The Power of Play:
Cross-pollination of Art & Science

Jeffrey Lockwood
Ashley Hope Carlisle
Ann L. Hild
Harvey Hix
Naomi Ward
Anne M. Guzzo
Ron Frost
Michael Dillon
Rachael Lee Shaw
Ali Grossman

Cover and inside cover images by Ashley Hope Carlisle

The Experiment

For two years, a group of four artists, four scientists and a documentarian from the University of Wyoming engaged in a series of authentic collaborations intended to reconceive the natural world - and to reimagine the relationship between science and art. Other artists have expressed the wonders of science in various media - and expressing the richness of the natural world in ways that engage the public is certainly an important and timely venture. While elements of The Power of Play reflect this role of art as communicator of science, our sustained interactions allowed us to explore radically new possibilities in which science and art are treated as equal partners in the understanding of the world.

Photo by Ali Grossman

We have come to realize that science can serve as the inspiration for the making of art, the purpose of which is not necessarily or directly to convey particular facts. By engaging in trusting relationships, grounded in both deep expertise and genuine humility, more profound co-creations are possible. These synergies have revealed elements of the natural world that would otherwise be overlooked by both artists and scientists.

Most potently in terms of the future of human inquiry, intensive engagement with the arts can provide science with approaches that allow researchers to cultivate novel understandings of nature. The perspectives and practices of the arts, when adapted to the questions of science, elicited entirely new ways of engaging the natural world. Being fully human entails realizing the latent potential of both subjectivity and objectivity.

Somewhat ironically, the crucial element in our work is play - or at least a spirit of playfulness that has allowed us to let down our guard and foster a vulnerable, childlike willingness to ask "What if?" and "How might?" and "Why not?" What if geology was expressed as opera; how might the movement of bees be captured in choreographic scoring; why not transform microbiology into poetry, or sagebrush into sculpture, or habitats into music?

The creators of The Power of Play are committed to this not being just an exhibit of our work. We seek to evoke the processes of creating through science-and-art collaboration. And so what we offer is an open-ended invitation to be more than a viewer, to be an active participant in creating along with us. We want you to play with our installations - and to play with one another while in the gallery. Join us in the making unexpected works that take flight - or not (because when it comes to play, failure is an option).

Jeffrey Lockwood

There have been many highlights during the past several years of working with this extraordinary group of artists and scientists from the University of Wyoming. One of my favorite moments took place after a 2015 screening of the documentary *The Ucross Experiment* at the Mars Black Box at the WYO Theater in downtown Sheridan. (The film is now part of The Power of Play exhibition.) During the question and answer session, enthusiastic audience members offered suggestions about how this inspiring work might find a permanent place in the world. "I wish we could start projects like this in elementary school or high school, so that people could develop cross-disciplinary communication skills at a young age. Everyone could use more experience in working creatively and collaboratively with people of different mindsets." What a changed world we might see!

Ucross Foundation has served as a laboratory for creative individuals for thirty-five years. Through our residency program, individuals are awarded the gift of uninterrupted time, accommodations, and spacious studios in order to concentrate and experiment. Artists come to Ucross from all over the world in varying disciplines of the literary, visual and performing arts. The multidisciplinary nature of the experience is of huge value to them. Each evening, at a dining room table similar to the table in The Power of Play exhibition, painters sit next to poets, composers sit next to sculptors, dancers sit next to novelists. The creative ferment and friendships that result are life-changing. This project expanded that interplay, bringing scientists to the table – literally – with artists. Their cross-pollinated thinking is evident throughout the exhibition, as it also was in the live music and dance performance that took place at the opening.

In a sense, The Power of Play has transformed the Ucross Art Gallery into an experimental studio space – and invited the public to join actively in the experience. At first I thought of the exhibit as the culmination of three years of creative collaboration between these artists and scientists. But culmination is much too final a word for a project of such vitality and forward motion. We anticipate more exciting outcomes to emerge in the coming years.

Ucross Foundation is grateful to all of the artists and scientists who came together to bring The Power of Play to fruition. A key component of creativity is generosity – and the generous spirit of the participants has shone through their efforts in every way. We are also thankful to the University of Wyoming, the Wyoming Humanities Council, the Wyoming Arts Council, and the Ucross Foundation Board of Trustees for their support and faith in this ambitious and risk-taking work. It is individuals, nonprofit organizations and educational institutions such as these that invigorate our world every day.

Sharon Dynak
President, Ucross Foundation

image draft version

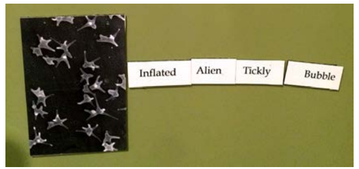
Images by Ali Grossman

The Power of Play: Cross Pollination of Art & Science

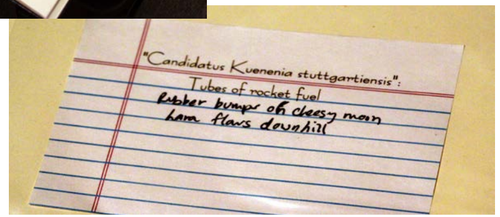
The typical approach at a gallery is to feature the products of creative work, but our goal is to draw visitors into the process of creation. For two years, a group of four artists and four scientists collaborated in exploring the natural world at the Ucross ranch in Ucross, Wyoming. The crucial element in our work was, ironically, PLAY. We let down our guard and cultivated a vulnerable, childlike willingness to ask "why not?" and to wonder "what if?" Why not have a composer and a geologist work together, or a poet and a microbiologist? What if an ecologist imagines along with a sculptor, or a zoologist analyzes with a choreographer? And now we invite visitors to be participants in making unexpected works that take flight—or not (because when it comes to play, failure is an option).

Welcome to the Microbeastiary

Harvey Hix & Naomi Ward



Name that Microbe
Harvey Hix & Naomi Ward
Images, Aged Pine, Poplar
2016



Finish the Poem
Harvey Hix & Naomi Ward
Images, Aged Pine, Poplar
2016

Microbes live around us and within us, and our interactions with them are a matter of life and death. But in regard to issues such as biodiversity, most people think about "charismatic megafauna" (elephants, lemurs, etc.). By making information about microbes available and accessible, and by inviting imaginative response to that information, *Microbestiary* hopes to show, in welcoming and memorable ways, that the bustling microbial world is populated by strange, beautiful, and charismatic species. Our *Microbestiary* website **WWW.MICROBESTIARY.ORG**, showcases the responses of professional artists to microbial information; with these two pieces, we invite the viewer to take part in our microbial adventure.

Have you ever wondered how species get their scientific names? Each name has a generic (for genus) and specific (for species) epithet: e.g., for humans, the epithets are Homo and sapiens. Epithets can be based on many things (properties of the organism, its geographic origin, or sometimes to honor a famous scientist) and are usually made up from parts of Greek or Latin words.

What if instead of using Greek and Latin roots, scientists used English words to name species? And what if YOU had just discovered one of the species depicted here? What would you name your microbe? Printed beginnings of haiku poems and magnetic descriptive words are provided in the two pieces ***Finish the Poem*** and ***Name that Microbe*** so that the viewer may try their hand at being both Poet and MicroBiologist.

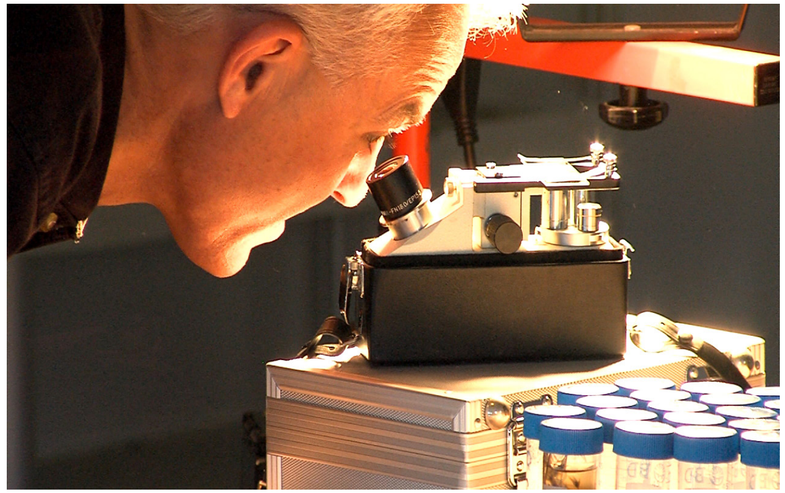


Photo by Ali Grossman

Gemmata Poems

Naomi Ward

Transcriptorium

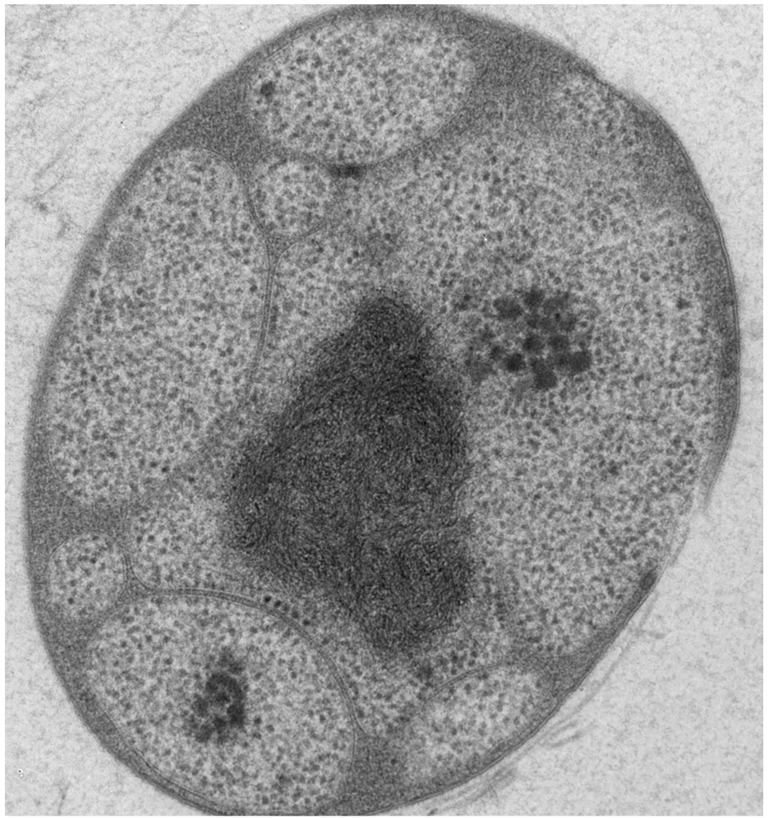
Then Sky alone is left, a hundred blue
Fragments in revolution, with no clue
To where a Niche will open. Quite a task,
Putting together Heaven, yet we do.

A crumbled town, layers of dust and bone.
Streets spoked to a monastery down
through soil horizons, but vellum bears
traces of a difference. Deep layers yield
transcripts and translations in the same hand,
with the same blues and greens, deep and cold.
Shallower: two different pens, two pressures.
Two blues almost like, but tilt the page
and they flash different, one pale, one bold,
conjugated to a smaller gold.

The older strata describe a lone scribe,
with few brothers. All pray and chant and walk
through moss-cool cloisters, but only from
his pen do the books replicate and
transmute to the common tongue. Rock yields
pigment offspring: goethite yellow extracted,
clinker-welded hematite, cinnabar's
vermilion. Miniature echoes of
the icons, domes, spires, through his hand perfected.
The volumes are all interconnected.

Darkened lecture hall, the professor speaks
of a later, larger town; trade brought wealth,
masters and apprentices from different lands.
Many crafts, named in many different ways.
Each sought their own words too, for God and fear,
for all the rules, and their encapsulating.
The scribes adapted, one wholly occupied
with transcripts, five more outside the walls,
a new colony, an illuminating
location of actively translating.

New ways, new rules: the extramural five
were Sisters, sequestered beyond simple
diffusion of the texts by lay brothers,
in their errands about the town. Next were
urchins, scampering chaperones, who shed the
metallurged fragments as they scattered dendroid,
street-distracted. Which is why from later digs
emerged a trafficking device. From hillside
abbot's perch to abbess, the books convoyed.
A hollow rod, or so-called solenoid.



H. L. Hix

"We thus report the first evidence for spatially segregated transcription and translation in a bacterial cell…"

(Yarunova, E., C. Seebart, J.C. Gatlin, and N.L. Ward. 2014. Spatially segregated transcription and translation in cells of the endomembrane-containing bacterium *Gemmata obscuriglobus*. Proceedings of the National Academy of Sciences, USA. 111(30):11067-72.)

The experience escaped me, but I have this report.
The truth escaped, but left a trail of evidence.
As did those skittish deer, their white tails a transcription
of those white fencepost tips serried in translation
of boundaries. I watched them through the window of my cell.

Watched them, or watched their heads float through head-high reeds,
an as-if-swimming that animated the marsh meadow
and marked its topography. Scored that place, scarred it.
For those few moments, I was *of* what I was *among*.
The experience escaped me, but I have this report:

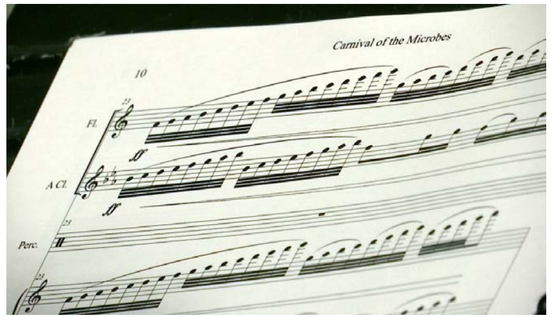
landscape arrays mechanisms of wariness,
propagates populations skewed toward scurry and chirr,
disguises callings *to* - turkey coaxing turkey,
all those echolocating sheep - as callings *across*.
The truth escaped, but left a trail of evidence

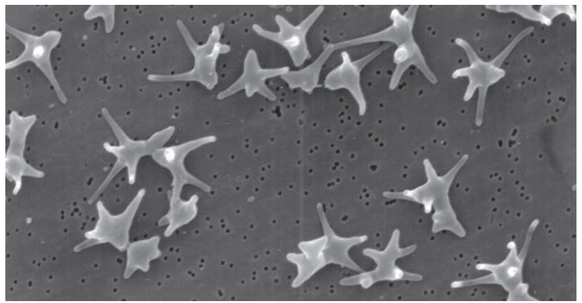
for me to sort through. Is it leaves I hear, or the tree?
Prairie wind (the swishing *by*) or range grass (the swishing *of*)?
Are all these evidences evidence of life,
or of mortality? I watched, listened, sniffed the air,
as did those skittish deer, their white tails a transcription -

a tally - of my dilemma: that what I can*not*
identifies and constitutes me, more than what I *can*;
that my *come what will* is inaudible against
the choral *come what may*; their irrefutability,
all those white fencepost tips serried in translation

of the distance *to* you into the distance *from*,
of my *isolated* into *lost*, of this landscape
into my spiritual condition. Like those ears-raised deer,
I listen for signal overlap. As they retrace
their boundaries, I watch them through mine, this window, this cell.

Creating with Microbes





Carnival of the Microbes
Anne M. Guzzo, Harvey Hix & Naomi Ward
Poplar, CD Player, Headphones, Aged Pine, Music Stand, Paper
2016

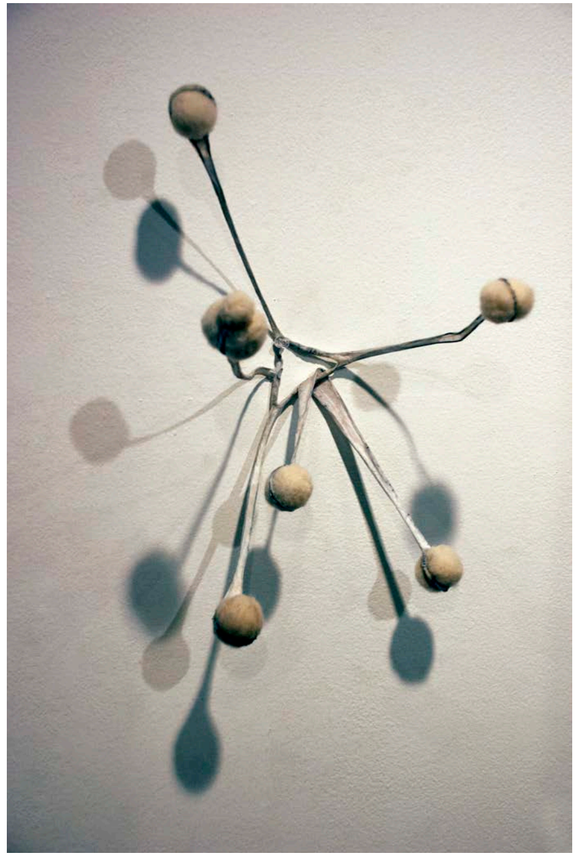
Written for Thomas A. Blomster and the Colorado Chamber Orchestra. Special thanks to Dr. Naomi Ward, microbiologist, and Dr. Harvey Hix, poet for their research and careful explanations.

Each movement of *Carnival of the Microbes* uses a defining characteristic of a particular tiny creature to create a musical rule.

In Verrucomicrobial ectosymbiont, a small bacterium riding on the outside of a larger microbe functions as a weapon-like defense system, shooting out a harpoon 15 times its length to destroy predators. Musically, this is a long, ascending line ending with a violent-sounding percussion instrument, "the lion's roar," which, microbially speaking at least, punctuates the enemy organism and literally spills its guts. In the second movement, Noctiluca scintillans, the organisms eat diatoms (microscopic sea creatures) and photosynthesize to glow in the dark. They are beautiful and sparkly, especially when stirred up. In my musical interpretation, the sparkles are made by metallic percussion instruments that are more active the more "stirred up" the music. The unusual division method of Corynebacterium glutamicum, a microbe commonly found in dirt, is the inspiration for the third movement. It grows in small clusters and instead of dividing in half when ready, these microbes snap off – scientists have even made recordings of the snapping sounds and video of the vibrations. So in my musical interpretation, the strings use a technique called tremolo, which is a series of quick back and forth bow strokes. Various member of the ensemble "snap pizzicato" and make percussive snapping noises. Epulopiscium fishelonii is inspired by the huge shape and size of the microbe, as well as its method of reproduction. This microbe is large enough to see with the human eye - and shaped like a long cigar. I traced the shape on a piano keyboard - up on white keys, down on black—to create the main theme. These microbes have an unusual method of reproduction in that they fill themselves with miniature versions, open up, and birth them.

In between full keyboard runs (the mothership themes) you will hear the birth of *Carnival of the Microbes* (2016) diminutive miniature themes across the orchestra.

Anne M. Guzzo



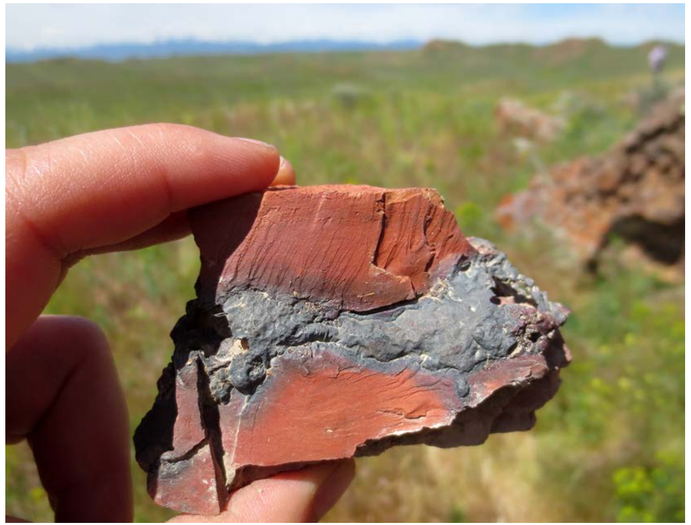
Planctomyces bekefii was first observed in Budapest, Hungary in a pond and was thought to be a fungus. They reproduce by budding and resemble the outreaching seed plumes of a common dandelion. How do you take inspiration and recreate something so incredibly complex and beautiful in its own right? What would this bacteria feel like to the human's sense of touch? Would it be soft? Would it be hard and slick? I wanted to show a visually interesting image while speaking of its unique traits that distinguish this bacteria from others. In budding, a new organism is created from cell division and remains in one place until it matures and releases. This new creation is identical to its parent.

Working on this piece in the studio, I struggled to create as interesting a form as the original images I was provided by Naomi and Harvey. I placed the piece on the wall to dry, and I noticed the shadows it created by the light hitting what I had made until that moment. Sometimes the answer is given versus made. Jutting stalks complete the soft and spiky form that can only hope to bring attention to the original inspiration.

Budding Discovery
Ashley Hope Carlisle, Harvey Hix & Naomi Ward
Mixed Media
2016

Rock Show

Anne M. Guzzo & Ron Frost



Looping across the high prairie, the Powder River murmurs its way from the highlands of the Bighorn Mountains to the valley of the Yellowstone. Meandering past soft hills graced with grazing cattle, it is the iconic river of eastern Wyoming. The topography of the Powder River basin has evolved as part of a long geologic history that is full of dramatic events such as mountain building, erosion, and coal bed fires. Geologists usually tell the story of such events in rather dull prose. We have decided that the story would be much more memorable if it were told in an operatic mode!

Looking at examples of Paralava formed from "Pyrometamorphic anatexis of pelites." and "Vesiculated lithic polymictic breccia", also known as "clinker" (a colloquial term used to describe chunks of unburned rock in coal furnaces), the viewer is asked to see, touch, and hear the landscape around them.

Rock Show
Anne M. Guzzo & Ron Frost
Poplar, Aged Pine, Clinker, Paralava
2016

Powder River Play
Anne M. Guzzo & Ron Frost
Poplar, Aged Pine, Glass, Plexi, Water, Clinker
2016

Hearing the Prairie

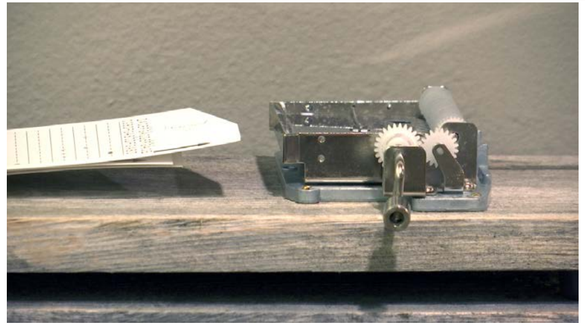
Anne M. Guzzo & Ann L. Hild

How do we measure the prairie? In a landscape some plants are very easy to see, others are hidden. If we want to communicate a landscape to someone who is not here, how do we translate every component? If we pull a tape measure across the land and write down each plant in order, we have a linear map of the prairie (called a transect). But what does this tell us? Do we add up species? What percent of each? Does knowing the landscape is 7% grasses, 2% flowers (forbs), 10% sagebrush, and 12% bare soil allow us to make wise decisions? An ecologist and musician want to convey plant arrangements in the sagebrush steppe to hear patterns in landscapes that numbers may not convey. We ask—does sound translate prairie patterns that we cannot otherwise see?

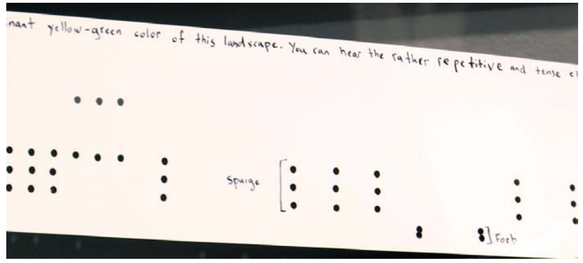
In ***Hearing the Sagebrush Steppe***, etched tiles are presented that represent plants and other items encountered (cowpies, bare ground) on transects in the western landscape. the viewer is asked to select and order tiles to reflect a prairie. When the arrangement is matched to the labels on the toy piano, the viewer can play the prairie.

In ***Play the Prairie***, the punched strips provided are line transects of different Ucross locations. Each strip is a translation of the plants' "arrangements." The viewer is asked to play a strip in the hand-cranked music box and listen to the landscapes. Can patterns be heard?

Hearing the Sagebrush Steppe
Anne M. Guzzo & Ann L. Hild
Schoenhut Toy Piano, Pine, Melamine, Aged Pine, Poplar
2016



Play the Prairie
Anne M. Guzzo & Ann L. Hild
Teanola Musical Player, Aged Pine, Image, Poplar, Punched Plastic
2016



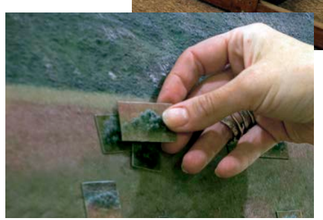
Ode to the Shrub

Ashley Hope Carlisle & Ann L. Hild

Sagebrush thrives in amazingly harsh landscapes, of relentless winds, volatile temperatures and a thirst seldom quenched by showers, as do its human residents. How does this hardy shrub charm the landscape into supporting such amazing diversity? Shrub canopies rein-in the wind, dropping snow, rain, leaves, seed, insects, spores, soil particles and litter near shrub bases, accumulating a richness of raw materials. Canopies shade and protect the ground beneath them, reducing water loss, allowing seedlings a start, hosting insects and microbes and hiding mothers on the nest. In time, accumulations beneath shrubs become part of soil richness, allow the plant roots to reach out into surrounding soils. As sagebrush roots explore surrounding soils, they pull nutrients closer, creating fertile islands that soften the landscape's harshness and feed life into populations of neighbors. Even in death, roots infuse soils with nutrients for micro-invertebrates, burrowing mammals and insects and soil microbial communities.

Sagebrush roots soften the harshness of our extreme environment to harbor a community of neighbors and build a rich world. In ***Community Roots***, we ask the viewer, "How do your roots nourish your community?" They are invited to write on given laser cut roots so they may help complete the wall sculpture.

Sagebrush and shrubs in general are often perceived as 'less than a tree' or 'interrupting' the grasslands—in other words, as nuisances. They obstruct human and animal movements through the landscape, reduce forage production and, some think, are visually "messy." Historically, land managers throughout the West have worked to remove shrubs from many western rangelands. Yet there are some ties of humans to shrub lands: appreciation of landscape diversity, wildlife habitat and watershed function. Uses of landscapes depend on our societal values, our continually shifting ways of envisioning the landscape. In ***Home on the Range***, a large prairie image is shown with all of its' shrubs removed. The surface behind this image is metal, and we have provided shrub magnets so the viewer can arrange them in appropriate locations. Where do the shrubs fit and why?



Home on the Range
Ashley Hope Carlisle & Ann L. Hild
Steel, Magnets, Photos, Poplar, Aged Pine
2016

Community Roots
Ashley Hope Carlisle & Ann L. Hild
Steel, Paper, Lasers-Cut Cardboard
2016

Bee Aware

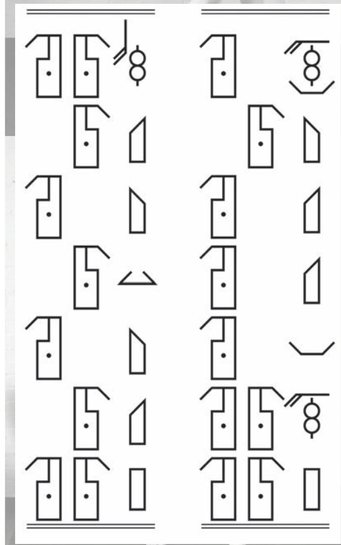
Rachael Lee Shaw & Michael Dillon

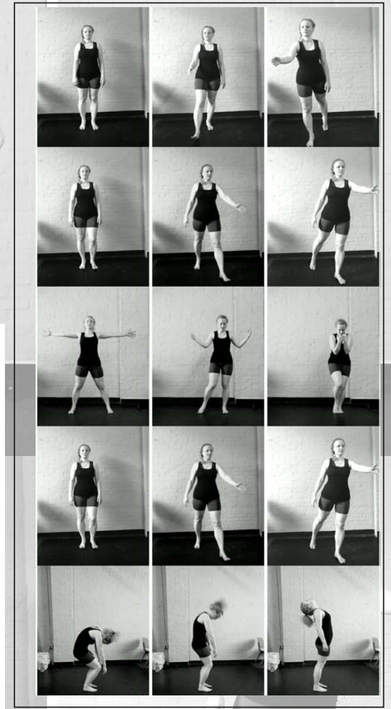
Hop Scotch
Rachael Lee Shaw & Michael Dillon
Mixed Media
2016

Movement communicates intention and values. This is true for both animals and humans. Animals rely on complex movements to attract mates, escape predation, and find and handle food. In much the same way, people operate through personal and social cues in daily life. In the performing arts, choreographers craft narratives using movement as the vehicle. The subtleties of human movement can be described through Laban ("Lah-bahn") Movement Analysis (LMA). In LMA, key qualities of human movement are represented by symbols ("motifs") that, arranged in sequence, clearly describe movements. LMA has rarely been used to describe animal movement, though. A choreographer/Certified Laban Movement Analyst and a biologist collaborated, using LMA to record subtleties of a healthy bee and one infected by pesticides.

Two scores of Laban motifs form two paths for the viewer. They are asked to walk each of the paths, performing the movements described by the motifs. The participant is asked, "How do you feel while walking these paths? What do others see in your movements on the two paths?

Compose Yourself
Rachael Lee Shaw & Michael Dillon
Paper, Poplar, MDF, Maple, Aged Pine
2016





Hop Scotch
Rachael Lee Shaw & Michael Dillon
Mixed Media
2016

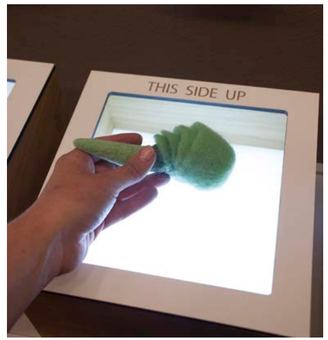
Friend or Foe?

Ashley Hope Carlisle & Jeffrey Lockwood

There are 10 quintillion insects on Earth (more than 1 billion for every human), and they represent 80% of all species. This many creatures means intense competition for the two most important resources defining evolutionary and ecological success: mates and food (both eating and avoiding being eaten!). Insects exhibit phenomenal variation in their anatomy reminiscent of a living Swiss Army knife with millions of blades serving the purposes of reproduction, feeding and defense. Such diversity inspired an entomologist and sculptor to bring these sensuous and menacing body parts to the viewer through magnification and imagination. What is presented are anatomical structures - all derived from insects found on the Ucross Ranch. Each part was crafted using materials allowing us to capture the forms and textures that evoke what it might be like if a quarter-inch insect grew to the size of a family dog.

There are five body parts of insects magnified to 100-times their actual size. The viewer is asked to match each anatomical structure to a biological function (either sex or violence)—and to decide which structure belongs to:

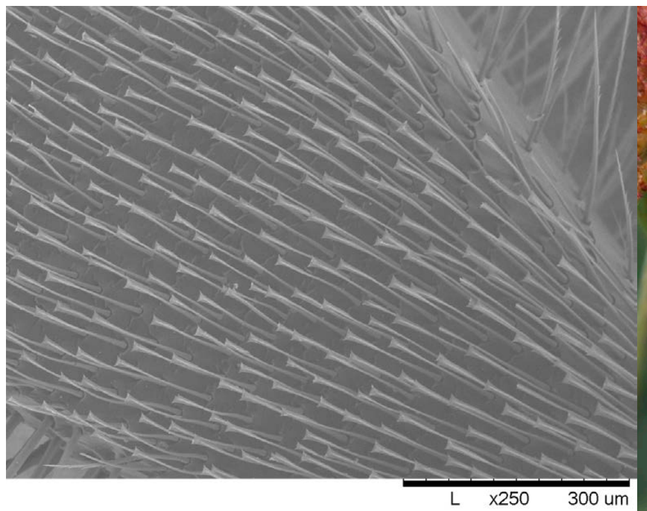
bee, horse fly, katydid, mosquito, or damselfly.

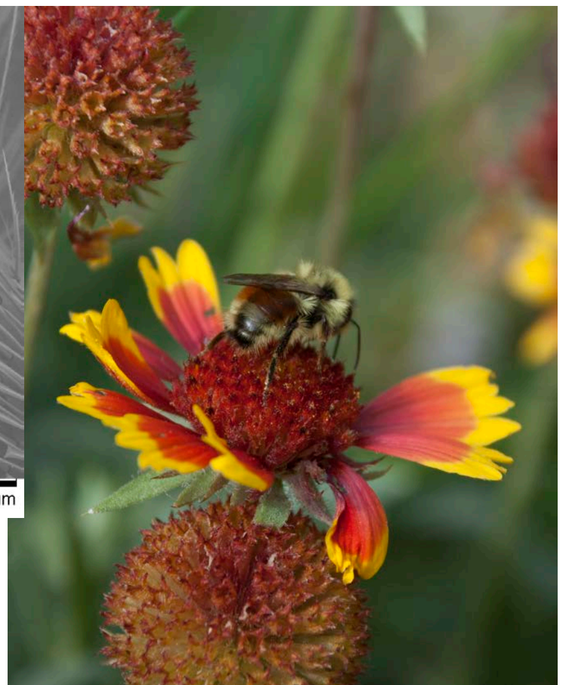


Make Love and War
Ashley Hope Carlisle & Jeffrey A. Lockwood
Mixed Media
2016

Fuzzy

Ashley Hope Carlisle & Michael Dillon





Michael Dillon and Ashley Hope Carlisle secured a $436,238 National Science Foundation (NSF) research grant in 2015 that is being used to study how alpine bumblebees exist over large geographic regions.

The two are making the science more palatable for a general audience with the creation of an interactive bumblebee sculpture exhibit set to travel in 2017.

The Table as Setting

Ali Grossman

Every night, the Cross-Pollinators gathered to process the events of the day, engage in discussion, and receive challenges for the day ahead. Questions were posed and perspectives were revealed.

We humans often fail to engage with those outside of our disciplines or beliefs. For the Cross-Pollinators, the transition from "I see the world through my discipline" to understanding and appreciating the ways in which others might view the same landscape happened though shared experience and discourse. Listening to one another was key.

Snippets from the conversations can be heard when the viewer sits down at ***The Table as Setting*** and puts on the given headphones. Listen. Engage. The viewer is asked to respond by writing on each quoted placemat as they listen to the questions and the moments that brought us toward new ways of seeing.

The Table as a Setting
Ali Grossman
Dining Table, Glass, Paper, CD Player, Headphones, Pens, Aged Pine, Poplar
2016

The Ucross Experiment: Cross-Pollination of Arts & Sciences Documentary

Ali Grossman, UW Television

The story of The Ucross Experiment is tale of creativity, curiosity, and collaboration - along with vulnerability, confusion, and frustration. This is an inside look at what happened when four of UW's leading scientists were matched with four of the university's most celebrated artists. The pairs were given just one week to make something that would capture a deeply shared engagement with the setting of the Ucross Ranch. Their charge was not merely to take the facts of science and make them pretty through art. Rather, the challenge was to discover what each could learn from the other and to co-create an expression of their shared understanding. And to raise the stakes, their work was to be showcased in a University of Wyoming Saturday University for the public. What emerged is a remarkable set of collaborations exemplifying the power of the humanities - of being fully human - at the intersection of art and science.

To view the *Ucross Cross Pollination Experiement*, go to:

https://www.youtube.com/watch?v=ao5lANDxIDA

Title??

The Power of Play invites people into the whirlpool stirred by two years of creative collaboration among artists, scientists, their organizer, a documentarian, a sculptor-fabricator, and the Ucross Foundation support that made this long collaboration and installation possible.

The installation has fascinating backstories, captured in the documentary that is shown within the tour of twenty experiences offered here. The collaboration has resulted in real effects for those involved, including new poetry, sculpture, dance, microbiology, music, sagebrush ecology, and pollinator and insect studies, including performances by the Colorado Chamber Orchestra, two National Science Foundation grants, and a mixed-media triptych. But the work and play these collaborators have stirred for two years is not simply a means to their new art or insight. The movement of play itself is what they offer us here. For the first time, the collaborators have made an environment that brings others into the whirlpool with them, to feel, hear, write, see, move, think and dream –all the powers that already move through us every day.

Play is serious business. Play is how children learn. Play is how adults continue to grow and change. It matters that play is open-ended, or we could neither enjoy nor learn from it. There may be rules or limits—bishops can only move diagonally, or if you touch that tree you are home-free—but outcomes can't be predicted. The order of play reshuffles (like cards) what we know. It's no fun to play with cards already arranged in order—there is no game, no real engagement, without that crucial burst of disorder, confusion, openness to possibility.

"Child's-play" isn't easy; any of us might remember its harder, weirder, ecstatic lessons, the world made by trust, risk, competence, vulnerability, creation and mess, who we were becoming in mobile relationships with rocks, pencils, animals, sticks, spoons, trees, people. It's not for nothing that memories of play follow us into our later lives, and not just nostalgia that brings us back to them.

Gregory Bateson, a profoundly serious-playful 20th-century ecologist, said that learning and evolution were the two great stochastic processes—unpredictable, open-ended, following complex rules that allow rather than determine, opening the future to change, and above all related to one another (*Mind and Nature* 1979). Both learning and evolution operate by means of "play"—open, experimental engagement in a world that already is, anticipating the new. Becoming. Bateson reminded us too that muddles matter—being confused, challenged, or mistaken (*Steps to an Ecology of Mind* 1972). Without shuffling the cards, there is no real play. Without contact and exchange, there is no adaptation. Without engaging others and the world openly, there is no new thing to think, feel, or be, as persons, groups, ecologies.

The Power of Play collaborators could have been content to show us what they made in their serious play, and some of that is on display in these exhibits: poems as well as NSF grant success, both laser-engraved on wood, musical scores and sound recordings, an operatic libretto written by a geologist, a website, MICROBESTIARY.ORG , all products of cross-currents among these now-close companions in insight. But they have done much more than that here.

The most obvious invitation into the whirlpool is the dining room table set for six in the middle of the gallery. What does one do at a dining room table? Pull out a chair and sit, perhaps. Consider the placemats - beautifully laser-engraved with aphorisms about play, intuition, rules - and the glasses, for wine or water, here with pens, to write anything one might wish on the placemats. On one hand, these are things we might do every day: pull out a chair and sit, take a pen and write. This table is special. It serves food for thought, through gleaming glass plates with the words of the placemats beneath, other visitors' comments and questions on the think paper, and the sound recording of collaborators themselves talking over dinner during their residency at Ucross in 2014. We can listen to them, read the placemats, searching for the meaning of what these all say to each other. But we can also take an important cue, the central key to The Power of Play: every table is such a table; every dinner conversation or meal in solitude is a creative act. It is the very nature of every day life to invite us to insight and creation. Experimental composer John Cage wrote, "Inspiration is not a special occasion" (Silence 1961).

In this spirit, visitors learn a bit about how microbes are named, and might work through the sound of the "official" names (which, though Latin, are simply descriptive), look at large-format photos of microbes, and use their own impressions to complete a microbe haiku on printed sticky-notes at a small desk : Gemmata obscuriglobus: Chambered dark gene-whorl, to which one visitor added, "notes twist and turn, echo, then/slur, staccato, fall." This isn't just about either microbes or haiku, really, but about the thrill and care, joy, of playing in words, notably near some of the soundscapes offered by music and other sounds in the gallery. On a refrigerator door, visitors can arrange magnet photos of microbes with ordinary words in English, to name a microbe, call it as they see it: "rubbery satellite," or "elegant fancy trapdoor device," "semi-compartment budding lens." As with the table and chairs, our own refrigerator doors are occasions to arrange, in ways that please and inform us, the words, pictures, bits of receipts or fortune-cookie wisdom that speak to us, and in fact speak us, so close to our food, what we allow to make us.

Powder River Play makes the most basic elements of water and rock available to make sound and sound patterns. Of course, rocks and water live with us everywhere—the sounds they make are ambient in our lives, a soundworld of astonishing complexity. The toy piano supplied with tiles depicting sagebrush steppe plants, allows us to play, in sound, with patterns of plants we might see every day. Unlike a concert piano, the toy piano invites rather than overwhelms. Anyone can play it. And again, the cue is to notice how we make and arrange sound, how we make and "read" patterns anywhere, whether we are accomplished musicians or not. Or, with a landscape photo with all the sagebrush removed, we are asked to arrange small sagebrush magnets in any pattern that makes sense to us. One might notice how easy it is to create simple order—a line of sagebrush in a row—and how much stranger and more time and thought it takes to make a "random" arrangement, or one that approximates the elaborate, complex order of actual sagebrush in a landscape. This quality of engaging what we know without thinking much about, is true of the exhibits based on dance, movement, and dance notation too. We move, we are moved, and we can always pay (more) attention.

Just as the dining room table brings us centrally into the exhibit, *Table as Setting* shows that everything going on in the exhibit is connected, related, cross-currents of visitors' insight and experience collecting in one place in response to the collaborators, and other visitors. A large mixed-media sculpture of a sagebrush root system reaches muscularly down to the floor and nimbly around the corner, with a box of paper rootlets to pick out, write on, and add to the tangle. What is "underground" is made visible, as it really is, if we open our attention. What matters to people, how they play, how they hold back, what they choose to play with, becomes part of the exhibit, from very specific names and dates, to hopes and dreams, incantatory lists. It is all arresting, singular, much of it ephemeral, from the sounds in the gallery to the dance movement we might follow or create. Quite a lot like life, and just as revelatory.

Museums of every kind have included "interactive" exhibits in their displays, notably since Dr. Frank Oppenheimer (of nuclear science fame, and a public school teacher after losing his university job as a result of the House Un-American Activities Committee's harassment) opened his Exploratorium in San Francisco in 1969, to teach science as broadly and joyfully as possible through active engagement. Faced with muddle of life-changing proportions, Oppenheimer wanted to reinvent science education. Art, natural history and science have become much more accessible to visitors, including children, through hands-on activities designed to teach. And it is notable that all the collaborators that made The Power of Play are teachers.

But the The Power of Play is not just teaching. The interactions on offer have more in common with the arts movement Fluxus from the 1950s through the 1970s, the public-made events and happenings, including the experiments in found objects and sound in which composer John Cage thought and worked so deeply. When Yoko Ono created an occasion for visitors to hammer nails into a wooden panel (*Painting to Hammer a Nail*, a piece made by visitors only on her prompt, with a panel, a hammer and box of nails provided, conceived in 1961), the art at hand was literally in the hands of the visitors. Ono heightened engagement with ordinary activity, which in the end belongs to all of us. About what music is, Cage noted in his 1957 lecture "Experimental Music," "the answer must take the form of a paradox: a purposeful purposelessness or a purposeless play. This play, however, is an affirmation of life –not an attempt to bring order out of chaos nor suggest improvements in creation, but simply waking up to the very life we're living, which is so excellent once one gets one's mind and one's desires out of its way and lets it act of its own accord." The Power of Play is exactly such an affirmation of life.

Frieda Knobloch

Root Bound
Ashley Hope Carlisle & Ann L. Hild
Mixed Media
2016

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WRTIER AND ENTOMOLOGIST JEFFREY LOCKWOOD earned a Ph.D. in entomology from Louisiana State University. He worked for 15 years as an insect ecologist at the University of Wyoming, publishing more than 100 scientific papers and pioneering a method of IPM for rangeland grasshoppers. In 2003, he metamorphosed into a Professor of Natural Sciences & Humanities in the department of philosophy where he teaches environmental ethics and philosophy of ecology, and in the program in creative writing where he is the director and teaches workshops in non-fiction.

SCULPTOR ASHLEY HOPE CARLISLE works in drawing and sculpture and has exhibited both nationally and internationally in England and Italy. Carlisle is an Associate Professor of Art in Sculpture at UW and has degrees from the University of Southern Mississippi and the University of Georgia. She has been featured in *Sculpture* magazine and has been awarded the Wyoming Arts Council Visual Arts Fellowship.

RANGELAND ECOLOGIST ANN HILD, the granddaughter of Wyoming homesteaders and Iowa farmers, earned a BA in Anthropology from the University of Iowa, and an MS in Agronomy, Horticulture and Entomology and doctorate in Range and Wildlife, both from Texas Tech University. Her research includes "the impacts of invasive species on shrubland and grassland ecosystems, wildlife habitat, and restoration seedings on wildland fire and anthropogenic disturbance sites in the intermountain West."

MICROBIOLOGIST NAOMI WARD has a research focus on bacterial cell biology and ecology. Most of her research group's ecology work "is conducted within the human gastrointestinal tract, where we are examining the contribution of gut bacteria to pediatric health and disease." Ward has a Ph.D in Biological Sciences from the University of Warwick, United Kingdom; and a B.Sc. in Microbiology from the University of Queensland, Australia.

POET HARVEY HIX recently published a collection entitled *American Anger* (Etruscan Press, 2016). Hix teaches in the Philosophy Department and Creative Writing MFA program at UW. He has also been a visiting professor at Shanghai University, and a Fulbright Distinguished Lecturer at Yonsei University. Among his numerous books, *Chromatic* was a finalist for the National Book Award.

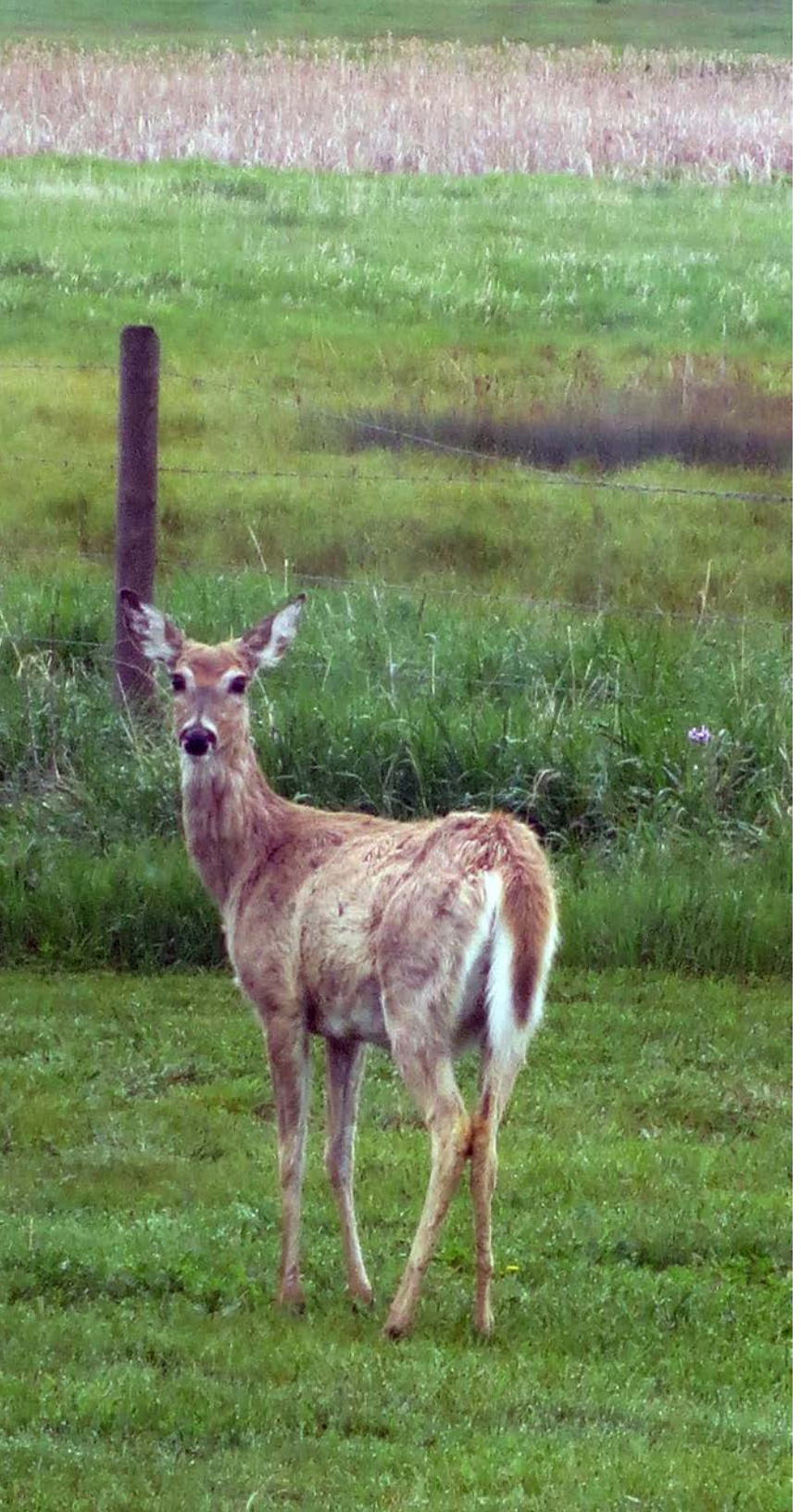
Composer Anne Guzzo is an internationally performed composer and the founder of the *New Frontiers* celebration of contemporary music based in Laramie. Guzzo earned her Ph.D. at the University of California, Davis. Passionate about new music, she teaches composition, music history, and theory at UW. Her research interests include the cartoon music of Carl W. Stalling, silent movie music and musical absurdism.

GEOLOGIST RON FROST is a Professor Emeritus at UW, having retired this spring after teaching in the Department of Geology and Geophysics since 1978. His research uses the study of the mineralogy, chemistry, and structure of rocks to characterize the processes by which they formed. His work has taken him across the world to the Alps, Canada, Australia, China, New Caledonia and Greenland.

BIOLOGIST MICHEL DILLON is an Associate Professor in the Department of Zoology and Physiology and Program in Ecology at UW, and Director of the UW-National Park Service Research Station in Grant Teton National Park. He has worked and studied throughout the world, including in Panama, South America, the Pacific Northwest, and China. A main focus of research has been "how organisms live in and adapt to diverse environments from tropical rain forests to alpine meadows."

CHOREOGRAPHER AND DANCER RACHAEL SHAW is an independent dance artist and educator (formerly with UW) who earned her an MFA in in Modern Dance from the University of Utah, and holds BA and BFA degrees from Virginia Commonwealth University. In 2006 she founded R Squared Dance Company with Rachel Hunter. She has also danced professionally with several companies including inFluxdance, Uprooted Theater Company, and Miki Liszt Dance Company.

VIDEOGRAPHER AND DANCER ALI GROSSMAN has been a Producer/Director at University of Wyoming Television for fifteen years. She has produced over 300 educational videos ranging from lectures to short features and documentary films. She is a graduate of University of Arizona where she received a BFA in Fine Art Studies with Media Arts and Dance emphasis.



The Ucross Foundation

The mission of Ucross Foundation is to foster the creative spirit of deeply committed artists and groups by providing uninterrupted time, studio space, living accommodations, and the experience of the majestic High Plains while serving as a good steward of its historic 20,000-acre ranch.

For more than thirty years, Ucross Foundation has been giving space and time to artists who come from many disciplines. They are writers, composers, visual and performing artists. Our participants come from all over the world. In our complex of private studios and shared residences, visiting artists build a small, intense community hard at work in the midst of 20,000 acres of Wyoming ranchland.

Ucross Foundation is a public non-profit organization. Its home is a working ranch set at the confluence of three creeks, and its purpose is to bring deeply committed artists into the heart of an unparalleled landscape. We believe that being a good steward of the land closely resembles being a good artist, and vice versa. Both require dedication, imagination, and the best possible use of the resources at hand.

In addition to fostering the work of individual artists, Ucross is a meeting and working place for groups, a multi-disciplinary laboratory for creative thinking. We help sponsor and host educational programs, conferences, and special events at our public art gallery, which is one of the cultural landmarks of northern Wyoming. Our reach is as close as our nearest neighbors and as distant as almost any spot on earth. Ucross is home to the creative spirit.

Ucross Foundation Art Gallery
30 Big Red Lane
Clearmont, WY 82835
307.737.2291
infoucross.org
www.ucrossfoundation.org