
(F) *#TraningYRHuman* © ecoarttech

developed many strategies to express her dominant, aggressive personality in acceptable ways: she is adept at sweet yet aggressive licks, adamant displays of submission (such as doing a Sit with a lot of expectant attitude), and obstinate sighs of frustration when she must do as told. In addition, she has developed advanced skills in manipulating human beings into getting what she wants, especially family friends, who she sees as new animals to manage. Through Tuffy, we have learned about the limits of humans' imagination of the canine species, how humans continually give their dog-friends the wrong messages, how dogs cannot be homogenized into one unified category of Dog-ness, and — and this is the key motivation for *#TrainingYrHuman* — that humans are not the only ones doing the training.

While new scientific research has illuminated animals' behaviors, their ethical attitudes, modes of cognition, and psychological awareness, our everyday experiences can also tell us a lot about our companion species if we listen carefully— about their diverse personalities and creative problem-solving and the ways they invent to express themselves and meet their needs and desires in a human-dominated world. *#TrainingYrHuman* attempts to imagine their voices, their subjecthood, into the social media environment. In so doing, this artwork occupies a paradoxical position vis-à-vis humanities research, popular culture, narrative and scientific ethology. In his illuminating *The Animal Manifesto*, which summarizes groundbreaking scientific research on animals' senses of ethics, justice, cognition, feeling, compassion, love, and mourning, from dolphins to elephants, Marc Bekoff asserts that "science is finally catching up with what we've sensed all along" (57). Turning to personal experience, he writes: "I intuitively knew as a child that animals are smart and passionate; it took decades of laborious scientific inquiry to learn how correct I was. Science is still trying to catch up with what so many of us already understand. It turns out that our intuitions are disarmingly correct, and we ought to give ourselves credit for this" (12). After publishing his observation of a magpie



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(G) Screen Grabs from *#TrainingYRHuman* © ecoarttech

funeral, Bekoff received a "slew of emails" from readers who had seen similar rituals: "These stories, even from nonresearchers are indeed data, and they challenge science to prove or disprove them. More than ever, controlled scientific studies are validating what our eyes clearly see" (7). But who is this intuitive "we?" According to Wolfe, the humanities and social sciences are sorely behind even popular culture in their understanding of animal subjecthood. Among cultural and critical theorists, nonhuman animal rights and agency, Wolfe warns, are still looked upon as the locus of a "rash or even quaintly lunatic fringe" (1). #TrainingYrHuman attempts to capture and document everyday, unprofessional knowledge of the agency of animals who live with human-animals, a form of subliminal knowledge circulating in oral culture that must be brought into the field of narrative ethology.

Conclusion

The experience of adopting two Akitas has caused us to rethink our own stereotypes about dogs — and about animals in general. If even the canine species, which has evolved to relate to humans, might require us to reimagine human-animal relationships, how might we misunderstand animals in general? As eco-critic Timothy Morton said recently in an interview, "According to evolution science, there are two things humans do very well, but they are a bit of an ego blow: throwing and sweating. Everything else is also done by nonhumans, including consciousness, feelings, art, tool use." So human beings are simply sweaty throwers who think very highly of themselves. It seems to us that the effort to hold tight to definitions or to the idea of human-animal divisions blocks the more interesting conflations that happen (or are already happening) when we let these categories slip away, when we welcome the continuity between humanity and animality. Therefore, rather than try to determine, define, and predict in our art, we are more interested in staging fluid experiences that ask difficult questions and interrupt our sense of certainty. When assumptions fail, things fall apart, and we can't depend on what we think we know, that is when creative thinking is mobilized.

To Participate in *#TrainingYRHuman*

1. Login to Twitter.com. (Create an account if you don't have one. It's free and easy.)
2. Write a Tweet from your companion animal's perspective that includes the tag *#TrainingYRHuman.*
3. Search for or click on the *#TrainingYRHuman* tag to see a list of recent tweets.

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ecoarttech was founded by Cary Peppermint and Leila Nadir to explore environmental issues and convergent media and technologies from an interdisciplinary perspective, including art, digital studies, philosophy, literature, and ecocriticism. Leila earned her Ph.D. in English from Columbia University and is Mellon Post-Doctoral Fellow in Environmental Humanities at Wellesley College. She works as an interdisciplinary scholar, artist, and creative writer, traversing the fields of trans-American literature, critical/cultural theory, theories of modernity/modernism, and media studies. Cary is Assistant Professor at the University of Rochester. Through his post-disciplinary artistic practice, he explores the convergence of ecological, cultural, and digital networks. Some of ecoarttech's most recent works include "Eclipse," an internet-based work commissioned by *Turbulence of New Radio and Performing Arts, Inc.*; "Untitled Landscape #5," an internet work commissioned for the Whitney Museum of American Art Sunrise/Sunset series; "Center for Wildness and the Everyday," an interdisciplinary networked artwork created with faculty and students at the University of North Texas exploring the Trinity River Basin; and "Indeterminate Hikes," an Android app that guides users through New York City's Wilderness, which debuted at the Whitney Museum of American Art 2010 ISP exhibition.

Sam Easterson

DEN CAMS

Sam Easterson
Den Cams, video, 2011
Den Cams features infrared footage taken from video cameras that were placed inside the dens and burrows of various North American mammals.

Sam Easterson has been making videos for over 15 years. Included among the museums that have exhibited his work are the Whitney Museum of American Art, "Whitney Biennial Exhibition" (New York); the Walker Art Center (Minneapolis); the New Museum (New York); and the International Center of Photography (New York). Easterson's work has also been presented on the Sundance Channel, Animal Planet, the Discovery Channel, and on the Late Show with David Letterman. As a video naturalist, Sam is best known for his animal borne imaging work, which he discontinued in 2007. He now captures footage by implanting cameras in natural environments. In addition to working as a video naturalist, Sam Easterson has also worked as a museum professional in the US, Canada and New Zealand. He has held staff positions at the Minneapolis Institute of Arts, the Te Papa Tongarewa National Museum of New Zealand and at the Royal Ontario Museum. Easterson currently works as a Senior Media Producer at the Natural History Museum of Los Angeles, where he is developing video content for the NHM's new Nature Lab. Easterson is a graduate of The Cooper Union for the Advancement of Science and Art in New York. and also earned a Master of Science in Landscape Architecture from the University of Minnesota, Minneapolis. He has received grants from the Durfee Foundation, the Yellow Fox Foundation, the Peter S. Reed Foundation, and the Creative Capital Foundation, among numerous others. In addition, Easterson is also a recipient of the prestigious Tiffany Prize.

NEW ART EXAMINER: SIGNS, MARKS, GESTURES

The field of contemporary art has witnessed a striking growth in interspecies creative production over the past few decades. A number of artists have developed projects in relation to animal agency, language and culture. The range of methods used by artists spans the framing and interpretation of works produced autonomously by animals to works created by (human) artists in conjunction with animals. In contemporary art the emphasis is currently on production; there is less discourse at this point on how animals read or respond to cultural works. In order to take up the potential for art criticism in an expanded field, I will examine, in this paper, instances and methods of animal responses and interpretations to artworks produced by humans.

Text by **Joanne Bristol**

Situated between the fields of art, architectural design and the emergent field of critical animal studies, my current research project, titled *towards a feline architecture: aesthetics and economies of interspecies dwelling*, studies how non-human animals contribute to the production of urban spatial and material culture. I use hybrid investigative methods – developed from drawing, tracing, sampling and writing practices in the fields of performance art and architectural design – to articulate the ephemeral materialities and spatial dynamics between species in built environments. The research locates instances of performative dwelling or occupation to propose new configurations of production and understanding between species and spaces. While the research is led by questions of what non-human species might teach us about aesthetics and economies of urban dwelling and building, it also aims to unsettle notions of artistic intention and authorship through considering the agency of non-human actors in the development of culture.

This presentation will focus on the analysis of an artwork – titled *New Art Examiner* – which documents a performative response by a domestic feline – a tabby cat, named Sabre – to a reproduction of a drawing by the artist Raymond Pettibon which was featured on the cover of the February 1999 issue of the art journal "New Art Examiner." The performance happened by chance: in rearranging my library, a number of art magazines had been strewn on the floor. Sabre responded to the "New Art Examiner" issue in such a marked way that I felt compelled to record it. This is an example of how my research includes aspects of unanticipated improvisation in everyday life as both method and subject matter. The analysis here does not focus on Sabre's performance exclusively, but rather on how the gestures and marks we co-produce are informed by the physical boundaries of our shared living space, and objects within it.

My research uses both art and domestication processes to strategically perform and interpret the construction of knowledge. It is motivated by a desire to critically disrupt and exceed categorical boundaries of species, spaces and disciplines. The work is produced in the home / studio I share with other domesticated species, both human and feline, and involves their "participation." I qualify the concept of "participation" in relation to a 9000-year historical span of human-feline domestication. The work is embedded within the institutions of "pethood" and "contemporary art" as they exist in current neo-liberal social and political contexts. It is from these locations that I seek to question the aesthetics, economies and ethics of interspecies urban dwelling, at any

available scale.

Contemporary art has seen a striking growth in interspecies creative production over the past two decades. Artists have developed projects in relation to animal agency, language and culture. Methods invariably include the framing-as-art of marks and gestures produced by non-human animals, whether autonomously or within situations constructed or controlled by humans. Emphasis has been on producing art in relation to, or alongside, non-human animals; there has been little discourse generated on how non-human animals creatively respond to or "interpret" existing artworks or architecture. In her essay, "The Body We Care For: Figures of 'Anthropo-zoo-genesis,'"[1] ethologist Vinciane Despret suggests that an ethical approach to interspecies work requires research and experimentation to be interesting for both human and non-human participants. In relation to this concept, my research is concerned with articulating forms of non-human animal creativity, as well as transforming what art does, so it might become of interest to non-humans.

As an artist interpreting Sabre's performance, my performance involves a desire to attempt semantic analysis while also noting what escapes codification. The Pettibon image, though relatively abstract, offers an animated scene for Sabre, possibly because it has been composed using extreme value contrasts, and oscillates rapidly between figure and ground. From the scientific accounts I have read about their vision, cats have difficulty focusing on objects very close to them and have poor detail and color vision, as compared to humans. The Pettibon work features a central heavy black splotch, out of which spin some textured abstract lines. These marks are circled by a text that speculates on relationships between nationalisms and the production of knowledge. The text reads:

> *Le plaisir du player: The player pitches, the player bats (bon hit, non field), and always following after and against another player…*
>
> *Bat (clean-up)*
>
> *Pitch (close: high relief) something which, in the context of French pedagogy, is certainly to the point (and the French know baseball, like de Tocqueville knows America, like I know my own a--hole).*

This combination of semantic and asemic writing has me hovering in a state between reading and looking. To try to understand if Sabre might be experiencing something similar, I offer two examples of related optical / spatial ambiguity, from human perspectives. The first example, taken from Ludwig Wittgenstein's *Philosophical Investigations*[2] is a drawn figure oscillating between at least two relatively recognizable depictions of animals. The second, artist Bridget Riley's 1962 painting[3] titled *Blaze 1*, is an example of Op Art. Created by Western artists in the 1960s, Op Art produces visual ambiguities between illusions of three-dimensional figures or patterns and the two-dimensional reality of the picture plane which destabilize both perceptual apparatuses and possibilities for literal or exact readings. Each of these images challenges standardized forms of what might count as quantifiable data, through their existence as multiply signifying marks. They open up spaces in which one might imagine the radical play of marks and patterns outside of semantic modes of interpretation.

My most immediate interpretation of Sabre's response to the Pettibon work was that she appeared to be jumping towards a flat, black insect. Given that I will never know, with any finitude, how she is interpreting the mark, the most interesting concern I identify is that of the dual richness and limits of the visual as carrier of meaning. This brings to mind Donna Haraway's discussion, in *When Species Meet*, of the arguably over-circumscribed place of the visual in the development of species categorisation. She describes how the word *species* can be traced etymologically to the Latin *specere* which has associations with "to look" and "to behold." She also notes, "in logic, *species* refers to a mental impression or idea, strengthening the notion that seeing and thinking are clones." [4] My research locates how the visual operates in relation and / or deferral to haptic, kinaesthetic and sonic realties in the production of interspecies spaces.

In *Chaos, Territory, Art: Deleuze and the Framing of the Earth*, Elizabeth Grosz conceptualises the ontology of art as a singular mode of activity involving the relation of the body (whether human or non-human) to the earth. Within this singular field of creation and interpretation, ambiguity, sensation and affect overshadow semantic certainty. In trying to develop a non-aesthetic philosophy for art, Grosz writes; "Art comes from the excess, in the world, in objects, in living things, that enables them to be more than they are, to give more than

Joanne Bristol

Figure 1: *New Art Examiner*, 2004, stills from single-channel video, 3 minutes, colour, sound © Joanne Bristol

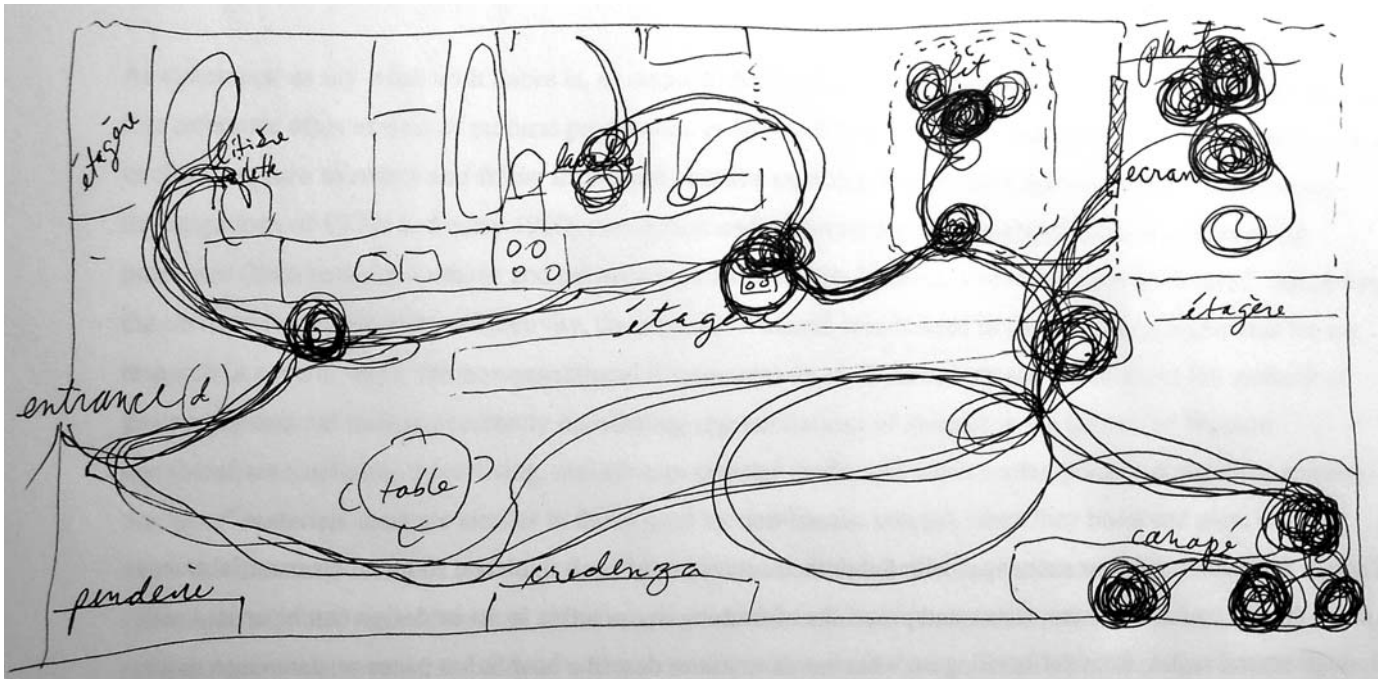
themselves, their material properties and qualities, their possible uses, than is self-evident. Art is the consequence of that excess, that energy or force, that puts life at risk for the sake of intensification, for the sake of sensation itself…."[5]

Along with this excess, Grosz identifies a central gesture of art as the construction of a frame – a territorialisation oscillating in space and time, allowing art to be recognized as such. She stresses the importance of the materiality of the event, writing, "[a]rt engenders… material becomings, in which these imponderable universal forces touch and become enveloped in life, in which life folds over to itself to embrace its contact with materiality, in which each exchanges some elements of particles with the other to become more and other."[6] I am seduced by this Bergsonian / Deleuzian description of art's movements and influence, and wish to examine it in relation to the specific histories, materialities and sites of Sabre's performance, and of my own.

The framing, or representing, of animals has been a longstanding gesture of Western art, from the time that paintings of animals were produced in the caves of Lascaux, to the current proliferation of animal images in numerous areas of visual culture, most ubiquitously in advertising and social media.[7] My research examines intersecting trajectories in the framing, through domestication and institutionalization processes, of both animals and art in the West. Sabre's performance comes into view for me through the modes of excess and play as described by Grosz, and through the framings of the institutions of art and those of pethood. If these framings constitute the limits of our co-dwelling, I want to interpret Sabre's response to the issue of "New Art Examiner" as an instance of her intentional states of both creativity and resistance in response to her co-habitation with humans.

Figure 2 presents one of many drawings I've created, tracing Sabre's daily path. Her choreographic patterns include multiple modes: there is the pacing and the daily checking of spatial boundaries, which seem to operate most often in a counter clockwise pattern. There are more "beeline"-type moves – produced in relation to hearing the sound of the fridge door or catfood cupboard opening. And there are the spirals – the counter-clockwise circlings – she makes as she prepares to settle. Her days are spent circling, touching and smelling the enclosure in which she lives. Though we have previously lived in close proximity to parks, we currently live in an apartment in a dense, urban area with more traffic than green space. For Sabre, outside is often constituted by the sounds and smells experienced through windows, walls, floors and ceilings shared with unseen neighbours. I wonder how she theorises the source of these "outside" iterations. What emotions or imaginings do they generate for her? How do they differ from the "outside" iterations emerging from within the enclosure – surprising material configurations, like "New Art Examiner," requiring hard work – or play – to receive and interpret?

Grosz identifies the concept of the floor as the first form of partition and human territorialisation.[8] Sabre's choreography or pacing is a boundary language – marking her territory and her temporality. The floor is a



Joanne Bristol
Figure 2: *daily habitus: choreographic trace (09/08/11)*, 2011, ink, paper © Joanne Bristol

contiguous space, shared – in communal dwellings – with the vibrations and soundings of other inhabitants – but within the walls of our apartment, she "owns" it. Unexpected or new visitors to this space initially unseat her, but she ultimately understands the space as her domain. Her spatial and haptic relationship to the floor is predominant in both the *daily habitus: choreographic trace* drawings, as well as in the *New Art Examiner* video. In *Animal Ethics in Context – A Relational Approach*, Clare Palmer articulates the term "intentional state" as one in which animals', "minds can be directed to objects or states of affairs; they can be in states of 'about-ness' with respect to the world."[9] I might identify Sabre's impressive leaps and circlings as the most initially striking elements of her performances, though I'd argue that the sonic, percussive and haptic aspects of her movements equally manifest her "about-ness" or ways of knowing and producing space.

In my abstract for this presentation, I posed the idea of a non-human animal's "misrecognition" of an artwork polemically to foreground habitual anthropocentric readings of non-human animal actions. In the experimental regime of art, much work has been generated through "chance operations" and the "creative misuse of technology." Adding interventions by non-human species to the mix possibly enriches practice even further. While Sabre's responses are inspiring for human artistic imagination, they also bring forth speculations on economies and ecologies of interspecies art. For instance, how can one articulate and acknowledge the creative contributions of non-human animals without defaulting to referencing modes of human artistic work? If one wanted to use art to acknowledge and respond to non-human forms of life, one would certainly have to provide something that could be of interest or use to the animal(s)-in-question. In doing so, one would have to set aside lingering modernist definitions of art as radically useless, and, through experimenting with what might constitute the practical and the symbolic, reinvent art as radically useful for the non-human animal(s) in question. If users shape the meaning of language, might non-human users potentially transform it beyond recognition?

Following this line of thought, and in response to observing and imagining Sabre's perspective, I've created some new works for her, or arguably with her. I have titled this series of works, *écriture féline*, as a way to theorise forms of cultural production that exist between humans and felines. The two photos in Figure 3, titled *inscriptions*, depict scenes from a material exchange between Sabre and myself. In this exchange, I received a temporary "signature" inscribed on my arm, and Sabre received a taste of (my) blood. The images in Figure 4 depict a catwalk for Sabre I designed with Graham Mockford in a modernist architectural style. For traction, the walk is surfaced with a velvet textile.

The textile surface also works to gather

Joanne Bristol and Sabre
Figure 3: *inscriptions*, 2010, digital photograph © Joanne Bristol

traces of Sabre's fur, helping to establish and identify her domain while at the same time sullying / transforming the modernist aesthetic of pure form and colour.

Regarding ownership, I see these works as co-authored. Regarding economies and ecologies of production, whatever non-human animals create, they don't require large budgets or produce much waste. Regarding performance and spectatorship, if we still exist as the "society of the spectacle," one strategy that might counter this – recently proposed by art theorist Stephen Wright,[10] specifically in relation to artworks which have low coefficients of visibility – would be the development of a society of the reader. In interspecies cultural spheres, this might entail attuning one's capacities differently from the pre-sets of human perceptual or at least cognitive apparatuses, since much non-human cultural and performative activity has relatively low levels of visibility and audibility, at least in noisy urban contexts.

Finally, this concept of readership might acknowledge that human and non-human animal acts are often most interestingly performed when no one is watching, or when there is no pressure to perform. Some animals "hold back" their most interesting or spontaneous work in contexts where they might feel threatened or possibly bored.[11] To address this condition, as well as to address the last question in my abstract: "How might the idea of 'animal-as-art-critic' generate new critical gestures for humans?," I'd like to present a new critical choreography based on Sabre's performance, developed specifically for the context of the somewhat anxiety-producing space of an academic conference. I will perform it now, if you promise not to look.

Notes

[1] In her essay "'The Body We Care For: Figures of Anthropo-zoo-genesis,'" *Body & Society* Vol. 10, (London: SAGE Publications, 2004), Despret defines, through studying experiments involving non-human animals in science labs, a

Joanne Bristol, Graham Mockford and Saber
Figure 4: *catwalk*, 2009, wood, paint, textiles, fur © Joanne Bristol

number of concepts (including those of "availability to" and "interest in" the other) which articulate the inter-subjective interplay of authority, trust and belief in the production of interspecies knowledge.

[2] Ludwig Wittgenstein, *Philosophical Investigations* (London: Blackwell, 1953/1985), p. 194. Wittgenstein analyses aspects of seeing and interpreting through referencing the duck / rabbit illustration in psychologist Joseph Jastrow's *Fact and Fable in Psychology* (1900).

[3] Bridget Riley, *Blaze 1*, 1962, emulsion on hardboard, 109 cm x 109 cm.

[4] Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), p. 17.

[5] Elizabeth Grosz, *chaos, territory, art: Deleuze and the framing of the earth* (New York: Columbia University Press, 2008), p. 62.

[6] Ibid., p. 23.

[7] Animals feature especially as tropes in telecommunications advertising. Pet trick videos on YouTube and the lolcats meme are examples of animal imagery that inundate social media.

[8] Elizabeth Grosz, *chaos, territory, art: Deleuze and the framing of the earth* (New York: Columbia University Press, 2008), p. 14.

[9] Claire Palmer, *Animal Ethics in Context – A Relational Approach* (New York: Columbia University Press, 2010), p. 27.

[10] During the *Art: What is the use?* symposium at Whitechapel Gallery in January 2011, Wright proposed a shift from a "society of the spectator" to a "society of the reader" as a critical response to the neo-liberalisation of art production and reception.

[11] For example, I have witnessed amazing instances of crows playing with objects in relatively remote rural areas of Western Canada.

Joanne Bristol trained as an artist and has an MFA from NSCAD (Halifax, Canada). She has presented installations, performances and electronic media works both in Canada and internationally for the past fifteen years. For the past decade, she has taught intermedia, sculpture and performance art at universities and art colleges in Western Canada. Her work investigates relationships between nature and culture, and between the body and language. She is pursuing a PhD at the Bartlett School of Architecture (London, UK), using performance and writing to understand inter-species spatial relationships in urban context.

Ian Gardner

THE TANNERY

Iain Gardner's work is concerned with our relationship with other sentient life forms on the planet. Whilst studying Illustration and Animation in the 1990's, when concern for the environment was finally breaking into public consciousness, Iain became engaged with species extinction and was privileged with two residencies at Gerald Durrell's Conservation Trust both in Jersey and Mauritius, where he experienced firsthand the positive role captive breeding can play in the repopulation of depleted species in the wild.

Animation was already the medium through which Iain wanted to experiment, but he quickly saw the potential of moving image to examine our interaction to the natural world within the context of Cultural constructions and attitudes derived from myth and preconception.

Animation works well in this line of enquiry in two ways – it allows the artist to extrapolate character traits from our preconceptions of a particular species of animal – anthropomorphise if you prefer. It can also be approached from the perspective of contemplation and observation. The act of drawing can reinforce a behavioural attitude of respect and understanding that few people appear to take time to engage with.

Both works representing Iain at Interactive Futures 2011 explore these facets of the potential of animation.

THE TANNERY (2010) is a short narrative animated film, five and a half minutes, which explores what happens to the soul of a Fox after it has been killed for its fur. Despite the provocative potential in such a story, which Iain tackles within the work, he was also concerned that the film should be enjoyable to watch and consequently extrapolated the notion that after death we would be devoid of pain, hunger and suffering. This consequently leads to an unusual relationship between the carnivorous Fox and the spirit of his prey species a Rabbit. Within the main concern of how we relate to the natural world, Iain played with inherent mythologies of the afterlife and transcendence.

THE TANNERY continues Iain's exploration of interspecies relationships between humankind and the natural world which our species appears determined to dominate. Whilst earlier works, such as AKBAR'S CHEETAH (1999), examined the compromises required of humanity to respect habitat for other creatures; taking a more holistic perspective, THE TANNERY concentrated on the specific impact of one individual on the consciousness of a fellow non human.

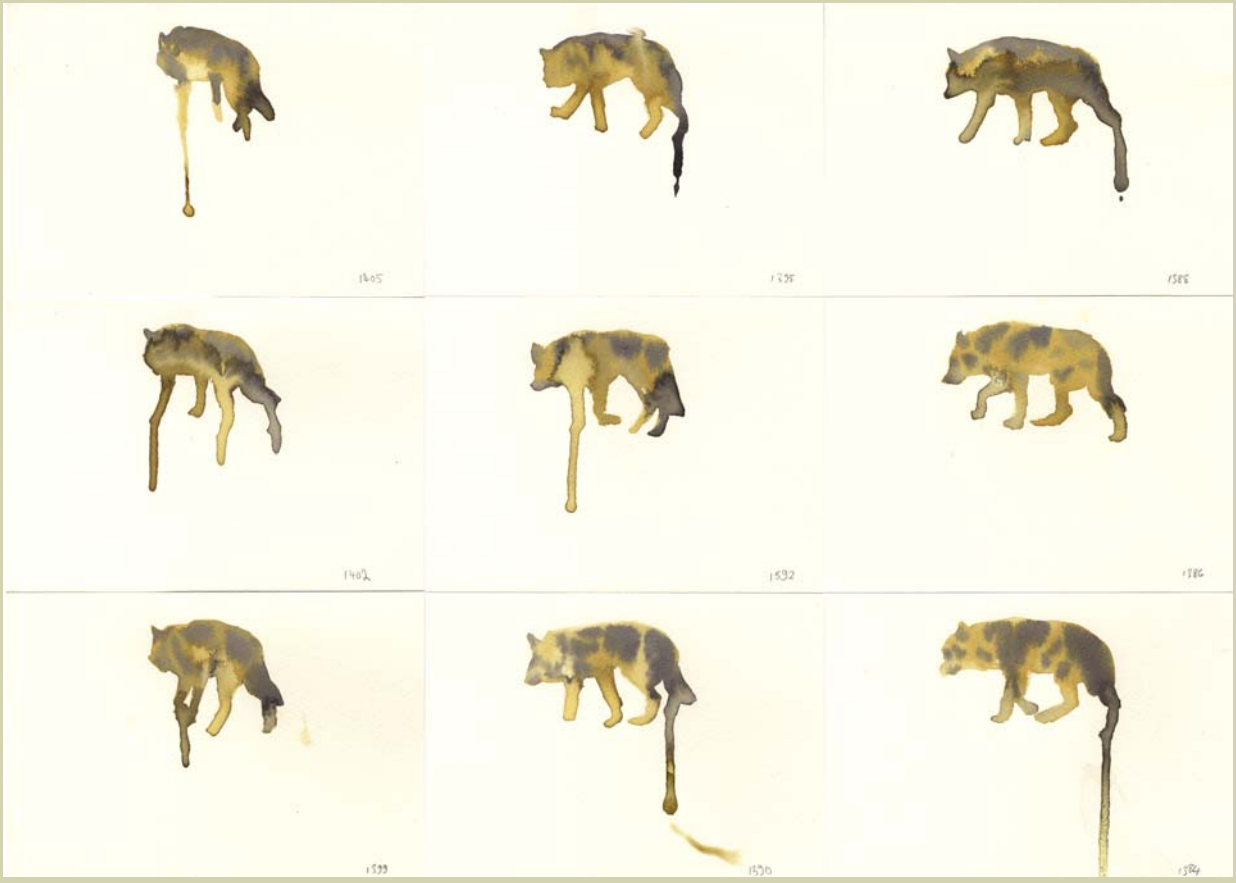
Due to this sharper focus, the Fox in THE TANNERY is animated in such a way that takes liberties with natural behaviour and accentuates more familiar human behaviour in order to align sympathy for the creature's fate with the audience. Such an approach is necessitated by the minimalism of the short film, and the need to drive narrative within this framework. Nonetheless Iain feels this strategy is justified if it communicates an idea more effectively than reactionary activist images that shock the populace. Within the context of THE TANNERY this obviously refers to the complicit acceptance of the Fur Trade. Having related the story of the Fox and its relationship to the Hunter who killed it, Iain is interested in exploring the relationship of the ensnared soul of the Fox with the future owner of its stole. Alas, the process of animation is so tediously time consuming, we may have to wait several years to see how that plays out!

WOLF is a gallery based piece of work that came into being whilst Iain was developing mixed media moving images to accompany a live performance of music by Stephen Davismoon based on text by Johnny Rodger, which was performed at the Sonic Fusion Festival (Edinburgh) in 2008, and Vanishing Boundaries (Glasgow/Salford) in 2011.

The Wolf species was chosen for this concert work due to contemporary debates about whether Scotland should reintroduce this feared species back into our remote parks and highlands.

WOLF has a very sparse aesthetic, derived from the speed necessitated to draw the animal from life on location. This continues a practice of drawing and animation which Iain started whilst a student; engaged with a philosophy of contemplating and observing our wild neighbours in order to pursue an understanding and respect for other creatures on their own worth, as opposed to how, as a society, we exploit animal kind either as a resource or as a form of surrogate company. Our relations with animals tend to be about what they can do for us, with little regard for their needs.

Such a methodology also allows the animated sequence to self evolve, as the artist reacts to a given moment and experience – animation usually is carefully prepared and considered. This spontaneous approach reflects Iain's fascination with the process of evolution which has shaped the world we live in.



Ian Gardner
Wolf, observational study of Wolf Pack at the Highland Wildlife Park in Kinross, Scotland © Ian Gardner

Ian Gardner
The Tannery © Ian Gardner

DOG VOICE: A MEMOIR

Julie Andreyev is an artist whose recent area of practice called Animal Lover explores animal consciousness and creativity through modes of interspecies collaboration and chance, to produce interactive installation, video, social media, and performance.
Text by Julie Andreyev

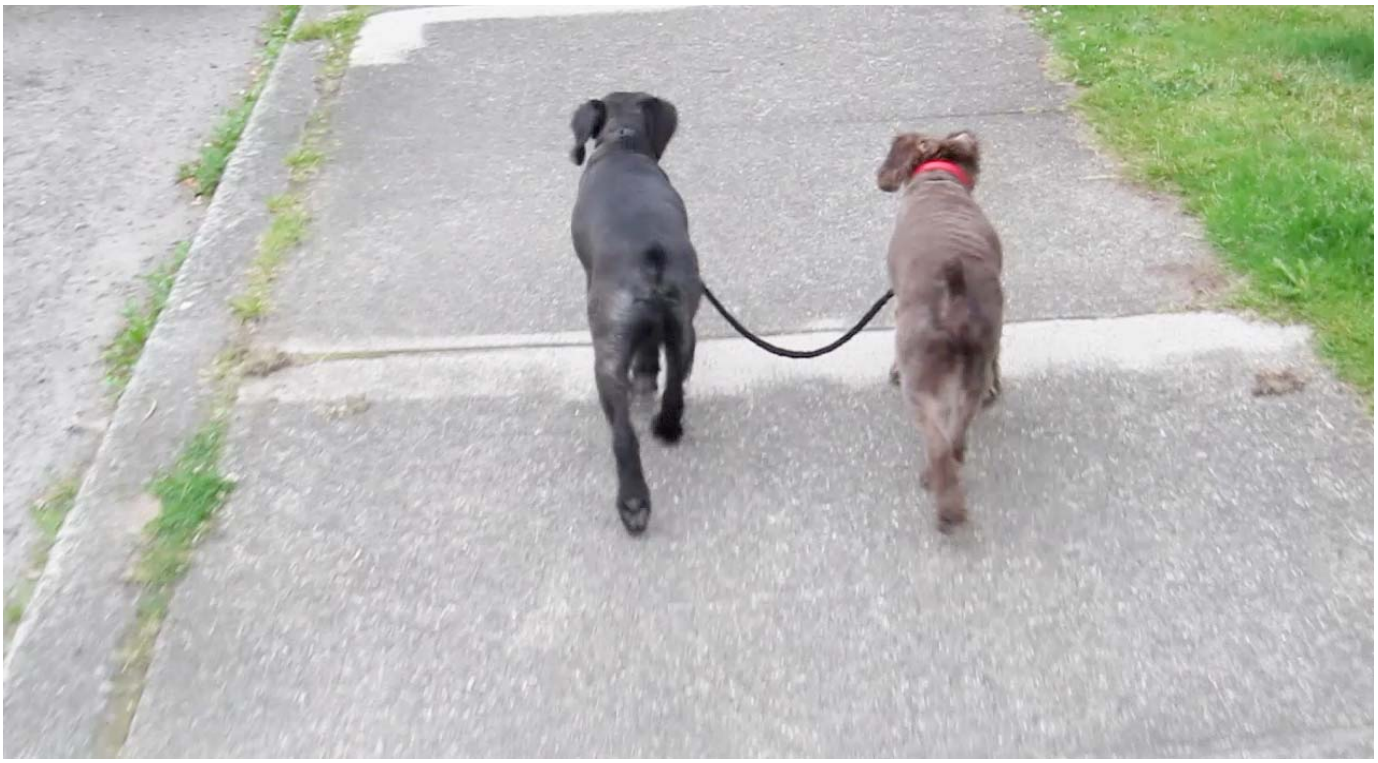
"Voice" not only stands for vocal utterance, but for expressing oneself. Having a voice is seen as representation –voicing one's mind– participating, voting, taking part in the governance of one's community and place in the world. In music, voice refers to an individual's vocal contribution to the group; the specific tonal quality of the soloist co-creates the collective character. Voice is independent expression towards social coherence. In human culture, non-human animals have tended to be deprived of voice. There is still a widespread notion that non-humans have an inability to express –or even have– thought and emotion; they are not capable of speaking for themselves. They do not have rights. But when you cohabitate with other species, such as dogs, over the years you may start to notice that they have a lot to say…

About 5 years ago (35 dog years) I was having an art-related crisis. At the time, the work I was making had little to do with animals as subjects and I kept asking myself (and those who would politely listen) "[w]hat value does art have in culture if it is not engaged in the pressing matters our time?" "Can art still be viable, meaningful, and potentially transformative in this era of global warming, famine, pandemic disease, economic disparity, consumer industries that engage in cruelty and suffering on vast scales, species extermination, and severe ecological degradation?"

In the midst of this personal crisis, Tom and Sugi and I noticed a glimmer between us: a hopeful promise. For us, narratives and activities of our everyday featured more and more prominently. Our relationship began to figure as potential for creative content. As we established *Animal Lover* (our interspecies collaborative practice), the dogs were emphatic about taking on new challenges. And in these formative stages, the answers to my questions clarified as we explored our latent creativity, tried new things, experimented.

The terms of the agreement did not include the dogs performing "tricks" or other kinds of conformity. It was deeper: we tried to find ways to represent their sensorial, emotional, and cognitive being, their *umwelt*. They were willing to teach me that their gestures and vocalizations expressed information about their thoughts, feelings, and desires. The task was to find out what modes of visual, auditory and interactive storytelling could be used to represent their subjective experience of the world, their creativity.

"Can interspecies collaboration contribute to a growing awareness of the sophisticated intentionality animals possess, and therefore help transform long standing negative beliefs in animal mind?" Our methodology developed to include aleatoric modes where content creation was generated by Tom and Sugi *on their own*, without expectation, allowing for unforeseen moments by



Julie Andreyev
Above, *Tom and Sugi,* below still from Youtube video *Dog Walking Dog* © Julie Andreyev

unique individuals. I would set up a camera or microphone, present a few instructions, see what happened.

Philosopher Vicki Hearne, and others, stress that domesticated animals be allowed to fulfill their potential in order to achieve happiness. This may take the form of work (for those who enjoy it). Most dogs have been bred over centuries –a millennia– to assist in human day-to-day business. Historically, border collies tended sheep; terriers caught rodents; hounds and pointers assisted with hunting; and so on. The human species shaped canines for behavioral traits that in our contemporary culture have little relevance. Today, the stay-at-home-companion conforms to the human domestic schedule. This is potentially problematic for a species bred to work. What voice do these people possess in their change of status from working animal to companion? They may struggle to come to terms with this existence, leading to states of hyperactivity, anxiety, frustration, boredom, depression. The voice of dysfunction.

On one particularly boring day, I was trying (without success) to get Tom and Sugi to stop barking out the window. Vocalizing is a trait we humans have selected in dogs to alert us to intruders –to guard the perimeter. The barking dog is only doing his job! I had the idea to teach Tom semiotics –what the word "bark" signified. He soon learned. From there, not only could I ask him *not* to bark, but we could formulate new modes of communication. "Tom, can you bark?" was a start. Tom honed his talents and began to express his variable relations with the world. "Hello;" "I'm happy;" "I'm having fun;" "Look at me" "I want a ricecake;" "I'm upset;" "That's not fair!"

But the canine world is nuanced, and vocalizing is only a small part of their relationality. Canines and other species differ from humans in the way they come to understand things. Biologist Dr. Peter Tyack points out that "since we're such a visual species, it's hard for us to understand this." Dogs are primarily informed by their sense of smell which is thousands of times more sensitive than that of a human's. Scientists note that dogs can understand a substance diluted at 3 parts *per trillion*! Clearly, they had a way of being that was unique and *importantly different.*

In our collaboration, the challenge was to translate the canine experience into human cultural form using visual and auditory media. A dog's enjoyment of a car ride, for instance, can be imagined as a fantastic rush of the senses, a kind of psychedelic experience. By considering the canine world-view, we humans have the potential to expand our consciousness, go beyond known modalities into experimental thought, and potentially consider the non-human experience as equally rich as that of humans.'

Sugi, a sensitive type, communicates through silent contemplation. Using gaze and gesture he quietly points out, asks for, insists on. Any other dog would say Sugi was rude to stare. But he learns a lot by observing Tom. "I can do that too!" he seems to say. Now, when I set up a camera, Sugi positions himself between it and Tom, offering a kind of persistent force. Tom complains.

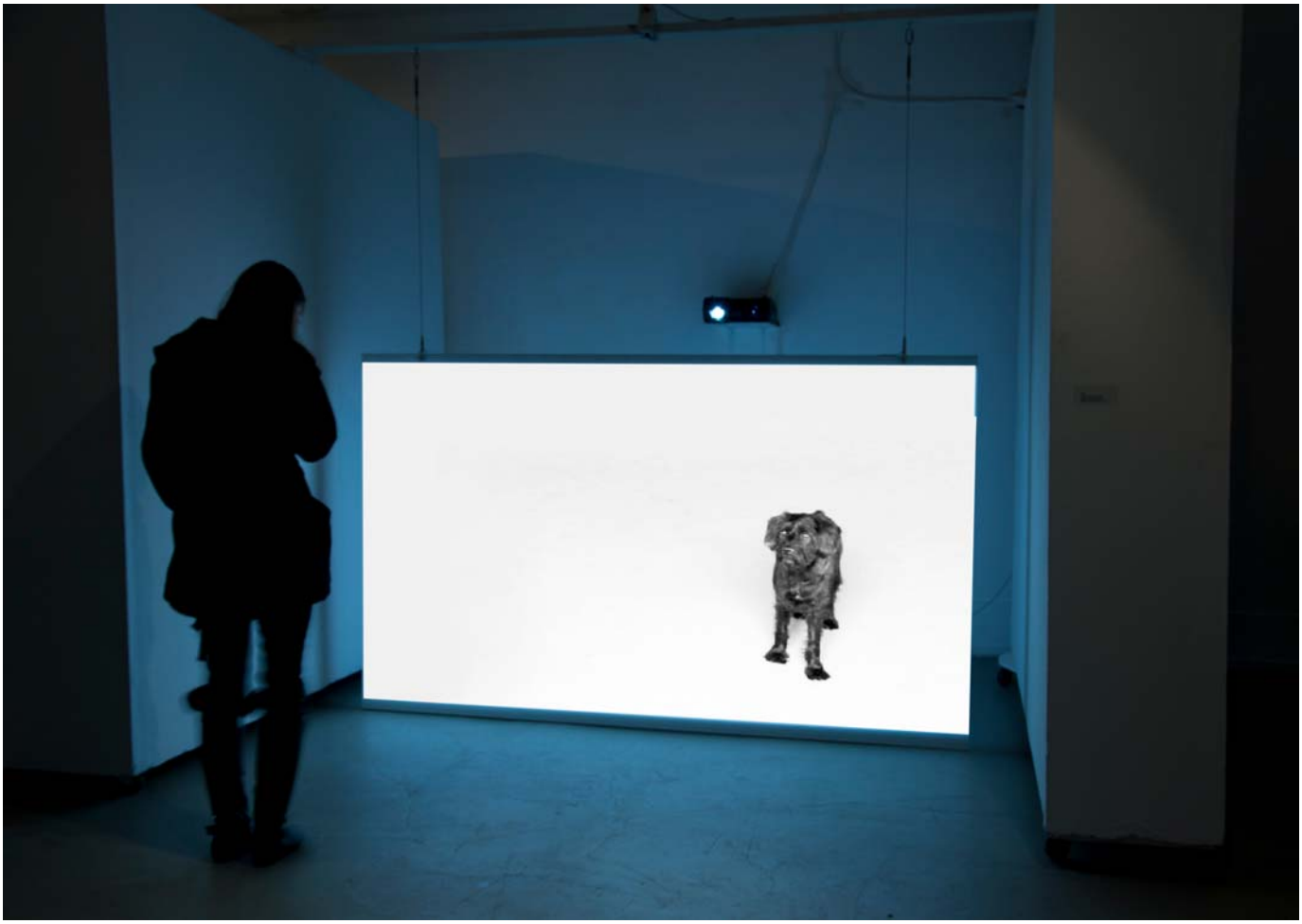
This rivalry is rich content for @TomandSugi, where they tweet about the finer points of artistic coproduction. Mostly they argue. And they're not alone. Turns out there are thousands of people out there in cyberspace observing, contemplating, speaking and tweeting from the companion point of view: Flappitybat, Feral Pigeon, Goat on a Stump, Common Squirrel, Turtlefeed, Beaglestitch, I am Otter, Puppyjones, the late Tagi-t... Whole communities of on-line animals represent their empathic relations with humans. These voices contribute to swarms of conversations, thoughts, emotions, and animal expression. Their communicative desire is strong enough to be understood by social media savvy humans who find their lives more tolerable by entering into the imaginative space of the animal.

The imaginative space of the animal: this is where I find myself dwelling now. Tom and Sugi and I have answered the questions I asked years ago. But these answers have produced more questions: "What are the ethical modes of working with interspecies collaborators that involve respect, and attention to their dignity and happiness?"

For years I wondered why Tom would scratch and rub his face on the carpets and upholstery, sometimes in the snow. From research, I learned that canines do this to express their contentment. Tom was demonstrating, smearing his scent with exuberance, seeming to take possession –claiming territory– using his voice.

Last summer, Tom and I enrolled in a theremin building workshop. "Could I build a theremin that we could both play– a kind of instrument for 4 hands/paws?" I imagined Tom contributing vibrato by scratching on a rug interfaced with a pitch-control antenna, while I tuned the volume and tonal range. We got gigs. But things didn't go exactly as expected. Before each rehearsal and performance Tom got anxious: his eyes widened; his legs shook; he hyperventilated; he petitioned to go home.

It did not occur to me that dogs could



Julie Andreyev
Wait, interactive video installation © Julie Andreyev

suffer from stage-fright. What I did notice was that he was fine at home, contentedly scratching his rug, making sound and growling in accompaniment. Here, we could play and he could enjoy himself. I listened and adapted. OK, he's not a live performer; he's a *studio-recording artist*! We agreed that he could practice and record at home and I would remix these during the performances.

I am starting to hear more clearly now. Tom and Sugi are good companions and they demonstrate this to me in many ways, moment by moment. They create the social coherence and richness within the family, each with his own voice contributing to the group chorus. But they are also asking that I be a good companion. They let me know that they need to be respected or challenged. They want me to take responsibility. I believe they too want to feel that their existence has meaning.

Julie Andreyev, www.animallover.ca, is an artist whose recent area of practice called Animal Lover explores animal consciousness and creativity through modes of interspecies collaboration and chance, to produce interactive installation, video, social media, and performance. Her work has been shown across Canada, in the US, Europe and Japan in galleries and festivals such as The Vancouver Art Gallery, SIGGRAPH, Cultural Olympiad Vancouver 2011, Viper, CHI, Japan Media Arts Festival, Digital Art Weeks, Nuit Blanche. Andreyev's work is supported by The Canada Council for the Arts, The British Columbia Arts Council, Foreign Affairs Canada, and The Social Sciences and Humanities Research Council of Canada. She is Associate Professor at Emily Carr University of Art + Design in Vancouver, and Artistic Director of Interactive Futures, www.interactivefutures.ca.

Joanne Bristol

TUNE IN, TURN ON, DROP IN

Joanne Bristol
Tune in, turn on, drop in (towards a feline architecture), sounds installation, 2011 © Joanne Bristol

This sound installation is part of an ongoing body of research, titled *towards a feline architecture: aesthetics and economies of interspecies dwelling*, which studies how non-human animals contribute to the production of urban spatial and material culture. I use hybrid investigative methods – developed from drawing, tracing, sampling and writing practices in the fields of performance art and architectural design – to articulate the ephemeral materialities and spatial dynamics between species in built environments. The research locates instances of performative dwelling or occupation to propose new configurations of production and understanding between species and spaces. While the research is led by questions of what non-human species might teach us about aesthetics and economies of urban dwelling and building, it also aims to unsettle notions of intention and authorship in art and design through considering the agency of non-human actors in the development of culture.

For ***tune in, turn on, drop in (towards a feline architecture)***, I sampled purring made by a domestic house cat and edited it as a 5.1 surround sound DVD, emphasizing the bass tones. I've been playing the DVD in various built environments (domestic and institutional) to see how the resonance and repetitive pattern of this relatively familiar sound affects the ways both the architecture and audio are read and felt. (If the bass is turned up to a sufficient level, walls and furniture vibrate.) Transforming the everyday iterations of a domestic house cat to sonically epic proportions is, in my view, an eco-feminist strategy of 'making animal' or 'purr-sonifying' spaces that might be more conventionally read as neutral and / or masculine and / or human. This installation is leading me to investigate vibration as a mode of interspecies socialisation and territorialisation / deterritorialisation.

BRIDGING THE ANIMAL: THE 'ARC' COMPETITION

Road-building in North America has historically prioritized the efficient trajectory of the vehicle to the catastrophic detriment of wildlife. Through the proliferation of highway landscapes, habitat has been shredded into disparate, unconnected patches, and populations of particular species have dwindled. Recent studies posit that animal-vehicle collisions have increased by 50% in the last 15 years, with estimated collisions within the US alone between one and two million. The recent ARC Wildlife Competition is the first high profile project in the field of architecture and landscape architecture to prioritize the needs of animals.

Text by Kelty Miyoshi McKinnon

The most recent evaluation of America's infrastructure in 2009 by the *American* Society of Civil Engineers gave a letter grade of a D (1). Most bridges and highways were built to last for fifty years – unfortunately the majority of them were built during the 50's, 60's and 70's. After the 2007 collapse of Minneapolis's I35W bridge, we're well familiar with the discussion around our failing infrastructure. Today, approximately 73,000 bridges in the US and Canada are considered structurally deficient - many of them have been closed or blown up with no plans of replacement.

This infrastructural legacy is a heavy burden to bear. Faced with the spectre of ubiquitous structural failure, we are slowly realizing the all encompassing, deleterious effects of an anachronistic, car-centric world view. The growing popularity of cars in the early 20th century(and subsequent lobbying by car manufacturers), the desire for a national defence network strategy, and the nation-building conquest to connect all urban and rural centres across the continent, drove the construction of roads and highways across North America, culminating in the 50's, 60's and 70's with the construction of the American Interstate Highway System and the Trans Canada Highway. The imperative for economic expansion, serviced by the rapid and efficient flow of traffic, facilitated a gradual shift to transportation engineering as the lone design discipline responsible for the creation of the most pervasive human construction on earth – roads. Engineers had virtual carte blanche to create highways that were faster, straighter, and wider. Very little attention was paid to the detrimental effects that roads often had on ecosystem function.

Human animal highway collisions became common. In the last 15 years, collisions between vehicles and large wildlife have increased by 50%, with estimates between 1-2 million collisions yearly in the US. According to the Federal Highway Administration, these collisions result in approximately eight billion dollars a year in property damage in the US and 251 million dollars in Canada (2). The effects on animals are obviously devastating. A 2008 study identified road mortality as one of the major threats to the survival of 21 federally listed threatened or endangered species (3).

The percentage of overall vehicular collisions that occur with wildlife is also increasing. This is in large part due to the rampant fragmentation of the landscape into isolated patches. Urban sprawl, modernist zoning practices, and development that generally fails to acknowledge crucial landscape systems result in

Kelty McKinnon
Toronto highway network 1960. Source: Ontario Ministry of Transportation
Bear crossing highway in Banff © Marylinn Windust

the widespread disintegration of habitat and connectivity, which is crucial for the daily and long-term movement of animals, as well as the long term viability of gene pool diversity. The results of this are increasingly constrained, if not disappeared, territory and corridors to movement that enable animals to reach food, water, breeding grounds and areas of refuge.

The 60's, 70's and 80's brought a gradual realization of the folly of ignoring landscape ecology. The practice of Road Ecology began in the 1970's in Europe and soon spread to North America. Richard T. Foreman and Dan Sperling's foundational text "Road Ecology" was published in 2003. As Foreman stated, the book "pulled the diverse scientific and planning threads of the field together and added distinctive synergisms" (4).

The recognition that large infrastructure planning demands expertise from a diverse array of disciplines, including ecology, hydrology and engineering, is resulting in an increasingly interdisciplinary design process that is more fluid and open to new research. This changing paradigm is evident in Banff National Park, where 24 wildlife crossings have been built by Parks Canada to counter the effects of the four lane TransCanada Highway on habitat connectivity and motorist/animal safety. These bridges and underpasses are 180-200 feet wide, and extend habitat over the highway in locations of animal migration. They mainly include immature spruce pine forest species (which is favoured by bears) and scree and sticks favoured by smaller mammals and amphibians (4). Parks Canada has also developed a relationship with university researchers, who have closely monitored the crossings for over 15 years, generating the largest data set in the world on wildlife/highway interaction. To date, the use of wildlife crossings and fencing have reduced animal mortality (from highway collision) by more than 80%. Large mammals have used the overpasses over 240,000 times (5).

But our predicaments accelerate faster than our learning curve. Increasing sprawl furthers habitat disappearance and fragmentation and spurs highway expansion as well as more cars on the road. Climate change results in shifting behavioural patterns from various species as ecotones shift and points of highway crossing shift. Wildlife will need to search unimpeded for new habitat as resources dwindle in their current home ranges and ecosystems (6). And our failing infrastructures, combined with rampant financial difficulties, make funding for wildlife crossings difficult to come by.

The Banff model of wildlife bridging, replicated internationally, uses a series of creek bridges, open-span concrete bridges, prefabricated concrete boxes and elliptical metal culverts; and miles of eight-foot-high fencing to direct animals toward the crossings (7). Structurally, the crossings use the same detailing as required for vehicular bridges - two single spans with a centre support between lanes. Whether concrete or corrugated steel, these bridges adhere to codes for heavy truck usage, making them incredibly bulky, unwieldy and expensive. Each bridge cost around five million dollars to build. In addition, the centre support requires the closure of lanes in order to place the bridges, as well as the use of expensive equipment. For these reasons, many countries and jurisdictions have opted out of implementing them (4).

Kelty McKinnon
Olin Studio's Wild X'ing, competition finalist

ARC

In 2010, the ARC (Animal Road Crossing) competition was initiated by Banff wildlife ecologist Tony Clevenger, the Western Transportation Institute, and the Woodcock Foundation in an effort to bring innovation back into the process of designing large infrastructure. Interdisciplinary teams of landscape architects, architects and engineers were challenged to structure a better coexistence between vehicular and animal movement networks through the rethinking of the wildlife highway bridge. Five teams were shortlisted from thirty-six submissions, representing over 100 landscape architecture, architecture, engineering, ecology, and related firms worldwide.

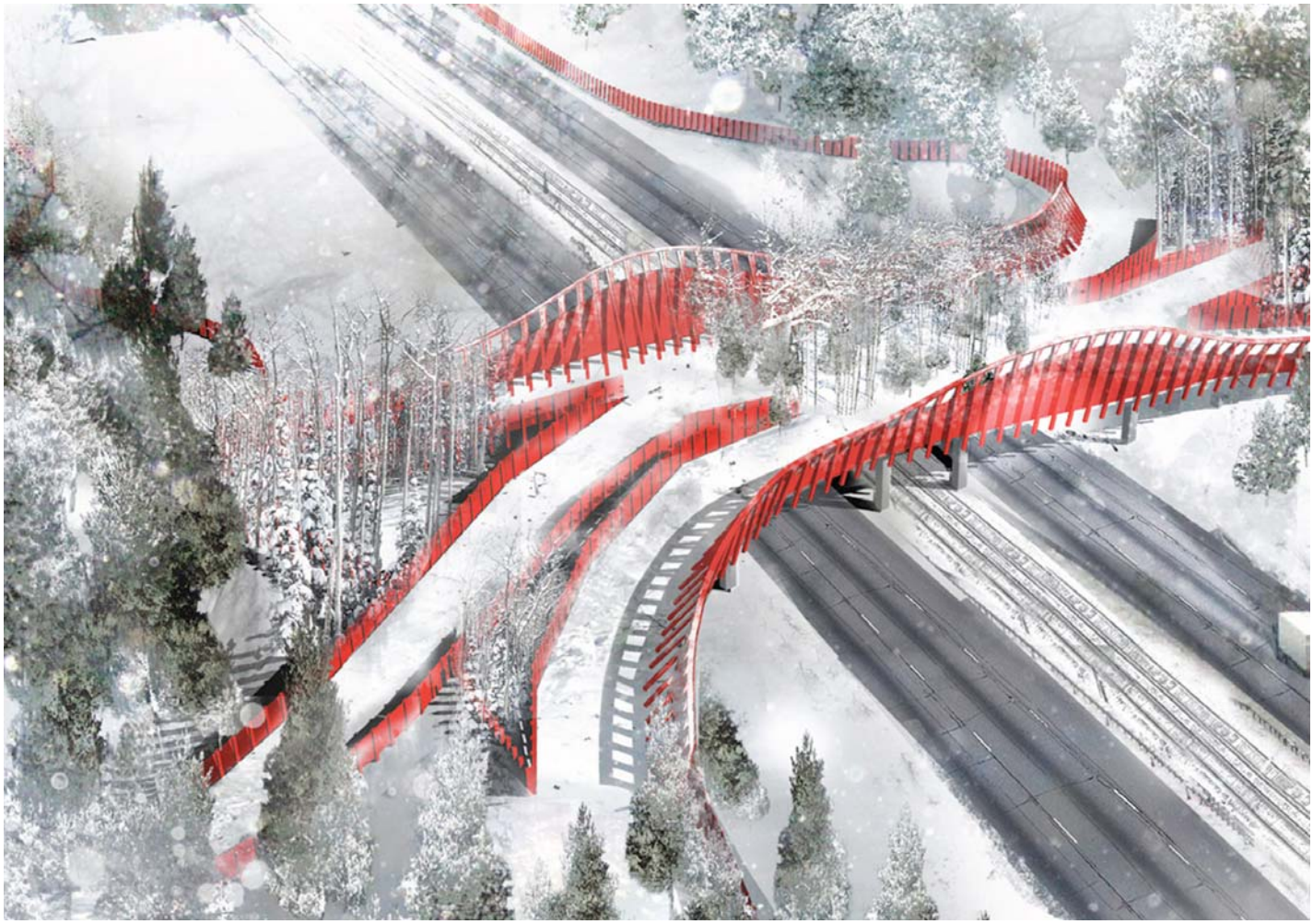
The site chosen was along I-70 in West Vail Pass, a rapidly urbanizing zone between Denver and Aspen that passes through the White River National Forest in Colorado. A critical habitat linkage within the Rocky Mountains, the site is home to a number of species including black bear, cougar, bobcat, Canada lynx, coyote, elk, deer, American marten, porcupine, yellow-bellied marmot, snowshoe hare and red squirrel. I-70 is the main transportation corridor in Colorado, and cuts east-west, while the area's wildlife ranges typically run north-south. This portion of the pass had multiple barriers to movement including guardrails, median barriers and grade separation, and species had no other choice to cross to the other side than to cross 4 vehicular lanes. Roadkills at the site are common, and recently included 3 Canada lynx, a federally threatened and rare species as well as the first recorded gray wolf since 1936 (8). For the purposes of the competition, the site boundary was drawn 400 meters along the highway and 150 meters east and west into the forest on both sides of the highway. The total site area was 24 hectares.

The five competition proposals were remarkably similar in their strategies, and the teams were significantly complex – landscape architects teamed with landscape ecologists, road ecologists, structural engineers and architects. The 5 shortlisted candidates were predominantly led by landscape architects- Diana Balmori Associates, Janet Rosenberg Associates, Michael Van Valkenburgh Associates, The OLIN Studio, and an architecture firm from the Netherlands, Zwarts and Jansma. The winning submission was titled Hyper Nature, by Michael Van Valkenburgh and HNTB Engineers.

The schemes needed to be ecologically responsive. The site is within the Subalpine Life Zone, characterized by coniferous forest, alpine meadows, riparian forests and shrub species. All of the teams attempted to create a seamless connection between the bridge and its surrounding sub-alpine landscape by extending its affiliated vegetation and surface qualities over the bridge structure. OLIN's scheme, "Wild (X)ing," planted six distinct habitats: spruce and fir forest; xeric grassland; xeric shrubland; mesic grassland; mesic shrubland; and wet meadow.

The schemes needed to be able to span larger distances as well as be wider to accommodate larger groups of animals - while being cost effective and structurally and visually light. In the not-too-distant future, an additional 2 traffic lanes are proposed for the I-70, as well as a commuter rail line. In addition, the schemes were required to accommodate and enhance an existing bike trail. The scheme by Balmori Associates proposed a wide, continuous beam without any joints, constructed of laminated wood from trees killed by pine beetles. These wider schemes also necessitated a strategy for lighting the underpass. Many of the schemes engineered an arc that lifted the sides to allow light to the interior. Olin's scheme also incorporated a perforated ceiling to maximize light underneath the structure for drivers.

The proposals also needed to be adaptive and flexible for wildlife mobility under dynamic



Kelty McKinnon
Janet Rosenberg and Associates' Red / Research Evolve Design, competition finalist

ecosystem conditions. Climate change will result in evolving migration patterns- scientists estimate migrational behaviour will shift over the next 30 years. Olin created habitat modules, similar to a green roof, which allows vegetation to be easily inserted and removed from the bridge's structural grid, should the need arise to change habitat type. These habitat modules would be glass-reinforced plastic trays that arrive on the site pre-planted with species.

Animals learn and adapt their behaviour according to environmental circumstance. Early crossing research in Banff showed that large carnivores like grizzly bears and wolves, while initially wary and reluctant to cross bridges, in five years changed their migration patterns to accept them. Crossing bridges need to be adaptive to growing research. Observation has shown that animals prefer a more open crossing, and bridges have subsequently widened to accommodate this. Early crossings in Europe were narrow and sparsely vegetated- animals were in full view and earshot of the road. Animals obviously prefer crossings that screen them from the noise and bright lights of highway traffic. Most of the competition entries responded with scooped shapes with wide centers and flipped up sides, creating a valley landscape that puts wildlife at ease by blocking sightlines and traffic noise (4).

Finally, the bridges needed to be educational, revelatory, and communicative. The creation of iconic, aesthetically compelling structures raises public awareness of the function of the bridge, and the issues of landscape fragmentation. Janet Rosenberg's scheme created an iconic, recognizable form – a bright red, wood-core fibreglass bridge that extended 3 meandering fingers into the forest to encourage animals to cross. Rosenberg's team worked with Temple Grandin to help them understand the highly sensory world of the animal, and learned that animals prefer to move in curves, and navigate through smell, touch, sound and vision (5).

HYAPER NATURE- MVVA

First place went to the joint team of Michael Van Valkenburgh Associates and HNTB Engineers, who succeeded in providing wildlife bridges four

Kelty McKinnon
Zwarts and Jansma, and OKRA's Landshape, competition finalist

times the width, and half the cost of Banff's celebrated wildlife bridges. Its width accommodates the movement of animals in herds, rather than individually. The scheme, titled "Hyper Nature", responds to projected shifts in climate pattern and subsequent shifting migration routes through a modular design that is engineered to be placed with a single crane and to span the highway without a central column. This means a flexible, movable system that can be implemented without shutting traffic down to both lanes on the busy Interstate. *This wider span is able to accommodate…*

> *a great diversity of habitats on top of the bridge, as well as a wide range of migrational corridors. Multiple habitats, including a scree seam, forest, shrub edge and open meadow, are distilled and condensed into a series of parallel bands that act as crossing corridors for various species. The wide foraging bands provide an open field of view, while narrow forest and shrub bands provide enclosure and camouflage corridors. (9)*

Using a modular, replicable construction method, the bridge can be reproduced simply and cheaply.

> *The bridge is engineered to have a single span across the highway with no center pier, unlike standard bridge design, which requires three structural elements: the abutment, beam and deck slab.*
>
> *The hypar-vault system merges these three elements into one through preformed formwork. Without a central column, the bridge can be built without closing the highway in both directions. Placement is designed to rely mostly on fill materials, rather than needing to cut into existing grades.*

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The ARC Competition indeed signals a paradigm shift in the way large infrastructural projects are managed. But there are still fundamental blockages to taking an ecosystems approach to complex infrastructure projects. Unlike Europe, whose centralized national and international planning structures support comprehensive road ecology projects, North American projects often involve multiple jurisdictions that compete for funding, lack open communication, and have differing political objectives (10). For this reason it is very difficult to build support and achieve consensus, let alone find the funds.

Other Efforts

Several European countries require an intensive and interdisciplinary highway design process that integrates environmental factors in the earliest phases of project design. At the Rijkswaterstaat in the Netherlands, for example, engineers, landscape architects, policymakers and ecologists work in the same office "to create elegant hybrids of natural and engineered systems". (4) The Netherlands has built more than 600 ecoducts as part of a National Ecological Network.

Kelty McKinnon
HNTB and MVVA's Hypar-Nature, the winning entry

They are also adept at bringing the road off and under the ground, stacking land use to maximize ecological and agricultural function. The French eco-motorway, the Loing Viaduct, is a mile long overpass for cars that protects a floodplain below. And in Northwest Montana, The People's Way, is a 56-mile stretch of US-93 that connects Missoula to Glacier National Park and features 42 fish and wildlife crossings.(4) In 1995, the FDA released "*Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects"* to encourage multiple constituencies to adopt an ecosystem approach to transportation development. The ecosystem approach prioritizes habitat functioning throughout all stages of infrastructural projects, and promotes the use of flexibility in regulatory processes by federal, state, tribal and local partners to promote innovation and the best possible management (11). The document is impressive, a joint publication of the Bureau of Land Management, Environmental Protection Agency (EPA), Federal HighwayAdministration, National Oceanic and Atmospheric Administration Fisheries Service, National Park Service, the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, several State Departments of Transportation, and many others. Recognizing the difficulty of coming to agreements on complex multi-jurisdictional projects, they developed the Enlibra Principles which foster a shared commitment to cooperation, collaboration and stewardship of the environment. The document is a guide to breaking down barriers; rewarding results, not programs; using objective science to define problems and suggest solutions and balanced, open and inclusive processes to make decisions; looking first to economic incentives to implement solutions and using appropriate geographic boundaries for environmental problems rather than patchwork political jurisdictions (12).

Kelty McKinnon
Hypar-Nature Site Section, Courtesy of ARC

Road ecologist Richard Forman encourages a greater imagining – to fundamentally change our relationship to the car. As the failure of North American transportation infrastructure coincides with economic collapse, it is an opportune time to radically rethink the relationship between transport networks and nature, and to critically redefine the nature of the road. The paradigm of the middle 20th century – which dissected and segregated the landscape into discrete, unrelated parcels through modernist zoning practices and the establishment of a web of roads and highways – literally criss-crossed the continent with a relentless conglomeration of impenetrable walls. Landscape was considered a relatively inert and monotonous spatial void – a distance to be traversed as efficiently as possible. This failure of imagination, where landscape is but a set of motionless features, devoid of life, has resulted in an ecological calamity which we are only now beginning to understand. If we are to meaningfully grapple with this reality, it will take a larger feat of imagination and implementation to address the scale of our predicament. Interdisciplinary, integrated and process-driven approaches will be crucial.

Landscape is an emergent, embedded, indwelling field of relations. Flows define it. If these flows are truncated, what is lost? In his writings on the "three ecologies," anthropologist Gregory Bateson describes a loss of relations to environment, social mileu and self, effecting a deterritorialization - where "the organism which destroys its environment destroys itself" (13). He goes on to state, "There is an ecology of bad ideas, just as there is an ecology of weeds, and it is characteristic that basic error propagates itself" (14). While the schemes created for the ARC Competition seek to bridge these bad ideas, their greater role will be to sow the seed of realization of the damage that's been done, and to force the recognition of human flows as only part of the larger flow of landscape.

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Kelty McKinnon is a landscape architect and principal at Phillips Farevaag Smallenberg landscape architects where she designs and manages a diverse range of projects based locally and internationally. She is also an adjunct professor of landscape architecture at the University of British Columbia where she leads design studios focusing on the production of emergent urban and non-urban landscapes that simultaneously engage environmental, economic and cultural ecologies. A primary focus of her research is in the potentials of engaging non-human agents in the production of landscape. Kelty holds an MLA (Masters of Landscape Architecture) from the University of Minnesota in Minneapolis, and a BES (Bachelor of Environmental Studies) from the University of Manitoba, and has worked professionally in Vancouver, Minneapolis, Albuquerque, Aspen, Denver, and Portland.

France Cadet

MECHANICAL ANIMALS

France Cadet
Dog[LAB]02, and hunting trophies in the background © France Cadet

France Cadet, born in 1971, in a French digital and robotics artist whose work ironically raises questions about various aspects in science debates and contemporary anxieties about biotechnology. First teaching as a volume and robotic professor at the Ecole Supérieure d'Art d'Aix-en-Provence (2000-2011), she has now joined The School of the Art Institute of Chicago as an Associate Professor and Chair of the Art and Technology Studies department. In addition, she has been giving robot-like training workshops for several years.

Ms. Cadet came from a background in science before turning to artistic studies. Known by her robotic and bio-oriented multi-media installations which combine these two interests, she has done solo and group exhibitions nationally and internationally, in Europe, Asia (Japan, Korea, China…), Brazil and United-States. Her works is regularly exhibited in international new-media festivals such as Ars Alectronica, Exit, Sonar, Emoção Artificial… likewise in traditional contemporary Art galleries and museums (CAAC in Sevilla, Quadrum Gallery in Lisbon, Pascal Vanhoecke Gallery and Palais de Tokyo in Paris) and Art fairs (ARCO in Madrid, Art Paris and SLICK in Paris…).

She received the 1st Prize of VIDA 6.0, an Art & Artificial Life International competition in Madrid, and was mentioned by the Digital Stadium Awards in Tokyo. Her work was also purchased by the Museum of Contemporary Art, the MEIAC in Spain.

Most of France Cadet's artworks tackle serious problems but in an ironic and ludic way: funny toys, pleasant games, charming pets, cute robots…

In a large part of her work she uses a commercial robotic dog on which she performed surgery, customized their forms, and reprogrammed them with unusual behaviours. These new strange creatures allow her to embody questions concerning contemporary anxieties about biotechnology, animals rights, dangers of cloning, eugenics, and to make a critical social comment about ethical questions and possible consequences of a technologically driven future, through ironical caricaturization but which is based on very-real facts.

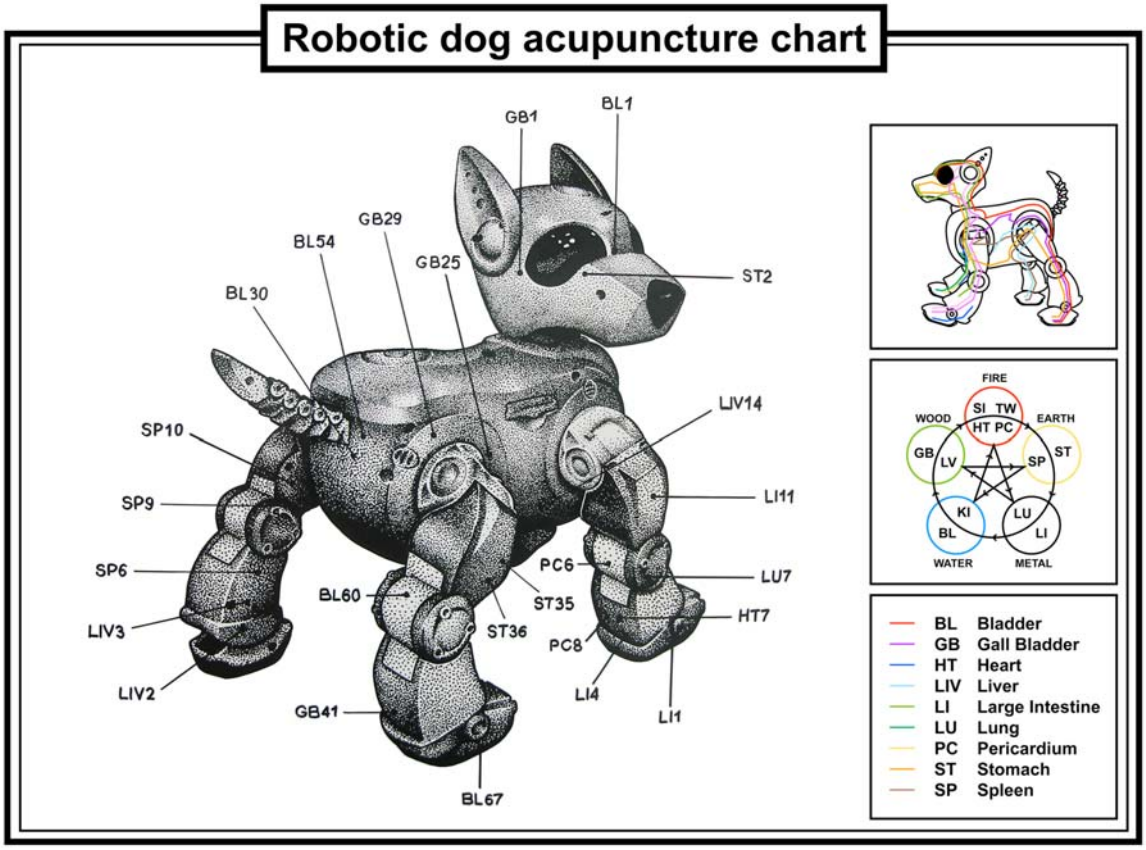
These robotic dogs allow her to embody questions concerning animals rights and the complex relationship between humans and animals. These questions have evolved over time. At the beginning she was more focused on the boundaries between human and animal, simply using the robots as a medium, then she begain interested in using them for their intrinsic robotic qualities, hence questioning the relationships between humans (or animal) and machines.

In "Dog[LAB]01", the 7 transgenic robotic dogs where used to make a critical social statement about the excess and dangers of cloning, eugenics and other experiments using animals. It also dealt with controversies concerning artists using bio-art as an art form.

The fact that these animals are robots but that they are suffering from diseases, or are even dying (like in "Dog[LAB]02", where a pack of cloned robots like Dolly - the one suffering from BSE - are dying in unison), challenges the utopian dreams of transhumanists in which robotic technology was seen as a means of overcoming our mortality.

The installation "Hunting trophies" evidently raises questions about animals rights, but it also introduces new interrogations about domestic robots and robots in general, their status, their function and their integration into society.

While the animals from "Do robotic cats dream of electric fish?" and "Gaude Mihi" are a much more accurate testimony of the breaking down of boundaries between animal, human and machine. Blending into society, robots are now becoming more and more life-like. They seem to be developing the ability and desire to experiment with social activities and pleasures. Thus my robotic cat might have the desire to entertain itself by watching pet program on TV, or the rocking robot "Gaude Mihi" which rocks when its owner approaches, might simply be seeking to generate its own amusement.



France Cadet
Robotic Dog Acupunture Drawing and *Gaude Mihi* © France Cadet

THE CASE OF THE MIMIC OCTOPUS: AGENCY AND WORLD MAKING

Mimicry involves a relational history between a creative, alive body, its perceptual abilities, and the environment it finds itself in. To claim the lived experience of space and wear and perform it over time is mimicry. One can show and act space by changing shape, colour, movement, and behaviour as wondrous examples of octopus mimicry will demonstrate. Space is relational to place and to potencies known and unknown by human beings, from gravity to the texture of substrates to other more-than-human beings nearby with their unique sensory capacities.
Text by Leesa Fawcett

… and try to love the questions themselves,
like locked rooms and like books
that are written in a foreign tongue.
And the point is, to live everything
Live the questions now.
Perhaps you will then gradually
without noticing it,
Live along some distant day
into the answer.

(Rainer Maria Rilke)

Introduction

An animal without a backbone that can walk upright on two appendages is an affront to human exceptionalism. But there are eight-armed invertebrates that can do just that—octopuses from Indonesia and Australia that move bipedally on sand. Instead of their regular crawling motion, individual octopuses stride on one pair of arms, drawing the other six arms around their body to remain disguised. It is believed that *Octopus marginatus* is mimicking common coconuts rolling along the sandy bottom.[i] A walking coconut. Besides being the first evidence of underwater bipedal locomotion, these octopuses live in an area with an abundance of coconuts floating along the sea floor, so they can walk their coconut way out of trouble. Beyond that, there are species of octopuses that can climb out of the sea and walk on land, as fish have done since time immemorial.

Part of my larger project is to radically question/alter who gets to count as a subject in relations (i.e. octopus), and how that reworks the material relations of production and environmental and social justice. Questions surface, float, walk, crawl and sink across wavy disciplinary boundaries.

I assume that philosophy (questions about existence) and biology (questions about living

Justine Allen
Image 1: Octopus disguised as a moving rock © Justine Allen

Justine Allen
Image 2: Octopus camouflaged with mottled pattern © Justine Allen

forms and life processes) are inseparably entwined and always subject to historical forces. I begin my work, already entangled with Donna Haraway's idea about "naturecultures" and her critique of the violence of Othering, because as she puts it: "so many fundamental epistemological starting points are from this enmeshment where the categorical separation of nature and culture is already a kind of violence, an inherited violence anyway."[ii] The legacy of Heidegger's claim that animals are "poor in world" also contributes to the violent exclusion of animals from particular forms of agency and world-making. Delving into the lives of mimic octopuses, I will argue that to mimic is to extend one's agency into changing environments and to participate in an ecology of relationships: making worlds along the way.

Mimicry

The word mimicry derives from the Greek "*mimetikos*" or imitative. Some animals have developed the ability to imitate other life forms (abiotic or biotic) as an adaptation, with any luck as a selective advantage in survival—to hide, to obtain nourishment, or to deceive. It is important to heed the advice of the phenomenological biologist, Adolf Portmann, who warned: "Whoever seeks to understand appearance structures must find a broader standpoint than the severely limited one of functional and selectional thinking."[iii] Perhaps, mimicry is a kind of showiness in nature, exceeding even the need for camouflage; ostentatious as that may sound, P. Vignon believed mimicry served an aesthetic goal, while Alphonsus Lingis (1983) would say that subjects are enjoying themselves with visual delights.[iv] For now, mimicry can be defined inclusively as lived bodily experiences experimented with and impersonated over time, through spatial relationships with recognized environments and their participants.

Early in his career, French sociologist, Roger Caillois was fascinated by insect mimicry, and took a decidedly anti-utilitarian approach to it. He rejected the idea that mimicry combinations were a result of random chance, believing instead in the "fact of their mutual arrangement, their reciprocal mapping."[v] Caillois considered mimicry a "dangerous luxury," invoking the example of Phyllidae moth caterpillars, which are known to eat one another, mistakenly identifying other Phylidae for leaves; "this could almost be viewed as some sort of collective masochism … with the imitation of the

leaf serving as an *incitement* to cannibalism in this particular kind of totemic feast."[vi]

Caillois wrote about mimicry in terms of the "veritable lure of space" and believed that the mimic was suffering from a disordered sense of space—a disintegration of the personality's sense of where it was in space, concurrent with an assimilation to that particular space.[vii] He drew on accounts of legendary "psychasthenia," or "depersonalization through assimilation into space," in which "the body and the mind become dissociated; the subject crosses the boundary of his (sic) own skin and stands outside of his senses. … he feels that he is turning into space himself—dark space into which things cannot be put."[viii] An intriguing, imaginative and non-anthropocentric theory for its time. I appreciate that Caillois assumes insects have a perspectival point of view that they abandon in what he presents as a psychotic state. Still, I can't help but wonder why he assumed that mimicry was the manifestation of a pathological problem.[ix] Mimicry could just as easily be a form of environmental playfulness, a creature experimenting with space and colour, or moving, pushing, expanding its embodied knowledge beyond its own skin into its lived relations with the environs.

Camouflage usually involves visual mimicry, vis-à-vis adaptations in morphology, colouring and behavior; but mimicry can also include variations in olfaction, taste, or hearing, and probably other senses we don't have any idea about. Marine biologist, Roger Hanlon marvels at how octopuses camouflage themselves against diverse backgrounds, and wonders how they pick the best pattern and coloring from their overall repertoire. Not only that, how does an octopus, as Hanlon observed, in the span of a mere 2.02 seconds, go from fully camouflaged to completely conspicuous? With insight, Hanlon comments: "The subtle ways in which edges, shadows, outlines, patterns, colors, contrast and papillae are used by animals for camouflage or communication also seems to have much in common with art, photography, landscape architecture and related fields, because light and dimensionality are being manipulated in similar fashion."[x] The profusion and widespread distribution of diverse forms of mimicry reinforces the fascinating world of adaptation across species in nature. For eons, in the fields of art and biomimicry, human beings have been observing and mimicking other animal species.

Mimicry in evolutionary ecology is called a mimicry complex, which typically involves a mimic, a model and a dupe. After that, it is a free-for-all: mimics may change models hourly, daily, or during different times of their life; and there is collective mimicry where several individuals cooperate to mimic one organism.

The numerous, known types of mimicry are named after the people who studied and thought about them (i.e. Bates, Mertens, Vavilov, Brower etc.). We have, for example, Batesian mimicry—named after Henry Walter Bates, an English naturalist and butterfly expert. Basically, Batesian mimicry is when a harmless creature (Viceroy butterfly) poses as harmful or, in this case, unpalatable or noxious (Monarch butterfly). My favourites include Vavilovian and collective mimicry. Vavilovian mimicry—named after the Russian botanist, Nikolai Vavilov, is a form of defensive mimicry. Vavilov's case in point is the way some weeds come to resemble crops, so they won't be "weeded out." Rye, for example, is a secondary crop, a weed that originally mimicked wheat, wasn't "weeded out" and eventually became a domesticated crop. In 1955, Knepper described a fascinating example of collective mimicry involving a catfish, (*Plotosus anguillaris*). He observed approximately 28 mm long juveniles of this dark catfish arranging themselves in a radially symmetrical mass with their heads pointed outward. In this dynamic formation they closely resembled a neighbouring, poisonous, black sea anemone with waving tentacles. Apart from mimicking the dangerous sea anemone, these young fish may gain further protection by presenting their venomous spines "en mass" to an enemy.[xi] I sometimes wonder how much collective mimicry is missed by agents immersed in neo/liberal pursuits of unsullied individualism.

These fish cooperate in a mimicking set of actions (not normally part of their daily repertoire) to protect themselves. They have a perspective on their own bodies, fellow bodies and dangerous bodies around them; they locate themselves in relation to these other bodies and act in their world. Do they occupy a perspectival point of view? How could they not and yet act so?

Most of the known mimics are insects, closely followed by fish. The marine world is full of complex environments, awash with fluidity, suspension and distortion of visions. I similarly situate myself in a watery world of material, feminist post-humanism. Being partial to Elizabeth Grosz's reading of Darwin and evolutionary theory, I concur with her focus on the fundamental indetermination of Life processes through chance and natural selection. Grosz writes that:

Justine Allen
Image 3: Octopus camouflage © Justine Allen

> …Darwin's work offers a subtle and complex critique of both essentialism and teleology. It provides a dynamic and open-ended understanding of the intermingling of history and biology … and a complex account of the movements of difference, bifurcation and becoming that characterize all forms of life.[xii]

We begin life as one cell, for a short period of time, and after that, the sheer ubiquity of copying and dividing abounds in life processes. Genes replicate, albeit sometimes into imperfect copies. Mimicry is another form of copying, mimicking or becoming and performing Other than the self, even if flawed. As Portmann reminds us: "Camouflage implies a seeing eye from which to hide." In order to mimic, one needs to occupy a sensory, perspectival point of view—to look out at a world from another location in time and space.

World as Verbs

In her book, *Meeting the Universe Halfway*, science studies scholar, Karen Barad, stresses that "matter is an active participant in the world's becoming."[xiii] Relations precede things; relations emerge through specific intra-actions; and decisions about which "cuts" to make in the world influence the material relations available to us, and ultimately what counts as reality. Barad's theory of "agential realism" elaborates philosophical quantum physics by converging on questions about matter, meaning and discourse. To simplify her theory, she uses Ian Hacking's line: "Reality is bigger than us."[xiv] Like Haraway, Barad warns against fixing a line between humans and more than humans because of the possibilities that are inevitably excluded. She defines agency as "a matter of intra-acting; it is an enactment, not something that someone or something has. … Agency is 'doing' or 'being' in its intra-activity."[xv] Her notion that everything is in relation, and that those bodies in relation matter more than objects, helps position an octopus in its environment. Especially, as Barad insists (following Henri Lefebvre) that "space is an agent of change, that is, it plays an active role in the unfolding of events."[xvi] Mimicry is a performance in space. In the theatre, actors often talk about "persona," which comes from the Latin word meaning "mask."[xvii] What is the persona a mimicking octopus takes up?

Why is mimicry relevant to human-animal studies? It matters to the animals. In terms of their lives and deaths and all the time experienced in between, mimicry makes a difference. The material body of an octopus, for example,

signifies all sorts of things. Between octopuses and their environments, they use their bodies for: communication through colouring and pattern, camouflage, dynamic mimicry, avoiding predators, capturing prey, finding mates and so on into the realms where we know virtually nothing about being an octopus. In the relationships between octopuses and human beings, we use their bodies for: food; commodification/entertainment in aquariums; research; and technological innovation via biomimicry.

Thinking about octopus mimicry helps address Karen Barad's astute question: "Why are language and culture granted their own agency and historicity while matter is figured as passive and immutable, or at best inherits a potential for change derivatively from language and culture?"[xviii] In the varied interactions involved in being a mimic, what does agency have to do with the colourful noise of mimicry? Barad explains: "Matter is not a passive product of discursive practices but an active agent participating in the very process of materialization."[xix] It is the world as verbs: processes of acting and being in the world.

Why is it that lived relations are not claimed as forms of learned bodily knowledge, experimented with, played with, and worn over time, resulting in innumerable forms of mimicry? Mimicry as action spreads into space, beyond the seen bodily membranes, into the force fields of life spaces. Beings inhabit multiplicities.

We know that each animal species and individuals have very different experiences and senses of time, often unlike most humans. Jakob von Uexkull illustrated this wonderfully when he described tick time. A wood tick can wait 18 years until it senses the right combination of the smell of butyric acid (sweat), and the feeling of mammalian heat. Then it is ready to drop from its branch onto the mammal passing by underneath and drink its blood.[xx] Environmental and cultural studies author, Neil Evernden notes: "Without the tick there is no tick world, no tick space, no tick time."[xxi] The tick, its sensory cues, and spaces make its world. This world-making is not one way either—the world changes and reciprocates. Philosopher, Brett Buchanan outlines how von Uexkull was the forefather of biosemiotic thought: "Organisms, according to Uexkull, actively interpret their surroundings as replete with meaningful signs. They are not merely passive instruments or message bearers, but actively engaged in the creation of a significant environment."[xxii] Organisms sense, "read" and respond to each other. [xxiii] Building on these ideas and on Evernden's notion of a "biology of subjects" leads me to imagine an ecology of subjects extending into space and time, extending not in innocent or pre-determined ways—but being in the context of material relations.

To illustrate how important environmental context and behavioural adaptation are, we can look to a fish, the Fin eating blenny. There is a striking overall similarity between Cleaner fish, a wrasse species that eats bacteria, ectoparasites, diseased and damaged tissue off of other fish, and the Fin eating blenny. Known as an aggressive mimic, the blenny models itself after the harmless and helpful cleaner fish in order to get close to other fish and take a bite of them. The mimicking blenny also imitates the *dance* of the helpful cleaner fish —the invitation to come close and clean. Still, mistakes happen and context matters. Cleaner fish can be eaten when in a non-cleaning context.[xxiv] As Barad says, "[a]ll bodies, not merely "human" bodies, come to matter through the world's iterative intra-activity—its performativity."[xxv] For a closer look, let us look at octopuses performing their world.

History of Cephalopods and their Perceptual Worlds

Octopuses belong to an ancient group of animals known as cephalopods, which includes squids, nautiluses, and cuttlefish. Cephalopods are found in all the world's oceans, except for the Black and Baltic seas, and they range from polar to tropical areas, and from shallow water to the very depths of the ocean. Off the west coast of Canada lives the largest octopus in the world (Giant Pacific Octopus). We know that octopuses can crawl, walk, swim and use jet propulsion.

Oceanic environments can be very complex, ever-changing, full of predators, and problems— requiring flexibility and responsiveness on the part of its members. Marine researchers have been finding out how octopuses meet this requisite complexity; they show astonishing intelligence, remarkable sensory abilities, emotional range and individual personalities.[xxvi] The eight arms of an octopus are full of neurons (like their large brains) and have thousands of suckers that can feel, taste, carefully manipulate objects and hold and tear flesh. Their skin can change colour and pattern dozens of times in mere minutes, to communicate with each other or to mimic something different. Octopus skin can also taste. In a new discovery, researchers found that cuttlefish, also adept at mercurial colour change, have gene sequences otherwise only

found in the retina of the eye in their skin! – leading them to ponder that "cephalopods—octopuses, cuttlefish, and squid—may be able to see with their skin."[xxvii] So now we have skin that can change colour and pattern, taste and see. To add to the mystery, philosophy professor, Peter Godfrey who has been a diver and observed wild octopuses, wonders, given the millions of neurons in octopus arms, if the arms have their own form of consciousness.[xxviii]

Alex Warburton was experimenting with octopus intelligence using a maze; and it turned out that the octopuses seemed to be savvy to her experiment, often resisting capture by hiding, squirting water at her, or holding on tight to an object in the tank. In a few cases, an octopus would be captured and then use the fishing net as a trampoline to bounce out of her reach to the safety of the floor and then run away.[xxix] Add problem-solving octopus to the list.

Mimic Octopus

The incredible mimic octopus (*Thaumoctopus mimicus*) was only "discovered" by Western science in 1998; observed living in Indonesian waters on sandy, soft sediments, near the mouths of rivers—habitats rich in benthic infauna. This octopus is known to mimic three quite different animals that live nearby: a bottom dwelling flatfish; a spiny lion-fish and a deadly sea snake. In their article on dynamic mimicry, Mark Norman and team suggest that the octopus actually decides which form of mimicry to use in which circumstance and changes its body shape, colour and behavior to match the right context.[xxx] In this dynamic mimicry, the octopus adapts itself in space and time, assumes a unique perspectival point, and also locates itself in relation to others.

The mimic octopus enacts a remarkable range of bodily modifications. The octopus guards the mouth of its burrow with eyes protruding. Usually, the mimic octopus is a dull brown colour and crawls along the bottom. However, there is an abundant sole (flatfish) species in the area and octopuses were observed using jet propulsion to swim quickly, while undulating like a flatfish. Then there are the lionfish. Lionfish have long poisonous spines and occur in the same habitat—photographs shows an octopus swimming like a lionfish and trailing long banded arms that resemble lionfish spines. Thirdly, when attacked by damselfish, mimic octopuses were observed hiding six arms down a hole and waving two in opposite directions, coloured to appear like a venomous, local sea snake.

As if that weren't enough, Norman and fellow scientists also observed mimic octopus' behaviors and bodily changes they thought impersonated big, solitary sand anemones, and large floating jellyfish.

In the company of this unique array of other beings, the mimic octopus performs in ways: a) appropriate to place and space; b) behaviorally consistent with the model animal it is mimicking; c) appropriate to the daily timing of the model's life; and d) involving dynamic and vast shape shifting. These qualities suggest that the octopus observes and enacts very particular beings: not any old bottom fauna will do—in fact all three of the proven impersonations (sole, lion-fish, sea snake) are toxic creatures. Returning to Barad, she eloquently states:

> …This on-going flow of agency through which 'part' of the world makes itself differentially intelligible to another 'part' of the world and through which local causal structures, boundaries, and properties are stabilized and destabilized does not take place in space and time but in the making of spacetime itself.[xxxi]

The mimic octopus uses its agency to enact the making of spacetime in its own environment with its neighbours. Like the tick, the octopus anticipates the being of others and in its mimicry shapes patterns of space and time by which other beings inter-relate to the mimic. This octopus impersonates other beings in a changing process of dynamic mimicry, thus creating new possible interactions. Thus, this octopus is not just in a particular habitat in the world; it is part of the world relating. We just "discovered" the mimic octopus but whether we see it or not it is out there right now performing, acting in the world and world-making in the process.

Just as there are many worlds, there are many forms of consciousness and intelligence. Watching actors in plays, no one would argue that it doesn't take intelligence to imitate the posture, gestures and states of another. A mimic octopus does a similar thing underwater. Is it intelligent to become another animal, to inhabit the being of another even briefly? Why not? Instead of a psychotic break with your space, maybe mimicry is a kind of play, like a game of hide and seek that turned out to be too much fun, too successful and the subject sought more and more ways to hide. Or maybe it is a form of shape-shifting just because you can, for the joy of transforming into different environmental relations.

Roger Hanlon
Image 4: Octopus camouflage © Roger Hanlon

The question of distributed consciousness looms large with octopuses and is the subject of further work—they appear to have mindfulness in their brain, their arms, their skin—a collaborative, distributed mind. Octopuses have big brains, excellent vision, skin that can taste and see, and eight arms that can operate separately from each other and from their complex brains. I wonder if a unified sense of intelligence is really necessary for the mimic octopus to thrive, or for any of us for that matter? Indeed, does our attachment to the idea of a unified consciousness make us unconscious of other more environmentally relational possibilities?

Acknowledgements:

I would like to thank Roger Hanlon and his Woods Hole colleagues for the generous sharing of their underwater photographs.

Notes

[i] Christine Huffard, Farnis Boneka and Robert Full, "Underwater Bipedal Locomotion by Octopuses in Disguise," *Science* 307 (2005): 1927.

[ii] Donna Haraway, *How Like a Leaf* (New York: Routledge, 2000) 106.

[iii] Adolf Portmann, "Colour Sense and the Meaning of Colour from a Biologist's Point of View," trans. Lee Jennings. *Color Symbolism*: S*ix Excerpts from the Eranos Yearbook 1972,* (Dallas: Spring Publications, 1977) 14.

[iv] P. Vignon as cited in Roger Caillois, "Mimicry and Legendary Psychasthenia" in *The Edge of Surrealism: A Roger Caillois Reader*, trans. ed. C. Frank (Durham: Duke University Press, 2003) 103.

[v] Roger Caillois, "Mimicry and Legendary Psychasthenia" in *The Edge of Surrealism: A Roger Caillois Reader*, trans. ed. C. Frank (Durham: Duke University Press, 2003) 96.

[vi] Caillois, Mimicry 97. With intrigue, on the same page, Caillois writes about "mimetic magic according to which like produces like, and which is more or less the basis of all incantatory practice. …The law of magic, *Things that have once touched each other stay united*, corresponds to the principle of association by contiguity…" On the next page, Caillois writes: "Mimicry could then accurately be defined as an *incantation frozen at its highest point* and that has caught the sorcerer in his own trap." 98

[vii] Caillois, Mimicry 99.

[viii] Caillois, Mimicry 100.

[ix] As a fan of Elizabeth Grosz, it is important to note that while tracing Caillois' influence on Lacan she discusses but doesn't critique his mimicry as psychosis position in *Space, Time and Perversion* (New York: Routledge, 1995) 88-91

[x] Roger Hanlon, "Cephalopod dynamic camouflage,"

Current Biology, 17 (11, 2007): 404.

[xi] Wolfgang Wickler, *Mimicry in Plants and Animals*, (London: Weidenfeld & Nicholson, 1968).

[xii] Elizabeth Grosz, "Darwin and Feminism: Preliminary Investigations for a Possible Alliance" *Material Feminisms*, eds. S. Alaimo and S. Hekman (Bloomington: Indiana University Press, 2008) 28.

[xiii] Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, (Durham: Duke University Press, 2007) 136.

[xiv] Barad, *Meeting* 137.

[xv] Barad, *Meeting* 178.

[xvi] Barad, *Meeting* 224.

[xvii] I am grateful to Peter Timmerman for this actor's insight into "persona.".

[xviii] Karen Barad, "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society*, 28 (31, 2003): 801.

[xix] Barad, Posthumanist 821.

[xx] Jakob von Uexkull. "A Stroll Through the Worlds of Animals and Men," *Instinctive Behavior: The Development of a Modern Concept*, ed. and trans. Claire Schiller. New York: International Universities Press, 1957.

[xxi] Neil Evernden, *The Natural Alien* (Toronto: University of Toronto Press, 1985) 81.

[xxii] Brett Buchanan, *Onto-Ethologies: The Animal Environments of Uexkull, Heidegger, Merleau-Ponty, and Deleuze*, (Albany: SUNY Press, 2008) 32.

[xxiii] Perhaps, even the notion of an organism is too limiting. I recently attended an intriguing talk by philosopher Frederic Bouchard who questions biology's reliance on organisms and instead looks for other ways of organizing life. Bouchard argues "the primacy of organisms needs to be replaced by the primacy of complex multi-species individuals."

[xxiv] P.S. Lobel, "Predation on a cleanerfish (*Labroides*) by a hawkfish (*Cirrhites*)" *Copeia* (2, 1976): 384-385.

[xxv] Barad, Posthumanist 823

[xxvi] Wendy Williams, *Kraken: The Curious, Exciting and Slightly Disturbing Science of Squid* (New York: Abrams, 2011); Jennifer Mather, Roland Anderson and James Wood, *Octopus: The Ocean's Intelligent Invertebrate*, (Portland: Timber Press, 2011); Alvin Powell, "Thinking like an Octopus" Harvard Gazette Available: http://news.harvard.edu/gazette/story/2010/10/thinking-like-an-octopus/ ; and Sy Montgomery, "Deep Intellect" *Orion* (November/December, 2011)

[xxvii] Montgomery, Deep, Available: http://www.orionmagazine.org/index.php/articles/article/6474.

[xxviii] Powell,

http://news.harvard.edu/gazette/story/2010/10/thinking-like-an-octopus/

[xxix] Montgomery, Deep, Available: http://www.orionmagazine.org/index.php/articles/article/6474.

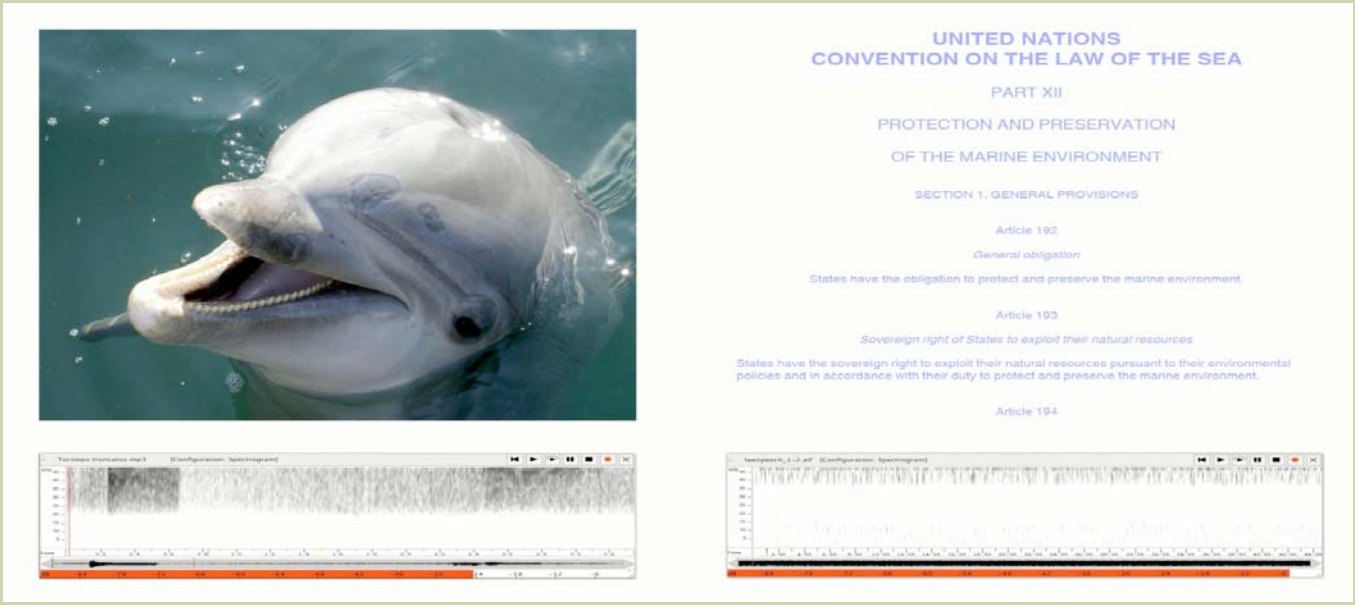
[xxx] Mark Norman, Julian Finn and Tom Treganza, "Dynamic Mimicry in an Indo-Malayan Octopus" *Proc. R. Soc. Lond.* 268 (2001): 1755-1758.

[xxxi] Barad, Posthumanist 817.

Leesa Fawcett was trained as a marine biologist, discovered herself as a feminist and has been working in environmental studies for the past two decades. She is Associate Dean, Associate Professor, and Coordinator of the Graduate Diploma in Environmental and Sustainability Education in the Faculty of Environmental Studies, at York University, Toronto, Ontario. Her areas of research and teaching focus on critical animal studies, environmental education and philosophy, natural history, sustainable agriculture, and human ecology. Her work examines who gets to count as a subject in worldly relations and how questioning inter-subjectivity can rework the material relations of production and environmental and social justice. Her preceding SSHRC funded research explored the phenomena of animal culture, consciousness and communication in whales and bats. Currently, she is working on human-animal relationships and conflicts in urban settings, using a mix of biosemiotics and political ecology.

Chris Jones

NATURAL LAW



Chris Jones
Natural Law, digitally produced sculpture © Chris Jones

Natural Law is a sculptural form drawn from a dolphin greeting whistle – specifically, the portion of the whistle's audio spectrum that is inaudible to humans. In referencing a system of communication that has until recently lain outside human experience, the work suggests a metaphor of the world as language. It asks the viewer to consider the unknown as a universe of potential for human evolution, not simply through the expansion of knowledge as a result of the mastery of technological perception, but simultaneously through the influence of the non-human. Chris Jones is an artist and teacher, serving Emily Carr as the Coordinator for the Master of Applied Arts Low Residency program and the Assistant Dean of Graduate Studies.

Chris holds a PhD from the University of Westminster UK, for research into the experience of new media in art. His interests extend from the implications digital media hold for the history of the image as an aesthetic and political discourse. He has also written and lectured on the concept of methodology in art to address questions around the epistemologies of interdisciplinarity within the emerging discourse that aims to conceive art research.

Chris's creative practice is rooted in photography and video. His process combines traditional and digital media, often using several different lens configurations and scanning techniques to arrive at a final single image. His work has been exhibited in Canada and the UK, and is in numerous private collections.

PEOPLE RESPOND TO IMAGES THAT PROVIDE HOPE

Sam Easterson has been making videos for over 15 years. Included among the museums that have exhibited his work are the Whitney Museum of American Art, "Whitney Biennial Exhibition" (New York); the Walker Art Center (Minneapolis); the New Museum (New York); and the International Center of Photography (New York). Easterson's work has also been presented on the Sundance Channel, Animal Planet, The Discovery Channel *and on the* Late Show with David Letterman. *Here he is interviewed by fellow artist Julie Andreyev.*
Text by Sam Easterson

Julie Andreyev: For Interactive Futures 2011: Animal Influence you exhibited your series of works called "Den Cams" and "Nest Cams," which were a compilation of videos you recorded of animals in their private spaces. The viewpoint of these videos offers a unique look at animal space; where they sleep, rest, hide, raise their young, and eat. What were some of your findings about the way animals live in their homes? How did the animals interact with the camera?

Sam Easterson: Although I own the copyright to all work that I exhibit in galleries, the work that I show is sometimes shot by others. A number of years ago, I realized that the animal-borne imaging and wildlife surveillance work that I was doing was not unique. I saw evidence that numerous individuals and organizations around the globe were also engaging in this type of work. Rather than just shoot my own footage, I thought it was important to begin to track and collect others' footage as well. In any event, in the "Den Cams" and "Nest Cams" videos to which you are referring, some of the clips were shot by me, others were not. I just wanted to clarify that.

As for "findings," I don't seek to collect scientific data. I'm not really looking for quantitative information. That is not why I make videos. I believe my job is to help people empathize with animals (and plants) by giving them an intimate view of their lives. I have found that "dwelling cams" are an effective tool to help me to do this (much like the animal-borne imaging work that I used to do). Obviously, you can often get a better idea of who a person is after you visit their house. For me, the same thing is true of non-human animals.

When I peek inside their dwellings, I am looking for idiosyncrasies, as well as unusual interactions. I should note, I'm not looking for things that make them more human. In fact, just the opposite. I'm looking for things that make me feel like I'm one of them. Sometimes I feel like they are trying to tap into me as well – through the camera. It's true, sometimes the animals directly interact with the cameras. Sometimes they sniff the camera or lick it. Most often they gaze straight into the lens. The moment that happens, it's usually over. The video has peaked. I just wonder sometimes if they can also see their reflections in the camera lens.

Andreyev: In some of your first works using small cameras to record animals, you used a method that employed a camera mounted to the animal that would record video as the animal interacted

Sam Easterson
Nest Cam series © Sam Easterson

with the natural environment. How did you become interested in this approach to video making and what did you learn about animals as subjects using this method?

Easterson: For as long as I can remember, I have been interested in stepping outside myself, to see from another perspective. When micro video camera technology started becoming affordable, I began trying to use it as a tool to empathize with animals and plants. It just made sense to me to attach micro video cameras to animals. However, it doesn't make as much sense to me anymore. I think there are other (better) ways to work to achieve that empathy.

However, when I was doing animal-borne imaging work, I felt there was often a meaningful transference that took place. If done properly, animal borne imaging systems can efficiently translate gaits, sounds and environments into compelling pixels. Pixel for pixel, I have never come across such efficient footage as a videographer. A short ABIS clip can pack an amazing punch. The key is to not mess with it (in post). I find that does a disservice to the animal.

I think that is what I learned most from my ABIS work. If you let them, animals have secrets to tell. You can't pretend like you can tell their story better then they can, through editing or narrating. In my current work, I just continue to try and give them a platform to reveal their secrets.

Andreyev: In your animal cam work, you are documenting the everyday activities of animals in their habitat. Does the animal activity you've recorded in this way challenge the preconceptions that humans have about certain animal's behavior?

Easterson: I think one of the things I have tried to do in my work is demonstrate that all animals are worth watching. Sharks, snakes, bears, alligators, etc. often dominate broadcast and cable TV. Over the years, I have become thoroughly convinced that more common animals can be just as interesting to watch. I have worked with moles, snails, armadillos, pigs, opossums, etc. I like to try to go out of my way to make them the subject of thought.

I should mention, though, that I have sometimes worked with "primetime animals." I feel like a lot of these types of animals are demonized in the mainstream media. For example, according to the International Shark Attack file, there were 12 fatal shark attacks worldwide in 2011. However,

Sam Easterson
Nest Cam series © Sam Easterson

some experts estimate that humans kill 100 million sharks per year. It absolutely blows my mind that fatal shark attacks get such intense media attention. Whatever the case, whenever I work with a primetime animal, I try to portray them in another light.

I can provide a quick illustration - when I was in my twenties, I flew to the Okefenokee, rented a canoe and paddled out into the swamp to observe American alligators. After canoeing about a mile into a small waterway, I was surrounded by alligators. They had no interest in me though. They were mostly idle. The majority of them just sat on the banks of the waterway. The ones that were in the water just sorted of floated there. When I later ended up making an American alligator video using animal-borne imaging technology, the alligator mostly stayed still on the shore of the swamp, or in the water. It was a boring video but I thought it was beautiful. More importantly, it was like how I had remembered them on my canoe trip.

Andreyev: You've recorded sounds, sights and viewpoints that offer a kind of intimate relationship with the animal, or at least with the animal's actions and physical nature. Could you please describe some of these intimate moments and what were the ones that were the most surprising for you?

Easterson: Without hesitation, I can say that some of the most intimate moments I have seen come about when one animal comes across another animal (especially if they are the same species). I have seen cows run to each other in the pasture, wolves lick each other's faces under a tree in the forest, and pigs touch their snouts together when wallowing in the mud. These sort of interactions always pierce my soul.

I was probably most surprised, though, by an intimate interaction that I observed using a Black Phoebe nest-cam. Two adult Black Phoebes were tending to their nestlings. One Black Phoebe then left the nest and returned with a European Honey Bee in his/her beak. S/he then passed the bee to the other adult Black Phoebe who proceeded to gingerly push it down one of the nestlings' throats. The care with which this bee was handled and transferred from bird to bird was truly remarkable. It would have been impossible to see this without the nest cam.

Andreyev: You've exhibited your work in prominent art galleries and museums such as the

Sam Easterson
Den Cam series © Sam Easterson

Whitney Museum of American Art (New York); the Walker Art Center (Minneapolis); the New Museum (New York); and the International Center of Photography (New York). In addition, you've made videos for science venues such as the Exploratorium, the Natural History Museum of Los Angeles and the National Museum of New Zealand, and for television on Animal Planet. Did the aesthetic or content concerns for these venues differ from those for the art venues?

Easterson: I often find that the aesthetic and content concerns are somewhat similar between venues. I have always tried to focus my energies on the content, and worry about the venue and/or delivery method later. I think this approach is the best way to ensure compelling footage. This approach also frees the footage to roam the cultural landscape. If there is an agenda, I believe it will show. As a result, I try and collect footage for the joy of collecting videos, and learning about nature.

If anything, I think I sometimes need to show a wider range of behaviors in the final footage that I exhibit at non-art venues. That range of behaviors is often tied to larger curatorial/exhibit directives.

Andreyev: Your project "Museum of Animal Perspectives (M.A.P.)" collects and displays remotely sensed wildlife imagery. You have plans to open a permanent home for M.A.P. in St. Paul, MN, in 2013. What is the history of M.A.P. and how do you see it contributing to the growing discourse on animal consciousness?

Easterson: The M.A.P. started out as an online project in 2009. After working as a video producer on a large-scale global biodiversity project, I began to realize that a lot of the most compelling wildlife imagery (particularly remotely sensed wildlife imagery) is not being generated by professional photographers and videographers. Instead, it is being generated by amateur naturalists.

In short, the M.A.P. used a series of Google maps to highlight remotely sensed wildlife imagery that was created by amateur naturalists from around the globe. I think one of the reasons it was successful was because it really provided a case for remotely sensed wildlife imagery – that it was a global phenomena. I think the project was also successful because it relied heavily on deep linking. It cut through a lot of the clutter and brought the

animals to people in a very direct manner. In addition, because the M.A.P. did not add text to any of the animal imagery, the content had no language barriers.

As the M.A.P. moves forward with plans to move offline, I actually hope that it can have an impact on a real community (not on the web). Lately, I've been far less enthralled with the internet. I feel like I need more from it spatially and socially, which it can't give me. Some of my senses are starving. I'm starting to wonder if the discourse on animal consciousness should be thought of in more spatial and sensory terms. If a meaningful discourse on animal consciousness took place locally because of the M.A.P., I would be content. I am curious how it would affect the surrounding area. But it's even more basic for me, it's not just about animal consciousness. I simply don't think there are enough magical little places anymore. Maybe the M.A.P. could be a magical little place. A place you have to see to believe. That's important to me too.

Andreyev: You've described how your animal cam videos went viral when you put them on-line. Youtube, blogs and other social media forms have contributed to information sharing in a profound way over the past 5-6 years. Since the beginning of the period when you started working with animal imagery to today have you noticed a change in public reception of artwork about animals?

Easterson: I have noticed a change. I have noticed that works which highlight an animal success story do better now than ever before. I recently posted a link on Facebook that took visitors to a camera trap image of the first confirmed wolf sighting in Western Oregon in nearly 65 years. The responses I got were overwhelming, and they came from all over the world. The image itself wasn't of particularly high quality, but people responded to the message. I have seen this over and over the last few years. People are responding to images that provide hope. They seem to trump all other images that I work to present, no matter how aesthetically compelling they may be.

Sam Easterson has been making videos for over 15 years. Included among the museums that have exhibited his work are the Whitney Museum of American Art, "Whitney Biennial Exhibition" (New York); the Walker Art Center (Minneapolis); the New Museum (New York); and the International Center of Photography (New York). Easterson's work has also been presented on the Sundance Channel, Animal Planet, the Discovery Channel and on the Late Show with David Letterman. As a video naturalist, Sam is best known for his animal borne imaging work, which he discontinued in 2007. He now captures footage by implanting cameras in natural environments. In addition to working as a video naturalist, Sam Easterson has also worked as a museum professional in the US, Canada and New Zealand. He has held staff positions at the Minneapolis Institute of Arts, the Te Papa Tongarewa National Museum of New Zealand and at the Royal Ontario Museum. Easterson currently works as a Senior Media Producer at the Natural History Museum of Los Angeles, where he is developing video content for the NHM's new Nature Lab. Easterson is a graduate of The Cooper Union for the Advancement of Science and Art in New York and also earned a Master of Science in Landscape Architecture from the University of Minnesota, Minneapolis. He has received grants from the Durfee Foundation, the Yellow Fox Foundation, the Peter S. Reed Foundation and the Creative Capital Foundation, among numerous others. In addition, Easterson is also a recipient of the prestigious Tiffany Prize.

Julie Andreyev is an artist whose recent area of practice called Animal Lover explores animal consciousness and creativity through modes of interspecies collaboration and chance, to produce interactive installation, video, social media, and performance. Her work has been shown across Canada, in the US, Europe and Japan in galleries and festivals such as The Vancouver Art Gallery, SIGGRAPH, Cultural Olympiad Vancouver 2011, Viper, CHI, Japan Media Arts Festival, Digital Art Weeks, Nuit Blanche. Andreyev's work is supported by The Canada Council for the Arts, The British Columbia Arts Council, Foreign Affairs Canada, and The Social Sciences and Humanities Research Council of Canada. She is Associate Professor at Emily Carr University of Art + Design in Vancouver, and Artistic Director of Interactive Futures, www.interactivefutures.ca.

Neil Chung

ANIMAL BEHAVIOUR PLAYLIST

Neil Chung
Animal Behaviour Playlist © Neil Chung

The *Animal Behavior Playlist* is a compilation of Youtube user's uploaded videos which document examples of animal behavior, cognition, creativity, consciousness and agency into a Youtube playlist. My goal is to distribute these videos through Youtube in a playlist that will automatically cycle through the choice videos. Individual users will also have the ability to recommend videos to this Animal Behavior Youtube playlist, guided by predetermined criteria set by both Youtube and myself. Sumbissions from the audience are highly encouraged as this is a participatory and interactive project.

Ideally, the Youtube playlist will continue to expand as it is viewed and shared. The idea is not to have individual videos become viral, but to have an easily accessible playlist of videos that will cultivate and broaden the online population's thinking to perceive animals as sentient beings, thus engaging the reconsideration of our current relationships and mentality towards animals.

Perception

WITH THE EYES OF ANOTHER

Lisa Jevbratt discusses the research for and the functionality and implications of Zoomorph – a distributed software art project currently in development. Zoomorph consists of image and video filters generating simulations of how a large selection of non-human animals see, helping us experience the world with the eyes of another species. The full title of this paper is: With the Eyes of Another: Zoomorph—Exploring (the Perception of) Visual Perception of Non-Human Animals.

Text by **Lisa Jevbratt**

I am inviting you to imagine the world through the eyes of another species: your cat; or a crow; or why not a more exotic species - maybe a mantis shrimp? For some, a clear picture might appear, depending on your belief systems, either reflecting your pre-conceived notions about what the selected species sees, or the actual experience of the animal. Some might cringe at the very thought: "It is not possible!" Is it presumptuous of us to believe that we can? Is it "anthropomorphizing?" Or is it rather arrogant to believe that we are so utterly different?

I have been teaching a class I call "Interspecies Collaboration"[1] at University of California Santa Barbara (UCSB) for a few years. In the class students are asked to work collaboratively with individuals of other species on art projects. While I encourage students to explore and devise non-explicit forms of collaboration that offer ways of working together with others without understanding them or knowing their intention, it has become obvious that some degree of insight into the fundamental sensory experiences of our collaborators are helpful. Students repeatedly ask how this or that animal sees. I started to look at the animals around me, wondering the same thing.

After googling things such as "animal vision simulator" for a couple of hours I realized that there was no such thing (at least accessible for laypeople). I decided to take what I believed to be readily available scientific data and write software that would simulate some species' vision over the weekend. Of course, as soon as I thought about the problem a little longer, I realized that it is a much more extensive task, one that I still, several years later, am deeply immersed in.

I started to research what is known and what can be known about animal vision from a scientific perspective, and talking to some of the leading scientists in the field of animal vision, I later added a para-scientific[2] perspective as well. These two paradigms represent widely diverse views on the possibility of understanding the visual perception (as well as consciousness) of other species, and the investigation of these differences is highlighting issues of anthropomorphism, anthropodenial, and anthropocentrism. The goal with the project, called *Zoomorph*,[3] is to produce software filters that generate simulations of how a large selection of non-human animals sees. The filtering algorithms change an image's hue, sharpness, brightness, contrast and other aspects, to provide an estimation of what a selected species sees. The algorithms are currently being developed and will eventually be available as Photoshop plugins, an online Flickr based interface, and as an augmented reality iPhone/iPad app. The iPhone/iPad app is the furthest developed at this point, a very limited, version of it, *Zoomorph Alpha Release*, is available as an app.

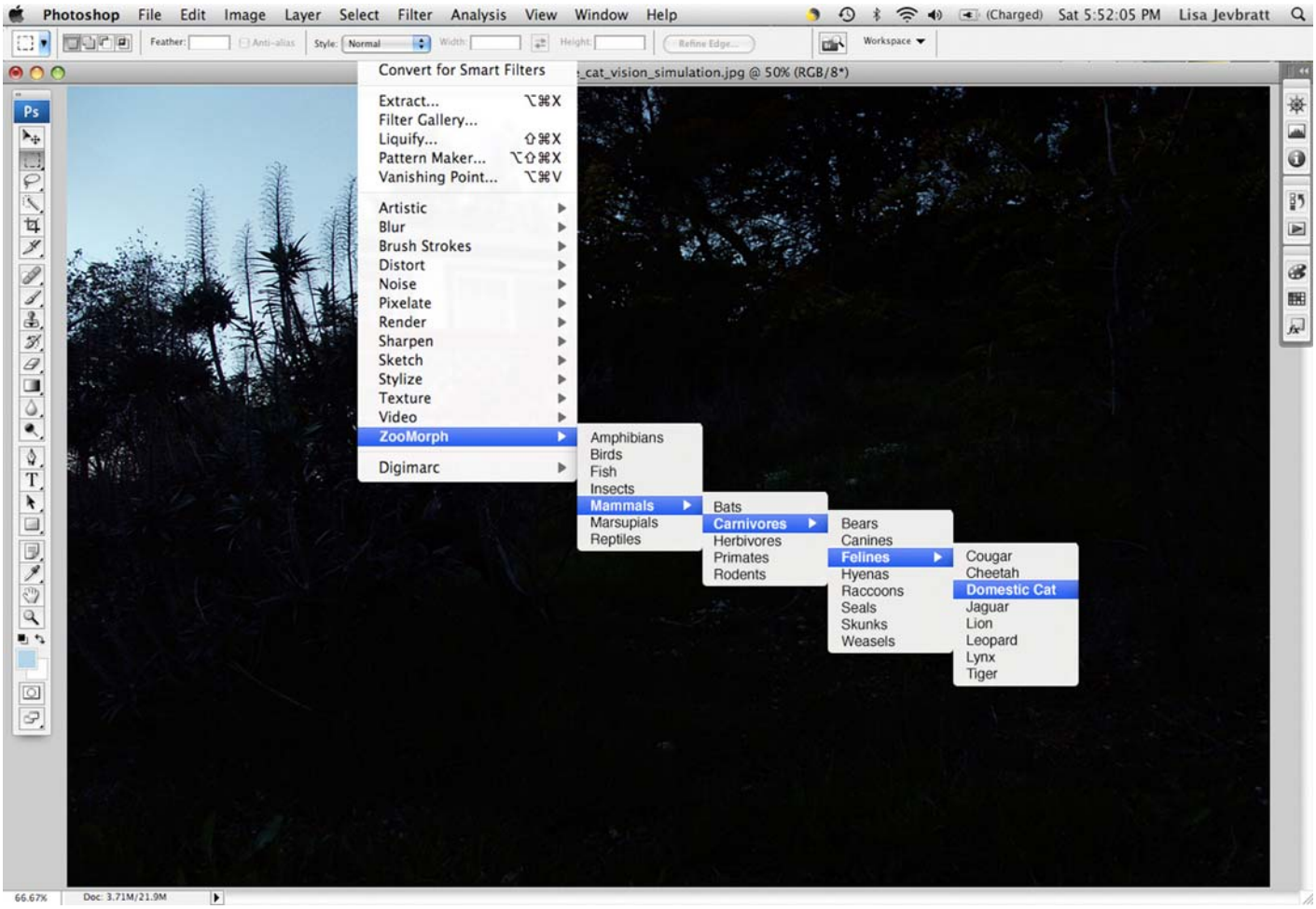
Lisa Jevbratt
Interspecies Collaboration, 2008 © Lisa Jevbratt

Zoomorph started as a "simple" software tool intended to help my students to understand the visual sense of various species of animals. It became an invitation to imagine the world as one of those animals, and an exploration of our perception of other animals' visual perception. While the initial impulse to make the project was utilitarian, the complexity and implications of, as well as problems with, the project soon became apparent. It asks technical, conceptual, philosophical and even spiritual questions. I also sensed an activist potential. On dictionary.com, "empathy" is defined as "the intellectual identification with or vicarious experiencing of the feelings, thoughts, or attitudes of another." To feel empathy is to be able to put yourself in someone else's position, to walk in their shoes, to see the world through someone else's eyes. *Zoomorph* aims to create a vicarious experience of the vision of an animal and, at the very least, encourage an intellectual identification with that animal in hopes of making its users acutely aware and respectful of the ever-presence of a multitude of parallel experiences of the world (or *Umwelten* as described by Jakob von Uexküll). By imagining what an animal sees, we recognize that there is someone there that does the seeing. And maybe that recognition is enough to make eating him/her, or experimenting on him/her, much more difficult, if not impossible.

Implementation

How people would access and use the filters was, from the very beginning, a very important aspect of the project. Many suggested that I use some kind of virtual reality display, such as the Allosphere, an immersive spherical screening room we have at UCSB, to display animal vision simulations generated with the filters. But for me it is important that the project can be a part of people's own creative work and their every day life. I did not want them to go somewhere else, certainly not to a movie theatre like venue, to experience the simulations, making them seem like fiction.

The first idea was to create Photoshop filters. Photoshop will enable large print quality simulations



Lisa Jevbratt
Photoshop Interface Mockup, 2008 © Lisa Jevbratt

to be created and it will allow for people to make their own creative projects involving animal vision simulation. By selecting a species from a pull down menu in the filter section the current image is transformed into a simulation of what the selected species see. Photoshop was chosen because it is widely used and it is where the concept of image filters was first made popular. Inserting a menu of animal names and the corresponding simulations in its list of filters is intended to function as a "parasitic"[4] art work, stopping people in their tracks, asking them to consider the experiences of non-human animals. However, people will have to consciously download and install the filters, so the parasitic effect is somewhat lost, except in multi-user environments, such as a school where a system admin might have installed the filters. The Flickr based online interface is somewhat more conducive to the parasitic effect. A user can stumble upon the project in the Flickr "app garden" while looking for something else, and it is free and easily accessible. The project hopes to encourage people to not only use the filters on existing images, but to take images with the filters in mind, asking them to imagine themselves as non-human animals in the various situations and environments they find themselves in during the course of their day.

The iPhone/iPad app filters the camera feed in real-time, providing a more direct experience of the animal's vision, while also providing image and video capturing. The iPhone/iPad app is truly ubiquitous; their users carry their devise most of the time. Experiencing the filters in everyday situations, at work, in a café, in the library, on the subway, can help the users imagine the presence of a non-human animal in that location, hinting at a breakdown of the boundaries between culture/nature, tame/wild, us/other. Several different ways of listing the species will be provided: Alphabetical, Taxonomical, Geographical (with a "Show Species Near Me" button) and Favorites.[5] The pull down menus in Photoshop and the Flickr interface, and the app listings are important in themselves. While an enormous effort is going into developing the simulation algorithms, the mere invitation to imagine the world from the point of view of another species, embodied in the various

Lisa Jevbratt
iPhone app mockup, 2008 © Jevbratt

user interfaces, is a large part of the project. The implementations all prioritize the meanings that the way they are used generates over the potential quality of the actual simulation. A virtual reality type installation would easily simulate larger fields of vision, and it could use sound, smell, temperature, etc., to help simulate aspects of vision that go beyond human capabilities, such as ultraviolet sensitivity. But the participatory, performative aspects of the chosen implementations outweigh the limitations.

The Algorithms

There are many aspects of vision, some more difficult to simulate than others. In many cases, other species vision is a superset of human vision; they see better or more than we do in some aspect(s). Some are subsets and, as such, are easier to simulate within the constraints of our physiology.

The *Zoomorph* algorithms will eventually simulate many aspects of vision, both subsets and supersets of human vision: night vision (rod based vision), field of view, spatial vision, magnetoreception (newer research suggests that some animals, potentially including the human, actually see magnetic fields),[6] temporal acuity (flicker fusion rate), polarized light, etc.

We[7] started with what seemed to be the easiest aspect to simulate: color vision (in fact, the renowned animal color vision expert Gerald Jacobs[8] told us that it would be the only aspect that could be meaningfully simulated). It turned out

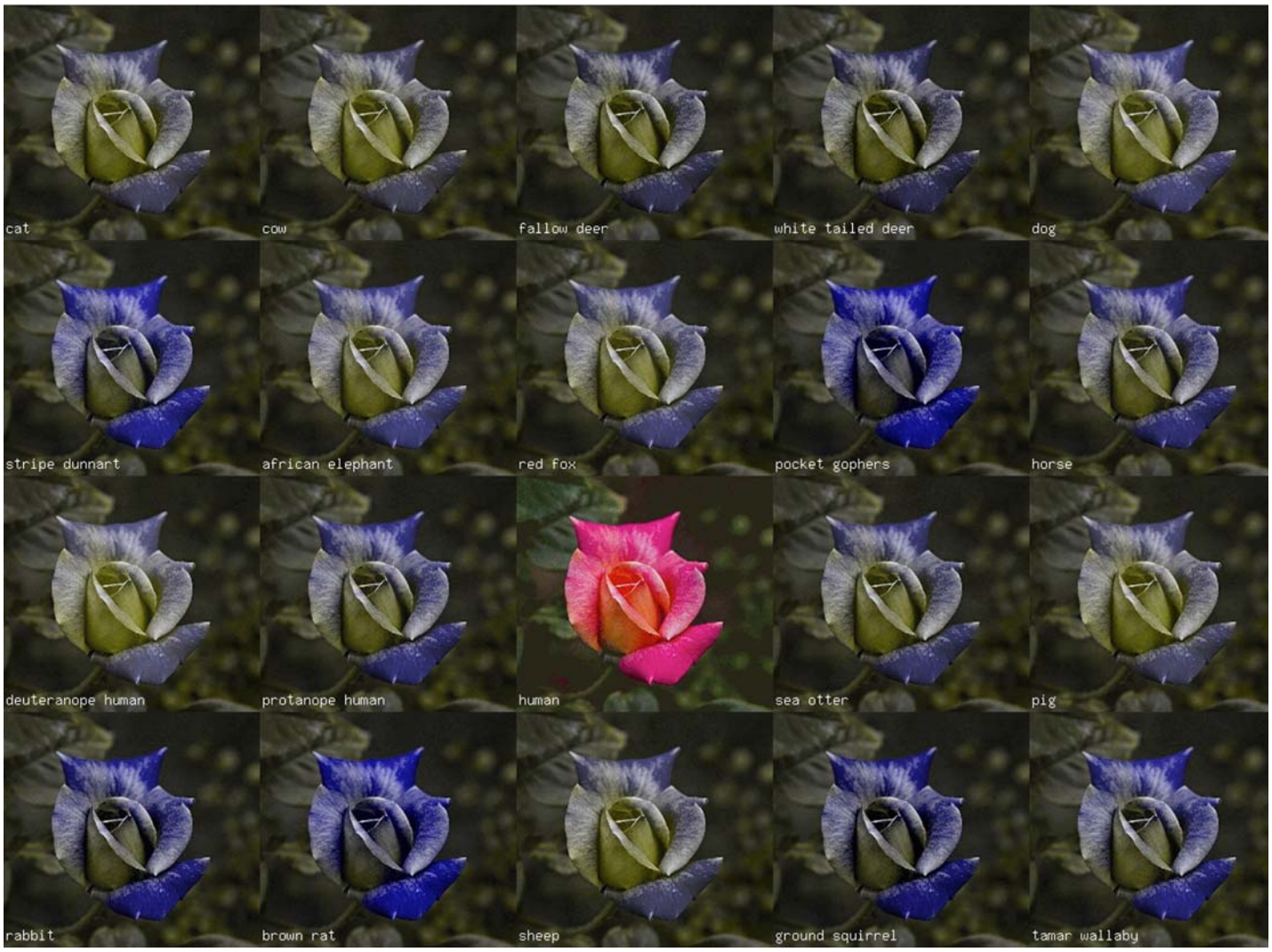
to be very complex and it has kept us busy for a long time. Color vision is the ability of an organism to distinguish lights of different spectral qualities. Scientists are studying color vision by looking at how an animal reacts to stimuli of different wavelengths, and by looking at the physical sensitivity to wavelengths in the animal's eye. Cones in the retina are sensitive to lights of different wavelengths. A higher amount of types of cones will provide the potential for experiencing more colors, and a higher amount of cones in total will generate a higher saturation. Some birds and fish also have filters in their eyes, called oil droplets, which modify the spectral sensitivity of their cones, making their vision more complex to simulate.

Humans and some other primates have three types of cones; we are trichromats. Simplified, trichromats are sensitive to red, green and blue. With those cones combined we have the potential of experiencing approximately one million colors. Scientists debate why we have three and not more or fewer cones. Many agree that our early mammalian ancestors were tetrachromats, i.e. having four different cones, with a color sensitivity far surpassing ours. But the threat of being eaten by dinosaurs forced them to be nocturnal. Our ancestors had to sacrifice cones for rods, the type of receptors in our eyes that are active under low light conditions. The theory is that all mammals became dichromats, sensitive to two kinds of light, allowing them to experience some colors (similar to what a "color blind" human animal sees), and that some primates eventually, through natural selection, regained one cone. Why that happened is debated. Some say we need the third cone, which adds ability to differentiate red from green, to distinguish ripe fruit and young leaves suitable for eating. Others claim that it is used to see subtle shifts in skin coloration, allowing us to detect illness in our young or mood shifts, such as sexual readiness. Other theories say it is used for object constancy. Better color discrimination helps us see an object as one and the same under very different light conditions. Some scientists are reluctant to (what they call) speculate about the reason. Art has the potential of exploring scientific inquiries from a different perspective, and while the project is not trying to solve why different species see different things, it hopes to provide a tool for, and encourage, such "speculations."

We started by collecting the specific peak spectral sensitivities of the cones of whatever species we could find data about. We then progressed to work on an algorithm that would simulate the color vision of monochromatic mammals who have one cone receptor, and dichromatic mammals who have two. It seemed simple enough, considering these mammals have fewer cones than we do. However, how to develop those algorithms was not as obvious as we first thought, even though we consulted with some of the most well renowned color vision specialists in the world: Gerald Jacobs and Jay Neitz.[9] There were many conceptual decisions to be made. The algorithms we settled for, after much work, seem scientifically sound. They did receive approval from Jacobs. Now I wonder if they, to be successful as simulations, need to be less scientific and more fictional.

There is a common misconception that many non-human animals don't see colors, but in fact only a few are monochromats. Due to the lack of another cone to compare the wavelength input with,[10] they only experience intensity of light, not the chromatic information of the wavelength. Because these animals have one cone that receives all light, their eyes are more light-sensitive than ours. The monochromatic algorithm is fairly simple in that it turns a color image into a grayscale image. However, depending on what wavelength the animal's cone is most sensitive to, the shade of gray corresponding to a specific color will vary. Judging from the limited data I have been able to collect, there seem to be two distinct groups of monochromats: marine mammals and nocturnal mammals, with marine mammals being more sensitive to greenish light and nocturnal mammals to more reddish light. One can speculte about the reasons. It makes sense that ocean dwelling animals see more green than red, since red is the first wavelength to be filtered out in water. But why are they not more sensitive to blue? Some research says it is so because their visual system was developed to function on land, not in water (Levenson et al., 841). What is the purpose of nocturnal animals being more sensitive to red? And what is going on with the hamster whose cone peak is similar to the marine mammals, not the other nocturnal mammals.

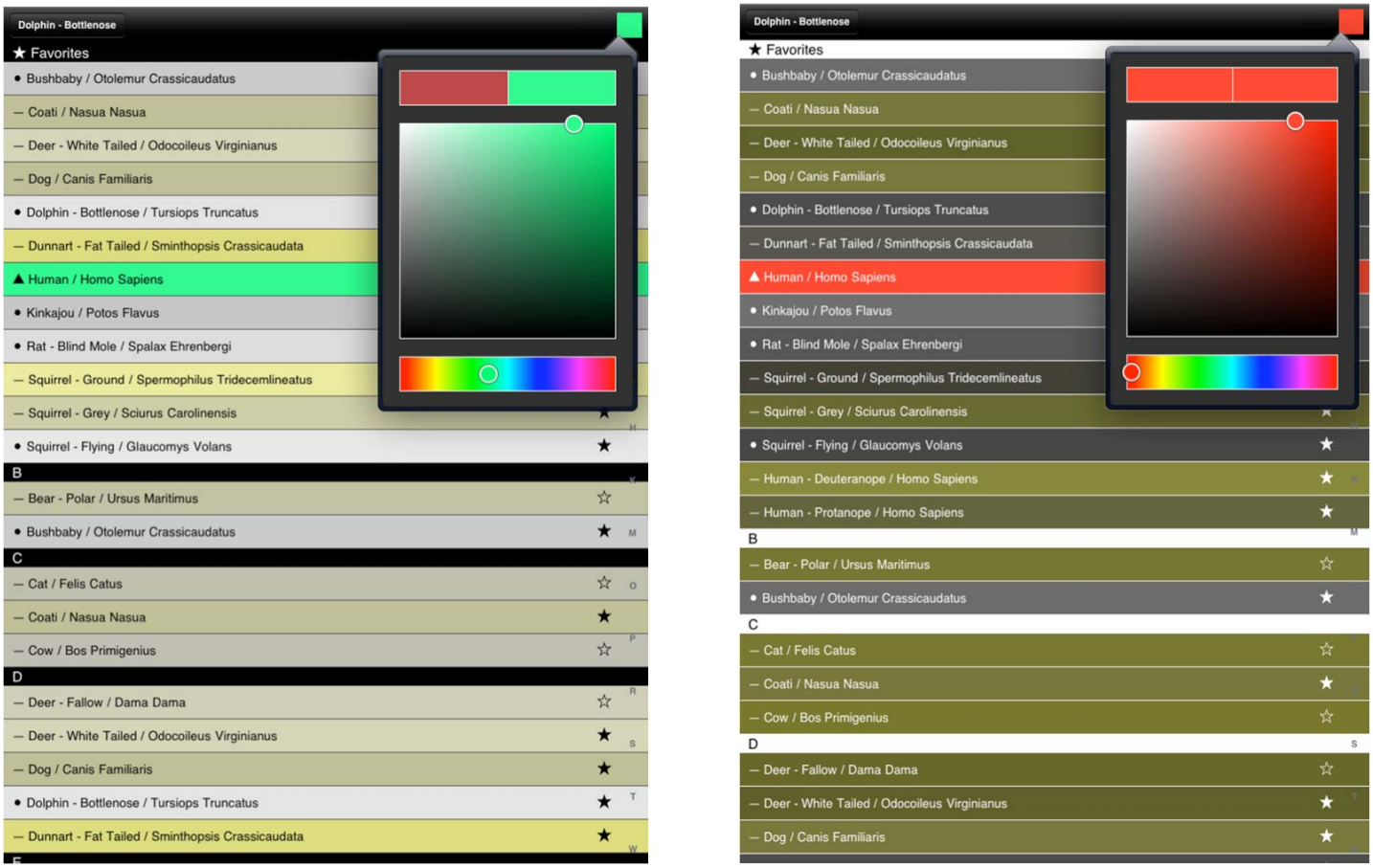
Most mammals are dichromats. They do not have a separate red and green sensitive cone, so instead of registering these two colors separately, they see some kind of yellowish color in response to wavelengths in the green to red range, while blue might be more similar to what we see. To understand how dichromatic animals experience colors, researchers have consulted with colorblind humans[11] who are also dichromats, and in terms of color, see the word in a very similar way to most mammals.[12] While all dichromatic mammals might see a similar range of colors, the actual colors they see will be different depending on the specific sensitivities of their cones. Animals whose red/green sensitive cone is more sensitive to red will



Lisa Jevbratt
Dichromat simulations, 2011 © Jevbratt

see reds as a brighter yellowish brown than other animals, and animals whose cone is more sensitive to green will see it lighter than others. The variations are small, and while there seems to be little scientific interest in the reasons for the differences,[13] as an art endeavor, it seems interesting and fruitful to explore them. Often poetry and meaning is found in the barely noticeable, in whispers. What might these little variations tell us about the *Umwelts* of different species? One could note that the colors most often found in an natural environment, like greens, grays, and browns, will not be seen in a very different way; while more artificial colors, like orange, cyan, magenta, red, will generate a more significant difference. What does it mean that when we introduce colors into an animal's *Umwelt* that they are not used to interpreting, they see very differently from other animals around them who share the same niche? To help the audience experience these minute differences, the iPhone/iPad app listing of species also functions as a visualization of how all the species might see one color at a time. Clicking the colored indicator in the top right corner changes the color. In addition, species can be set to be favorites and navigated by swiping the screen, allowing one simulation to be instantaneously replaced and compared to another.

Seeing fewer colors does not mean seeing less. Running our monochromatic and dichromatic algorithms on reversed colorblind test images[14] reveals how many other species might see things where we see just a blur. In fact, some research suggests that dichromacy might be advantageous for some kinds of foraging. But even if monochromats and dichromats can sometimes see more, they are manageable to simulate because computers have the capacity for that, and we can experience their limited color spectrum. However, the intention with *Zoomorph* is to also tackle forms of vision that are supersets, rather than a subset, of human vision. Most fish, crustaceans, insects, spiders and birds have more color receptors than us. Many are tetrachromats,



Lisa Jevbratt
iPad Colour Listing © Jevbratt

some pentachromats and some, such as the mantis shrimp, have an excess of a dozen kinds of cones. Some of these animals have cones that are sensitive to wavelengths within our range of sensitivity, giving them the ability to see more variations in the colors we see, some are outside, allowing the animals to see UV light, often in addition to seeing the colors we see.[15] Simulating monochromacy and dichromacy is, to some extent, data visualization, a form that I, as a data visualization artist, am quite comfortable with. When animals can define more, or a larger range of, colors, or see more in any other way, a simulation of their vision will involve fiction. We are absolutely unable to see what they see, so a simulation of it has to appeal to our imagination, make us believe we see more than we actually do. The approach we are working on for tetrachromats[16] (still perfecting the results) is to "borrow" colors that are not in the image to help widen the range of the colors that are in it. If an animal has a better ability to see variations of blue than we do, the algorithm stretches the blue colors over a larger spectrum. Simulating UV vision is not only a matter of our limitations, but also a limitation in the technologies we are developing the project for. Glass does not transmit UV light, so images and video taken with normal cameras and smart phones will not contain UV information. Still, there might be some information in the image that indicates the presence of UV light that can be enhanced. Then there is the mantis shrimp who is in a league by itself. They have something like sixteen different kinds of cones with a sensitivity ranging from UV to red, and their vision will require a completely different approach to simulate. Potentially, they don't experience input from all their cones at the same time, but the large amount of cones rather functions as a preprocessor, allowing them to see a large range of colors (which researchers believe they use for complex social interactions[17]) even though they have very small and basic brains.

METHODS

Science

Scientists study the color perception, acuity, light sensitivity, and other aspects of vision of animals using behavioral studies, dissections, genetics and devices such as electroretinograms.[18] While reading a paper about animal vision, several problems with scientific research became apparent. First, some, or most, depending on how

Lisa Jevbratt
Tetrachromat Simulation human/chicken, 2011 © Jevbratt

one sees it, of the research that generates the data I use is produced using invasive animal testing. Procedures such as eletroretiongraphy that might not be painful but are surely unpleasant. Bahvioural experiments may not be physically intrusive but the animals live caged, in unnatural conditions, often for years. Those are the good scenarios. Many "research subjects" are straight-out killed and dissected. Animals are for sure suffering for this research. My initial reaction was that it is good that I use this data and make something out of it that can benefit the animals in the end (through increasing empathy for other species and their experiences), but I am not sure about this. Maybe it is not right for me to use it. I wish I could slab a big "no animals were harmed in the making of this project" sign up, but it is clearly not possible. Second, a vast amount of research is being done on animal vision. Still, there is a reluctance to use this knowledge to create simulations. It is not that the scientists don't think they know how animals see. Rather, simulating how someone sees implicates a someone, a subject who does the seeing. In the Western anthropocentric paradigm personhood is reserved for humans. Scientists, and others, see "Anthropomorphism" – assigning (what is believed to be) human characteristics to non-human animals – as an error of sentimentality that makes (objective) research impossible. The etiologist Frans de Waal (Professor of Primate Behavior at the Emory University in Atlanta, GA) argues instead that the anthropomorphic taboo has a rather detrimental effect in research, and he introduces the term *anthropodenial* to open up a discussion about these effects. He writes: "I propose 'anthropodenial' for the a priori rejection of shared characteristics between humans and animals when in fact they may exist. Those who are in anthropodenial try to build a brick wall between themselves and other animals. They carry on the tradition of French philosopher René Descartes, who declared that while humans possessed souls, animals were mere machines. Inspired by the pervasive human-animal dualism of the Judeo-Christian tradition, this view has no parallel in other religions or cultures" (de Waal, 69). Could the resistance in the scientific community to acknowledge non-human animals as persons, with feelings and needs, be a result of how animals have been, and still are, used in scientific research? There is a paradox in the scientific relationship to anthropomorphism. It goes like this: Research on animals is possible/ethical because we are not similar; they do not experience the pain, anxiety, and stress that we do. Meanwhile, research with/on animals is useful since we can infer things about us, humans, from the research we make on animals — it works because we are similar.

Para-Science

In response to scientists' struggle with non-human animal agency, I decided to expand the scope of the project to include non-scientific experts on animals' experiences. In many indigenous/shamanic cultures, historical and contemporary, the concept of personhood does not end with humans. All animals, human or non-human, are persons, with a soul and a full range of complex emotions and sensations. Within this paradigm, simulations claiming that an animal sees this or that, is not far fetched. According to historian of religion Mircea Eliade, many of these traditions involve practices in which a spiritual leader becomes an animal in order to see the world through their eyes and teach his/her society what

Lisa Jevbratt
Scientific (top left corner) and para-scientific cat color vision simulation algorithms, 2011 © Jevbratt

he/she learns about the world. The transition from human to animal takes place in trance states induced by dancing, drumming or hallucinogenic plants (Eliade). In the western scientific paradigm we would be prone to thinking that this "becoming animal" is metaphorical.[19] But who are we to say that this transformation is not real? What do we know about these cultures that allows us to judge their experience of becoming animal? What could we learn if we allowed indigenous metaphysics to challenge our own ontologies, rather than trying to explain their experiences within our own? For the purposes of *Zoomorph*, I decided to not question these very different epistemologies at the get go. I rest, for now, any skepticism I had in order to allow this other kind of knowledge to percolate and intermingle with the scientific knowledge I am working with, in the hope that something interesting will emerge in the intersection of the two.

I wanted to find, and learn from and with, those who transform, whatever that means, into another species (in lieu of a better term I will call them shape shifters). I have no training or experience in "field work." I am not an anthropologist, but a computer geek artist gone interspecies. This quest has been rather difficult, but it has become intrinsic to the project. The last few years that I have searched for these people and their knowledge, I have not gotten very far. However, I have had an opportunity to really experience the discrepancies between western and non-western epistemologies first hand. As a start, I enlisted the artist Allison Holt, who was heading to Java to study with a spiritual practitioner there for a year.[20] She was led from one person to another with the promise of this or that person having some knowledge pertaining to shape shifting. In the end, none of what had seemed really promising leads got her any information relevant to *Zoomorph*. Her experience put doubt in my mind: How do I find reliable sources? Who would be willing to communicate with me? Why would they want to give me information if they have it?

At a Chumash event in Santa Barbara I worked up the courage to approach a man who talked about the importance of native ways of learning. I asked him if he knew of any people that have knowledge about animal vision through practices of "shape shifting." He told me "you have to be the squirrel yourself, you can't get this information via someone else. Just forget everything you know about vision from western science and ask to become the squirrel yourself." Clearly this path was going to ask much more of me personally. I spent a week in the rainforest in Queensland, Australia doing nothing but "Indigenous Tours:" walking with indigenous guides who were showing natural features: sacred waterfalls, petroglyphs, etc., to small groups, or in some cases only me. I went crab hunting and

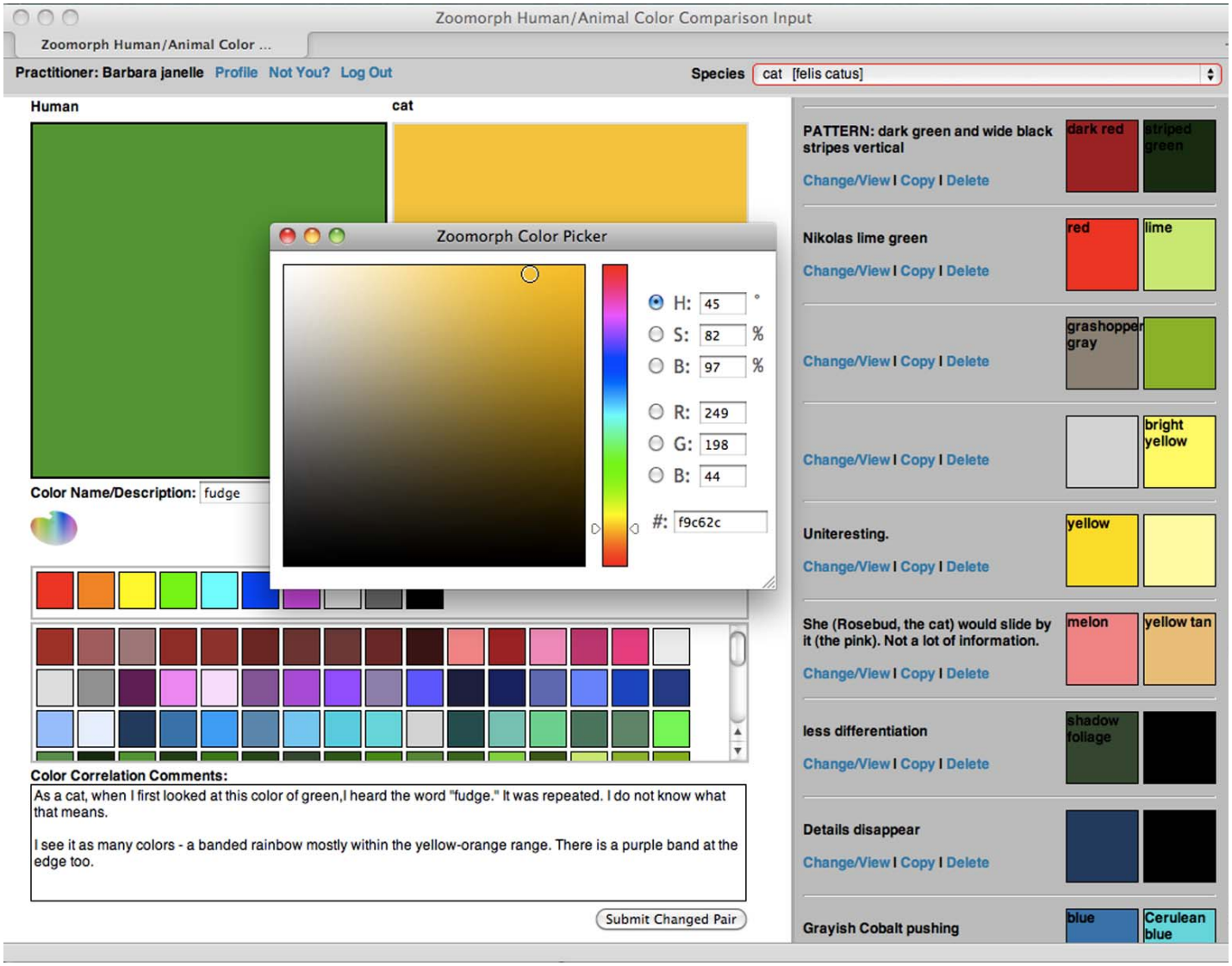
Lisa Jevbratt
Mantis Shrimp © Unknown [+endnote with http://anakegoodall.wordpress.com/2012/05/22/mantis-shrimp/ in it]

mollusk foraging in the swamps along the coast. I was carefully leading my discussions with the guides towards practices of becoming animal. Overly afraid of being too direct made me far too vague. How does one bring these issues up without being disrespectful and assuming, or without sounding/feeling ridiculous? Finally, I had a short but important exchange with an aboriginal man at the conference I was heading to after my rainforest excursion. He told me that, as I had started to suspect, it would be the aboriginal dancers that could have a concept of shape shifting, but that I might have to work with one of them maybe for the rest of my life to get information, and I might end up not getting any information at all. My whole life, well the project has a due date. This woke me up, made me see how I approached para-scientific knowledge acquisition in a scientific way. I want this information, and I want it now. In the para-scientific paradigm you might have to be initiated and shown to be worthy and trustworthy of information before receiving it. Not knowing how to approach indigenous people with my actual inquiry, I was seeking their presence and advice in a somewhat roundabout, and to some extent dishonest, way. I had a healing session with Walking Thunder, a Diné (Navajo) medicine woman. During the session I mentioned to her my quest to learn how animals see, how I wanted to make us more respectful of other species. She told me "you should hum to the animals, I see waves around you" (interesting since I for some years now have practiced overtone singing particularly in nature), but nothing about shape shifting. I had hoped to learn something about "skin-walkers": in the Navajo tradition a human dressed in animal pelt transforming into an animal and performing morally questionable acts as that animal. But why would she talk to me about that? I talked with a young Hopi White Buffalo dance performer. He was approachable, and open about his feelings of merging with the buffalo as he dances it. However, he belongs to a dance

Lisa Jevbratt
Hopi White Buffalo dancers performing on suburban driveway, 2010 © Jevbratt

troupe that tours and performs Hopi dances to a non-native audience. While it appears to have traditional/authentic roots, are their dances and intent targeted to that audience? And if so, how much spiritual/traditional knowledge is really passed to these dancers? When Santiago Carhuancho, a Quechua Spiritual Guide of Peru, came to Santa Barbara to introduce the community here to Quechua spiritual practices and beliefs, I got an opportunity to interview him. He was very kind and openhearted and gave me a couple of hours of his time. By then I had learned to be completely open with my inquiry. Still, I had a hard time steering the conversation towards specific questions while feeling I was too precise. Again I found myself feeling simple and shallow, constantly in my mind reprimanding myself for not being more sensitive to other cultures and their realities. However, by sitting back, listening to what I received instead of looking for specific answers, I got important insight from Santiago. He talked about the role the plant medicine Ayahuasca, a strong hallucinogenic, has in their rituals. It heals whatever needs to be healed in the person taking it, while creating a heightened awareness. It might have no effect in a person that is not ready to receive its medicine, potentially because that person does not understand the cosmological framework for the medicine's healing powers. What was significant though is that the people that are ready to receive the medicine have a general experience; Yakumama, Mother Earth in the form of a great snake, enters their body and moves through it, generating a heightened awareness. This is significant because it shows how indigenous cosmologies create an epistemological framework for their para-scientific practices, helping to make sense of personal emotional and spiritual experiences. As I will argue later, it may be hard to create an algorithm in the absence of such a framework.

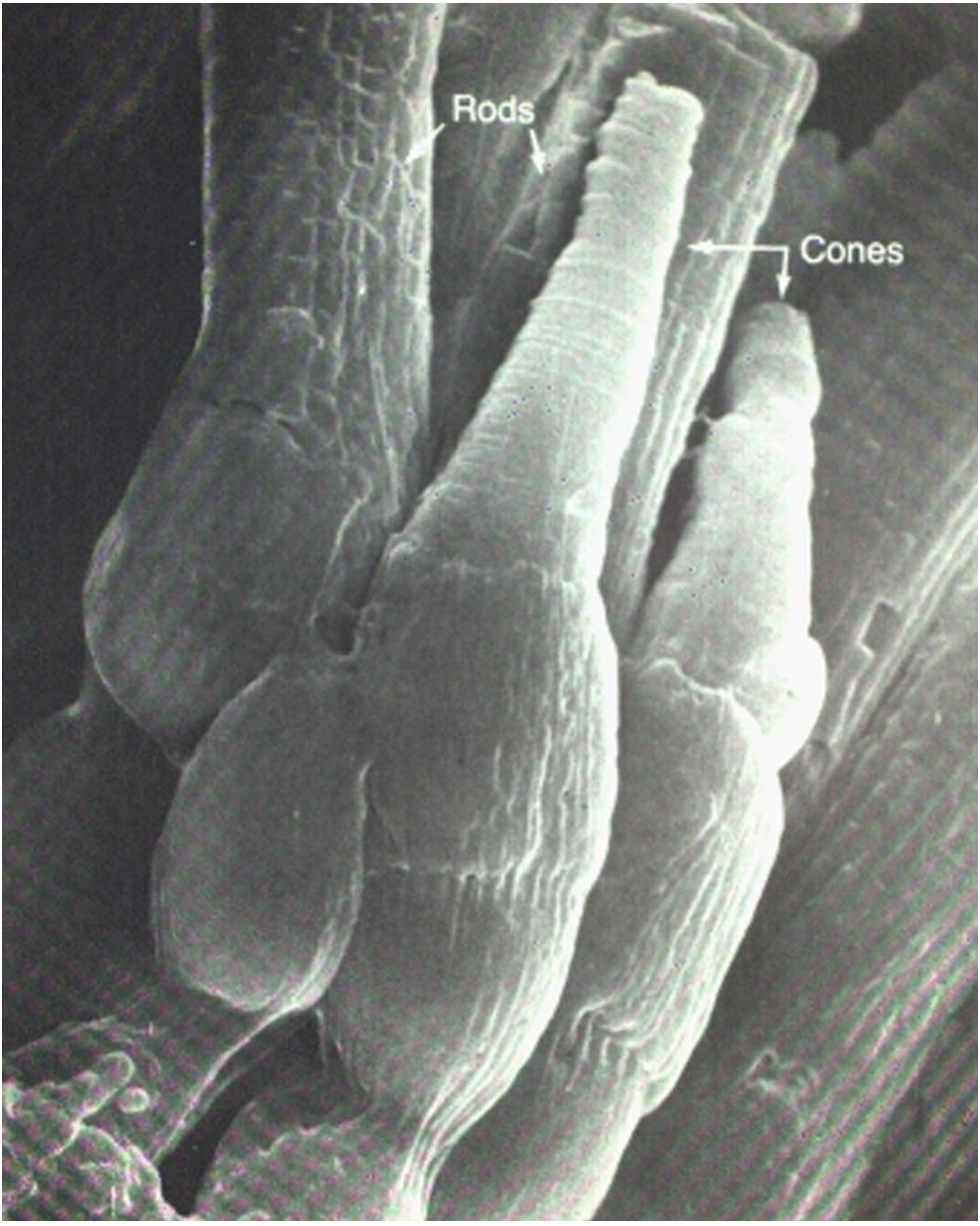
The cosmology of Santiago's people does not contain the concept of shape shifting, however



Lisa Jevbratt
Para-scientific data collection web interface © Jevbratt

he talks about another Peruvian Amazonian people whose cosmology does; they become birds through their Ayahuasca rituals. I considered traveling to Peru to try the sacred plant myself. Could I experience the bird transformation, and see what they see, if aided by a curandero from that people? Santiago might say no since I am not initiated into their cosmology, and without the proper foundation might not be able to learn from the plant. Meanwhile Ayahuasca tourism is booming. I am not the only one that thinks that they could find answers in this harsh plant (often making people vomit for hours). What happens to sacred information when it becomes a tourist destination; when Westerners take this medicine without regard for the cosmologies that serve as the foundation for its teachings? I realized (aided by the birth of my daughter) that I am not suited to find out first hand at this moment. My lack of knowledge of the colonial languages of the Amazon (let alone the indigenous), drug-wars, kidnappings, tension between indigenous spiritual and Christian practices, and the possibly extremely disorienting effects of the plant medicines, are more than enough to keep me away from the Amazonian rainforest for quite some times.

In light of my fear of getting lost in the Amazon, my timeline (at least some aspects of the project need to be exhibited in the foreseeable future), and my insecurities in communicating with indigenous people, I recognized that it would be easier to get para-scientific information from someone who is firmly rooted in a western epistemological paradigm while having a practice that lies outside it. I started to work with the animal communicator Barbara Janelle who communicates with animals telepathically and through subtle body language. She does not become the animal; rather she is asking the animal to show her a picture of what they see. She works both with animals she knows and ones that she does not know, some which are present and some



Lisa Jevbratt
Eye organ © Unknown [+endnote with http://cs.fit.edu/~wds/classes/cse5255/cse5255/davis/visual.html in it]

in other locations. While working with me, Barbara helped me develop a web interface for uploading color comparisons. I intend to use the interface with a larger community of animal communicators and other groups of people who have a concept of becoming animal (such as Therians[21]). It is surely easier to get usable data from Barbara's practice than from indigenous practices, still she is understandably reluctant to simplify the visual experience of the animals she works with to the extent that is needed for them to be easily incorporated into an algorithm. The color data collection system is simplistic. You give it a color that humans see and the color a specified animal sees in its place. The information Barbara gets from the animal is often synesthetic and emotional. Colors can be slippery, repelling, palatable etc., and they can have patterns, be striped, checkered and so on. But while the data collection is problematic, designing an algorithm that makes sense of the data is even more so. As Santiago described to me, in his culture there is a shared cosmology that help provide explanations for the very personal and emotional experiences, why they happen, how they can happen, and what they mean. But how can we understand how Barbara sees what a cat sees? What are the ontological conditions that make it possible? And what is the cosmology that makes sense of those ontological assumptions? While Barbara certainly has her own framework that validates her experiences, the reality is that, as a society, we don't have that framework. The problem for *Zoomorph* is that without such framework, it is hard to devise a system, an algorithm, for how to connect the data points we have. An algorithm is in some sense a cosmology, the glue that makes sense of experiences. We could use scientific assumptions in making those connections but maybe that defeats the purpose. Such an algorithm will inevitably embody a scientific worldview. Or maybe we have to rethink how simulations should function. We have approached the whole task in a very scientific way. We pick a visual experience apart -– generating data – in order to be able to reconstitute it in an artificial medium. Then we devise a system – the algorithm- – to function as the glue in the reconstitution. The para-scientific aspect of the project might be begging for a completely different method altogether, not just a different way of collecting data. Lots of work remains.

THE PERCEPTION OF VISUAL PERCEPTION

When I tell people about this project I often get the comment: "but vision is not an important sense for animals." This very common notion is misinformed and problematic in several ways.

Often people say "animals" but they mean "dogs." They clearly do not talk about mantis shrimps. Of course there is no such thing as an "animal."[22] We animals are all different beings with different ways of experiencing the world. As I have discussed, many species have color vision far beyond ours. The same is true for night vision and acuity, and there are aspects of vision that we don't even have, such as UV and polarized light sensitivity. So why is this such a pervasive notion? Vision has long held the top position in the hierarchy of senses we humans like to construct. And we are not willing to share that sense with other species (just as we are quite unwilling to share aesthetic sensibility). In fact, many scientists have a very stringent definition of color vision, much more stringent than the definition of other senses, as to ensure nobody else qualifies. Some suggest an animal needs an internal representation and awareness of color to be said to have color vision (Kelber and Osorio, 1617). As it turns out, chickens can categorize the colors they see (which are many more than we see), indicating an internal representation of the color (Kelber and Osorio). And according to the research of biologist Con Slobodchikoff, prairie dogs even have words for colors.[23] But does it really matter if chickens know that orange is between yellow and red and if prairie dogs can talk about blue shirts? Language centered theories of perception seems profoundly anthropocentric, and as a data visualization artist, I can't help but think that images are nothing if they don't show us things we don't know how to say. Linguist Guy Deutscher has generated a lot of interest with his book "Through the Language Glass: Why the World Looks Different in Other Languages." It is interesting reading, but I am not convinced. Nowadays I am finding myself more in the "seeing is forgetting the name of the thing one sees"[24] camp.

So how did vision end up on the top of the hierarchy? Why do we want to keep it to our selves? Vision allows us to perceive things at a distance without being physically involved in what we perceive, so it seems to generate more objective knowledge. The eye is thought of as a hole, a window that transmits information to the brain without interference. It appears to be a clean sense; we don't need to be physically involved. Animals are often assigned the "messy," "subjective" senses of smell, taste and touch, related to bodily activities such as feeding and procreation, which demand closeness with that which is being perceived. Vision has, at least in western culture, long been considered to be a

"higher" sense, the sense connected to reason and consciousness itself. (There are many words and figures of speech that shows how intertwined sight and knowledge are in our culture: for example, "insight," "I see," as in I understand, and "eye-opener.") Donncha Kavanagh writes in Ocularcentrism and its Others: "Plato made the important distinction between the sense of sight, which he grouped with the creation of human intelligence and soul, and that of the other senses, which he placed with man's material being … sight, unlike the other senses, had a theological dimension, as it was directly connected, via light, to the sun deity" (Kavanagh, 447). But Plato (and a long list of philosophers after him) was of course wrong. The eye is a part of man's material being, and the material being of any other animal with an eye. The eye is not a hole, an opening into the brain; it is an organ, just like the liver, stomach and heart. We don't see through the eye, we see with the eye (thus the title of this paper). Jay Neitz, a color vision researcher at University of Washington, and his team, was able to make dichromatic squirrel monkeys trichromatic by injecting a gene for a third cone directly into their retina.[25] In that case their brains obviously were not pre-wired to understand this color information and did not have an internal representation or language for the new colors, yet their brains were able to understand the extra color information. Changing the eye physiology changed what the monkey could see. It is also interesting to note that there are animals that have virtually no brain but still have trichromatic vision and behaviors that exhibit color sensitivity, like the daphnia magna. Why is it important to think of the eye as an organ and not a hole into our minds? Why is it significant that eyes actually do at least some of the seeing? For the purposes of *Zoomorph*, it makes it plausible to make some assumptions about what animals see, depending upon the functionality and morphology of their eyes (and it is quite amazing how similar the eyes are in very different species). But most importantly, it helps us steer away from a consciousness centric paradigm that inevitably ends up being anthropocentric. In his book *Corporeal Compassion*, Ralph Acampora puts forth a theory of animal compassion, building on our bodily commonalities, and by doing so, he avoids the anthropocentric hierarchies we attach to consciousness and use of language.

Vision is a sense humans feel strongly about. For Plato, vision was connected to the sun deity, and our language reveals how we connect it to reason, but also to the supernatural. A "seer" or "clairvoyant" might have "vision," and many more have "seen a ghost" than "heard a ghost." An acquaintance of mine from Mexico was told the following tale as a child, and I have read similar stories from other Central and South Americans online. Two men were wondering why dogs howl at night. One night they went to a mountain where they heard dogs howl and put the crusty substance that can form in the corner of the eye from one of the dogs in their own eyes. Then they saw terrifying demons flying in the sky. They then knew why the dogs were howling and that they never wanted to see what the dogs saw again.[26] It has been believed that animals see supernatural beings, but also that their own gaze is supernatural. In his paper "The Gaze of the Animal," the New Zealand scholar of English and Cultural Studies, Philip Armstrong, provides a plethora of literary examples from the antiquities to the renaissance of the animal gaze as a dangerous ray capable of bewitching, even killing, the unfortunate human receiving it. "At least until the seventeenth century, experts continued to believe in this capacity of the eye to have physical effects on objects, and particularly to inflict harm. Visual beams issuing from the 'evil eye' could produce various emotional disturbances, diseases or even death in any person upon whom they were cast." The response to the animal gaze today is very different, but equally troubling. The German filmmaker Werner Herzog represents this view in his 2005 movie "The Grizzly Man," where he orates about the "empty stare" of the grizzlies, which according to him, reveals no kinship, only an "overwhelming indifference of nature" and a "half-bored interest in food." How could we end up believing that the gaze of an individual of another species is either a dangerous weapon or completely void of a presence behind it? *Zoomorph* intends to disarm and repopulate the gaze of the animal in order to make it increasingly difficult for us to marginalize the needs and rights of individuals of other species.

IMAGINING

Zoomorph is not making any large or small statements about the consciousness of animals (human or non-human). *Zoomorph* is simple, naïve. That is its potential strength. It is breaking complex things down to utter simplicity, and then by the sheer amount of these simple parts, statements, and experiences, it hopes that maybe something complex will emerge. Some knowledge. Something. It is like taking a joke -– a one liner – dead serious and too far (and that is quite funny). This has been my method for many years; it developed through my longtime work with Internet visualizations – the Internet is a highly complex organism, in its very core made up of small simple statements with protocological rules tying them

together, like DNA. The meaning of this project is not in a single simulation, but it is also not in its overarching concept. The meaning is in the use, that people out there are using it, and how they are using it: on their phones, iPads, in a Photoshop assignment at school, on a picture online before emailing it off to a grandchild. It is not telling anyone how anyone else feels or thinks, it is a tool inviting you to imagine that.

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Notes

[1] http://interspeciescollaboration.net

[2] From *para*, meaning "alongside," and *science*. Used in the context of the project to denote a wide range of systematic and rigorous epistemological methods that all share a position outside, next to, "normal science."

[3] For more and updated information about the project, see http://zoomorph.net.

[4] I define parasitic art as an artwork that lives within and feeds off another system. *The Stillman Projects* (1996 to 1999) was my first exploration into parasitic art. http://128.111.69.4/~jevbratt/stillman/, http://www.walkerart.org/archive/0/AA7381562A4ED65E6164.htm (These are old web pages and many of their links do not work anymore, but there is some information about the project there. Last checked March 2012.)

[5] The *Zoomorph Alpha Release* only has Alphabetical and Favorites listings.

[6] http://www.wired.com/wiredscience/2011/01/quantum-birds/ (last checked March 2012)

[7] I am working together with Javier Villegas who is doing the technical development of the algorithms. The iPhone/iPad app is developed together with Charlie Roberts. Both are PhD candidates at the Media Art and Technology Program, University of California Santa Barbara.

[8] Jacobs is (serendipitously and luckily for *Zoomorph*) a Professor in the Department of Psychology here at University of California Santa Barbara.

[9] Professor in the Department of Ophthalmology at University of Washington.

[10] Through what is called the color opponent process.

[11] According to Jay Neitz in phone conversation in the fall of 2008.

[12] There are three types of human dichromats. The two most common are red/green deficient, protanopes and deuteranopes, are red/green deficient, aand see in a similar way to dichromatic mammals. The third kind, tritanopes, has yellow/blue deficiency.

[13] I found one paper that talks about how the variations in mammals does not seem significant, not being adjusted well to the colors found in their specific environments; while dichromatic fish seems to be more adjusted to their environment. (Chiao et al.).

[14] http://128.111.69.4/~jevbratt/zoomorph_blog/2010/04/less-is-more.html
(last checked March 2012)

[15] Few, if any, animals have eyes that are sensitive to infrared light. Animals with infrared/heat sensitivity have another organ that registers those wavelengths.

[16] Some human females might have tetrachromatic vision, seeing not millions but millions of millions of colors. One of those was serendipitously a student of mine, and we worked together for several months trying, through painting exercises that we devised, to understand our different sensation of colors. The result was very confusing, and we have not been able to incorporate our work into the algorithm

[17]http://www.sciencedaily.com/releases/2008/03/0803201207

32.htm (last checked March 2012)

[18] A contact lens electrode placed on the eye is measuring the electrical activity of the retina in response to light of various wavelengths, revealing the color sensitivity of the cone pigments on the retina.

[19] It is not within the scope of this paper to discuss what this transformation is if not metaphorical, but I can't resist wondering. Rane Willerslev, a Danish anthropologist, has an interesting solution worth mentioning. He has worked extensively with the Yugakirs, a people in Siberia in which the hunters, and to an even larger extent, the shaman of the society, "take on the appearance and viewpoint of another being," and they consider this transformation to be "one of the key aspects of being a person." (Willerslev 2007 2). Willerslev calls this process "mimetic empathy" and the result "not not-animal." (Willerslev 2004 649).

[20] For a description of her experience related to Zoomorph, see http://zoomorph.net/. Click on Allison Holt/Research: Zoomorph Indonesia.

[21] A contemporary subculture of persons who identify themselves as humans and one or more other species. The other species manifest themselves through various forms of shifting.

[22] As Jacques Derrida highlighted when he constructed the neologism *l'animot* from "'*animaux*" (French for "'animals'") and "'*mot*" (French for "'word'").

[23] http://www.npr.org/2011/01/20/132650631/new-language-discovered-prairiedogese (last checked March 2012)

[24] The title of a book about the minimalist artist Robert Irwin by Lawrence Weschler adapted from the philosopher Paul Valery.

[25] http://www.nature.com/news/2009/090916/full/news.2009.921.html (last checked March 2012)

[26] http://answers.yahoo.com/question/index?qid=20091225220653AAb01hF (last checked March 2012) http://www.abovetopsecret.com/forum/thread662732/pg1 (last checked March 2012)

Lisa Jevbratt is a Swedish born artist and professor in the Art Department and in the Media Art Technology program at University of California, Santa Barbara. For more than a decade her work focused on the expressions and exchanges created by the protocols and languages of the Internet and the web, often manifesting as visualization software. She is now applying her understanding of these unintentional collaborations onto exchanges with animals of other species and their experiences of the world around them. In her ongoing endeavor **"Interspecies Collaboration"** she invites students to collaborate with individuals of other species and her current distributed software art project *Zoomorph* consists of image and video filters generating simulations of how various animals see. Her work has been exhibited extensively in venues such as The Walker Art Center (Minneapolis), Banff Centre for the Arts (Canada), The New Museum (New York), The Swedish National Public Art Council (Stockholm, Sweden), and the Biennial at the Whitney Museum of American Art (New York); and it is discussed in numerous books, for example "Internet Art" by Rachel Greene, "Digital Art" by Christiane Paul and "Art + Science Now" by Stephen Wilson (all Thames and Hudson). Jevbratt also publishes texts on topics related to her projects and research, for example in the anthology "Network Art – Practices and Positions" ed. Tom Corby (Routledge). Her current project *ZooMorph* -is supported by an emerging fields grant from Creative Capital.

Megan Matichuk

SMACK

Megan Matichuk and Gabrielle Burke
Smack, electronic based interactive installation, 2011 © Matichuk and Burke

Finely produced, thin porcelain forms are hung from the ceiling with a multitude of thin clear cables cascading from the body. As the viewer engages with the tentacles, the bodies glow as the sensors are activated. Smack is an electronic-based interactive space using traditional and new media. This installation relies on the relation between viewer and object; and traverses the chasm between traditional and contemporary media. Using technology and form as tools, the installation critiques the advantages and disadvantages of these typical binaries as well as the integral dependent relationship between human and animal.

A smack is a cloud or bloom of jellyfish. Inspired by the way in which these organisms interact with these people and objects, Smack enables a physical relationship between object and subject.

Megan Matichuk and Gabrielle Burke
Smack, electronic based interactive installation, 2011 © Matichuk and Burke

ON ANIMAL TERMS

Snæbjörnsdóttir/Wilson's work challenges the anthropocentric systems of convenience that sanction a daily acceptance of such loss and in an attempt to address such historical and contemporary imbalance, posits the alternative idea of "parities in meeting". Parts of the text below have been adapted from a chapter written by Snæbjörnsdóttir/Wilson for the newly published book Beyond Human: From Animality to Transhumanism co-edited by Steven Shakespeare, Charlie Blake and Claire Molloy and published by Continuum. The full title of this paper is: On Animal Terms: Art as Host to Imponderable Others.

Text by ***Snæbjörnsdóttir/Wilson***

Where the cultural deployment of animal representations in general seeks or has managed to frame and delimit our understanding of the non-human animal, it is an ambition of ours that art of the kind proposed in the following examples can test such practices and invite a reappraisal of these relationships. Because most representations are constructed to perform some agenda of our own – in the case of animals, to entertain, to inform, to provide food, to stand for all of a species, to symbolize human behavioural characteristics etc. – in this process, the animal itself is occluded – eclipsed by its avatar or likeness, which is always a simplification and therefore must accordingly signify a loss. In ***the naming of things***, a component of the installation ***between you and me***,_the audience is invited to follow, at close quarters, the transition of a real, although dead, animal body, as it is transformed towards being a representation of itself. Crucially, the emphasis remains throughout on the contest between human and animal skin, rather than resolving into a complete model of a seal.

The work scrutinizes and reveals the flawed nature of the presumption and the pitfalls of our attempts to close down and enforce a reductive approach in our world-view. In juxtaposition to the other components, namely ***Knutur*** and ***Three Attempts,*** included in the Animal Influence (Interactive Futures 11) exhibition, it allows us the space to think through, and thus challenge what we have come to believe it is to be "animal," what it is to be "human" and what indeed is "landscape" – and to consider the consequences of the abbreviated forms with which we populate our intellect and our experience. Since it is upon these accepted, but polarising, constructions that we human-animals base our behaviour towards other species and towards our environment, at this time it seems appropriate to be digging deep and deploying whatever methods may be at our disposal in order to reappraise their contemporary validity.

We recently presented a paper at the conference ***Representing Animals in Britain*** for which we opened with a caveat concerning the title of the conference. We (Snæbjörnsdóttir/Wilson) have in recent years made the issue of ***representation*** something of a focus for critique; in fact, probably all of our projects have put the flawed and unreliable nature of *representation* at the centre of our research, and ultimately the work we produce. The representation of ***animals*** and myriad intended functions of such representation specifically are also targeted in our work, not only in

Snæbjörnsdóttir/Wilson
'The Naming of Things' (video still) from the Installation, *between you and me* 2009 © Snæbjörnsdóttir/Wilson

respect of the disservice they do to our receptivity to and understanding of specifics and particulars, but also because our very messy, inconsistent and often contradictory relations to animals tend to provide such a graphic illustration of how we blind and delude ourselves daily with our dependence on symbols, avatars, simulacra and representations, a reflex tendency we're suggesting should be resisted strongly.

The equally manifest senses of direction, enthusiasm and even urgency generated within animal studies groups *internationally* over the last few years have led many to adopt a position of moral purpose and to an acceptance of greater commonality between human and non-human animals, bound up in a broad set of sensibilities kindled or shaped in some ways by the residual sparks of late 20th Century race, gender and sexuality discourses. Much has been written and much read from this basis and a back catalogue of theoretical writing has provided the framework not only of thought, but also of response and discursive action.

The irony in this is that in sanctioning a dependency on the same learned and developed faculties, (being those of syntax-based language), the absence of which in other species has been used traditionally to demonstrate our *distance from* and superiority to non-human animals, we continue to distinguish and separate ourselves from, rather than draw any closer to our subject – and by so doing compromise the possibility of an "otherness" of understanding that might otherwise accrue around let's say, "alternative" approaches. Where such approaches are attempted, the results are often dismissed as being fanciful – impossible to evaluate on the simple grounds of their apparent intrinsic lack of rational accountability.

Citing the artwork of our collaborative partnership, this paper examines the apparent conundrum of thinking-without-words, by using art methodologies to approach a new understanding of our relations with other species. It acknowledges relationality as being pivotal to this project, and indeed as a crucial paradigm for the application of our intellects to the puzzle of and apparent inertia regarding an impending environmental oblivion.

In our recent Practice we've aimed to challenge an anthropocentric position of elevated apartness. We've been endeavoring to find the means by which it's possible to approach the position/perspective of *the other*, in this instance, a specific non-human animal, in order to be able to reflect upon our own position, and by so doing, reappraise something much bigger than ourselves and the view our current perspective will allow. We refute that our own (human, Western) way of understanding the world is the only *practical* way, and we are curious about different models for existence and being, and about questioning the capacity of linear thinking to recognize and address a much needed wider understanding of how the world works and how we might best coexist within it. In referring to our work as "relational," we allude to both human and animal relationality. In some ways this is crucial to why we have chosen so regularly to work with specific human/animal relationships.

We are interested in revealing the complexity that objects, names or ideological constructions disallow, almost by definition. By presuming that we know little about something, or by observing that collectively, we have a set of contradictory responses to it. As artists we contrive first to establish a proximity with that thing, and to those untidy responses. As a consequence, we have also been taken into relational work with institutions – for instance museums, local government departments, scientific research institutions etc. - and individual specialists – zoologists, anthropologists, historians, hunters, pest control officers, – in addition to other *non-professionals* whose specific personal experiences have invaluably enriched our enquiry.

But in choosing the kind of relationship that precludes syntactic language that is with a non-human animal, we are extending an invitation to "relate" whilst simultaneously relinquishing a degree of control to *the other* in question.

Such was the case with the work ***Three Attempts***, where an honest series of attempts were made to engage with seals there on the margins of land and sea. This encounter was filmed on the northern coast of Iceland. The word "attempt" here is significant because for this artwork it is the endeavor and the taking of time to undertake this practice that is important, without us necessarily demanding a specific result.

When filming for *Three Attempts*, we interviewed a young farmer, Knútur Óskarsson, whose farm abutted the estuary. Besides continuing to manage a depleted farm business, he also runs a youth hostel and services for tourists. There is a seal colony on the margins of his farm, and some years ago it was a valuable resource in terms of providing meat and skin. Today the seals have another, more intrinsic value as a tourist resource. Óskarsson has not, however, capitalized on this resource directly; for instance by charging a fee. Instead he sees it as his role to inform visitors about the seal as an animal whose importance is critical to the nature of this area. It can be observed, but has to be left to take care of itself. For the tourists he has installed a gate and a fenced off path of about 500 metres leading to the

Snæbjörnsdóttir/Wilson
'Three Attempts' (video still) from the Installation, *between you and me*, 2009 © Snæbjörnsdóttir/Wilson

seashore. From there the seals can be observed swimming in the estuary or lying on the sand flats across it. The information that Óskarsson provides is in the form of conversation - no signs or leaflets are available. In our interview with him he described some of the many different approaches people have to this animal.

> I mean people are no good – some people want to kill them and then I have people who want to make love to them and I am not joking – just seriously want to make love to them. I had this discussion I remember [with] this German girl – I said. 'Hey you cannot make love to a seal. If you would get close enough it would bite you and it is a bad bite with infection'. This is how it is. I think people have to be educated in psychology and I am really not interested in why she had this [idea] but I have met quite many people like this and the thing is today people have not the right ideas about nature. Many people have these Disney ideas, unrealistic ideas about nature – that is the main problem.

There are countless stories of people who desire some proximity to animals which to others may seem incomprehensible – from the well-documented (and oft misrepresented) Timothy Treadwell and the Alaskan grizzlies, to the woman who jumped into the polar bear pool in Berlin Zoo, narrowly escaping a fatal mauling. Sometimes for good reason and sometimes not, acts which sit outside the "norms" of behavior will often, by definition, invite criticism. Before rushing to condemn, we should remember that in seeking to examine the nature of communication with other species, in any terms other than those of the one-way street of human interest and power (obedience, subordination, dominance etc.), we expose ourselves to accusations of a kind of idiocy or sentimentality – simply because in so doing, we too buck the established consensus that animals are either provided for us and must therefore serve our needs; alternatively, to be observed at a distance (often for human reasons of science, taxonomy, surveying, tourism etc.), for their *intrinsic* value, or finally to be ignored entirely.

But in art, such perceptions of the unorthodox, the absurd, and even the idiotic may usefully be mobilized in the attempts we make, as

Snæbjörnsdóttir/Wilson
'Knutur' (video still) from the Installation, *between you and me* 2009 © Snæbjörnsdóttir/Wilson

artists, to open up new spaces for understanding -– and in the field of human/animal relations, our vulnerability is no less potentially *remedial*.

Having said this, what is rarely acknowledged in many stories of human and animal encounters, is the imposition that such proximity constitutes for the animals in question. In the case of the wild animal, the model of the human extincting of species, consciously, deliberately, or otherwise, is long and notoriously established. Often, historically we have taken insufficient care to anticipate the consequences of our proximity and interaction. Perhaps just as pertinently, in the case of other human cultures and civilizations, where the terms of engagement have been unequal (i.e. not based on consensus exchange and trade), our impact has all too often been devastating. The term "consenting adults" springs to mind as an equivalence, not in any way to infantilize the other, but as a means of identifying the disparity that can exist in encounters between cultures and species where the integrity of one party is unequivocally compromised – in short where there is a profound imbalance of power.

In a development of our *Big Mouth* project (Tramway, Glasgow 2004), in April 2011, we took part of the work back to Tasmania and installed it at the now derelict Beaumaris Zoo in Hobart, on the site of the enclosure occupied by the last recorded living Tasmanian Tiger or Thylacine. For its reconfiguration at this somewhat inauspicious site, we attached the naming signs to a specially erected telegraph pole (extending 8m above ground).

> *An installation by Snæbjörnsdóttir and Wilson at the old Hobart Zoo site overlooking the Derwent River shows some of the common names given to the thylacine. Visual and verbal representations of this marsupial often suggest a similarity with feared or hated European or Asian animals. They are evidence of a slow but successful campaign to exterminate the Tasmanian 'tiger' . . . and demonstrate the importance of representation to a species' survival.*[1]

Snæbjörnsdóttir/Wilson
I'm Not There (signage), site specific installation, Beaumaris Zoo, Hobart, 2011 © Snæbjörnsdóttir/Wilson

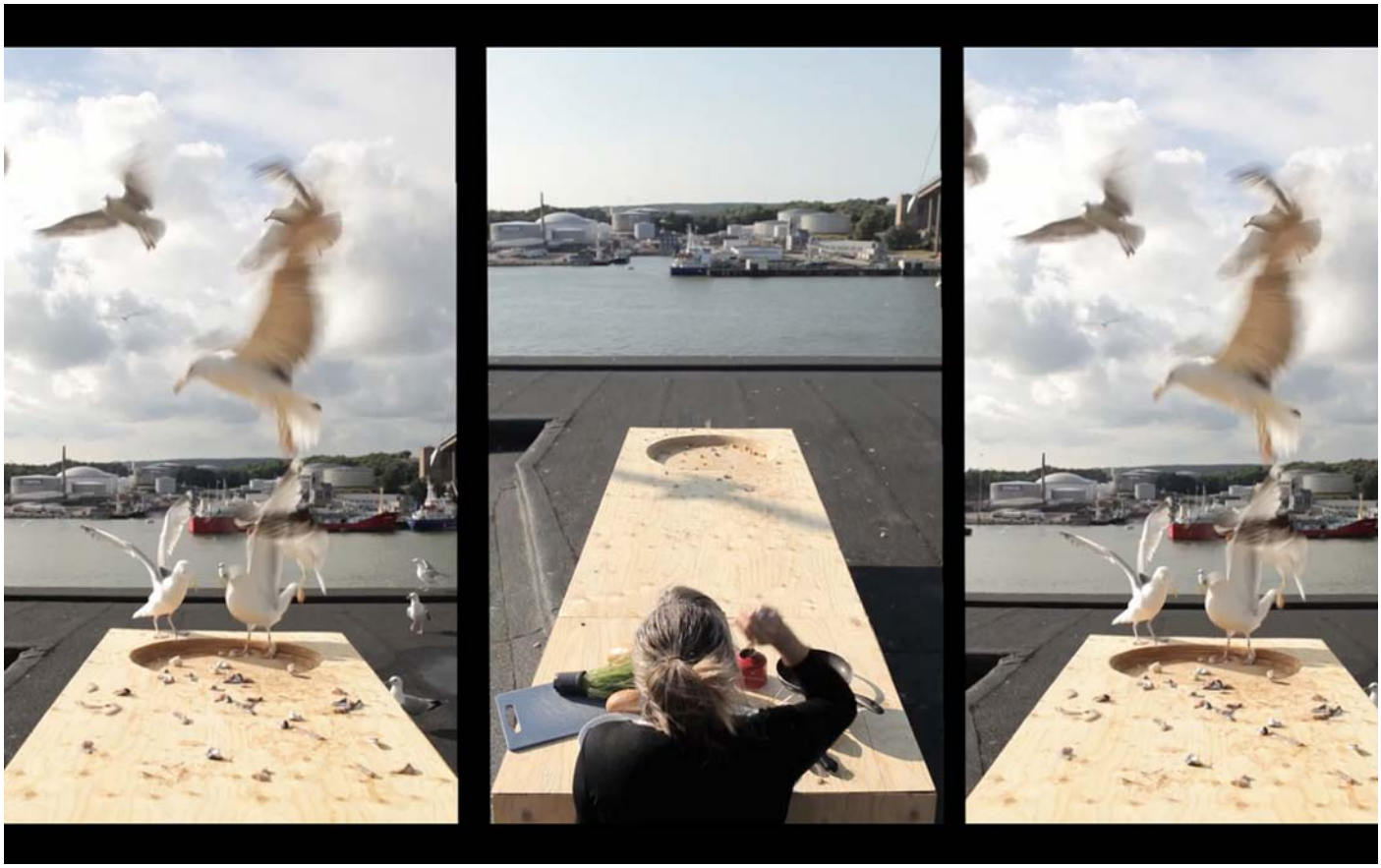
Snæbjörnsdóttir/Wilson
Photograph from *Uncertainty in the City*, published by *The Green Box, Berlin*, ISBN 978-3-941644-18-2 © Snæbjörnsdóttir/Wilson

In the autumn of 2010, Snæbjörnsdóttir/Wilson completed a three-year project, Uncertainty ***in the City***, which explored perceptions and manifestations of the phenomenon of "pests" by focusing on contested borders where domestic and wild worlds intersect. What we observed in this project was that when the anthropologist Mary Douglas claimed that "dirt is simply *matter out of place*," she might just as well have been referring to our responses to bestial imponderables in the borderlands. [2]

During the research for ***Uncertainty***, we recorded a number of stories of seagulls and of how Pest Control agents receive regular complaints from citizens during the breeding season when, for instance, their young are learning to fly. The gulls are of course being protective of the fledglings and see humans as a potential threat, but for many humans, the large wingspan of the seagull and their bold physical and vocal behavior can be alarming and unsettling. For others, their presence is an enriching one. One can understand people's concern, but for us as artists, it is rewarding to occupy and explore this zone of contestation.

So for the recent project, ***Vanishing Point***: *Where Species Meet*, commissioned for the 2011 Gothenburg Biennial, we applied the same speculative approach we'd applied in ***Three Attempts***. On this occasion we invited the gulls for dinner.

Through ***Vanishing Point*** we wished to create a context of sharing and hospitality. From our side we took certain measures in the work to kindle this idea. The laying out of food on a table signifies a gesture of hospitality. In Western European and other cultures, the basis of hospitality is the performance of rituals ideally designed to make the "guest" feel welcome. Any possibility that such a gesture may result in the guest feeling threatened or patronized is avoided. The work set out to make our intentions visible, and for any logic or apparent irrationality to be weighed alongside the consequences of the action. The *documentation* of the event, once the action is over, takes on significance and becomes the artwork, or a component of the artwork, itself.



Snæbjörnsdóttir/Wilson
Vanishing Point: Where Species Meet (video still), Gothenburg International Biennial of Contemporary Art, 2011 © Snæbjörnsdóttir/Wilson

Of course, we acknowledge that it is through our own behavior and our summary disposal of waste, traditionally through fishing, shipping and in large concentrations on landfill sites, that we unwittingly encourage these animals to be close to us. So having extended our hand, unconsciously or otherwise – rather than withdrawing it nervously and resentfully, we were interested in positing a framework by which a developing, alternative relationship could be imagined…

Three Attempts was the embodiment of a number of principles underpinning our work and its functionality. From one perspective, the work seems a novelty –we've observed its charm to be infectious and disarming. From another, it too touches on the absurd – it echoes with pathos and even melancholy. It is difficult to see the work without acknowledging a degree of sentimentality, but in common with absurdity and vulnerability, our learned rejection of sentiment is a cultured, negative response based on a preferred image of strength, detachment and stability, through the application of intellect.

During the seminal Arts Catalyst exhibition and conference, *Interspecies*, in London (2009), the concept of human/non-human collaboration was a key theme.

It was suggested, during the conference, at which we presented a paper, that the work, ***Three Attempts***, might well fall into a category of human/animal art *collaboration* – occupying as it does, a space in which human and non-human animals meet and interact. In this work, Snæbjörnsdóttir does not enter the space of the seal (namely the sea), but sits instead on the shore, as close to the sea level as possible. Notwithstanding this acknowledgement of "threshold," we allow that there was, to a certain degree, a significant division of power – it was clearly "our" work; we directed the camera and the scene was framed for a project in which the participating seals had no editorial say.

When talking about collaboration with other animals we have to begin by defining what we mean by the term. For us it is understood to be an act undertaken in a spirit of cooperation by all parties concerned. An attempt is made to establish some form of framework where individual powers are respectively channeled constructively for the overall purpose of a collaborative activity or end. Consequently, any notional equality of roles or contributions tends to be compromised when *one party alone* draws up the initial parameters – this compromise may only be assuaged *in part* by a

certain responsiveness to unpredictable developments arising from the behavior of the other party. In short, if a way cannot be found by which to negotiate equal terms for the collaboration – it is not collaboration – though it may be a conversation and *certainly* may involve levels of engagement and interaction.

What may not ultimately be easily grasped or justified from this is the purpose of our interest in a suggested parity, beyond its being generally a good or tantalizingly desirable thing. It seems "good" because it bucks an accepted behavioral trope in relation to "the other," and offers the possibility of an ideological redrafting of relative positions, values and objectives. It is "good" because we may discover something which may for a long time have been overlooked – a consequence of staying within the bounds of acceptable and respectable behavior, and of being so sure of our separateness and distinctiveness, when in fact, any natural extrapolation of evolutionary theory seems easily to unravel most claims for the specialness of our (human) case. We believe that other species may have much more commonality with us, and us with them, than is recognized. We just do not or cannot see this because the type of knowledge upon which we have come to rely – providing us with and supporting our world view – precludes it. Because we share a world with other species, why would we not be interested in the principals of interconnectivity when an eschewal of such interest for so long has left us adrift and unprepared for all manner of detrimental environmental effects and consequence?

So we ask: what if intellect alone is not enough for us to understand our new and challenged position in the world? Indeed, what if the rationality of our approach obscures or limits the possibilities of wider understanding? Ultimately the video installation ***between you and me*** is not solely concerned with our relationship to the seal, but is a "landscape" work that simultaneously acknowledges the integrity of landscape and its constituents, whilst interrogating what the term has come to represent. The back of the artist is turned towards the lens of the camera, which is the eye that we human-animals, in perceiving and understanding the world, so easily and often mistake as our own. It is an insertion between the audience and the event, which it partially occludes. All the readings already mentioned of charm, absurdity, pathos, melancholy, sentimentality, and vulnerability are indeed, to a greater or lesser degree, embedded, and to be found in the work. And yet, just as crucially, they serve to fuel and extend another more fundamental reading: "Landscape" or "environment," if they are to mean anything in the future, must cease to be objectifying terms which describe "something to be looked at" or used, whilst simultaneously functioning as registers of our detachment from them. Just as increasingly we understand that other animals are specifically so in relation to the constitution of their dwelling. We must nurture a larger economy of thought and larger sense of community, recognizing our own interdependence with habitat. We must also recognize the danger of sustaining our unfettered and exploitative use of "resources," including land and "animal others." By not doing so, we resolutely keep our backs turned on the enlightening and rewarding conversation we might otherwise have.

Notes

[1] Carol Freeman, *Reconstructing the Animal* catalogue essay for the eponymous exhibition University of Hobart, 2011.

[2] Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, London: Routledge, 1966.

Bryndís Snæbjörnsdóttir & Mark Wilson conduct their collaborative practice from bases in the north of England, Iceland and Gothenburg, Sweden. With a strong research grounding, their socially engaged projects explore contemporary relationships between human and non-human animals in the contexts of history, culture and the environment. The practice sets out to challenge anthro-pocentric systems and the thinking that sanctions loss through representations of 'the other', proposing instead, alternative tropes including 'parities in meeting'.

Previous projects include: "Uncertainty in the City", Storey Gallery, Lancaster, UK, 2010 "between you and me", Podspace Gallery, Newcastle, NSW, 2009 and Kalmar Konstmuseum, Sweden, 2009 "(a)fly", Reykjavík Arts Festival, Iceland, 2006 "nanoq: flat out and bluesome", assorted venues including Bristol, London, Oxford, Reykjavík, Copenhagen, Oslo, Cambridge, Svalbard and Tromsø, 2004 – 2011 "Big Mouth", Tramway, Glasgow, 2004

Publications: Uncertainty in the City, The Green Box – Kunst Editionen, Berlin, 2011 nanoq: flat out and bluesome, Black Dog Publishing, London, 2006 (a)fly, National Museum of Iceland, 2006 Big Mouth, Tramway, Glasgow, 2004 Work in progress include "Matrix", a project concerning arctic maternity dens for which the artists undertook a research trip to Svalbard in 2010 and Landfill, a new project for the 2011 Gothenburg Biennial, Sweden

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