SPRINGS

THE RACHEL CARSON CENTER REVIEW

Issue #8 | 2025

November

Springs

The Rachel Carson Center Review

Issue #8 | 2025

November

Issue Editors

Christof Mauch, Editor-in-Chief
Pauline Kargruber, Senior Editor
Haley Snyder, Editor
Annika Stanitzok, Editor
Christopher Steil, Editor

Images on cover page:

TABLE OF CONTENTS

Note from the Editors

The newest issue of *Springs: The Rachel Carson Center Review* opens with a dive into the world of comics, before embarking on a fieldtrip across an Arctic research station, Finland's boreal forests, and the eroding riverbanks of Bangladesh. Three essays, a visual narrative, a short story, and an interview join forces to uncover missing pieces in our quest to understand human–environment interactions.

In "Ecocomics: Vivid Worlds in Images and Text," literary scholar Julia Ludewig illustrates how comics materialize key environmental insights, not just for specialists but for all interested readers. On a grand tour through common themes and formal features, we learn about the genre's favor toward "nonanthropocentric characters and stories with a certain nonchalance."

Anthropologist Davide Orsini and historian Uwe Lübken shed light on nuclear decommissioning in their conversation about Davide's Volkswagen Foundation Change! project "(Dis)Empowered Communities." The final "phase in the life cycle of nuclear facilities" not only raises questions about contamination and future use of the sites, as Davide explains, but also shapes the cultural and physical landscapes of local communities.

Visual and environmental anthropologist Flora Mary Bartlett's photographic "Portrait of an Arctic Research Station" invites us to northern Sweden to observe the exchanges of people, materials, and knowledge "between inside and out." At Tarfala Research Station, boundaries between the buildings and their surroundings blur, and weather and landscape become active agents in Flora's image-making process.

Historian Monica Vasile's "Eagles, Marmots, Humans" follows two biologists working in the field, and asks "what kind of understanding might repair our fractured relationship with wildlife." The scientist's work, as Monica finds, is not just analytical but deeply "embodied and experiential"—showing that conservation begins with the relationships built in the field.

Gender-studies scholar Amrita Dasgupta documents the precarious existence of sex workers in Bangladesh who reside on the banks of the Passur River. As sea-level rise and erosion eat away their occupational land, they become "Puppets at the Hands of Water" and are "rendered amphibious—working both on land and water."

In cultural-studies scholar Kata Beilin's short story "Step Away," Eve, a renowned professor of environmental law, has achieved academic success and international recognition, yet feels an emptiness beneath her busy life. At a seminar on environmental conflicts in the Amazonian jungle she meets Ené, a Waorani lawyer who invites her to her village—where the boundaries between both women blur, transforming Eve in ways she could have never anticipated.

Beyond these exciting additions, *Springs* continues its efforts to assemble writing from other open-access RCC publications. Our *Springs* archive curates articles from the online and print journal *RCC Perspectives* (2010–2020), the peer-reviewed online journal *Arcadia: Explorations in Environmental History*, and publications from RCC's multigenre ecopedia, *Seeing the Woods*.

Munich,
4 November 2025

ECOCOMICS: VIVIC WORLDS IN IMAGES AND TEXT

Julia Ludewig

Springs
The Rachel Carson Center Review

8 • 2025

This article is peer reviewed

Julia Ludewig

I grew up on Disney's *Duck Tales* (1988–) comics, casually enraptured by the adventures of ducks, mice, and dogs. Later, I encountered the chilling kind of rapture that comes with Art Spiegelman's *Maus* (1992), a Shoah family memoir in comics form and likewise a page-turner with mice and cat protagonists. Yet another foray took me into abstract comics where blobs and squiggly lines were the only "protagonist" available. In hindsight, I appreciate how normal it is for comics to feature nonhuman agents. Comics invite nonanthropocentric characters and stories with a certain nonchalance, and they do so arguably not despite, but *because* they've been a marginal medium for a long time: The cover of a lesser literature left much space for artistic liberty. Add to that comics' inherent multimodal complexity, that is to say, the fact that they stitch together images and text. By nature, then, comics ask a lot of readers. It should therefore not surprise us that, thematically and structurally, comics are well suited for complex topics including those that pertain to the relation between humans and the environment—the genre critics have termed "environmental comics," "ecocomix," or, as I do here, "ecocomics."

Scholars have begun to take full account of this comics subgenre, discovering ever more ways in which it enriches the environmental humanities. Its literary value may be the most obvious promise: Ecocomics are an addition to the canon, responding fruitfully to the same questions environmental writing and ecocinema do. Its educational value is likewise apparent. Whether individual creators tackle scientific issues or entire organizations commission campaigns in comics forms, ecocomics are

DOI: 10.5282/rcc-springs-17076

a potent tool for knowledge communication. Less known, but no less intriguing, are comics that act as a vehicle for *doing* rather than just *presenting* research. "Comics-based research" is one name for this new mode of inquiry.[1] If dissertations and academic articles can take the form of comics, then we might very well see more environmental research with panels and speech bubbles. While my essay focuses on the first, the ecocritical angle of comics, I hope that it also creates a curiosity for the educational and research potential of (eco)comics.

> *Comics invite nonanthropocentric characters and stories with a certain nonchalance not despite but because they've been a marginal medium for a long time.*

The corner of a living room. A lush jungle. The entirety of planet Earth. These are not just three points on a spatial scale, they are the settings of three comic books,[2] Richard McGuire's *Here* (2014), Amruta Patil and Devdutt Pattanaik's *Aranyaka* (2019), and Philippe Squarzoni's *Climate Changed* (2014).[3] Place is key not just to these comics but to ecocriticism in general. As the environment that shapes characters and plots and can take on agency itself, place is the natural entry point for ecocriticism into literary texts. This is no different in comics, which is one reason why these three books lend themselves to an ecocritical interpretation.

Aside from this, *Here*, *Aranyaka*, and *Climate Changed* all are book-length efforts that demand the reader's time and attention, thereby displaying the confidence with which comics authors step on the scene today. The three books also examine environmental issues in intriguingly diverse ways and represent critically acclaimed works from the United States, India, and France. Thus, they showcase the production inside and outside the traditional comics powerhouses, which are located in the United States, France/Belgium, and Japan. Lastly, the three comics are also representative of the ways in which artists publish comics today. While *Aranyaka*'s creative tandem consists of a visual artist and a storyteller, the other two works are single authored. It is likewise telling that among the four creators, there is only one woman.

> *It is widely accepted that comics operate with a different expressive logic than other media and that they therefore require their own tools of interpretation.*

While not all comics are environmental comics or ecocomics, all comics can be read ecocritically.[4] The three works at hand have produced their own flurry of scholarly responses. Scholars have commented, for example, on the narrative structure and generic belonging in *Here*, spatial metaphors in *Aranyaka*, and analogies with grammatical voice in *Climate Changed*.[5] Such an approach is a relatively new phenomenon, which has to do with the parent discipline's own emancipation. It took until the end of the twentieth century for comics studies to legitimize itself through its medium-sensitive ways of analysis—to mature methodologically and institutionally. Now, it is widely accepted that comics operate with a different expressive logic than other media and that they therefore require their own tools of interpretation. A still image makes for a different experience than a moving one; meaning born from the interaction of images and written text demands reading strategies unlike those that combine, say, sound and spoken text. At the same time, scholars and artists alike had to advocate for comics as a serious means of expression, one that could carry home the Pulitzer Prize (as did Spiegelman's *Maus*) and proudly take its place as the "Ninth Art" in the artistic (read "highbrow" cultural) pantheon.[6]

Many comics scholars even argue that their medium offers unique resonances with current ecological issues. The fact that text and image appear in tandem, for example, can activate not

DOI: 10.5282/rcc-springs-17076

only different but also conflicting channels of meaning. Used strategically, as I exemplify below, such an incongruency can parallel the confusion that arises from the onslaught of ecological problems or, more abstractly, the unwillingness to align knowledge and action. Another ecocritical resonance of the comics format lies in its page architecture: Most comics arrange multiple frames on the same side thus demanding both a sequential reading and a simultaneous perception of the page as a whole. These two temporal logics coexist, just like complex environmental phenomena such as climate change happen both in causal cascades and all at once. All of this to say: Comics are ripe for a full embrace by ecocriticism. In what follows, I provide a quick and dirty tour through three comics to demonstrate some touchstones of an ecocritical reading. My aim is to offer a start to readers who want to learn about those comics and how to appreciate them with an ecocritical mindset.

Fig. 1. Double page from *Here* illustrating the overlapping time slices in the titular spot. Richard McGuire, *Here* (Pantheon Books, 2014). © 2014 Richard McGuire. Used by permission of the Wylie Agency (UK) Limited. All rights reserved.

The entirety of *Here* takes place in the corner of one room of a house—or its spatial equivalent—within a vague North American locale. Over 150 pages and a whopping four million years, the comic takes readers on a rollercoaster through deep time. What ensues is not one story but a coil of interlocking narrative threads. One appeal lies in the experimental layering of millennia and the challenge of establishing throughlines from the discontinuous and nonlinear story crumbs the author drops in our path. Another appeal is the dizzying diversity of landscapes, dwellings, and room fashions that unfold in front of our eyes. While the room is the narrative starting point and focus for the time that the house exists, landscapes take its place before and after (figure 1 and 2). Thus, *Here* weaves the human into environmental upheavals: While it shuffles through generations of Indigenous peoples, settlers, and modern and future families, the comic's anchor is the locale in its

DOI: 10.5282/rcc-springs-17076

drastically fluctuating appearance. From icescapes to grassland, swamps to open water, flooding to radioactive poisoning, from birds to sharks to fantastic future megafauna—this place brims with life and death.

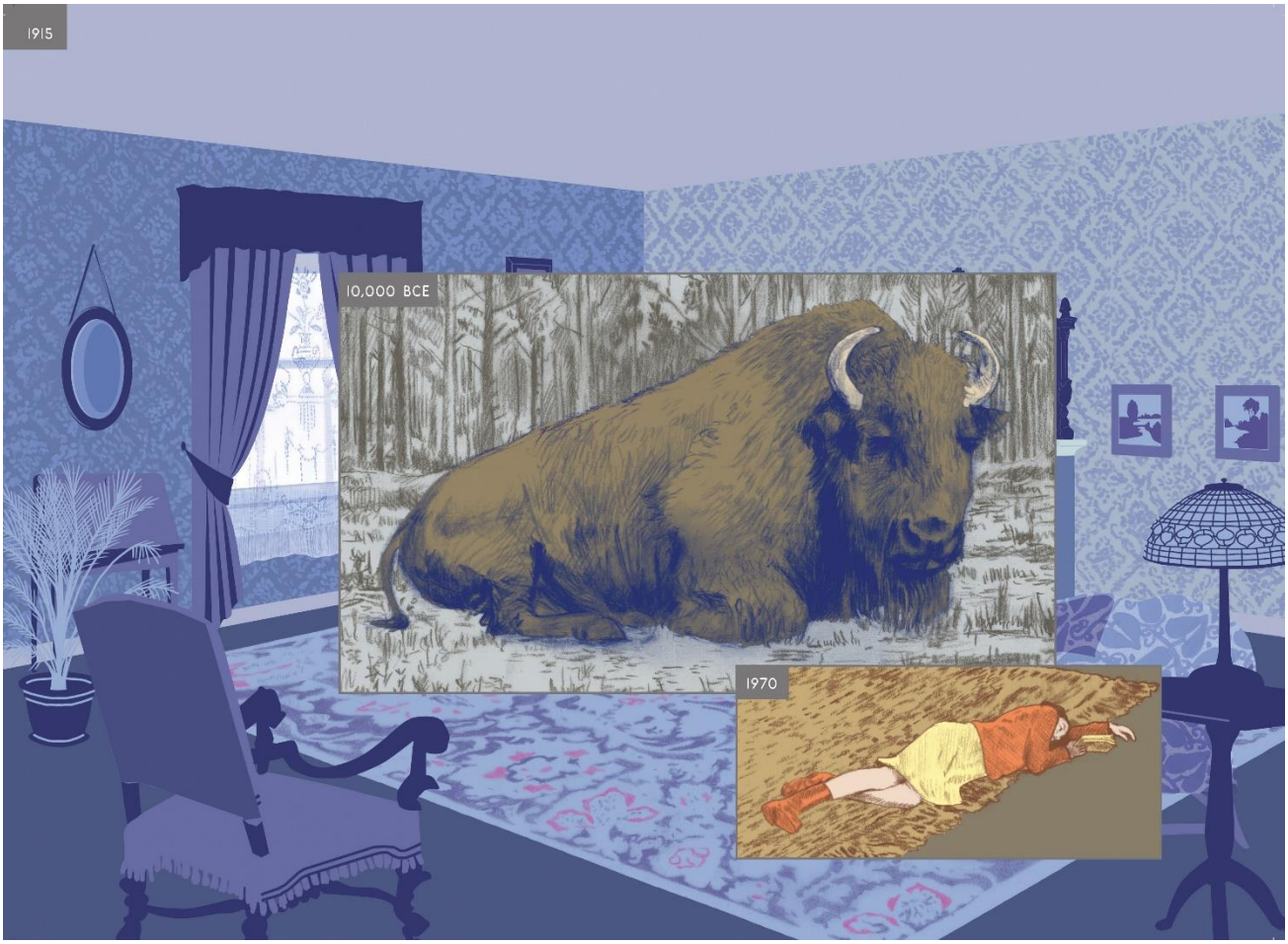


Fig. 2. Double page from *Here* showing overlapping time slices. Richard McGuire, *Here* (Pantheon Books, 2014). © 2014 Richard McGuire. Used by permission of the Wylie Agency (UK) Limited. All rights reserved.

With its ecological kaleidoscope, *Here* exemplifies one of the core questions any thematic approach to ecocomics poses: What environments do we see, and how do they shape characters and plots? The environment is ever-changing, agentive, life giving as much as threatening, disastrous by natural and human design. Climate change and environmental pollution play a role without defining the narrative. Similarly, humans may drive much of *Here*'s subplots, but they are ultimately one (even though particularly entertaining) species among others. The lasting entity is the place itself with its mind- and eye-boggling transformations. By putting before the reader's eyes those vastly different forms of what "here" looks like and by showing how these different environments affect their inhabitants, *Here* exploits the visual and narrative affordances of comics to the fullest extent.

DOI: 10.5282/rcc-springs-17076

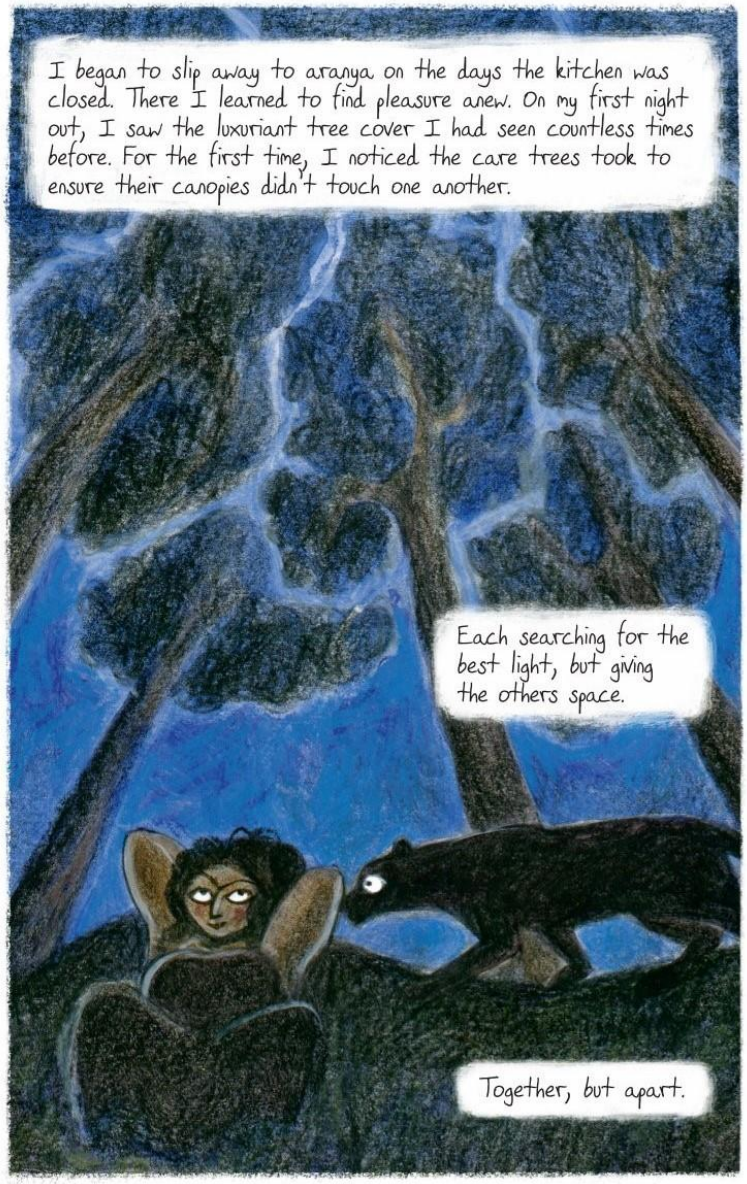


Fig. 3. Page from *Aranyaka* showing Katyayani learning from the forest. Amruta Patil and Devdutt Pattanaik, *Aranyaka: Book of the Forest* (Tranquebar, 2019), 76. © 2019 Amruta Patil and Devdutt Pattanaik. All rights reserved.

Place is both more specific and stable in *Aranyaka*. The Sanskrit title translates to "in the forest," and that indeed is where most of the comic unfolds. An ecofeminist revisioning of Vedic myths, it is the quasi-autobiographical account of Katyayani, an ostracized woman who is sent to the woods for not complying with her community's social standards. Her forest is both beautiful and unmaliciously brutal, an environment where Katyayani discovers ecosystemic wisdom including the intricacies of food chains or the growing patterns of tree canopies. About the latter, she muses: "There [in the forest], I learned to find pleasure anew. . . . I saw the luxuriant tree cover I had seen countless times before. The first time, I noticed the care trees took to ensure their canopies didn't touch one another. Each searching for the best light, but giving the others space" (figure 3).[7]

This passage also exemplifies the agentic quality the forest takes on in this comic and thereby gets at another guiding question for ecocritical comics readers: Who, aside from humans, is a character and how so? Here, agency is shared and reciprocal; together with the ecological literacy, and arguably enabled by it, Katyayani also discovers her own agency. Patil represents her protagonist's "profound personal and spiritual transformation" by visually assimilating her to the colors and shapes of her environment, a mimicry one could call "forestomorphization."[8] After not merely surviving but thriving in the jungle, Katyayani clear-cuts a parcel within the forest and defies human expectations again, this time her newfound husband's, when she defends her supposedly inferior identity as gardener and cook rather than following in his intellectual footsteps.

DOI: 10.5282/rcc-springs-17076

In the forest as much as in her marriage, Katyayani never fully blends in, remaining a liminal being. She is *in* the forest, as the title suggests, but not of it. This is where Vedic philosophy sprouts ecocritical offshoots. One can read Katyayani's romantic epiphany, "He is not me, why do I punish him for being different," and her eventual separation from her husband as an ecophilosophical metaphor (figure 4). [9] Just like Katyayani lives off, yet is not identical with the forest, just like she is complementary to but separate from her husband, humans can be part of ecosystems without either dominating or naively identifying with them. *Aranyaka*'s forest is less background than spiritual catalyst. It is the sphere whose cross-species community and competition allow Katyayani to grow. While it does not gesture to contemporary life, not to mention Anthropocene crises, it sticks out its branches to modern sensibilities by portraying human existence as different from, yet productively dependent on, environmental literacy.

Fig. 4. Page from *Aranyaka*. Amruta Patil and Devdutt Pattanaik, *Aranyaka: Book of the Forest* (Tranquebar, 2019), 100. © 2019 Amruta Patil and Devdutt Pattanaik. All rights reserved.

The third work, *Climate Changed*, addresses environmental issues head-on. As the subtitle announces, Squarzoni wants to take readers on "A Personal Journey Through the Science." Thus, *Climate Changed* answers the common ecocritical question of whether a comic takes a direct stance on ecological crises. This one sure does! At almost five hundred pages, the volume is an informational tour de force about the state of climate science in 2012, coupled with the author's essayistic reflections. Condensing insights by French climatologists, economists, and journalists, Squarzoni ties together the geophysical basics with a critique of political, economic, and cultural systems. For example, he provides a thorough review of the impact of carbon dioxide and other greenhouse gases on global temperature. He also discusses the connection to energy demands and consumption, especially in Western countries. As a middle-class Frenchman, Squarzoni does not shy away from looking at his own implication in the socioeconomic system that fuels climate change; he even shares with the reader his misgivings about flying.

DOI: 10.5282/rcc-springs-17076

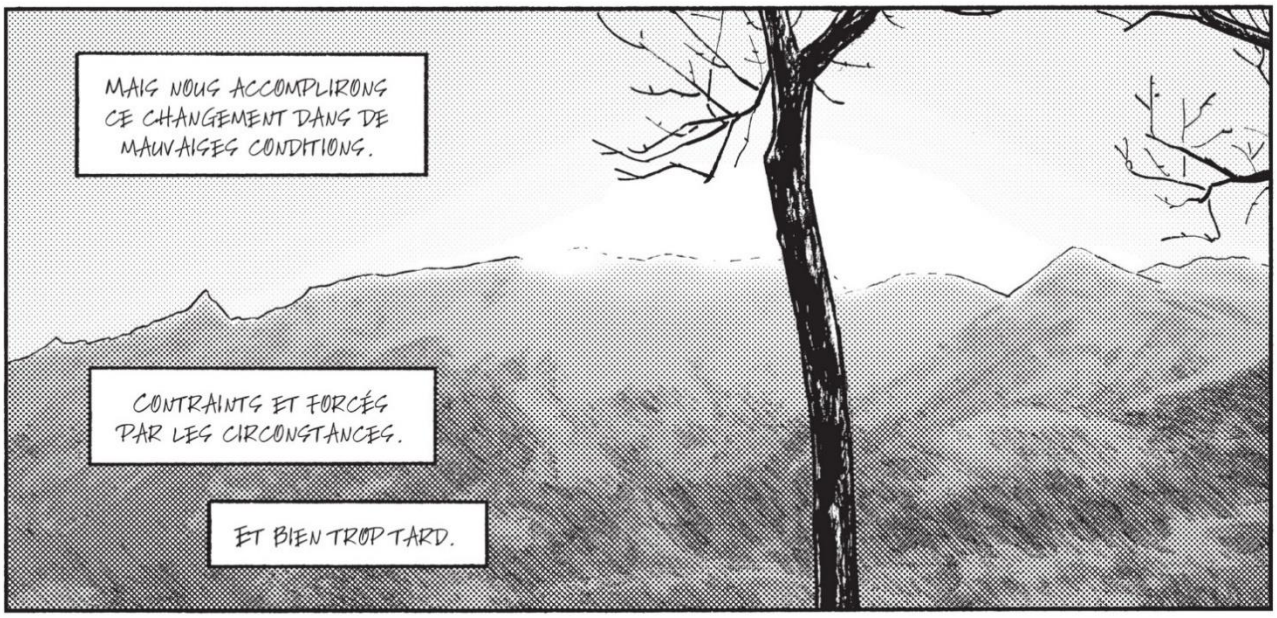


Fig. 5. Panel from the French original of Squarzoni's *Climate Changed*. Philippe Squarzoni, *Saison brune* (Éditions Delcourt, 2012), 463. © 2012 Éditions Delcourt and Philippe Squarzoni. All rights reserved.

The more-than-human world occurs in a twofold manner here: On the one hand, it is the capital-E Environment of climatology, the threatened natural systems that sustain life. On the other hand, Squarzoni peppers his book with intimate scenes that highlight how important immediate connections with animals and environments are for him. Beloved dogs, past and present, are leitmotifs in the book, as are the surroundings of his rural French childhood or the forest through which he walks pensively while trying to digest his insights. Despite his ostentatious (self-) educational goal, Squarzoni lingers on soft melancholy by the end of the book. "Of course, we'll make this transformation one day," he writes, "we will accomplish this change under the worst conditions. Forced by circumstance. And way too late" (figure 5). Still, he defends his project: "Just because the answer is filled with gloom doesn't mean the question was pointless. To care how these questions are being asked shows that we care about the future" (figure 6).[10] Squarzoni thus shares a candid self-reflection with us, the very embodiment of which is his book.

Fig. 6. Two panels from the French original of Squarzoni's *Climate Changed*. Philippe Squarzoni, *Saison brune* (Éditions Delcourt, 2012), 464. © 2012 Éditions Delcourt and Philippe Squarzoni. All rights reserved.

As these observations about *Here*, *Aranyaka*, and *Climate Changed* indicate, ecocomics touch on debates that lie at the heart of the environmental humanities. Thus, this artform is not just for the "comics nerd," but for anyone fascinated by the knotty problems of the Anthropocene. Even these three examples allude to the many connections between the medium and the environmental humanities. We could further investigate the status the environment and environmentalist issues

DOI: 10.5282/rcc-springs-17076

take in any one ecocomic, a spectrum that goes from en passant backgrounds to educational or even activist approaches. Environmental issues also cover a range of topics from interactions between or across species in the most general sense (e.g., stories about animals or human-animal encounters)[11] to Anthropocene crisis communication (think climate change, biodiversity, pollution).[12] Put differently: There is an ecocomic on almost any topic.

Furthermore, agency beyond the human has found a place in comics. Whether it is a forest teaching human protagonists about dependence and kinship, flooding that extinguishes whole landscapes and their inhabitants, or the geophysical feedback systems of climate change—humans are no longer unchallenged masters: neither of "nature" nor of "their" stories. Ecocomics also tap into a web of adjacent concerns, including ecofeminist perspectives, postcolonial considerations, or questions of environmental justice.

Lastly, and in a way related to these earlier observations, the evolution of ecocomics has given us subgenres. Thus, ecocomics mix with folklore and myth, speculative fiction (e.g., dystopia and utopia, the latter especially in the form of solar punk),[13] (auto)biography, and memoir.[14] With superhero comics, ecological topics also animate a quintessential comics genre. It is therefore almost logical that superheroes started to not only fight vague villains but also combat ecological wrongdoing. Another genre-specific aspect of ecoheroes (and villains) is that they often come in the shape of hybrids, merging human with animal or even ecosystem forms (think Poison Ivy or Swamp Thing).[15] Even though ecoheroes (and villains) were more prominent during the subgenre's golden days in the 1930s through 1950s, they still cast a caped shadow onto current publications, often as visual metaphors. For instance, both Squarzoni's *Climate Changed* and Jean-Marc Jancovici and Christophe Blain's *Le monde sans fin* (2021), introduce a hero avatar with (questionable) superpowers. In both cases, these superheroes represent humanity's near-magical energy concentration with the help of fossil fuels and sophisticated technology. Powerful might just be the opposite of sustainable, these heroes intimate, and real heroism might lie in the return to the human scale.

DOI: 10.5282/rcc-springs-17076

Fig. 7. Double page from *Here* illustrating the overlapping time slices that reach from 1949 to 2111 linked by location. Richard McGuire, *Here* (Pantheon Books, 2014). © 2014 Richard McGuire. Used by permission of the Wylie Agency (UK) Limited. All rights reserved.

On a formal level, *Here* exploits the affordance of sequence in extreme ways; this book is anything but linear. Its zigzagging sequence asks us to stitch together cataclysmic events on a human and planetary scale (figure 7). Challenged to hold the often reverse-ordered moments in mind, readers need to find narrative throughlines aided by time stamps and visual clues such as period fashion or similar environments. Sequence and its hiccups are central to readerly engagement. One narrative strand, for example, piques and puzzles the reader's curiosity about when humans started inhabiting the eponymous "here." While, sequentially, the first Native Americans appear in 1609, McGuire makes us revise this onset multiple times when we encounter Indigenous peoples in 1553, 1402, and 1352.[16] In unraveling the panel connections, *Here* questions the power of the one-after-the-other. Sequence is what makes reading this comic pleasurable, even if, or precisely because, we must become sequential detectives. McGuire does not stop at presenting events out of chronological order and superimposes time slices on top of each other in the same panels. Such temporal stacking takes nonlinear storytelling to the next level, a quasi-three-dimensional growth of time that simulates motivic and causal reverberations across decades or even eons.

DOI: 10.5282/rcc-springs-17076

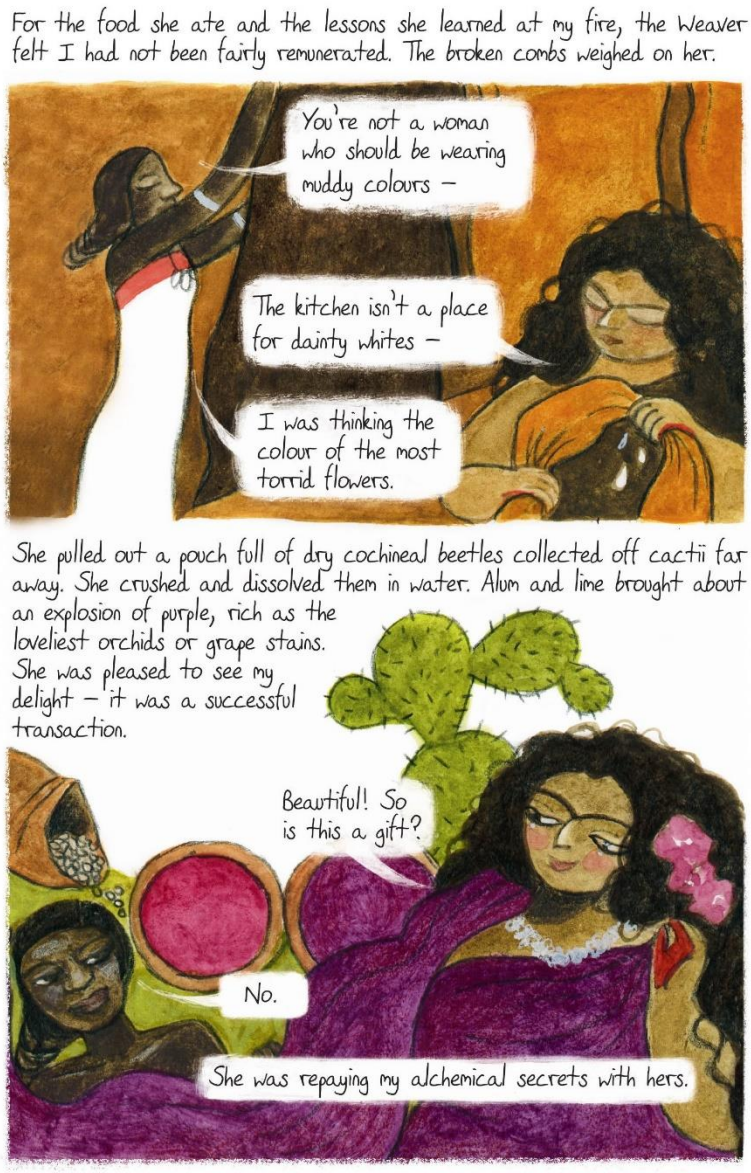


Fig. 8. Page from *Aranyaka* depicting how Katyayani receives a colorful garment from "the Weaver." Amruta Patil and Devdutt Pattanaik, *Aranyaka: Book of the Forest* (Tranquebar, 2019), 109. © 2019 Amruta Patil and Devdutt Pattanaik. All rights reserved.

Turning to *Aranyaka*, let us zoom in on colors, both in terms of the type of material used and the hues in different parts of the book as they steer reader reception in subtle ways. The effect of using watercolors is one in which brush strokes and pigment gradations remain visible, imbuing the pages with a procedural, "just-for-now" quality. The book thus meets the reader's eyes with a soft, blurred layering, which appears sensually unpolished—much like its protagonist and the forest that awakens her. The forest itself is a space in which the blues of pools and the greens of foliage dominate, clearly distinct from the ochres, browns, and yellows of the agricultural homestead the protagonist later establishes with her family. While Katyayani blends in with the forest and the brown of the settlement at various points, she discards both mimicry options when a character named "the Weaver" arrives and clothes her in luxurious purple, "the color of the most torrid flowers" (figure 8).[17] Katyayani thus forgoes assimilation with either sphere and blends the blues of the forest springs with the ochre of her domesticated life to arrive at a color signature that is both natural and her very own.

Climate Changed offers a plethora of text-image relations ranging from congruency to images that tantalizingly talk past their captions. Squarzoni uses the instrument of an incongruency between text and image to create an experiential, cinematic effect: Text and image are deliberately out of sync. Take, for example, the scene in which Squarzoni ponders the chances that humanity will address climate change adequately and timely. "We are living in a strange time," he writes, "at a period of our history where a page has turned, but we're not really aware of it" (figure 9).[18] Over six pages, he illustrates his musings about social and political dynamics with images of a walk in a wintry forest, which shifts from glimpses of the snowy path to shots of Squarzoni's avatar staring into the landscape. Here, we see not so much an outright mismatch between text and image as an experiential yoking; presumably, Squarzoni had these thoughts during a walk in the forest. The effect is akin to a voice-over during an atmospheric film scene. It also gestures to a sense of immediacy and self-awareness, an almost documentary technique.

DOI: 10.5282/rcc-springs-17076

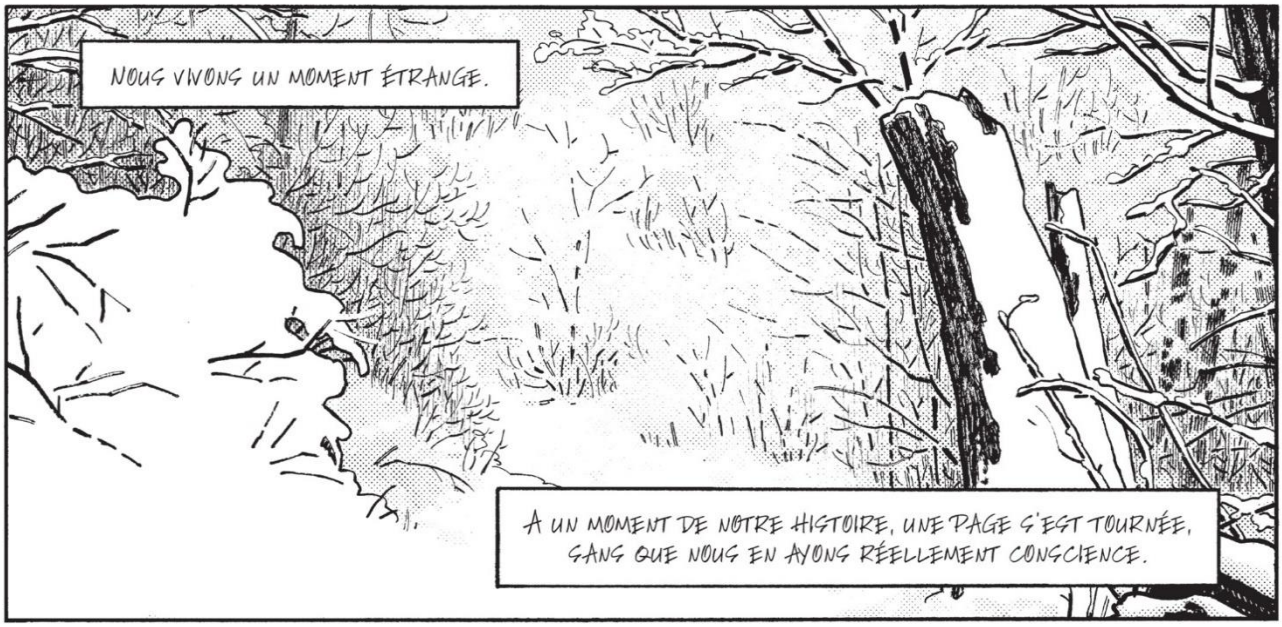


Fig. 9. Panel from the French original of Squarzoni's *Climate Changed*. Philippe Squarzoni, *Saison brune* (Éditions Delcourt, 2012), 447. © 2012 Éditions Delcourt and Philippe Squarzoni. All rights reserved.

Similarly noteworthy is the direct clash between image and text, another of Squarzoni's hallmark techniques. Reporting on a 2013 poll in the United States about global warming, Squarzoni writes, "28% were unsure it's even occurring at all."[19] This statement sits atop a complex image: On the backdrop of a US flag, we see the contours of an iconic photo from the Vietnam War in which a police chief shoots a man in the streets (figure 10). The gruesome scene is faithfully reproduced with one exception: Rather than a gun, the shooter holds the nozzle of a gas pump to the victim's head. This image is an association more than an illustration. Even if the image gestures to the deadly force of climate change or to the propaganda machinery around politically charged issues, the image is still in visually and emotionally stunning contrast to its caption.

Fig. 10. Panel from the French original of Squarzoni's *Climate Changed* showing a noncorresponding image-caption relation. Philippe Squarzoni, *Saison brune* (Éditions Delcourt, 2012), 425. © 2012 Éditions Delcourt and Philippe Squarzoni. All rights reserved.

As with thematic resonances, the formal view on ecocomics also ties in vital debates in the environmental humanities. The question of sequence and linearity, for instance, is key to understanding the sociocultural sources of our ecological crises. That sequences matter, and ever more precariously, is an insight on which phenologists are sounding the alarm when they trace, say, the climate-induced misalignment between herring larvae and their prey. Linearity, in turn, comes into critical view through the treacherous narrative of eternal technical, economic, and societal progress. Today's ecological predicaments not only stem from a belief in linear progress (and the human and environmental price we are willing to pay for it), but climate change itself operates on nonlinear feedback loops that explode simplistic arcs of linearity and causality.

DOI: 10.5282/rcc-springs-17076

Fig. 11. "This Is Fine" meme by KC Green with iconic image-text clash. © KC Green. All rights reserved.

Or think of the ways psychological mechanisms parallel the foundations of comics, for instance in the phenomenon of cognitive dissonance. Defined as an internal collision between values and behavior, cognitive dissonance blooms, for example, when one's professed environmentalist beliefs clash with incongruent actions (think Squarzoni or myself going on transatlantic flights despite knowing their disastrous carbon footprint). Contradictions between images and texts embody such split mentalities, just like Squarzoni uses deliberately incongruent captions and illustrations. In the "This Is Fine" meme, cognitive dissonance has found an emblem that is often evoked in climate activism and, incidentally, is a cartoon or comic itself (figure 11).[20]

Eventually, an ecocritical approach to comics often holds that there is an ingrained analogy between comics and ecologies. Hence, scholars pay close attention to the way ecological patterns dovetail with sequence and panel transition, drawing style and color choices, text-image relations, or the overall narrative flow. Not only does each of these artistic choices harken back to ecological concepts, the interaction across these elements also parallels the intimate or troubled interdependence ecologists find off the page.

As *Here*, *Aranyaka*, and *Climate Changed* exemplify, ecocomics are driven by many of the same concerns that animate other ecomedia. At the same time, the conceptual lenses we need in order to bring ecocomics into focus also differ from movies, images, or purely verbal texts. Comics literally frame their questions in medium-specific ways, and they do so in ways that materialize ecocritical topics before the reader's eyes: The unruly temporal sequence in *Here* reverberates with the theme of ecosystemic transformations; colors and materials in *Aranyaka* translate the protagonist's spiritual approximation to the forest; image-text tensions make unnervingly visible the knowledge-behavior conflict at the heart of *Climate Changed*.

> *Because ecocomics tap into widely shared environmental concerns yet refract those through their medium-specific vantage point, everyone can benefit from reading them.*

Comics have a history of being considered "light fare," but their multimodal richness enables artists to reflect on vexing and taxing topics. This advantage holds true in what many see as the most vexing and taxing topic today: our relationship with the more-than-human world. Ecocomics offer a unique vessel to address these questions in images and words. Because ecocomics tap into widely shared environmental concerns yet refract those through their medium-specific vantage point, everyone can benefit from reading them. Whether your reading biography includes the *Duck Tales*, *Maus*, or no comics at all, whether you are a comics scholar, art historian, or sociologist—as long as you are interested in our most wicked problem today, ecocomics will have something to say and show to you.

DOI: 10.5282/rcc-springs-17076

Notes

[1] See, for example, Paul Kuttner, Nick Sousanis, and Marcu Weaver-Hightower, "How to Draw Comics the Scholarly Way: Creating Comics-Based Research in the Academy," in *Handbook of Arts-Based Research*, ed. Patricia Leavy (Guilford Press, 2018).

[2] Because I regard the label "graphic novel" as a commercial one, I use the term "comics" throughout this essay.

[3] Richard McGuire, *Here* (Pantheon, 2014); Amruta Patil and Devdutt Pattanaik, *Aranyaka: Book of the Forest* (Tranquebar, 2019); Philippe Squarzoni, *Climate Changed: A Personal Journey Through the Science* (Abrams ComicArts, 2014). Originally published as *Saison brune* (Éditions Delcourt, 2012).

[4] To get a sense of recent ecocritical comics scholarship, see, for example, Adele Haverty Bealer, "Graphic Environments: Performing Ecocriticism at the Confluence of Image and Text" (PhD diss., University of Utah, 2014), https://collections.lib.utah.edu/ark:/87278/s6x95kj3; Sidney Dobrin, ed., *EcoComix: Essays on the Environment in Comics and Graphic Novels* (McFarland, 2020); and the 2020 special issue of the comics journal *Closure: Kieler e-Journal für Comicforschung*, no. 7, "'What Grows in the Gutter?' Eco-Comics," ed. Victoria Allen, Cord-Christian Casper, Constanze Groth, Kerstin Howaldt, Julia Ingold, Gerrit Lungershausen et al., https://www.closure.uni-kiel.de/data/pdf/closure7/closure7_editorial_en.pdf.

[5] Philip Smith, "Rhyming Events: Contested Narratives and 'Cli-Fi' in Richard McGuire's *Here*," *Inks* 2, no. 1 (2018): 38–48, https://doi.org/10.1353/ink.2018.0003; Amrutha Mohan and Nair Anup Chandrasekharan, "'Inside This Membrane Is Us. Beyond the Membrane, Them': Spatiality in Amruta Patil and Devdutt Pattanaik's *Aranyaka: Book of the Forest*," *Studies in Comics* 14, no. 1 (2023): 213–38, https://doi.org/10.1386/stic_00108_1; Terry Harpold, "The Middle Voice of EcoComix: Reading Philippe Squarzoni's *Climate Changed*," in *EcoComix: Essays on the Environment in Comics and Graphic Novels*, ed. Sidney Dobrin (McFarland, 2020), 29–51.

[6] Sylvain Lesage, *Ninth Art: Bande dessinée, Books and the Gentrification of Mass Culture, 1964–1975* (Palgrave MacMillan, 2023), https://doi.org/10.1007/978-3-031-17001-0.

[7] Patil and Pattanaik, *Aranyaka*, 76.

[8] Ibid.

[9] Ibid., 100.

[10] Squarzoni, *Climate Changed*, 455–56.

[11] See the examples in David Herman, ed., *Animal Comics: Multispecies Storyworlds in Graphic Narratives* (Bloomsbury, 2018), https://doi.org/10.1093/oso/9780190850401.003.0005.

[12] See Hanna Harms, *Milch ohne Honig* (Carlsen, 2022); Nick Hayes, *The Rime of the Modern Mariner* (Viking Press, 2012); Heta Nääs and Noémie Ross, "Frozen-Ground Cartoons," accessed 1 August 2025, https://frozengroundcartooncom.wordpress.com/.

[13] See Zac Thompson, Emily Horn, Alberto Jiménez Albuquerque, and Adrian F. Wassel, *No One's Rose* (Vault Comics, 2020).

[14] See Cyril Pedrosa, *Autobio intégrale* (Fluide glacial, 2014); and Emmanuel Lepage, *Un printemps à Tchernobyl* (Futuropolis, 2013).

[15] Just two of many examples from the US tradition are the *Captain Planet and the Planeteers* series (Marvel Comics, 1991–1992) and the *Swamp Thing* series (DC Comics, 1972–1976).

[16] Squarzoni, *Climate Changed*, 98.

[17] Patil and Pattanaik, *Aranyaka*, 109.

[18] Squarzoni, *Climate Changed*, 439.

[19] Ibid., 420.

[20] Cartoons are a single-panel phenomenon; everything longer than that is a comic.

DOI: 10.5282/rcc-springs-17076

Cite this article

Ludewig, Julia. "Ecocomics: Vivid Worlds in Images and Text." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-17076.

(DIS)EMPOWERED COMMUNITIES: A CONVERSATION WITH DAVIDE ORSINI

Davide Orsini and Uwe Lübken

Springs

The Rachel Carson Center Review

8 • 2025

Davide Orsini and Uwe Lübken

Anthropologist and historian Davide Orsini and his research partners are conducting a five-year comparative study that explores the hidden costs and environmental implications of decommissioning nuclear power plants and facilities. Nuclear experts define decommissioning as the process of safely disposing of obsolete nuclear installations at the end of their productive life, with the objective of returning sites to public use or other purposes, if possible. Launched in March 2025, Davide's Volkswagen Foundation Change! project seeks to foster research collaborations between academic and nonacademic partners to promote social change. It sheds light on the uncertainties surrounding decommissioning projects and aims to involve affected communities in the management of decommissioning strategies. (Dis)Empowered Communities promises to challenge consolidated, and often misleading, ideas about the fate of obsolete nuclear facilities, as Davide explains in an interview with historian Uwe Lübken.

Demolition of the cooling towers at the Grafenrheinfeld Nuclear Power Plant, Germany, 16 August 2024. Photo by Michael Bemmerl. Wikimedia Commons. CC BY 3.0 DE.

UWE LÜBKEN (UL): Davide, your new project involves a lot of traveling. Have you been to a nuclear power plant lately?

DAVIDE ORSINI (DO): Oh yes, the last one I visited was the Latina Nuclear Power Plant in Italy, almost a year and a half ago, during a guided tour organized by the Italian decommissioning agency, Sogin (figure 1). This nuclear plant has quite an interesting story, because at the end of the 1950s, when it was designed, it was one of the biggest, if not the biggest, in western Europe. It's a graphite-moderated reactor cooled with CO_2—a British design that the Italian Hydrocarbon Board (Eni S.p.A.) chose to jumpstart its nuclear program. Previously I visited the Trino Vercellese Nuclear

DOI: 10.5282/rcc-springs-17462

Power Plant in Piedmont; the Mühleberg Power Plant, around 25 kilometers from Bern; and the Isar nuclear sites in Niederaichbach, pretty close to Munich, but the latter only from outside.

Fig. 1: Latina Nuclear Power Plant. Photos by Davide Orsini. CC BY-NC-ND 4.0.

UL: All of these sites are currently being decommissioned!

DO: Yes, but each site has a different history, different reactor designs, operational lives, and environmental characteristics, including the socioeconomic background of the surrounding communities. These are very important elements that influence decommissioning choices, strategies, and length. Despite their differences, all nuclear sites present some common characteristics and decommissioning problems. For example, all of them need water for reactor cooling, decontamination operations, and programmed effluents discharge.[1]

They all require the presence of certain infrastructures, such as dams and ponds, roads for transportation, space for temporary storage of contaminated material, and electric lines. To understand decommissioning processes and their implications, it is necessary to reconstruct the biography of nuclear sites, as I like to say, and to consider their socioecological entanglements. This is one of the main objectives of the project: regaining a holistic view of nuclear-power production, including some aspects of its back end that are still fairly unknown to the public and that need to be analyzed and discussed more openly, also outside expert conferences.

> *To understand decommissioning processes and their implications, it is necessary to reconstruct the biography of nuclear sites and to consider their socioecological entanglements.*

DOI: 10.5282/rcc-springs-17462

UL: How and why did you get interested in the history of decommissioning in the first place?

DO: When I was doing research for my first book about the presence of US nuclear submarines in Italy, I started thinking about what happens when these vessels become obsolete and need to retire. So, when I finished that project, I remained interested in this question but wanted to understand how nuclear power plants and other nuclear facilities could be dismantled, what the destiny of all contaminated material is, and what future those sites could have after being decommissioned. I then decided for this to be the topic of my next book. I started to read a lot of technical documents and the very few works in the humanities and social sciences devoted to these questions.[2]

I was and remain fascinated by the fact that decommissioning seems to have received growing attention only recently in our fields.[3] The question of what to do with obsolete nuclear facilities emerged in public debates in the mid-1970s and is destined to become the biggest business in the nuclear sector because the number of sites that need to be shut down and disposed of is large and will be inevitably bigger in the future (figure 2). The International Atomic Energy Agency (IAEA) estimates that by 2050 more than four hundred nuclear facilities will be shut down around the world.[4] Not only power plants but also fuel-fabrication plants, reprocessing plants, uranium mines, uranium-extraction and -enrichment plants, spent fuel, and contaminated equipment must be taken care of. The variety of nuclear sites involves different decommissioning approaches, given the operating history, technical characteristics, types, and extent of contamination of each site.

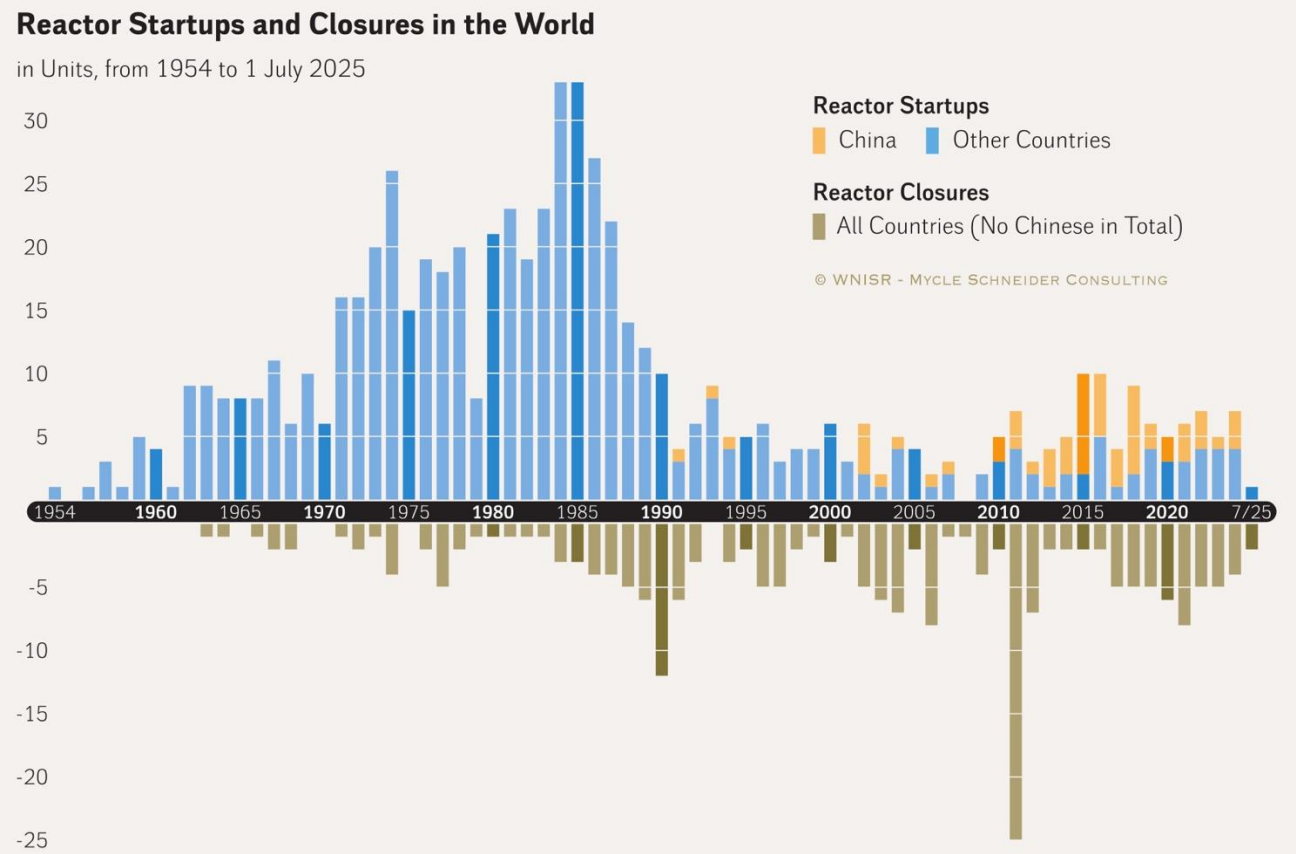


Fig. 2. World nuclear-industry status. Published in Andreas Molin, Mycle Schneider, Antony Froggatt, Oezguer Guerbuez, Paul Jobin, Phil Johnstone, Timothy Judson, et al., *The World Nuclear Industry: Status Report 2025* (Mycle Schneider Consulting, 2025), 49, https://www.worldnuclearreport.org/IMG/pdf/wnisr2025-v1.pdf. © Mycle Schneider Consulting. All rights reserved.

UL: This sounds like a lot to look into—a project that cannot be done alone. In fact, your team consists not only of other researchers but also a film crew! What is the idea behind this?

DOI: 10.5282/rcc-springs-17462

DO: One of the main objectives of (Dis)Empowered Communities is to solicit public awareness of the socioecological and economic dimensions of nuclear decommissioning in new and engaging ways. This is why I contacted Tobias Büchner, of Büchner Filmproduktion, and documentary director Sabine Herpich, whom I had met during a conference on nuclear-waste disposal in Belgium, and decided to produce a documentary about decommissioning that will hopefully reach a wide audience. Concretely, this means that we will go to different sites in Italy, Germany, Belgium, and in the US and try to look at decommissioning operations from multiple perspectives: nuclear workers, engineers, community members, and policymakers.

Our research team features a third partner, the Nuclear Decommissioning Collaborative (NDC), a nonprofit organization that for 10 years now has developed analytical and consulting activities around decommissioning and post-decommissioning community resilience and redevelopment plans in the US. Not only will NDC provide data about decommissioning sites in the US but will also help the team organize two open workshops, one in the US and one in Germany, with representatives of decommissioning stakeholders and academic experts, and assist with drafting reports on how to change decommissioning policies and practices based on those open discussions.

Next year, two PhD students will join our team at LMU. One of them will conduct research on decommissioning sites in Germany and the other one in Belgium, while I will focus on the Italian case.

> *The International Atomic Energy Agency (IAEA) estimates that by 2050 more than four hundred nuclear facilities will be shut down around the world.*

UL: What does decommissioning mean exactly with regard to its temporal dimension? Nuclear reactors and other facilities cannot be shut down at the flick of a switch.

DO: Well, the duration of decommissioning projects is one of the most interesting aspects. There are no "standard" decommissioning strategies for all nuclear facilities, and, as a consequence, decommissioning times vary. It can take a few years, usually decades, and sometimes even centuries.

For example, if properly managed, a facility used for the assemblage of nuclear-fuel elements usually causes contamination of buildings and equipment that can be removed both chemically and mechanically from the surfaces. In these cases, decontamination work can be done in relatively short time and quite effectively. Decommissioning large commercial nuclear reactors instead requires more complex and lengthy projects. In this case, there are a few operations that need to be done before dismantling, like the extraction, cooling, isolation, and transportation of the fuel elements off site, if possible. The reactor structures, including the core, remain radioactive for centuries due to the effects of the neutronic bombardment resulting in the penetration and absorption of radioactivity in steel and concrete portions of the plant. This often involves the use of remote cutting and removal techniques—for example, tools such as plasma torches and even robots—in addition to specific dismantling and decontamination technologies to avoid workers' excessive exposure.

DOI: 10.5282/rcc-springs-17462

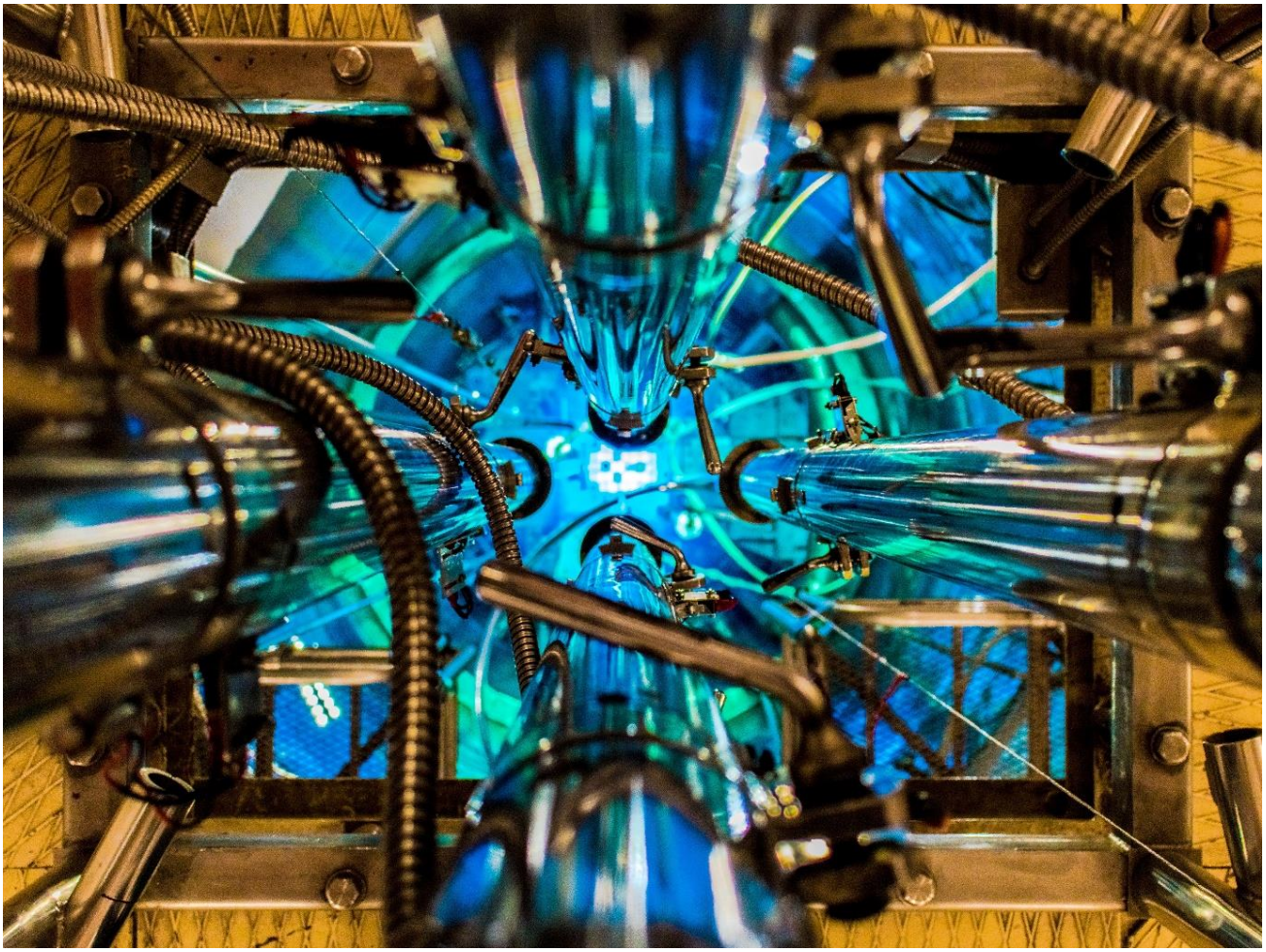


Fig. 3. Core of the RA-3 nuclear reactor, National Atomic Energy Commission (CNEA), Argentina. Wikimedia Commons. CC BY-SA 4.0.

UL: Does it make a difference whether a site is being decommissioned according to plan or after an accident?

DO: Yes. Decommissioning a nuclear plant at the end of its programmed life, let's say after 30 or 40 years of operation, is usually possible after carefully planning all aspects of the dismantling activities. But postaccident decommissioning, like in the case of Fukushima, is obviously much messier, dangerous, and uncertain. One of the most important activities before decommissioning operations start is the so-called characterization of the site. This means mapping out the levels and the types of radioactive contamination existing in different parts and components of the facility and on the site. As you can imagine, this information is extremely relevant to those who have to perform decommissioning because they want to know what they can do and where, as well as the relative levels of exposure involved in the different operations. In the case of postaccident decommissioning, this work is much more complicated and sometimes even impossible.

DOI: 10.5282/rcc-springs-17462

Fig. 4. IAEA nuclear-protection experts visiting control room of units 1 and 2 at Fukushima Daiichi Nuclear Power Station as part of a mission to review Japan's plans to decommission the facility. Photo by Greg Web, 2013. Courtesy of IAEA. Flickr. CC BY-SA 2.0.

UL: What about the costs of decommissioning?

DO: A US Nuclear Regulatory Commission Staff report in 2019 showed that decommissioning trust funds oscillate between around four hundred million and one billion dollars.[5] Time variation is also reflected in the cost estimates for decommissioning projects, a specific branch of the nuclear-decommissioning industry that emerged in the mid-1970s and that currently is one of the most requested services of this sector (figure 2).

Since the uncertainty of decommissioning costs is quite high due to several contingences—think of the economic instability we are experiencing right now—estimating how much money nuclear-facility owners and operators need 40 to 60 years after construction is quite complex. After decades of public disputes and regulatory efforts, several countries now require nuclear-plant owners and operators to put aside a certain amount of money, through escrow and investment funds, for eventual decommissioning costs. If you think about it, this is a matter of intergenerational justice: Polluters and electricity users should pay for the costs of decommissioning without leaving this responsibility to future generations. The question is whether this is even possible in the nuclear case, given the unresolved issue of nuclear-waste disposal. But this is a topic for several interviews.

DOI: 10.5282/rcc-springs-17462

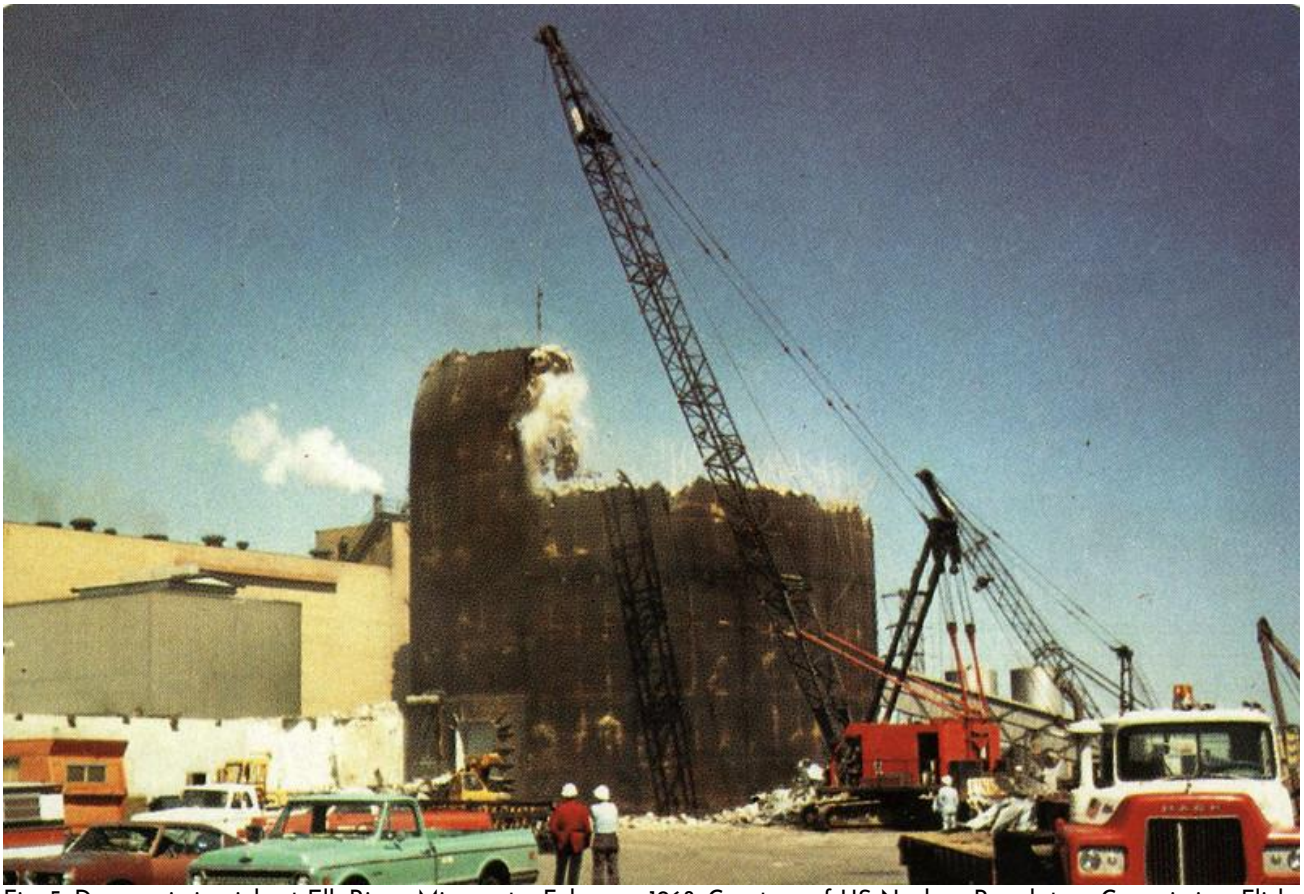


Fig. 5. Decommission job at Elk River, Minnesota, February 1968. Courtesy of US Nuclear Regulatory Commission. Flickr. CC BY-NC-ND 2.0.

UL: Nuclear reactors are not simply technological devices but also part of the cultural, political, and social landscape. People who have lived close to a reactor for a long time might even experience the destruction of cooling towers as a loss. How does your project deal with these dimensions?

DO: Local attitudes toward nuclear facilities differ from place to place and change over time. While some scholars have used the concept of "peripheralization" to describe the power imbalance between local communities and powerful state and corporate actors,[6] recent studies conducted in the UK, the US, and Canada have highlighted that this power/resistance interpretative scheme risks glossing over local communities' nuclear attachments and sometimes even desire to host nuclear plants and waste repositories.[7]

In this research project, we look at decommissioning as a transition process that gives us the opportunity to analyze what happens when nuclear sites shut down and become something to dispose of—or "material out of place," to use the words of anthropologist Mary Douglas.[8] We are interested in understanding how the siting and emplacement of nuclear facilities shape the cultural and physical landscapes that local communities build, perceive, and inhabit. We are also interested in documenting what happens during decommissioning phases and afterwards, when tax revenues, jobs, and incomes disappear.

UL: How does this play out on the spot? Could you give us an example or two?

DOI: 10.5282/rcc-springs-17462

Fig. 6. The village of Gundremmingen, Germany, with Gundremmingen Nuclear Power Plant in the background, on 25 October 2025, just before the cooling towers were blown up. Photos by Davide Orsini. CC BY-NC-ND 4.0.

DO: We look at decommissioning nuclear sites as places of memory—shared, contested, silenced—nostalgia, planning, and longing for possible, alternative futures. For example, interestingly enough, cooling towers next to reactor buildings often become iconic features that external observers take as symbols of nuclear power. When these structures are demolished, some members of the local community feel like they are losing part of their identity, a point of visual reference that for years had been integral to their landscape.

On the other hand, those who had been opposed to the nuclear plant or just look forward to the end of decommissioning take the disappearance of the cooling tower as a sign of progress and feel relieved. You can easily imagine how different generations and different groups experience and perceive decommissioning differently. When I interviewed nuclear employees and workers and asked them to describe how they felt transitioning from the operational to the decommissioning phases, some of them had emotional reactions thinking that such an important part of their lives will be torn down. Antinuclear and environmental activists certainly do not feel that way. These are just examples of how decommissioning sites can be motives of conflicts between different interest groups who fight over symbolic and very tangible safety, economic, and environmental issues.

DOI: 10.5282/rcc-springs-17462

Fig. 7. Demolition of Gundremmingen Nuclear Power Plant cooling towers on 25 October 2025. Video by Davide Orsini. CC BY-NC-ND 4.0.

UL: So, decommissioning is not just about getting rid of a hazardous past but also about possible futures. The process opens up a variety of potential solutions, or does it? In what ways does the nuclear legacy of such a site enable or preclude such solutions?

DO: Nuclear-industry representatives, generally speaking, talk about site repurposing and redevelopment as post-decommissioning scenarios. Over the past years decommissioning experts—not exclusively in the nuclear sector—have used the terms "greenfield" and "brownfield" to describe the final result of clean-up operations, alluding to the idea that it's possible to reuse nuclear sites for other purposes—with or without restrictions, depending on the level of residual contamination left on site. These terms are not just technical descriptions, they suggest that the nuclear industry is capable of cleaning up after itself, demonstrating that nuclear-energy production is socially and environmentally sustainable, especially now with the emergence of climate change as one of the biggest existential challenges for humanity in public discourse.

But apart from public-relations strategies, thinking about post-decommissioning futures means answering really important questions that bare upon the livelihoods of entire communities and the sustainability of the nuclear industry itself. [9] First of all, we need to think of decommissioning as one crucial process in the larger context of the nuclear life cycle, which includes uranium extraction, nuclear-fuel management, and waste isolation. For example, most countries—with the exception of Finland and soon Sweden—currently do not have final geological repositories.[10] This means that spent fuel and high-level waste resulting from decommissioning operations need to be collected and isolated in interim or temporary storage

Fig. 8. Dry casks for spent fuel, November 2007. Courtesy of US Nuclear Regulatory Commission. Flickr. CC BY-NC-ND 2.0.

DOI: 10.5282/rcc-springs-17462

sites. Very often, contaminated materials resulting from decommissioning remain on-site inside dry casks waiting for alternative destinations (figure 8). It is clear that for safety and security reasons those spaces need constant surveillance and are not available to communities for other purposes.

UL: I assume there are also sites that have to be "sacrificed," given up, due to the high level of contamination?

Fig. 9. Storm clouds over Sellafield, Cumbria, UK. Sellafield is the site where the UK nuclear program has developed since the 1940s. It hosts the first UK nuclear-power production plant, a plutonium-production facility, a fuel-reprocessing plant that serves the entire UK nuclear fleet, and numerous storage areas (silos and ponds) for radioactive material resulting from all those activities. Photo by Chris Eaton, 1985. geograph.org.uk. CC BY-SA 2.0.

DO: There are decommissioned sites that due to their residual level of contamination cannot be inhabited by human beings anymore and are "given back to nature" as natural reservations. This is the case in the Fernald Preserve in Ohio and in the Rocky Flats Wildlife Refuge in Colorado, to name just two.[11] Both sites hosted weapon-production facilities. Also, think of sites like Sellafield, in the UK, which is undergoing a decommissioning process that will take more than one century (figure 9).[12] In addition, there are decommissioning projects like those regarding gas-cooled, graphite-moderated reactors installed in France and in the UK, and exported to other countries, like Italy, in the 1960s, which present specific decommissioning challenges due to their reactor designs: The irradiated graphite and its byproducts inside the reactor cores remains radioactive for millennia (like carbon-14), and their removal is a technical problem for which different solutions have been tested for quite a long time without standard results. The picture is therefore much more complex than we might think.

UL: But what about the impact of decommissioning projects on the environment? One might think that when nuclear plants are shut down there are significant risks involved. Is that so?

DO: Non-experts who live far from nuclear sites may perceive the shutdown of nuclear facilities as innocuous, because they are not operational anymore. This assumption, as I learnt when I started studying this issue, is largely misleading. There is a lot of contaminated material sitting inside a nuclear power plant, even after the fuel has been removed from the reactor. Another common assumption, strategically instilled by nuclear-power promoters since the 1950s, is that nuclear sites are like sealed envelopes, isolated from the external environment; this is not true because both reactor operations and decommissioning activities produce radioactive effluents that need to be discharged into the environment in line with internationally and nationally agreed upon safety thresholds and regulations. In general, decommissioning requires the treatment and transportation of radioactive material off-site. So, nuclear decommissioning is a hazardous industrial activity that demands careful planning, execution, and constant monitoring; it's not the end of the story, but the beginning of another phase in the life cycle of nuclear facilities. This is what we want to highlight in our project.

> *Nuclear decommissioning is not the end of the story, but the beginning of another phase in the life cycle of nuclear facilities.*

UL: Is there a final thought you'd like to share?

DOI: 10.5282/rcc-springs-17462

DO: Well, the first thing I want to say is: stay tuned because the project website is almost ready and will be available soon. We will also build a digital archive with the interviews we are conducting. This will be an open source for communities, experts, and scholars who are interested in decommissioning. Last but not least, we will use the website to launch our documentary in 2030.

. . .

Acknowledgements

I'd like to thank the Rachel Carson Center, particularly Christof Mauch and Sonja Dümpelmann for believing in this project and for their support. I also need to say that without Lena Engel, the managing director of the RCC, this project would be much more complicated. She is unbelievably knowledgeable and supportive. I'm also grateful for the opportunity to talk about the project.

Notes

[1] Per Högselius, "Atomic Shocks of the Old: Putting Water at the Center of Nuclear Energy History," *Technology and Culture* 63, no. 1 (2022): 1–30, https://dx.doi.org/10.1353/tech.2022.0000.

[2] Martin Pasqualetti, *Nuclear Decommissioning and Society: Public Links to a New Technology* (Routledge, 1990); Michele Laraia, *Nuclear Decommissioning: Its History, Development and Current Status* (Springer, 2018).

[3] Rebekka Bärenbold, Muhammad Maladoh Bah, Rebecca Lordan-Perrt, Björn Steigerwald, Christian von Hirschhausen, Ben Wealer, Hannes Weigt et al., "Decommissioning of Commercial Nuclear Power Plants: Insights from a Multiple-Case Study," *Renewable and Sustainable Energy Reviews* 201 (2024): 114621, https://doi.org/10.1016/j.rser.2024.114621; Angelica Greco and Daisaku Yamamoto, "Geographical Political Economy of Nuclear Power Plant Closures," *Geoforum* 106 (2019): 234–43, https://doi.org/10.1016/j.geoforum.2019.08.017; Petra-Tjitske Kalshoven, "The Fish Is in the Water and the Water Is in the Fish: Symbiosis in a Nuclear Whale Fall," *Cultural Anthropology* 37, no. 2 (2022): 349–78, https://doi.org/10.14506/ca37.2.11; Mauro Elli, "The Missing Decision: Nuclear Decommissioning and the Issue of the Waste Repository in Late Twentieth-Century Italy," *Contemporanea* 27, no. 3 (2024): 429–56, https://doi.org/10.1409/114590; Melanie Mbah, Viktoria Noka, Alexandra Lampke, Ryan Kelly, and Sophie Kuppler, "What Is Nuclear Cultural Heritage? Developing an Analytical Framework," *Energy Research and Social Science* 124: 104050, https://doi.org/10.1016/j.erss.2025.104050.

[4] "Nuclear Decommissioning," ed. Estelle Marais and Emma Midgley, *IAEA Bulletin*, April 2023, https://www.iaea.org/sites/default/files/nucleardecomissioning.pdf.

[5] *Summary of Staff Review and Findings of the 2019 Decommissioning Funding Status Reports from Operating and Decommissioning Power Reactor Licensees* (United States Nuclear Regulatory Commission, 2019), https://www.nrc.gov/docs/ML1934/ML19346E375.html.

[6] Andrew Blowers, *The Legacy of Nuclear Power* (Routledge, 2017).

[7] Başak Saraç-Lesavre, "Desire for the 'Worst': Extending Nuclear Attachments in Southeastern New Mexico," *EPD Society and Space* 38, no. 4 (2020): 753–71, https://doi.org/10.1177/0263775819889969; Kalshoven, "The Fish Is in the Water and the Water Is in the Fish"; Marissa Bell, "'We Are a Nuclear Community': The Ethical, Political Economic, and Social Relations of Canadian Nuclear Waste Siting," *Antipode* 57, no. 4 (2025): 1299–319, https://doi.org/10.1111/anti.13034.

[8] Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo* (Praeger, 1966).

[9] *Socioeconomic Impacts from Nuclear Power Plant Closure and Decommissioning: Host Community Experiences, Best Practices and Recommendations* (Nuclear Decommissioning Collaborative, 2020); Elisabeth Sinclair and Jim A. Hamilton, "New Life at Old Plants: Exploring Solar Power Development at Former Nuclear Power Plant Sites in the United States," *The Electricity Journal* 36, no. 6 (2023): 107301, https://doi.org/10.1016/j.tej.2023.107301.

[10] Allison Macfarlane and Edwing Rodney, eds., *Uncertainty Underground: Yucca Mountain and the Nations' High Level Nuclear Waste* (MIT Press, 2006); Maria Rosaria Di Nucci, "Breaking the Stalemate: The Challenge of Nuclear Waste Governance in Italy," in *Nuclear Waste Governance: An International Comparison*, ed. Achim Brunnengräber, Maria Rosaria Di Nucci, Ana María Isidoro Losada, Lutz Mez, and Miranda A. Schreurs (Springer, 2015); Rony Emmenegger, "Nuclear Strata: Enacting Clay for the Deep Geological Disposal of Nuclear Waste in Switzerland," *Environment and Planning E: Nature and Space* 8,

DOI: 10.5282/rcc-springs-17462

no. 3 (2024): 978–1001, https://doi.org/10.1177/25148486251324935; Vincent Ialenti, *Deep Time Reckoning: How Future Thinking Can Help Earth Now* (MIT Press, 2020).

[11] Casey Huegel, *Cleaning up the Bomb Factory: Grassroots Activism and Nuclear Waste in the Midwest* (University of Washington Press, 2024); Shiloh R. Krupar, *Hot Spotter's Report: Military Fables of Toxic Waste* (University of Minnesota Press, 2014).

[12] Kalshoven, "The Fish Is in the Water and the Water Is in the Fish."

Cite this article

Orsini, Davide, and Uwe Lübken. "(Dis)Empowered Communities: A Conversation with Davide Orsini." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-17462.

PORTRAIT OF AN ARCTIC RESEARCH STATION

Flora Mary Bartlett

Springs
The Rachel Carson Center Review

8 • 2025

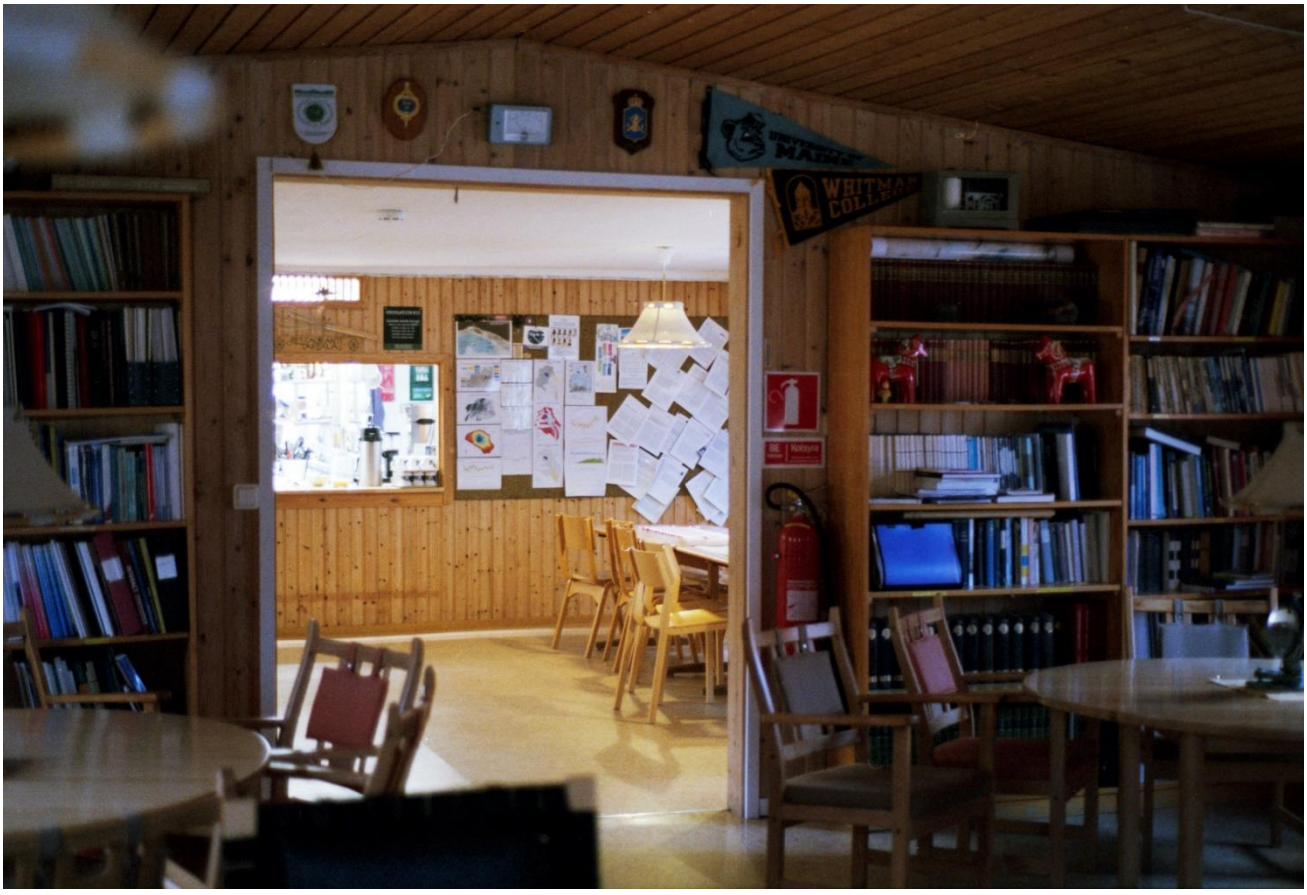
Flora Mary Bartlett

Tarfala Research Station is nestled in the Tarfala Valley in the Arctic north of Sweden. It is accessed by helicopter or on foot. The hike is challenging, dominated by the moraine landscape left behind following glacial retreat, where rock and debris of all sizes scatter down the steep valley walls. The station began as a site for the study of glacial mass and quickly became a place for polar-expedition training. It was officially opened as a research station run by Stockholm University in 1961, focussing on glaciology and geomorphology, and today consists of a mess hall and kitchen, lab and lecture hall, workshop, sleeping quarters, staff quarters, and a sauna. In summertime, when temperatures are comparably mild, Tarfala Research Station is occupied by staff, visiting researchers, and guests, and sometimes hosts university visits with lectures and trips to the glacier. I am one such visitor, in the autumn of 2020, staying at the station for a 10-day pilot study concerning landscapes, science, and photography

DOI: 10.5282/rcc-springs-17842

Tarfala Research Station sits at 1,135 metres above sea level. Thick rusted cables tether the buildings to rocks, holding them down against the treacherous winds that rip through the valley. In 1992 Tarfala experienced the Swedish wind-speed record of 81 metres per second, which carried away the sauna.

DOI: 10.5282/rcc-springs-17842



One of the buildings houses the mess hall. Meals and plans are prepared here daily, and guests and staff congregate for traditional Tarfala Sunday pancakes or to sit around the fire. The interiors are shaped by the experiments taking place out in the valley and in the lab, materialising threads of connections between inside and out. A whiteboard hangs beside the door for trip itineraries, detailing the groups who departed for glacier excursions, the safety equipment needed, and when they are expected to be back. A large noticeboard displays the scientific research conducted in the valley, including studies of Tarfala Lake's temperature,[1] bedrock geology,[2] and changes to glacial mass.[3]

DOI: 10.5282/rcc-springs-17842

The scientific objectives of the station are also present elsewhere. In the lecture hall instruments perch atop bookshelves, old snowshoes and sledges hang from hooks, large pieces of numbered rock dot the surfaces, and photographs of the different glaciers through history adorn the walls. The images speak to how the valley has been photographed: simultaneously as an object of study and as a scenic landscape to be gazed upon and reproduced in the form of a print, crossing the boundaries between science and art. These prints inspire the way I photograph the glaciers visible from the valley. Drawing inspiration from the Tarfala archive, I continue the tradition of photographing the landscape at a given moment in time.

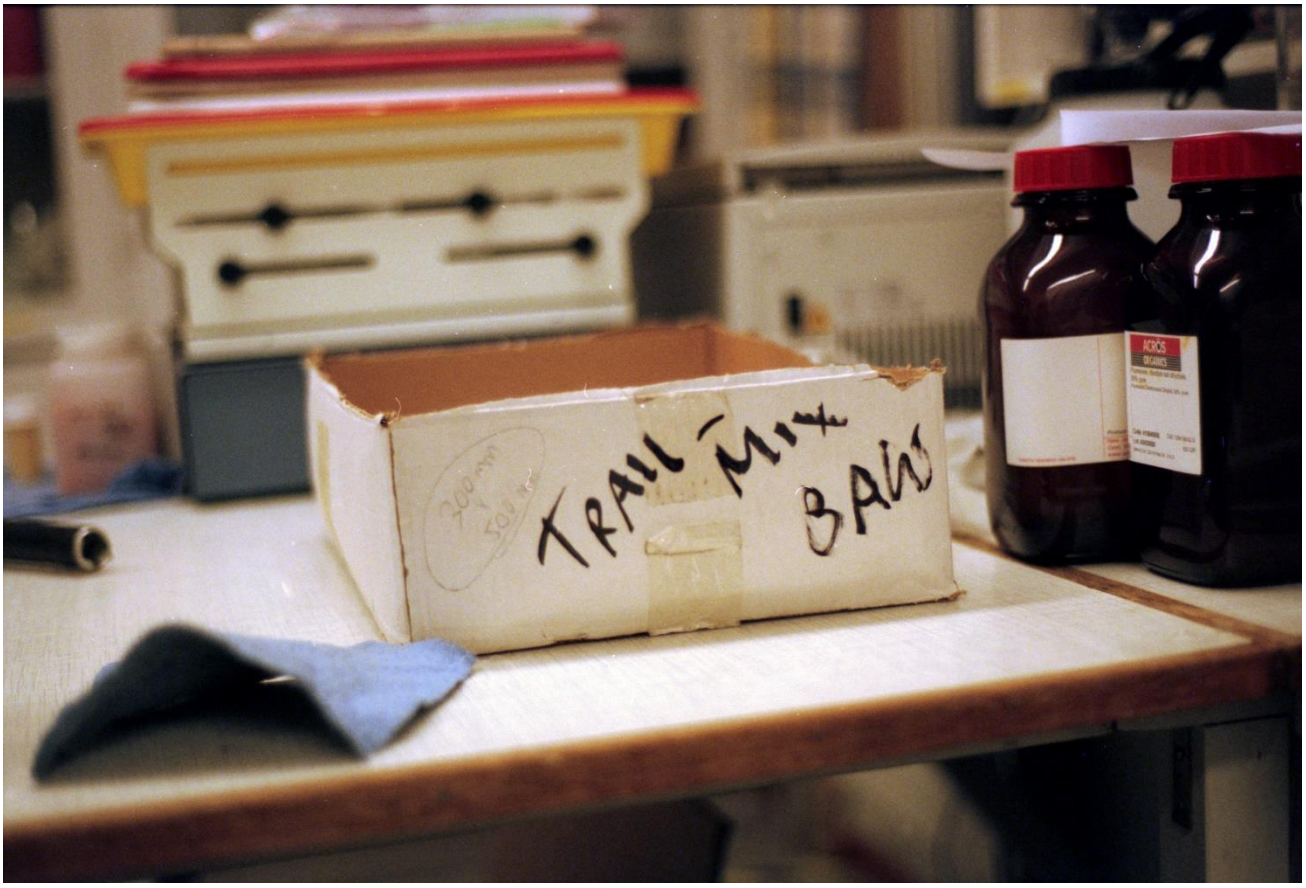
DOI: 10.5282/rcc-springs-17842

The scientific processes at Tarfala focus on the continuous gathering of data by the field assistants, providing ongoing records of the landscape. Beside the kitchen hatch in the mess hall is a stand loaded with test tubes, each containing one portion of instant coffee. A sign urges people to "please bring tubes back!" These tubes are taken on the daily treks up to the glaciers, down to the rushing water of the stream, or on other small trips up the steep slopes surrounding the station to take recordings from weather stations and devices hidden in water flows. Sometimes the test tubes return to the lab containing water samples—part of the river crossing the threshold into the station.

DOI: 10.5282/rcc-springs-17842

Portrait of an Arctic Research Station

DOI: 10.5282/rcc-springs-17842



Inside the lab, a cardboard box marked "TRAIL MIX BAGS" stands among chemical flasks and rubber gloves. The field assistants responsible for the daily grind of gathering data pack trail mix into these bags to keep their energy up. The bags are the perfect size for trail mix *and* for scientific samples, filling a dual function in containing the energy for the bodies working outside in all weather. From kitchen to lab and from lab to landscape, objects move depending on purpose, and the station is a locus for the exchange of materials both natural and scientific.

DOI: 10.5282/rcc-springs-17842

Weather is always closely monitored as part of data gathering—as with the weather station pictured above—but also before any excursion, near or far. Smartphones are drawn out of pockets during dinner to check the prognosis for the following morning, accessing the larger data models that themselves utilise local stations such as this one. The senior staff draw up a tentative plan, which they communicate to the field assistants, usually with the caveat *"weather permitting."* The phones reappear at breakfast, and the plan is further refined to fit the morning weather report. Strong winds mean no flying to the highest glacier.

DOI: 10.5282/rcc-springs-17842

Portrait of an Arctic Research Station

DOI: 10.5282/rcc-springs-17842

Ramona, taking measurements in the drizzle, tells me how rain and wind make the work more satisfying, adding that she always knows the sauna is waiting. After work, researchers and staff congregate there, drowsily recounting the day. Weather acts on the expeditions, moods, sense of achievement, and results of the data collection. It also acts on the house, shaking it in its tethers and howling in the pipes. My boots, soaked from hiking through waterlogged moss, stand by the door to my cabin, dripping onto the mat and bringing damp into the research station.

One of the glaciers is in walking distance of the station. Strict protocol ensures no one goes up there without specific lines of communication and safety equipment. The glaciers are treacherous and dynamic landscapes, with hidden crevasses lurking beneath the rocky surface and formidably fast-changing weather conditions. One day during my stay, I am invited to accompany one of the research engineers, Pia, up the glacier. The first stretch of the ascent is not what I expect. It is not the glassy surface I have seen in paintings, but a stretch of steep and dirty ice covered by rocks of all sizes.

DOI: 10.5282/rcc-springs-17842

Portrait of an Arctic Research Station

DOI: 10.5282/rcc-springs-17842

Suddenly, the rocks and pebbles give way to an expanse of blue, grey, white, and black. The sound of a trickle of water snakes its way up from the cracks in the ice, mixing with the thump of our ice axes and the grating of spikes attached to our boots. Walking becomes far more intentional and laden with risk than I am used to, each step a deliberate act to secure my feet within the crust of something I know to be very, very deep. I try not to think about that. An ache forms in my calves from this new way of stepping across a terrain. Pia goes further than I do. I turn back while I can still see the station far, far below.

The descent is even more hair-raising, as I need to stop gravity from pulling me down the slippery surface of the ice. I swear a few times in frustration and wonder why the station doesn't seem to be getting closer. Some nature writers frame glacial expeditions as a perilous thrill, a dicey conquering of a frontier that they or their subjects have embarked upon.[4] Yet despite only going a fraction of the way, my heart is pounding in relief as I reach the rock again, and my shins are screaming from the steep angles and plodding gait.[5]

Limping back down the slope toward the station, my boots make small wheezing sounds as they squish into the spongy floor of the valley. Not all the data gathering here concerns ice, weather, and water. Some researchers also study life on the ground and the different fungi, mosses, and lichens of the valley.[6] I am delighted to find my favourite plant, *Eriophorum angustifolium*, more commonly known in British English as bog cotton, nestled between the rocks.

DOI: 10.5282/rcc-springs-17842

Portrait of an Arctic Research Station

DOI: 10.5282/rcc-springs-17842

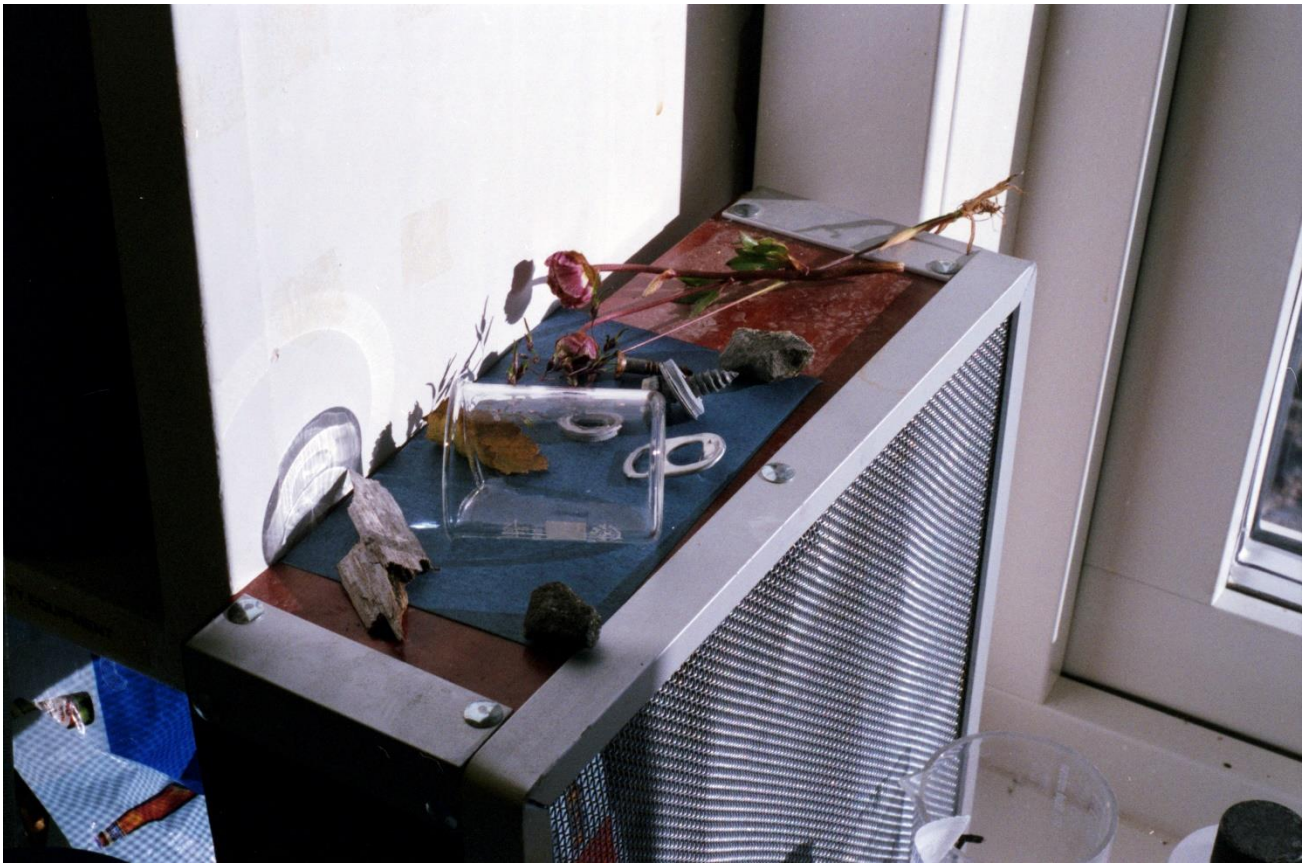
When the research staff get back from their excursions, equipment is replaced and clothing is hung up to dry. The data is recorded and the whiteboard updated with everyone's return. The test tubes, now empty of coffee, are returned to their stand in the kitchen or with their river samples to the lab, and everyone heads to the sauna or the mess hall to warm up and refuel.

How does one visualise these exchanges—of people, materials, and knowledge—between station and landscape? In my work as a visual anthropologist I experiment with physical connections between image surface and surroundings through photograms.[7] These have their roots in early cameraless photography in which scientists developed a chemical process allowing surfaces to be photosensitised. The inventor, chemist, and experimental photographer Sir John Herschel developed the cyanotype technique in the 1840s, creating a photosensitive coating that would become a deep Prussian blue when exposed to sunlight.[8] This technique was then used extensively by Victorian biologist Anna Atkins in her documentation of algal forms, as the cyanotypes facilitated the capture of minute details in the specimens she was recording.[9] It is a practice deeply entwined with scientific work and thus seems fitting for a research station. There is even an old photo lab tucked within Tarfala.

DOI: 10.5282/rcc-springs-17842

I first experiment with the cyanotype technique in different spaces within the lab. It feels dark and uninspiring inside, so I go out and expose the paper on rocks by the stream, and on the staircase leading up to the lecture room, a kind of borderland between inside and out. I use things found at the station: building materials left on the ground, rocks, scientific equipment, gloves, and maps.

DOI: 10.5282/rcc-springs-17842

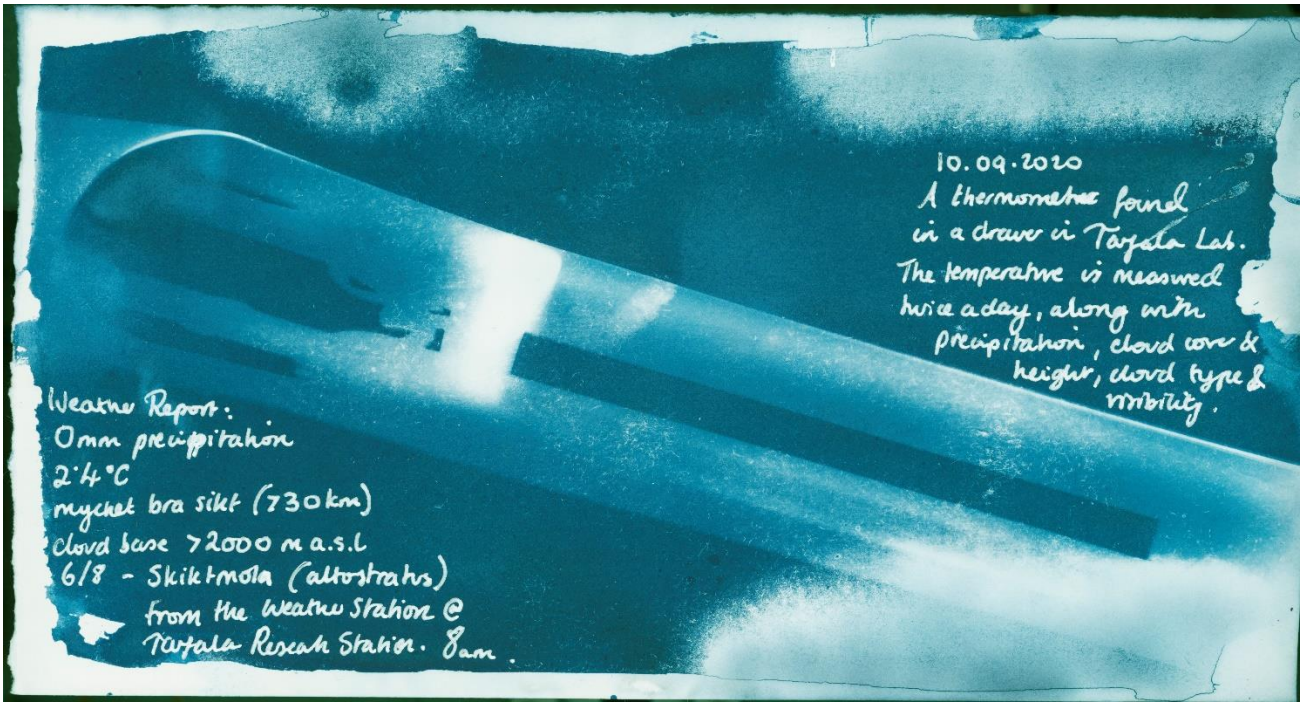


DOI: 10.5282/rcc-springs-17842

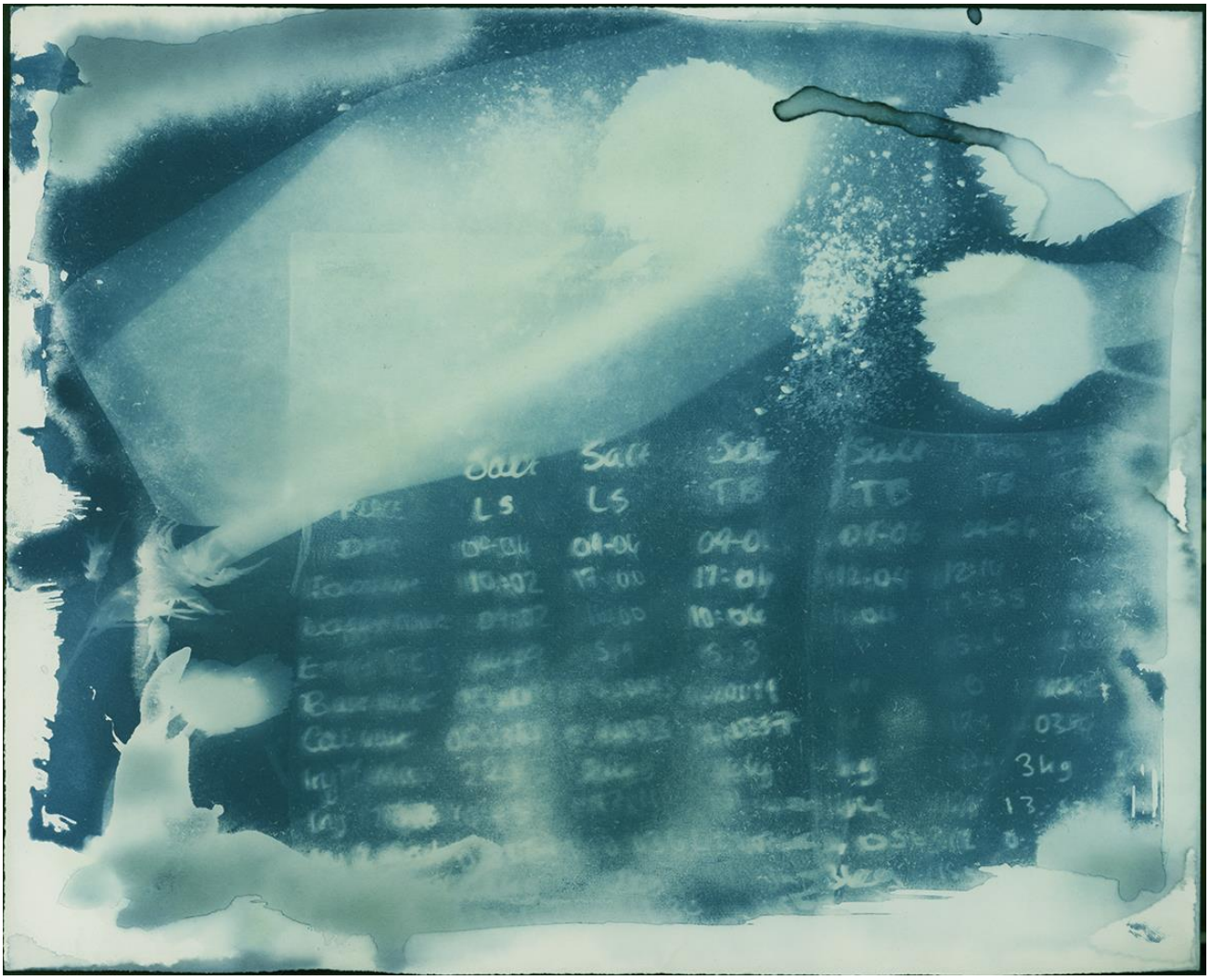
Portrait of an Arctic Research Station

DOI: 10.5282/rcc-springs-17842

DOI: 10.5282/rcc-springs-17842

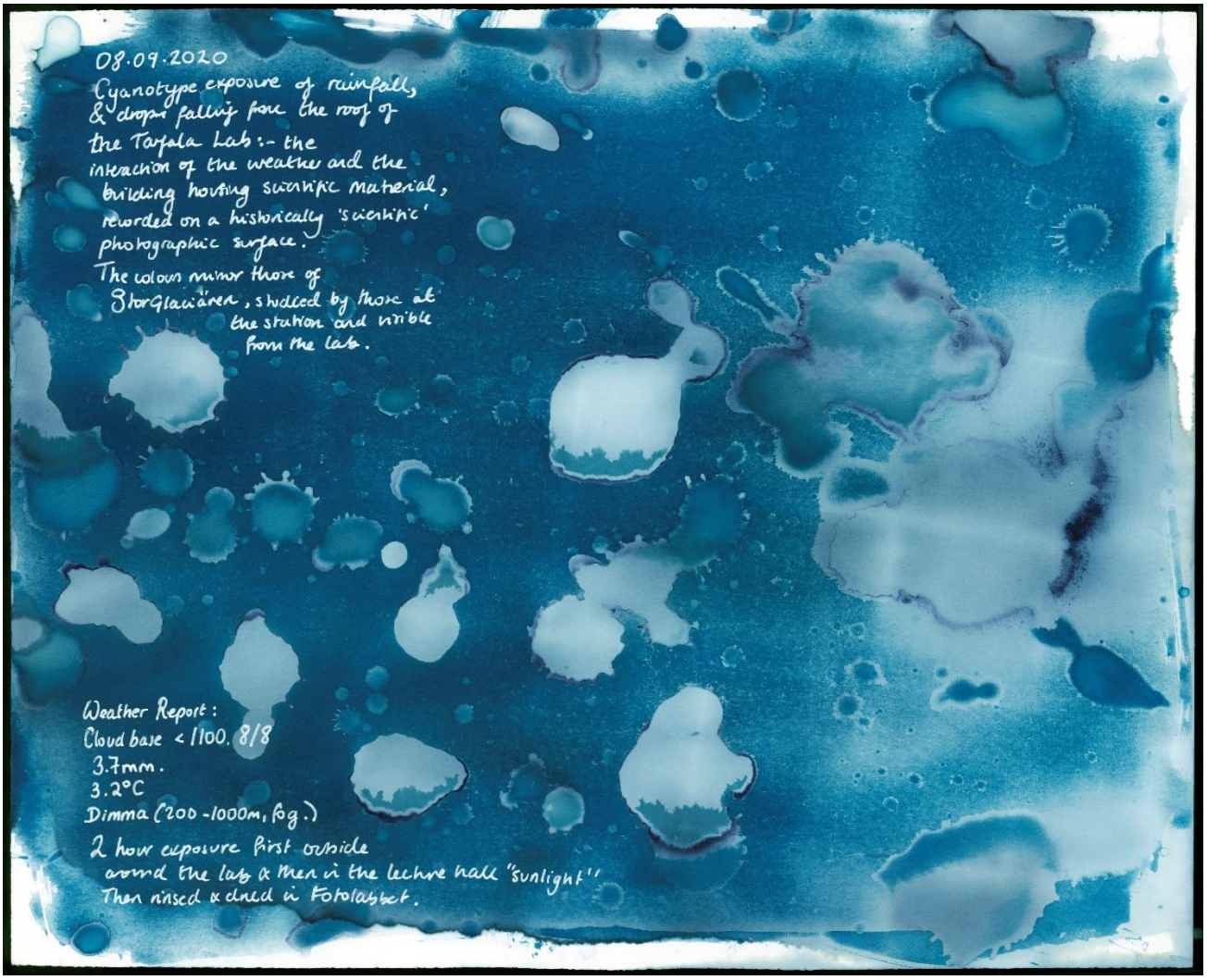


DOI: 10.5282/rcc-springs-17842

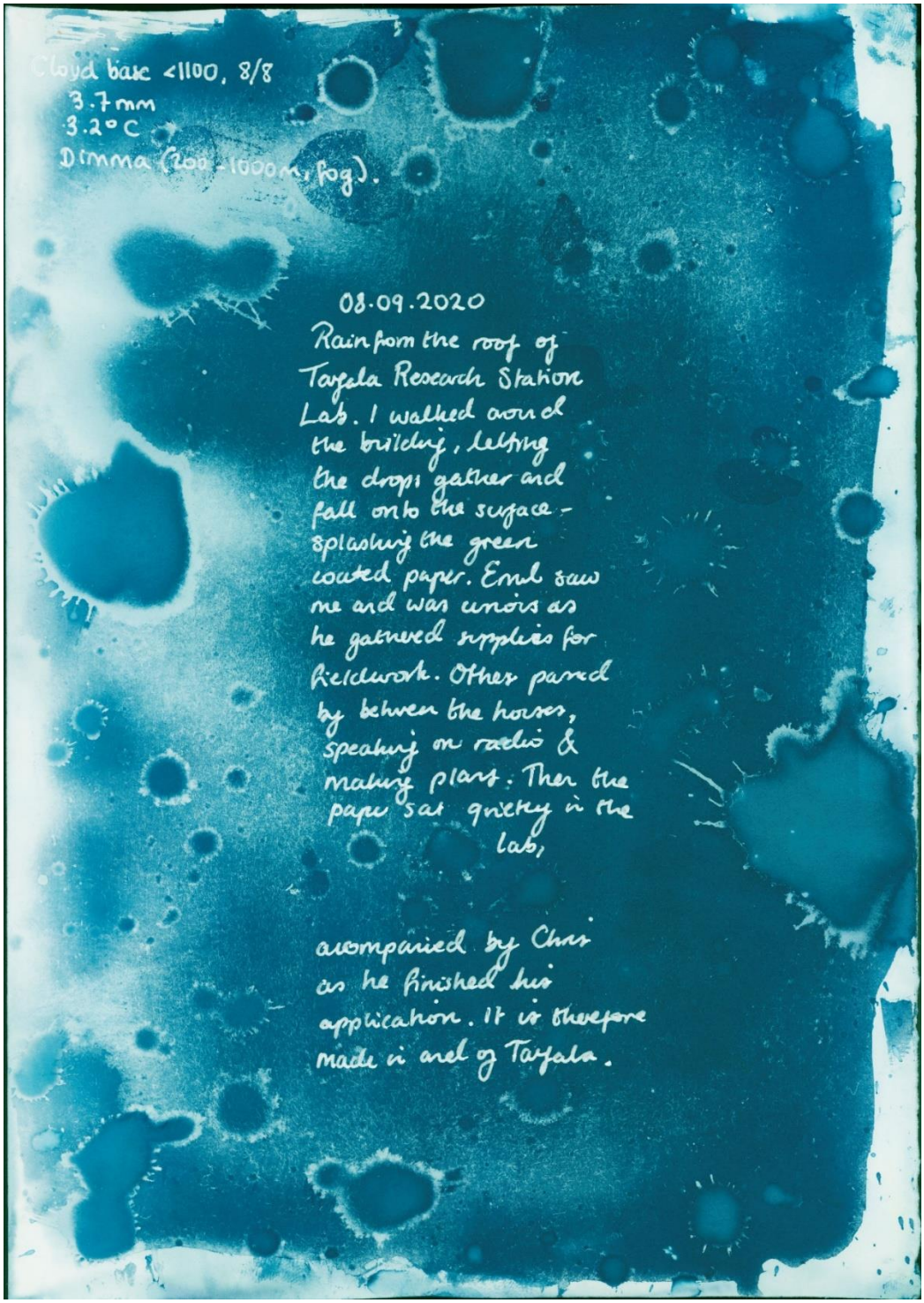


As the weather crosses boundaries between inside and out, agitating the planning and execution of the scientific process, I bring it into the making of these images. Agitation is a term used in photography when photo trays are shaken to spread chemicals across the print surface, and here the wind does the job for me, blowing the chemical across the surface of the paper. Water acts as a fixer for cyanotypes, whereby prints are rinsed after exposure to secure the image from further changes. The rain falls onto the paper to fix the image in its own timeframe. Weather thus becomes an active agent in the making of the prints. After drying, I write directly onto one of the prints to record where and when the print was made, what was going on around me, the scientific invocations of using this method, and the weather report from the day.

DOI: 10.5282/rcc-springs-17842



DOI: 10.5282/rcc-springs-17842



Making photographs was from its inception a scientific practice, and has been integral to species documentation and expeditions in the name of scientific discovery. These photograms combine elements of natural science, photography, and visual anthropology—three intersecting disciplines. They are situated records of scientifically informed experimental practice, evoking the disciplinary methodologies of anthropology through fieldnotes written directly onto images along with weather reports and scientific data from the station. Beyond the visual records shot on 35 mm film, these pieces are a record of this place and the material exchanges I witnessed; indeed, these interactions played a role in the image making itself. The prints are therefore made both in and of Tarfala.

DOI: 10.5282/rcc-springs-17842

Acknowledgements

This research was generously supported by Stockholm University through a pilot project grant in 2020. I would like to thank everyone at Tarfala who took the time and care to show me the station and the research processes, and who anticipated my questions before I did. Special thanks to Ramona.

Notes

[1] Nina Kirchner, Jan Weckström, Joachim Jansen, Frederik Schenk, Jamie Barnett, Annika Granebeck, et al., "Water Temperature, Mixing, and Ice Phenology in the Arctic-Alpine Lake Darfáljávri (Lake Tarfala), Northern Sweden," *Arctic, Antarctic, and Alpine Research* 56, no. 1 (2024): 2287704, https://doi.org/10.1080/15230430.2023.2287704; Nina Kirchner, Jakob Kuttenkeuler, Gunhild Rosqvist, Marnie Hancke, Annika Graneback, Jan Weckström, et al., "A First Continuous Three-Year Temperature Record from the Dimictic Arctic-Alpine Lake Tarfala, Northern Sweden," *Arctic, Antarctic, and Alpine Research* 53, no. 1 (2021): 69–79, https://doi.org/10.1080/15230430.2021.1886577.

[2] Graham B. Baird, *On the Bedrock Geology of the Tarfala Valley: Preliminary Results of 2003 and 2004 Fieldwork* [Tarfala Research Station Annual Report 2004] (Tarfala Research Station, 2003), 1–5.

[3] Per Holmlund, Wibjörn Karlén, and Håkan Grudd, "Fifty Years of Mass Balance and Glacier Front Observations at the Tarfala Research Station," *Geografiska Annaler: Series A, Physical Geography* 78, no. 2–3 (1996): 105–14, https://doi.org/10.1080/04353676.1996.11880456.

[4] Robert Macfarlane, *Mountains of the Mind: A History of a Fascination* (Granta, 2009).

[5] I truly have no desire to do this again and start considering a project on forests instead.

[6] Wibjörn Karlén and Jessica L. Black, "Estimates of Lichen Growth-Rate in Northern Sweden," *Geografiska Annaler: Series A, Physical Geography* 84, no. 3–4 (2002): 225–32, https://doi.org/10.1111/j.0435-3676.2002.00177.x; Claudia Coleine, Laura Selbmann, Stefano Ventura, Luigi Paolo D'Acqui, Silvano Onofri, and Laura Zucconi, "Fungal Biodiversity in the Alpine Tarfala Valley," *Microorganisms* 3, no. 4 (2015): 612–24, https://doi.org/10.3390/microorganisms3040612.

[7] Flora Mary Bartlett, "In Galleries and Beer Cans: Experimental Photography in Explorations of Northern Swedish Landscapes," *Visual Anthropology Review* 37, no. 1 (2021): 164–92, https://doi.org/10.1111/var.12236; Flora Mary Bartlett, "Alternative Photography as an Ethnographic Method," *Brief Encounters* 2, no. 1 (2018): 93–102, https://doi.org/10.24134/be.v2i1.104.

[8] See Mary Warner Marien, *Photography: A Cultural History* (Laurence King Publishing, 2006).

[9] Paige Hirschey, "Rhapsodies in Blue: Anna Atkins' Cyanotypes," *Public Domain Review*, 6 December 2023, https://publicdomainreview.org/essay/anna-atkins-cyanotypes/.

Cite this article

Bartlett, Flora Mary. "Portrait of an Arctic Research Station." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-17842.

EAGLES, MARMOTS, HUMANS: KNOWING WILDLIFE THROUGH FIELDWORK

Monica Vasile

Springs

The Rachel Carson Center Review

8 • 2025

Monica Vasile

Katya Karabanina climbed steadily, clinging to a long, straight pine trunk, her safety ropes tight around her waist. Near the top, the nest came into view: a mass of sticks balanced far out on a spindly branch. A golden-eagle chick—or baby, as Katya called her—shivered and gaped, wings stretched wide, not yet knowing how to fly.

Golden-eagle chick. © Katya Karabanina. All rights reserved.

Katya spoke to her in Russian, her voice low and steady—sounds that are known to be reassuring. But the nest was awkwardly placed, too far from the trunk. To ring the chick—attaching a small, numbered band to its leg—Katya would have to venture along the branch.[1] It looked risky. The chick teetered near the edge, one panic-flap away from a fall. Katya hesitated.

From the ground, I looked up at her. Pine sap streaked her yellowish canvas suit, her green cap tugged low over green-dyed hair. An orange belt cinched her waist, and heavy metal climbing spikes strapped to her rubber boots were stuck into the bark. The long, curved spike that helped her grip the trunk would make balancing on a branch nearly impossible.

"What do I do?" she called down.

"Maybe… come down?" I suggested, trying not to sound too discouraging.

DOI: 10.5282/rcc-springs-18817

"But Kalevi ringed chicks in this nest before," she argued. "How did he do it? I'll call him." She fumbled for her phone, talking half in Finnish, half in English.

Kalevi Tunturi, now nearly 80, is an old-school birder. He ringed and monitored golden eagles for decades, in territories assigned to him by the wildlife branch of the Finnish Forest Service (Metsähallitus). Over the years, he passed some sites on to his son and others to Katya. Unlike Kalevi, Katya is a trained biologist, who works at the Ecology and Genetics Unit at the University of Oulu. She is the only woman registered to ring golden eagles in Finland.

Perched up in the tree, shifting her weight, she sounded frustrated. The phone call was not enlightening, leaving Katya to decide whether to take the risk of trying to ring the chick.

If she backed down, she knew what would follow. "They'll say I can't do it because I'm a woman," she said.

High above the bog, on one of the last pines spared by logging, Katya stared out at the nest, the chick trembling in the wind. For a moment, she weighed her options, then started back down. I exhaled. Relief.

We slogged through the spongy, golden bog back to the car and drove to the next site. The forest service had tipped Katya off to another chick they had spotted during helicopter patrols. From the ground, ringing this one looked easier. The nest sat close to the trunk. Katya climbed again, more confident this time. But as she reached the top of the trunk, I heard her groan. "It's too high! I can't even see the baby. It's at least two meters above me, an old nest!"

Katya doing her work. Photo by Monica Vasile. CC BY-NC-ND 4.0.

She scratched her head. How to reach the nest? How to anchor her ropes, climb higher, without risking a fall? It didn't look good. She stretched her hand up and snapped a photo. The chick stared back, wide-eyed and gaping, wings splayed, frozen in the same startled pose as the previous one.

It was June 2025. I had just started a new job with the University of Oulu. Part of my work was to connect the work of humanities scholars, like me, with that of natural scientists. To do that, I needed to know their research, their species, and their landscapes, to join them in the field whenever I could. And so I accompanied Katya to Lapland, to a boreal forest bright with the Arctic summer. The pines and the mosses felt familiar—I had grown up among conifer forests in the Romanian Carpathians—but the eagles were new to me.

Working alongside Katya, I learned that the majority of data on golden eagles (*Aquila chrysaetos*) in Finland comes from the efforts of ringers like herself and Kalevi. Ringing has a long history in Finland, with 3,865 golden eagles ringed since 1913.[2] The practice became increasingly salient in the 1960s and 1970s, when golden eagles appeared to be in decline (although reliable data would only be gathered later).

For much of the twentieth century, raptors in Finland were systematically persecuted, regarded as pests due to their propensity to prey on reindeer calves. Greater spotted eagles (*Clanga clanga*) were extirpated by the 1920s. White-tailed eagles (*Haliaeetus abicilla*) almost followed.[3] Golden eagles survived, though barely. They had disappeared from southern Finland by 1900, though they remained relatively common in the northern part of Finland, Lapland. A bounty scheme was in place until the 1960s. In 1962, eagles were granted full legal protection, which meant a ban on harm. Some estimated that, at that time, only 20 to 50 breeding pairs remained,[4] and according to Katya, the lowest point was 200 birds. But, sheltered by a "care protection" attitude—as Finnish historian Tuomas Räsänen puts it—their numbers started to slowly increase.[5]

DOI: 10.5282/rcc-springs-18817

However, local herders' attitudes toward them remain negative, and despite sanctions, eagles' nests have been repeatedly disturbed. Today, 90 percent of eagle territories in Finland are in reindeer-herding areas. Studies have shown that, on average, two to five percent of all calves born fall prey to eagles.[6] To mitigate conflicts, the government instituted an incentive compensation scheme, based on the headcount of eagles in known nesting territories. This means that today herders are paid a sum of money not when an eagle takes their animals but when an eagle nests within their territories. In this way, the herders have an interest in the eagles' presence.[7]

> *In total, 733 species are now threatened by forestry-driven habitat loss, and for more than half the primary cause is the decline of old-growth stands and large trees.*

Unlike most European eagles, the Finnish population nests primarily in trees: Over 90 percent of known nests have been built in Scots pine (*Pinus sylvestris*), with a few in aspen or spruce. Cliff nests are rare, found only in parts of northern Lapland. Golden eagles are fiercely territorial and loyal to their nesting sites, often returning to the same tree year after year and maintaining multiple alternate nests within their territory. But clear-cutting has made such trees increasingly rare. As elsewhere, forest clearing in Finland has been intense. Today, only about two percent of the country's original old-growth forests remain. In total, 733 species are now threatened by forestry-driven habitat loss, and for more than half the primary cause is the decline of old-growth stands and large trees.[8]

DOI: 10.5282/rcc-springs-18817

Clear-cut area in Finland. Photo by Monica Vasile. CC BY-NC-ND 4.0.

In the 1960s and 1970s, in response to the twin pressures of culling and logging, volunteers like Kalevi began ringing birds and building nesting platforms in the remaining tall trees. As the environmental movement gathered pace, a network of volunteer ringers took shape, and the Forestry Service assigned known bird territories to individuals for ringing and monitoring. In 2024, 362 to 496 breeding pairs were estimated. Each pair might raise one or two chicks. Of those, 113 chicks were ringed in 2024 and 171 the previous year.[9] By the early 2000s, about 40 ringers remained active, continuing the slow, often solitary work of monitoring an elusive species, scattered across vast territories and sensitive to humans.[10]

Ringing makes it possible to identify and track a bird's movements in the wild. Yet only one or two ringed adults are ever seen a second time each year, alive or dead. These rare "recoveries" trickle into a slow-growing database kept by the Natural History Museum in Helsinki.[11] But ringing is not significant only when recoveries happen; it is part of a broader system of eagle monitoring, largely volunteer-driven, which resembles a grassroots citizen-science form of "big data."[12]

"Is it worth it?," I asked Katya. She did not hesitate. "Yes. The little we know about these eagles, we know because of ringing." For instance, ringing allows us to know the migratory routes and the life spans of birds; in 2019, a ring recovery revealed that the eagles can live up to 34 years.[13] To ring a bird is to tether it, lightly, to human knowledge, to care. It is science. It is intrusion. And sometimes, it is a form of love.

As a historian researching wildlife biologists, I often find myself asking: Can we really know animals? Are they not too alien for us to understand? And what does our knowledge bring, to them and to

DOI: 10.5282/rcc-springs-18817

us? Does knowledge make us more reasonable toward animals? Do we need to know them to stall their decline, to avert their extinction, and ours?

I wondered what it takes to truly understand another species. What kind of intimacy, attention, and commitment is required? And how do these embodied ways of knowing, learning through our bodies, through climbing trees, handling birds, and watching them closely, contribute to mending broken relationships with wildlife in the Anthropocene?

Eagle chicks. © Katya Karabanina. All rights reserved.

That June day in the forest, Katya left the eaglets unringed. But later that week, we returned to the field. She climbed to two other nests, ringing two siblings in one, a single chick in the other. At the second site, the adult eagles were still on the nest when we approached. They took off, soaring high above. Golden eagles do not attack to protect their chicks. But Katya worried the eagles might abandon the nest and their chicks if humans lingered too long, or came back. She worried about the uncertain effects of human intrusion on wild birds in general. Would our presence stress them to the point of critical harm? Would chicks fledge too soon in panic?

When Katya ringed the siblings, she lowered them with a rope from the nest one at a time, bundled in a cloth bag. I took each chick in my arms, covered their eyes to keep them calm. I thought if they could hear my heart beating, they would feel reassured. But maybe that instinct was deeply mammalian, not avian. Then I held them steadily, gloved hands firm around their bodies, careful to avoid their claws. Katya worked quickly. She needed one kind of pliers to fit the rings and another to close them—the second was more brutal: a heavy, staple-gun-like tool that demanded full force. It looked clumsy in her grip, designed for larger hands. Male hands. She managed anyway. Then she had to pluck a small feather from the chick's back for a DNA sample. She paused, squeezed her eyes shut for a second, as if bracing herself. "We don't know how much this hurts them," she said. She dropped the feather into a paper envelope and sealed it.

We handle wildness, quite literally, in order to know it and safeguard it. The ringers' relationship with the eagles is one of intimacy and intrusion: They climb to their nests, tag their young, track

DOI: 10.5282/rcc-springs-18817

their flights. Data becomes a proxy for care. But it is a fragile pact. Like so much of our interaction with wildlife in the Anthropocene, it balances on a tightrope between care and interference, knowledge and the violence of knowing too much. "Understanding" often means surveillance, tagging, mapping. This can justify intrusion and can sometimes reduce complex life to measurable abstract units.

What kind of understanding, then, might repair our fractured relationship with wildlife? The kind that does not reduce the bird to a datapoint. For the scientist, the datapoint holds real value; it feeds models, tracks trends. But the knowledge that a wildlife biologist develops through years of climbing trees, holding eaglets, is not just analytical. It is also embodied and experiential. A lived familiarity. It grows into an understanding of a way of life, of another species' needs, habits, and vulnerabilities.

> *The knowledge that a wildlife biologist develops through the years is not just analytical. It grows into an understanding of a way of life, of another species' needs, habits, and vulnerabilities.*

This kind of knowledge does not always register as "science." But it often drives protection. It leads someone to notice when something is wrong, to advocate for coexistence with reindeer herders, to build new nesting platforms in logged landscapes. It is rooted in care and in place. Sometimes these small situated interventions can make the difference between life and loss.

In my research, I have often seen how such grounded acts of care intersect with scientific ones, moments when the survival of a species depends as much on field instinct as on formal expertise. The following story traces one such encounter.

In the winter of 1987, Andrew Bryant, a young Canadian biologist, was sinking into depression. His master's project—tracking inbreeding in grizzly bears—was going nowhere. He needed to capture the bears, tranquilize them, and draw blood samples. But helicopter captures were expensive and exhausting; in two years, he had barely collected any samples.

Just before Christmas, he found himself venting to Bill Munro, an endangered-species officer in Victoria, British Columbia. Munro had a suggestion: Forget the grizzlies, why not study the Vancouver Island marmot (*Marmota vancouverensis*)? These animals, rodents in the squirrel family, the size of a large house cat, chocolate-brown with a white nose and an earnest face, were endangered, and possibly declining due to inbreeding. They were easier to catch and badly in need of study. Bryant agreed, not realizing at the time that this decision would change his life.

But marmots turned out not to be that much easier to sample than grizzly bears. Years later, in 2022, chatting in his living room in Powell River on a late morning in May, he told me, laughing, "I stopped working with grizzly bears, because it would have taken me 10 years, and a million dollars. So I worked on the Vancouver Island marmots. And that took me 20 years and 7 million dollars. And that is the story of my life."[14]

DOI: 10.5282/rcc-springs-18817

Andrew Bryant. Westland, season 21, episode 3, "Back from the Brink: The Efforts to Save Vancouver Island Marmots from Extinction" (2004), University of British Columbia. Archives, Halleran Video Collection, UBC VT 2160.1/184.

Andrew Bryant began fieldwork with 5,000 US dollars from the World Wildlife Fund. He drove a battered red Land Cruiser into the scenic mountains of Vancouver Island. The marmot colonies he needed to study were high on the mountain, on the meadows sloping downward toward the forest ridge. Some were in clear-cut areas on private logging land, belonging to the giant forestry company MacMillan Bloedel. The areas logged once had coniferous forests of Douglas fir (*Pseudotsuga menziesii*) and hemlock.

Because the marmots hibernate, Bryant could only do fieldwork between late May and October. To access them, with the approval of the company, he secured keys to the steel gates that barred the road and signed in and out on a board: "Bryant, going up to D13 at 3 a.m., out at 5 p.m." Loggers started asking, "Who's this guy?," and he was soon known as the marmot guy.

To collect blood samples, Bryant needed to trap marmots, but the creatures refused to cooperate. Advice from another marmot biologist working in Colorado, had proved useless; the baits that worked there on yellow-bellied marmots and prairie dogs failed here. The traps sat untouched. As with the grizzlies, Bryant's sample size was close to nil.

Then he started to improvise. He laid out a buffet: apples, jam, bananas. The evident favorite was Skippy peanut butter by Super Chunk. Using only this brand, from then on, Bryant was able to successfully trap the marmots. He sedated them, drew blood, and tagged their ears with numbered metal clips visible through binoculars. It was not an easy operation and Bryant watched out for any effects of such invasive handling, comparing the survival rates of colonies of tagged marmots with those of untagged colonies. The rates being more or less the same, everything seemed to be fine, and fieldwork finally moved forward. He finished his master's thesis, but his results showed that marmots did *not* have an inbreeding problem.[15]

DOI: 10.5282/rcc-springs-18817

Contemporary marmots. © Adam Taylor. All rights reserved. Courtesy of Marmot Recovery Foundation.

Yet, he found something else. Bryant had noticed a pattern. Marmots were settling in freshly logged sites. These were areas that, stripped of trees, resembled alpine meadows. The marmots could dig burrows, find grasses and flowers to eat, and perch on stumps. But these colonies did not last. They vanished within a few years. Bryant suspected the clear-cuts acted as population sinks—habitats that appeared suitable but where more animals died than were born.[16] But here, he was entering the realm of uncertainty. The problem with ear-tagging was that he could not prove they were dying. All he could say for sure was that marmots in logged areas *vanished* from human visibility more often than those in established meadows.

To track their fates, in 1993, Bryant began implanting radio transmitters into marmots with the help of a veterinarian. It was time-consuming, expensive work, involving long hours in rough terrain. The results came in: Transmitters recovered from the field bore predator tooth marks. Marmots were being preyed on at unsustainable rates. The open, logged terrain offered easy movement and clear sightlines to predators—wolves, cougars, and golden eagles. As saplings began to grow, they could also hide stalking predators.

When Bryant first began his fieldwork in the Vancouver Island mountains, the situation of the marmots was uncertain. They had been listed as endangered largely on the basis of anecdotal rarity. Canada, like many countries in the 1970s, was scrambling to respond to the emerging "endangerment zeitgeist." After the US passed its Endangered Species Act in 1973, Canada followed suit, compiling its own lists.

Yet, throughout the 1980s, annual marmot counts by the Fish and Wildlife Branch found more and more animals each year. Some officials concluded the population was rising; others suspected this was just the effect of better search efforts. The numbers hovered around 200. Was that small? Was it stable? Little was understood, or asked, about what such numbers meant. In a 1983 report, provincial wildlife officers concluded that "a population of approximately 200 animals, distributed within 10 distinct populations… will be sufficient."[17] By the decade's end, the government stopped counting, and it was assumed that some colonies might exist high up in the mountains, yet undiscovered.[18] The prevailing mood became: Let's take marmots off the endangered list—there is no problem.[19] But not everyone agreed. Munro, for instance, although reserved in his declarations,

DOI: 10.5282/rcc-springs-18817

was among the pessimists. Citizen naturalists also voiced growing alarm. Bryant sided with them. He did not see a population recovering. He saw a species slipping through the cracks of premature reassurance.

Bryant worked largely alone. He was not employed by the university or by any government agency but survived on short-term contracts. His independence, while precarious, allowed him to stay focused on the marmots. A few senior scientists offered guidance under the loose framework of a marmot-recovery team, but field support was minimal. He was trying to understand how population dynamics shifted in a transformed landscape, one shaped by logging and by the complex interactions of multiple species on Vancouver Island. By 1995, he had been working with marmots for eight years. He had amassed significant scientific data to back up his analyses.

By that same year, the estimate had dropped to just one hundred surviving marmots. The controversy was over. Bryant's warnings that marmots in clear-cut habitats would not last had been right. The collapse was now undeniable. His fieldwork had made the decline legible. And in the conservation climate of the 1990s, driven by scientific data and crisis response, this mattered. His research gave him the green light to intervene, and to ask for serious funding. Together with an advisory recovery team (composed of other scientists), Bryant now proposed drastic intervention: to capture some of the wild marmots and breed them in captivity with a view to releasing the offspring back onto the alpine meadows. Bryant approached MacMillan Bloedel with an ambitious request: 150,000 US dollars annually, for at least 10 years, to start a program of breeding in captivity.

Blockade of logging road at Clayoquot Sound, 1993. Photo by paul_defelice. Flickr. CC BY 2.0.

The marmots were in free fall due to multiple pressures, but he argued that his long-term data showed that industrial logging was the most destructive factor. Therefore, the company bore responsibility. Bryant made the case forcefully, not just as a scientist, but as someone who had lived this story on the ground. And MacMillan Bloedel was already in the hot seat. Greenpeace had recently launched a full-scale protest campaign against them, catalyzing the largest act of civil

DOI: 10.5282/rcc-springs-18817

disobedience in Canadian history, with over 850 arrests during mass blockades of logging roads in Clayoquot Sound, on the western side of Vancouver Island.[20] In this atmosphere, Bryant's proposal landed not just as a plea for help, but as a chance for them to repair their reputation. Conservation funding often comes in a context of external pressure, and success may depend on whether scientific urgency coincides with public concern.

The funding came. "I'm sitting in Stan Coleman's office," Bryant recalled during our interview, "the vice president of the largest logging company in Canada, and he says: I'll give you a cheque for a million bucks, Andrew, and leave here today with it." The government matched these funds with an equal grant. The marmot now had attention and substantial finances. But this was not the end of the story. It was the start of something harder: figuring out how, exactly, to bring a species back from the brink.

For another decade, Bryant threw himself into this challenge. He helped establish the Marmot Recovery Foundation, continued working with the recovery team, and led the capture of wild marmots to start the captive-breeding program.[21] The goal was reintroduction: to raise marmots and return them to the alpine meadows. By 2003, the wild population had crashed below 50. But with the releases from captivity, numbers began to climb again.[22] Then, in 2007, Bryant was dismissed from the foundation. Some said he had become difficult to work with, others pointed to personal struggles that had begun to take a toll. He left Vancouver Island, brokenhearted. Yet the marmot work continues to this day.

Releasing a Vancouver Island marmot. © Adam Taylor. All rights reserved. Courtesy of Marmot Recovery Foundation.

When I met Bryant in 2022, he was living in Powell River, across the Strait of Georgia, where the island mountains still rose on the horizon, distant but familiar, the same peaks where he had once waited patiently for marmots to emerge and nibble at his peanut-butter bait. He spoke generously, at length, and let me into his basement workshop, full of written records and news clippings arranged chronologically. A personal archive of the marmot years. A couple of years later, when I finally finished writing up the marmot story and gathered the courage to send it to him, I found out he had passed away.

DOI: 10.5282/rcc-springs-18817

Still, the marmots endured. As of spring 2025, there are about 380 in the wild.[23]

> *The power of conservation science has depended on the practice of fieldwork and the bonds this builds between people, species, and places.*

Bryant and Katya are both biologists working in remote landscapes altered by logging, trying to understand species. Both look at species that seem adaptable: marmots colonizing clear-cuts, eagles still nesting in logged forests. Their work is hands-on, intimate. Fieldwork is slow, physical, and exacting. They return year after year to piece together survival. Both stories ask the question: What does it take to know a species well enough to protect it?

Katya's story is a close-up: a moment in the Arctic summertime, a few eaglets in their nests. It shows how knowledge is built through bodily presence and repetition. It is about practice, what it takes to be there, to see, to record. Bryant's story is the long view: a slow accumulation of data that only gains power when a species tips into crisis. It shows how fieldwork can become the basis for action if it endures. One story shows the *how*, the other shows the *why*.

The power of conservation science has never rested solely on numbers. It has also depended on the practice of fieldwork and the bonds this builds between people, species, and places. While the authority of conservation has often been framed through counts, models, and population estimates, these alone did not drive the expansion and success of species-focused recovery and protection over the past 50 years. Just as important was the intimate, interspecies labor behind them. Fieldwork fostered activism, forged attachments, and opened space for insight. The quest for data became a form of engagement, a deeper way of knowing and caring.

What these stories reveal is that conservation has always been as much about how we come to know, as about what we know. And that *how* matters. Bryant's and Katya's field-based work, much like Jane Goodall's long witnessing of chimpanzees or Iain Douglas-Hamilton's tracking of elephants, has the capacity to shift public imaginaries and institutional priorities. Bryant's and Katya's research offers more than evidence. They model, however partially, what it might mean to rethink human–wildlife relations in an age of ecological disruption.

In memory of Andrew Bryant and Jane Goodall.

. . .

Acknowledgements

This article draws on research supported by the NWO Vici grant VI.C.181.010, Moving Animals: A History of Science, Media and Policy in the Twentieth Century, at Maastricht University. When I conducted fieldwork with Katya, I was employed at the University of Oulu within the Profi8 SAFIRE project, Safeguarding Biodiversity Through Interdisciplinary Research on Habitat Restoration.

Notes

[1] "Ringing" is the term commonly used in Finland, and Europe more broadly; in North America, the same practice is known as "banding."

[2] "Europe's Oldest Golden Eagle Is Finnish," News and Press Releases, University of Helsinki, 22 February, 2019, https://www.helsinki.fi/en/news/life-sciences/europes-oldest-golden-eagle-finnish. For more on golden-eagle monitoring, statistics, and trends in Finland, see: Tuomo Ollila, "The Monitoring Project of the Golden Eagle *Aquila chrysaetos* in Finland," *Status of Raptor Populations in Eastern Fennoscandia, Proceedings of the Workshop, Kostomuksha, Karelia, Russia, November 8–10, 2005* (Karelian Research Centre of the Russian Academy of Sciences ; Finnish-Russian Working Group on Nature Conservation, 2006), 114–16; Tuomo Ollila, "Suomen maakotkat vuonna 2018—Onko pesintämenestys huonontumassa?," *Linnut-Vuosikirja* 2018 (2019): 104–9.

DOI: 10.5282/rcc-springs-18817

[3] For historical perspectives on white-tailed eagles in Finland, see: Tuomas Räsänen, "Transforming the Human-Eagle Relationship Through Conservation Technologies," in *Sharing Spaces: Technology, Mediation, and Human-Animal Relationships*, ed. Finn Arne Jørgensen and Dolly Jørgensen (University of Pittsburgh Press, 2024), https://doi.org/10.2307/jj.17102096; "Does a Dead Wild Animal Have Agency? The White-Tailed Eagle as a Catalyst for an Ideational Revolution in Finland," in *Shared Lives of Humans and Animals: Animal Agency in the Global North*, ed. Tuomas Räsänen and Taina Syrjämaa (Routledge, 2017), https://doi.org/10.4324/9781315228761; Hannu Salmi, "The White-Tailed Eagle on the Brink of Extinction in Twentieth-Century Finland: A Digital Approach to Emotional Responses in the Media," in *Arrivals and Departures*, ed. Otto Latva, Heta Lähdesmäki, Kirski Sonck-Rautio, and Harri Uusitalo (De Gruyter, 2024), https://doi.org/10.1515/9783111215273-007.

[4] Leila Suvantola, "The Golden Eagle Compensation Scheme in Finland as an Example of Incentive Measures: Potential for Conflict Management?," in *Human-Wildlife Conflicts in Europe*, ed. Reinhard A. Klenke, Irene Ring, Andreas Kranz, Niels Jepsen, Felix Rauschmayer, and Klaus Henle, Environmental Science and Engineering (Springer, 2013), https://doi.org/10.1007/978-3-540-34789-7_10.

[5] Räsänen, "Transforming the Human-Eagle Relationship."

[6] Suvantola, "The Golden Eagle Compensation Scheme in Finland," 202.

[7] Ibid., 201–14.

[8] Jan Kunnas and Timo Myllyntaus, "Lessons from the Past? A Survey of Finnish Forest Utilisation from the Mid-Eighteenth Century to the Present," *Environment and History* 28, no. 4 (2022): 645–70, https://doi.org/10.3197/096734020x15900760737121; Timo Myllyntaus and Timo Mattila, "Decline or Increase? The Standing Timber Stock in Finland, 1800–1997," *Ecological Economics* 41, no. 2 (2002): 271–88, https://doi.org/10.1016/s0921-8009(02)00034-4.

[9] Eetu Sundvall, *Raportti maakotkan, muuttohaukan, tunturihaukan sekä poronhoitoalueen merikotkan pesinnöistä vuonna*, MH8078/2024 (Metsähallitus, 2024), 7–9.

[10] On the boundaries between professional ornithologists and amateur birders, and ornithology's enduring dependence on data provided by volunteers, see: Mark V. Barrow, *A Passion for Birds: American Ornithology after Audubon* (Princeton University Press, 1998); Etienne S. Benson, "A Centrifuge of Calculation: Managing Data and Enthusiasm in Early Twentieth-Century Bird Banding," *Osiris* 32, no. 1 (2017): 286–306, https://doi.org/10.1086/694172. On banding, ringing, and birding, see also the excellent work of Nancy Jacobs and Libby Robin: Nancy Joy Jacobs, *Birders of Africa: History of a Network*, Yale Agrarian Studies Series (Yale University Press, 2016); Libby Robin, *What Birdo Is That? A Field Guide to Bird-People* (Melbourne University Publishing, 2024); Libby Robin, *The Flight of the Emu: A Hundred Years of Australian Ornithology, 1901–2001* (Melbourne University Press, 2001).

[11] The term recovery was used by Katya, and it is the term used as a translation in Finland for any sighting of a ringed bird, dead or alive. In North America, a few different terms were used: return, repeat, encounter; and recovery only for birds found dead. See C. Stuart Houston, Chandler S. Robbins, and M. Kathleen Klimkiewicz, "History of 'Computerization' of Bird-Banding Records," *North American Bird Bander* 33, no. 2 (2008): 53–65.

[12] Benson, "A Centrifuge of Calculation."

[13] "Europe's Oldest Golden Eagle Is Finnish."

[14] Andrew Bryant in conversation with the author, 18 May 2022.

[15] Andrew A. Bryant, "Genetic Variability and Minimum Viable Populations in the Vancouver Island Marmot (*Marmota Vancouverensis*)" (master's thesis, University of Calgary, 1990), https://ucalgary.scholaris.ca/handle/1880/18059.

[16] Bryant, "Genetic Variability and Minimum Viable Populations." See also Andrew A. Bryant and Doug W. Janz, "Distribution and Abundance of Vancouver Island Marmots (*Marmota Vancouverensis*)," *Canadian Journal of Zoology* 74, no. 4 (1996): 667–77, https://doi.org/10.1139/z96-075.

[17] W. T. Munro, D. W. Janz, V. Heinsalu, and G. W. Smith, *Status and Management of the Vancouver Island Marmot* (Fish and Wildlife Branch, Ministry of Environment British Columbia, 1983), 37, Ecological Reserves Collection, Government of British Columbia, Victoria, BC, V8V 1X4.

[18] K. S. Fry, J. A. Morgan, and G. W. Smith, *Vancouver Island Marmot Inventory—1986* (Fish and Wildlife, 1986), Ecological Reserves Collection, Government of British Columbia, Victoria, BC, V8V 1X4.

[19] Andrew Bryant in conversation with the author.

DOI: 10.5282/rcc-springs-18817

[20] See David B. Tindall and Joanna L. Robinson, "Collective Action to Save the Ancient Temperate Rainforest: Social Networks and Environmental Activism in Clayoquot Sound," *Ecology and Society* 22, no. 1 (2017): art40, https://doi.org/10.5751/ES-09042-220140.

[21] The official website of the Marmot Recovery Foundation is www.marmots.org (accessed 13 July 2025).

[22] The comeback was reflected in the news; e.g., "Vancouver Island's Marmot Population Bouncing Back," *Vancouver Sun*, 30 October 2010.

[23] Numbers are reported annually by the Marmot Recovery Foundation; see, "Current Status," Marmot Recovery Foundation, https://marmots.org/about-marmots/current-status-2/ (accessed 16 October 2025).

Cite this article

Vasile, Monica. "Eagles, Marmots, Humans: Knowing Wildlife Through Fieldwork." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-18817.

PUPPETS AT THE HANDS OF WATER: SEX WORKERS IN MONGLA, BANGLADESH

Amrita Dasgupta

Springs

The Rachel Carson Center Review

8 • 2025

Amrita Dasgupta

On a summer afternoon in 2022, I made the long drive from Jessore to Mongla, a port city in southern Bangladesh. My route took me through Bangladesh's riverine ecosystem—a lush green landscape where water dominates the land. I followed the rivers winding their way through the earth as if left to their will, and from the corners of my eyes I could see the little huts of local farmers and fishermen. Mongla Port is known for its sex workers, who historically worked either on the mainland or on boats and were accordingly referred to by the villagers as "sex workers on water" (*jala beśya*) or "sex workers on land" (*sthala beśya*). The coexistence of these two terms reflects a common practice in the littoral geographies of Bangladesh, where names of occupations often hint at the land/river dichotomy.[1] Yet as the ongoing climate crisis has led to sea-level rise and erosion, many littoral sex workers have lost their occupational land to the adjoining river and have been rendered amphibious (*ubhachara*)—working both on land and water. The villagers now call all the women *jala beśya* (water prostitutes)—although this is technically a misnomer. They avoid using a term that assigns animal-like attributes to humans, such as the amphibious nature of frogs, because humans are conventionally considered hierarchically superior to animals.

One of the sex workers attempting to fix the eroding coast with mud from the water. © Amrita Dasgupta. All rights reserved.

DOI: 10.5282/rcc-springs-17582

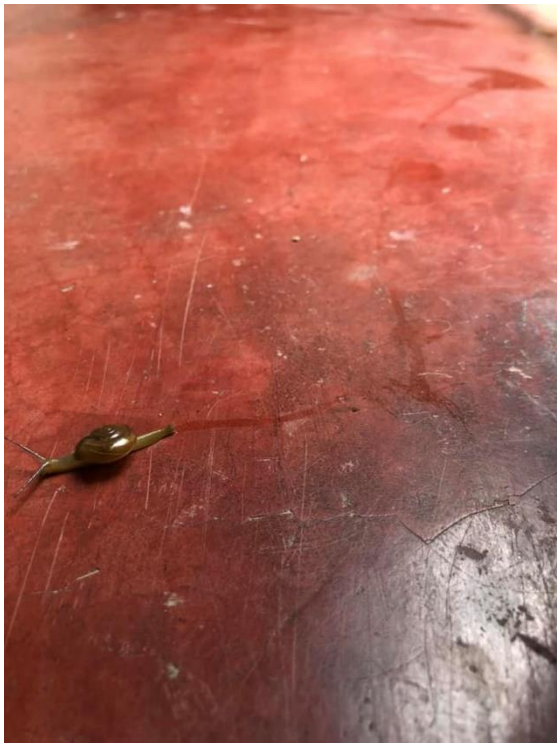


Fig. 1. During Cyclone Amphan, a snail that lived in our open bath needed a dry place to lodge for the night since the open bath was already submerged in water. It dragged itself to the top of a plastic bottle in the dining room, its shell shining in the candlelight as it dried. © Amrita Dasgupta. All rights reserved.

I am interested in the situation of Mongla's sex workers as it illustrates the precarity of those most vulnerable to climate change. Due to Bangladesh's low elevation and location on one of the largest and most densely populated river deltas in the world, the country's landscape and the lives of its people have long been shaped by seasonal flooding and a dynamic riverine environment. Yet climate change has intensified these natural processes, placing Bangladesh at particularly high risk of extreme-weather events, including repeated cyclones, heavy monsoons, extreme heat, and drought. Sea-level rise not only threatens people's homes but also disrupts livelihoods, as increasing salinity of soils and water affects agriculture and fishing.[2]

I have been researching the lives and livelihoods of the Sundarbans islanders in Bangladesh and India for over a decade, and they often describe a life characterized by the quotidian straddling of water and land. But as my own home slowly filled with water during Cyclone Amphan in 2020, and my family was forced to live an amphibious alternative for a night, I was moved to reflect more deeply on the excruciating reality of everyday life in this region. We talk about the precarity sea-level rise brings about, but it is notoriously difficult to learn about the effects climate change has on the individual, the personal effects. It is even more difficult to learn about the experiences of Mongla's sex workers because, as I learnt when I went to see them, their land is difficult to access, and they are marginalized and regarded as "untouchables" as they pursue an occupation considered immoral and dirty by locals, who would not give advice on how to find them—and they don't want to be interviewed.

Mongla Port was established around 1950 on the Passur River. It was developed to offer extra capacity after the port in Chittagong proved insufficient to handle the increased volume of seaborne trade since Partition had cut off East Pakistan's access to the Port of Calcutta in 1947.[3] The new port in Mongla became an important international hub, with British and Indonesian sailors and merchants docking regularly.[4]

> *As the ongoing climate crisis has led to sea-level rise and erosion, many littoral sex workers have lost their occupational land to the adjoining river and have been rendered amphibious—working on both land and water.*

Since the 1800s, Bengal's waterways had taken merchants across the subcontinent, where they engaged in sexual encounters with women with ambiguous social status inhabiting the coasts. These "in-between" women were chaste wives who allowed sexual interaction without payment to prevent being kidnapped and abandoned in faraway lands. However, the history of the Mongla brothel is slightly different. Sexual cultures in the vicinity had existed long before the brothel's establishment. Initially, women identifying as singers and dancers in nearby villages engaged in sex work. They were eventually pushed out of their space as the patriarchal, upper-class society felt they were a threat to morality, and the women were thus forced to deforest the land on the coast near the Sundarbans to make a living. These workers became part of a "ghat" economy where merchants not only sold their products, but these women also performed sex work in exchange for money—placed

DOI: 10.5282/rcc-springs-17582

at the transition between the land and the shore. When Mongla Port was built, these littoral economies expanded. Common lore from across the world reflects how "every sailor has a woman in every port," meaning active ports are accompanied by brothels, as is the case in Mongla.[5] Beginning around the 1990s, labour unrest, river siltation, and consistent bad weather contributed to the steady decline of Mongla Port. Nonetheless, the local bordello survived, and it now stands on the eroding banks of the Passur River.[6]

Customers of the Mongla brothel hire launch boats and visit the brothel to spend the night there. On Saturdays the sex workers stand on the eroding embankment with their saree-draped bodies on display. The brothel is accessible by means of the temporary bamboo stairs that tilt from the coast to the eroding embankment (figure 2). Customers anchor their launch boats along the crumbling embankment of the brothel and wait there to select the woman they best like. Once the selection is made, they pay the money and are escorted to the nearby huts by a male brothel worker. This is, more or less, the daily life of the sex workers of the sinking brothel.

Fig. 2. The Mongla Port brothel on a Saturday. © Amrita Dasgupta. All rights reserved.

I began my research with two days of local ethnographic studies, observing from across the bank on which the brothel stands and talking to residents and workers about the brothel, access to it, and their perception of it. After this, I went to visit the brothel and start my field-based research. The people who ferry the boats for daily work from one side of the Passur River to the other pointed me to the boatman Hasan Bhai, who brings customers to the brothel. He advised me to talk to Hamida Apu, the chief madam of the bordello, famously known as the Baniashanta.

DOI: 10.5282/rcc-springs-17582

When I first met Hamida Apu, I found her sitting in her room, annoyed by my visit, which she had been informed about beforehand. She told me:

> Everyone who comes here apart from customers, I mean journalists, photographers, researchers, they keep asking us the bad questions. We are not always comfortable to speak about our life and how we ended up here. It makes us sick. We want to vomit. It is not a good feeling. Can't you all find some other way to do this—to know about our lives by not asking us direct questions like "who trafficked us here?" Do we only have one story to tell? And that too in a hurtful, disrespected manner? We should be pricked again and again to remember the bad things at the beck and call of people? At the comfort and need of others? We cannot take our time; we cannot do it at our space and time? Anyway, there are more grave issues at hand than this. We keep doing the same thing daily. Wake up. Battle the waters that eat our land. Attend to customers. Sleep.[7]

Hamida Apu was complaining about the gaze that objectifies people like her—people from ostracised professions. She was not okay with plating her trauma-inducing life experiences for the eyes and ears of journalists, researchers, or photographers. However, she was not entirely opposed to talking about the sex workers' life experiences. She just wanted to do it differently—at their own pace.

Fig. 3. One of the sex workers of Baniashanta goes into the water to catch fish. © Amrita Dasgupta. All rights reserved.

I realised that if I was going to respond to Hamida Apu's concerns and build rapport with the sex-worker community, I would have to avoid asking direct questions. I therefore devised a different methodology to collect ethnographic data from the Mongla brothel workers. Instead of conducting

DOI: 10.5282/rcc-springs-17582

semistructured interviews, I used arts-based research. Here, artistic practices—such as dance, theater, or painting—offer a window into a community's lived experiences. The artworks become the content or data that readers or viewers can engage with emotionally.[8] Given the sex workers' reluctance to be interviewed, the arts-based method allowed me to understand, respect, and accommodate their emotions, while generating information equal to that that I might have gathered from questionnaires.

> *In arts-based research, artistic practices offer a window into a community's lived experiences. The artworks become the content or data that readers or viewers can engage with emotionally.*

In particular, I chose to facilitate a "living-archive" process, where sex workers' lived experiences and memories would be at the heart of the research. This power-sensitive approach can take into account caste, class privileges, and intersectionality, and leaves space for community-generated research questions—perhaps touching on the "grave issues" Hamida Apu mentioned.[9] It is in line with approaches that decolonise Western methodologies and demystify the methods of modern academia that have been part of colonial apparatuses.[10]

In a six-month-long arts workshop, I provided the sex workers with themes that spoke to the interview questions I had prepared: *jibon* in Bengali, meaning "life" in English; *bondhu*, meaning "friend"; *jol*, meaning "water." Based on these themes the participants made drawings and paintings. Having completed the works, they spoke about what life experiences their drawings represented in the context of the given theme.

DOI: 10.5282/rcc-springs-17582

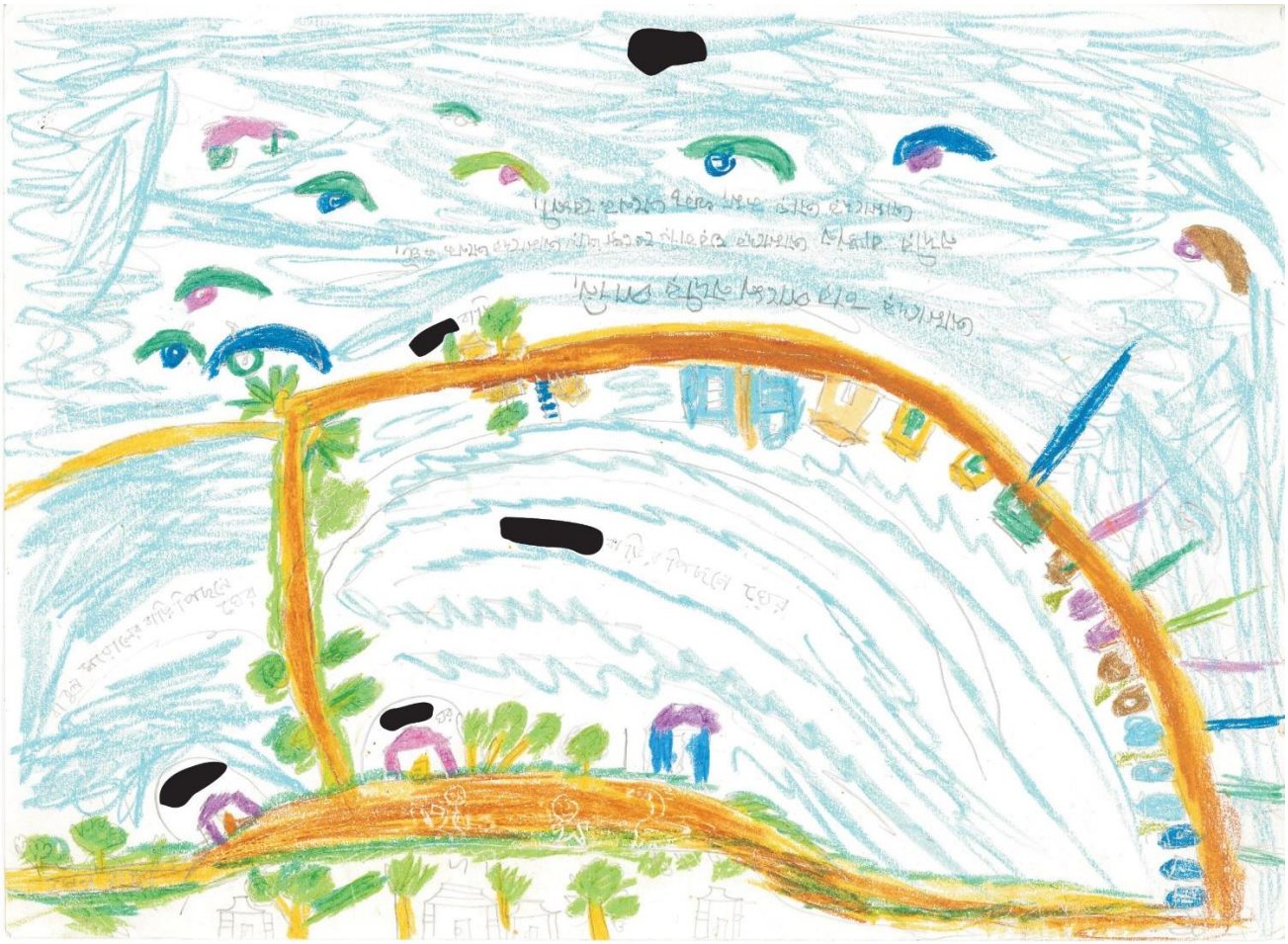


Fig. 4. Champa's painting of the Baniashanta brothel. The Bengali text says: "On the four sides of our habitation we have the river. Erosion of the coast affects our homes. We bear losses. We have meagre income, but we need to spend more than what we earn." © Anonymous creator. All rights reserved.

I remained interested in the sex workers' relationship to the water. When the 25 participants drew on this theme, they brought forward many revealing angles. One among them, Champa, drew all the houses on the embankment. She explained that those houses belonged to the people of her community. Yet Champa drew the huts in the village beyond the brothel in pencil and refrained from colouring them. She explained that the colours of the huts in the brothel space helped her to signify the nature of her fellow workers. She knew them well. However, she continued, she had no such familiarity with the villagers and thus could not depict their nature with a colour of her choice (figure 4). Champa also "inverted" the widely accepted "grammar" of colour and did not identify green to signify jealousy: To her it meant evergreen—the undying youth of her friend, also a sex worker at Mongla.

DOI: 10.5282/rcc-springs-17582

Fig. 5. Hamida Apu's painting inspired by the theme of water. The Bengali text says: "Mongla Brothel suffers from coastal erosion. We spend days in hunger. We are very helpless!" © Anonymous creator. All rights reserved.

Each drawing is revealing in its own right and offers information not accessible through direct or indirect questionnaires. Strikingly, Hamida Apu left the water space uncoloured (figure 5). She related to colours as reflecting a specific character and explained that the water was white to her. It is true that if you look at the water surrounding the Passur, it looks white—maybe because of the silt. However, the character of the water space and why she left it uncoloured, she reasoned, was not because the water was laden with silt, but because the water had no fixed character. It was the benevolent water that brought them customers, while it was its evil side that hammered the eroding coasts.[11]

DOI: 10.5282/rcc-springs-17582

Fig. 6. Sophia's interpretation of the future of Baniashanta. © Anonymous creator. All rights reserved.

Another participant, named Sophia, coloured the water green (figure 6). According to her everything would turn into a field as the waters silt up. She looked at water with hope, wishing for the water to not eat away their occupational land but for the water to move away.[12]

The community presented a range of emotions, but the one that they were unable to process is the emotion they have for the river water that surrounds them. They are rarely asked about the ecology of the place they find themselves in and are not used to talking about it—the focus has always been on their work, with regards to coercive migration, sexual partners, and the business. This is why it takes them some time to speak out about their emotions towards the water, or even depict them through art. They shared that sometimes they are grateful for the water, which brings them fish, and sometimes they are sad that it eats away their land, but mostly they are frustrated that water should have such an influence on their daily lives. They would describe themselves in Bengali as *jol besha noy jol putul*, meaning "not a water prostitute but a puppet at the hands of the water."

> *Sometimes they are grateful for the water, which brings them fish, and sometimes they are sad that it eats away their land, but mostly they are frustrated that water should have such an influence on their daily lives.*

The water is their means of survival, and the embankment, now eroding, is indispensable. It is here that they live and work. Staying and doing research with the sex-worker community exposed me to this "grave issue." The river water that surrounds them is the main artery that brings staple customers to the brothel. When I saw one of the women, who had climbed down the embankment, taking mud

DOI: 10.5282/rcc-springs-17582

from the ground and placing it on the crumbling, exposed coast, trying to fix it, the horror of this "amphibious alternative" was visualized (cover image).

In old times, when ships moved on the Passur River, seamen, sailors, and boatmen crowded into the brothel for entertainment and the fulfilment of carnal desires. With time, the riverbed accumulated silt, and consequently big ships ceased their visits to the Mongla Port. This affected the customer count. Today, the main clients are usually local men who picnic in the Sundarbans region on the weekend.

Fig. 7. The eroding embankment is slowly being "swallowed by the river." © Amrita Dasgupta. All rights reserved.

The sex workers were unable to process not only the effects of the climate crisis on their work—something that will soon render them ecological refugees—but also their helplessness in fighting the government. Indeed, they are losing their land to the water and every day they live in fear of their land being swallowed by the river, but they are also paid regular visits by another party: the Land Revenue Office, an arm of the local government in Banishanta. The community asks for their rightful resettlement. They have been repeatedly turned down based on the land erosion and accretion law. This law states that if someone loses their land to erosion, they will receive rightful and legal rehabilitation for the affected land;[13] however, such rehabilitation can only be claimed if the person who lost their land can prove ownership of the land. The inability of the sex-worker community to show land-ownership papers, as past generations of sex workers did not officially transfer the ownership, traps them in legalities and denies them the right to rehabilitation. It means that they will be left inoperative once they lose their land to the water.

The sex workers of Mongla are river women, not meant for the ordinary life on land or water. They are caught in a unique in-betweenness—an amphibious alternative. For a long time, they were denied space in graveyards and thus buried their dead companions on their occupational land, witnessing such riverine cycles of life, death, and water burial. As if "to water they belong and to

DOI: 10.5282/rcc-springs-17582

water they return" and not "to dust."[14] When the body rolls over into the water, scattering drops that reach the shores, the friends of the dead chant "Santih, Santih, Santih"—peace, peace, peace—as if celebrating that the ostracised life of struggle, hate, and abandonment has at last come to an end.[15]

Notes

[1] Shailendra Biswas, *Samsad Bangla Abhidhan* (Sahitya Samsad, 1957), 329.

[2] Thaslima Begum, "'Only the Rich Can Bear This Heat': How Dhaka Is Battling Extreme Weather," *The Guardian*, 3 October 2023, https://www.theguardian.com/global-development/2023/oct/03/only-rich-can-bear-heat-dhaka-bangladesh-battling-extreme-weather-climate; Syed Sajjad Husaín and Hugh Russell Tinker, "Bangladesh," *Encyclopaedia Britannica*, published 26 July 1999; last updated 20 August 2025, https://www.britannica.com/place/Bangladesh/Drainage; Saleemul Huq, Mizan Khan, A. K. M. Saiful Islam, and Afsara Binte Mirza, *Climate Change Impacts in Bangladesh: What Climate Change Means for a Country and Its People* (International Centre for Climate Change and Development, 2024), https://www.icccad.net/wp-content/uploads/2024/02/Bangladesh_Final_Covers_26-Jan-2024_ONLINE_compressed.pdf.

[3] I. S. Maxwell, "The Development of the Ports of East Pakistan," *Geography* 42, no. 1 (1957): 64–66.

[4] Matthew Bremmer, "The Sinking Brothel," *VICE*, 2 April 2018, https://matthewembremner.com/2018/04/02/sinking-brothel-vice/.

[5] James Francis Warren, *Pirates, Prostitutes and Pullers: Explorations in the Ethno- and Social History of Southeast Asia* (UWA Press, 2008).

[6] "History," *Year Book 1984–85* (Port of Chalna Authority, 2004), 8–10. See also Amrita Dasgupta, "'The Accommodating Apparatus': Drawing the Life of Sex Work on the Eroding Coasts of Sundarbans," *History and Environment Journal* 30, no. 2, https://doi.org/10.3828/whp.eh.63830915903585.

[7] Hamida Apu in conversation with the author. Fieldwork, Khulna (Mongla), Bangladesh, February 2022. The names of the interviewees and interlocutors have been changed and kept anonymous as per their informed consent. The participants in the study were selected through purposeful sampling; the study was then conducted within the informal community setting of the Mongla Port brothel. Later, sample selection was also done through the snowball method—an approach where each participant leads to another participant via referral.

[8] Elizabeth de Freitas, "Contested Positions: How Fiction Informs Empathetic Research," *International Journal of Education and the Arts* 4, no. 7 (2003): 11–22.

[9] Tony E. Adams, Stacy Holman Jones, and Carolyn Ellis, *Autoethnography: Understanding Qualitative Research* (Oxford University Press, 2015); Stephen Pfohl, *Death at the Parasite Café: Social Science (Fictions) and the Postmodern* (St. Martin's Press, 1992); Randy Stoeker, "Challenging Institutional Barriers to Community-Based Research," *Action Research* 6, no. 1 (2008): 49–67, https://doi.org/10.1177/1476750307083721.

[10] Norman K. Denzin, Yvonna S. Lincoln, and Linda Tuhiwai Smith, "Introduction: Critical Methodologies and Indigenous Inquiry," in *Handbook of Critical Indigenous Methodologies*, ed. Norman K. Denzin, Yvonna S. Lincoln, and Linda Tuhiwai Smith (SAGE, 2008), 1–20, https://doi.org/10.4135/9781483385686.n1.

[11] Dasgupta, "Accommodating Apparatus."

[12] Amrita Dasgupta, "A Step Forward in Methods for Arts-Based Research in the Anthropocene: A Series Refection," NiCHE, 19 July 2023, https://niche-canada.org/2023/07/19/a-step-forward-in-methods-for-arts-based-research-in-the-anthropocene-a-series-reflection/.

[13] In Bangladesh, erosion and accretion are regulated under common-law principles. Specific regulations do not exist, but the Bengal Alluvion and Diluvian Regulation of 1825 remains the foundation. State of Haryana, *The Bengal Alluvion and Diluvion Regulation, Act 11 of 1825*, as published on 1 November 1956, Indian Kanoon, accessed 22 September 2025, https://indiankanoon.org/doc/126865412/.

[14] In Genesis 3:19, New King James Version, the human life cycle is defined as "For dust thou art, and unto dust shalt thou return," which is explained in Ecclesiastes 3:20 as "All are from the dust, and to dust all return."

[15] Dasgupta, "Accommodating Apparatus."

DOI: 10.5282/rcc-springs-17582

Cite this article

Dasgupta, Amrita. "Puppets at the Hands of Water: Sex Workers in Mongla, Bangladesh." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-17582.

STEP AWAY

Kata Beilin

Springs
The Rachel Carson Center Review

8 • 2025

Kata Beilin

The time of hard-earned success had arrived, and Eve was receiving more invitations to give presentations than she could possibly accept. Her salary had increased, affording her a certain ease, and yet her beauty and allure had not abandoned her. She had money, men, and recognition. She had never desired family, so she was happy to be free. Still, something was missing.

Perhaps her personal sense of dissatisfaction stemmed from the academic language that imprisoned her, from the expectations of a field she followed faithfully but without full conviction. Perhaps it was simply tiredness—endless meetings, reports, teaching the same course for the tenth time, confusing student names that changed each semester.

Each day, the same plane seemed to cross the sky above her beautiful garden. The same squirrel ran along the wires as though time itself had ceased to move forward and instead spun in loops. Sometimes, Eve felt that everything followed the same infinitely repeated script and that she had no way out—as if a barrier of still air separated her from the real life, she longed for but could not quite reach.

As a renowned scholar of environmental law, often invited to present her research, she traveled frequently all around the world, despite her fear of flying. She hated airports—the security checks, the noise, the wearying sameness of it all. She adapted by shielding herself with tranquilizers and music streaming through her cutting-edge headset, masking her eyes with soft blindfolds and her face with a cloth cover. In this way, she withdrew from her surroundings. She listened to audiobooks that lulled her to sleep with images of forests on distant planets.

DOI: 10.5282/rcc-springs-18742

All the hotels where the large conferences were held looked the same. The cards that substituted keys to the rooms never worked, and the windows did not open. Sometimes the venues had exotic names and were bordered by forests or oceans. Eve knew that half an hour's drive could take her to a natural paradise, but there was never time to step away. Sightseeing was never possible, except from above when she flew over green bodies of the few remaining forests or turquoise-colored waters.

Years of navigating academia had taught her that good work alone was not enough. Success depended, above all, on relationships. Conferences became marathons of smiles and compliments. She channeled her energy into listening intently, responding insightfully, cracking subtle jokes, giving the impression of knowing more than she said.

She went out for drinks and luxurious dinners, dropped hints that she had the resources to reciprocate favors. At day's end, alone in her hotel room, depleted, she would collapse onto a large bed fully clothed, reaching for an ibuprofen to ease the tension in her muscles from all those forced smiles.

A friend recommended meditation exercise, which helped to maintain equilibrium in midst of stress and hectic schedules. Eve set her yoga mat in the garden and gently stretched her paining neck looking at the trees, while the deep masculine voice on her phone seductively convinced her that her sense of self was an illusion, and that it would become easy to see if she distanced herself from the expectations of the others, stepping away from her thoughts.

She practiced meditation every day. Even during the conferences, she got up early to start the day with this voice that slowly began to hold a strange power over her.

By October, it was too cold to meditate in the garden. Eve spread her mat in the bedroom, closed her eyes and imagined, as instructed by the voice, the world in place of her head. She was no longer there. Instead, she was everywhere, her awareness participating in the consciousness of the world that thought through her. She reacted with slight irritation to the message that interrupted her morning ritual. It was an invitation to yet another conference.

But the seminar on the legal empowerment of Indigenous populations, held at a small intercultural center in the middle of the Ecuadorian Amazon, promised to be different.

On the flight from Miami to Quito, she was seated next to a lawyer headed to the same destination—one who refused to acknowledge Eve's clear signals of detachment, ignoring her headset and blindfold, and insisted on talking without pause.

Her name was Ené. She was traveling between the US and Ecuador to gather support for President Rafael Correa's initiative to raise international funds in lieu of drilling in Yasuni National Park. She was driven—on a mission, even in the sky.

"Colonial exploitation and unfair trade tariffs created our poverty. Your country profits. You owe a debt. If you help repay it, we might save Yasuni and the people who live there—my people. I am Waorani."

"Are you?" Eve's initial irritation suddenly gave way to curiosity. She had read about the environmental conflicts involving Waoranis since they had first been contacted by the missionaries in the late fifties. She put away her headset and began to listen.

As the plane began to slowly descend, Ené pointed to the window with excitement. A mesmerizing dark green extended all the way to the horizon.

"My forest. My home," she said. "It is still there."

They talked until landing, eventually deciding to share the ride to Tena.

A cool, gray rain greeted them in Quito. Mist and

DOI: 10.5282/rcc-springs-18742

clouds covered everything. The road led them slowly and steadily down the slopes of the Andes. The peaks remained hidden, but now and then the fog opened just enough to reveal jagged rock faces, ribbons of forest, and, on rare occasions, a sliver of blue sky pierced by a single ray of sunlight. Reality appeared fragment by fragment, like a giant puzzle materializing out of vapor. As they turned south toward Tena, the sky opened completely, and spanning the road was a double rainbow.

The center was perched on a high bank of the Napo River, precisely where it rejoined itself after splitting into two parallel channels. The waters surged there, forming rapids. Eve saw in the river's shape an echo of the rainbow: two becoming one. The water ran deep brown, with a rusted tint. Framed by dark-green forest and veiled in mist, the scene had a compelling gravity.

Here, nothing started on time. Presentations ran long, interrupted by locals unafraid to ask questions mid-lecture, which quickly transformed into dialogues and debates. Eve realized she was an outsider. The other speakers seemed unbothered by academic status or prestige. Ené painted her face with achiote as Waoranis do, and delivered a passionate speech, calling for scholarly support in contesting a local court's approval of a recent consultation about drilling in her tribal territory adjacent to Yasuni. The consultation had been conducted in Spanish, which few locals understood, and it was hurried. It had ignored Waorani customs that required a revelatory dream and community consensus before any decision is made and any vote is cast.

"In dreams we become spirits, and understand what the forest wants," she said as other natives nodded, and some publicly recalled their personal dreams that made them understand better their connection to the forest.

In contrast, Eve's academic presentation felt strangely inadequate. No one interrupted her, as though her legal concepts and arguments were irrelevant. Her gaze kept drifting to the river, so close to the terrace where the seminarists gathered. During a break, she walked down to touch the water, needing to confirm that it was real. On the other side, tropical forest stood quiet and inviting.

That night, she had an unpleasant dream of flying home, which revealed to her how much she enjoyed being close to the forest. Then she thought that the time to leave would really come soon.

She was already on board, equipped with headset and blindfold, carefully arranging her bag of documents and backpack within the limited space. The plane taxied, sped up, and took off—but she did not. Or at least, part of her. Her panicked-and-pained self suddenly transformed, quieted down, and resisted, remaining on the ground. She saw herself again at the gate, without her ID, money, laptop, phone, suitcase, and without . . . Eve who flew back. She ran to a flight attendant and tried to explain what had happened. The attendant checked her tablet.

"All passengers are accounted for on board," she said, giving Eve a wary glance.

"Can I see your ID, madam?"

Eve realized she was in trouble. Without another word, she turned and walked out of the airport, trying not to draw attention.

Ené was already waiting in a car outside.

"I have nothing left," Eve said. "Not even to buy food."

"I'll take you home," Ené replied. "You'll see my forest. There you do not need anything."

After five hours on the road, they saw oil towers rising above the trees and, soon after, men working outside the plant.

"This place is called Shell," Ené said.

DOI: 10.5282/rcc-springs-18742

Ten minutes later, they reached a bridge over a small river. From there, they would continue by boat. The boat's owner greeted them. His name was Komi, and he would take them to Ené's village.

The river journey lasted the rest of the day. The boat moved slowly against the current, carefully avoiding shallow areas. The abundant fauna Eve had expected to see was largely absent. From time to time, a brightly colored bird flew across the river in front of them or perched silently on a tree branch. Komi pointed them out, naming each one with quiet pride. As the afternoon deepened, the world became a symphony of insect sounds. Untouched by hunting, the insects still reigned over the rainforest.

She began to lose her sense of separation from the world around her. She felt a deepening closeness to her new companion, and she began to perceive the world through Ené's eyes—as if they were Siamese twins, sharing not just space but states of mind. In the forest, Ené's face had softened and opened, in the way people's expressions do when they are with someone they love.

After a bend, Komi announced their arrival and steered toward a small beach. On the embankment above, twenty people stood, watching with curiosity.

As they climbed the slope to the settlement, a navy-blue bird with a long neck and chicken-like legs approached them. It limped. A child explained that it had a tumor on its right foot.

"We brought him here to heal, from our aunt's house near Shell."

They slept in hammocks under roofed but

DOI: 10.5282/rcc-springs-18742

wall-less homes. The jungle, absorbed by exchanges of fluids, matter, and sound, felt like a never-ending orgasm—threatening at first, but slowly calming and pulling into sleep, and then waking her once again. "Becoming a part of this thinking substance would be a form of nirvana," she thought attempting to surrender to the night. But, despite tiredness, she was unable to fall asleep.

Early in the morning Ené leaned over her hammock. She had painted her face with achiote again, and she had decorated her hair with a colorful feather, leaving behind her lawyerly appearance. They would venture further into the jungle.

"So that you can really dissolve in it," Ené laughed.

She followed her friend as if in a dream. She felt they were walking through a vast artery of some sentient organism, acutely aware of its own functioning yet still attentive to their presence. Birds sang as they bathed; ants marched with bright green leaves like a jubilant parade; howler monkeys roared with excitement. They walked for a long time. She was indeed dissolving into sweat and dew, which she usually hated, but she didn't mind it this time. She didn't want to turn back, feeling a compulsion to immerse herself deeper.

Ené stopped where a web of lianas floated in the shifting white mist. The air carried a faint acidic sting. Beneath the fog, a massive, rotting trunk pulsed with the seething life of worms, insects, and fungi. As their eyes adjusted, strange shapes began to emerge—not solid but ghostly outlines, like holograms or flickering film frames: microscope images of cells, faces of animals, buildings, and vehicles. The figures blurred and transformed, assembling and dissolving in an ever-shifting puzzle.

"There!" She pointed. "That looks like my house!"

Ené nodded and placed her hands gently on her shoulders.

"The forest defends itself from those who come to destroy it," Ené said solemnly, gesturing at the phantoms—"this is the Forest Lab, a place of transformation where new species emerge. Our wise men and women, the *pikenani*, come here to turn into animals when they are ready to become one with the forest."

A sound of buzzing that radiated from the trunk intensified. As the air vibrated around them, the two women embraced. A dark cloud of insects hovered in front of them. A bee's enormous eyes met hers, seductive and sweet. A dissolving mix of attraction and terror swept through her.

Then everything happened at once. The bee darted forward and stung her temple. She staggered, eyes closed, knees buckling. She would have collapsed, but Ené's arms held her firm.

As her sense of self unraveled, she knew she had found it—an ecstatic connection to reality, not as thought but as sensation, heat, throbbing, energy. From above, she watched her body become a pulsing mass of flesh, the venom rippling through it, dividing it into shimmering patches of plasma that were absorbed by the bees, by the forest, and by Ené.

With the final flicker of consciousness, she reached toward the floating contours of her house in the mist—and entered. She felt an embrace as the house disappeared into the forest. For the first time in her life, nothing was missing.

DOI: 10.5282/rcc-springs-18742

It was still dark when Ené awoke to the shrill cry of a small monkey, scampering under the thatched roof where her hammock hung. There was work to do. Food needed preparing. Seating needed arranging. She got up lightly and ran to the common kitchen where the fire was already lit.

That afternoon, the Waorani leaders and the *pikenani*—those who know how to transform—gathered by the river, along with the lawyers. An old woman with long black hair, so dark it shimmered green, raised her hand and spoke:

"This forest will disappear if together we do not find a way to defend it. Spears are not enough anymore. We need to understand our enemy and learn their ways."

Ené nodded while she circled around serving monkey meat with broth in coconut bowls to all the participants. Though she had worked for many hours, she did not feel tired.

Cite this article

Beilin, Kata. "Step Away." *Springs: The Rachel Carson Center Review*, no. 8 (November 2025). http://doi.org/10.5282/rcc-springs-18742.

DOI: 10.5282/rcc-springs-18742

Contributing Authors

Flora Mary Bartlett is a visual and environmental anthropologist and assistant professor at the Department of Thematic Studies at Linköping University, Sweden. She uses experimental photographic practice to explore landscape relations in the context of environmental change in rural Sweden. She had the pleasure of being a Landhaus Fellow at the Rachel Carson Center in spring 2022.

Kata Beilin is a former RCC Fellow and a professor in the Department of Spanish and Portuguese at the University of Wisconsin–Madison. She specializes in the environmental humanities and Indigenous studies in the Hispanic world. Her current project, "The Return of the Maya Moment," funded by a Fulbright Fellowship, explores the Yucatec Maya resistance as nourished by their philosophy of nature. Previously, she conducted research in Argentina, Paraguay, and Ecuador, where she met Waorani People.

Amrita Dasgupta is a PhD scholar at the Department of Gender Studies in the School of Oriental and African Studies (SOAS University of London) and a guest teacher at the London School of Economics and Political Science (LSE). Her research focuses on the evolution and history of port brothels in the Indian Ocean deltas. She has been a fully funded visiting student research collaborator at Princeton University, a visiting scholar at the King's India Institute (King's College London), and a Landhaus Fellow at the Rachel Carson Center. Her decade-long research on the Sundarbans was recognized at the launch of the "Mangrove Project" at the House of Lords, Parliament of the United Kingdom.

Uwe Lübken is lecturer and coordinator of the MA program Environment and Society at the RCC. He has held teaching and research positions at the universities of Cologne, Munich, and at the German Historical Institute in Washington, DC. His publications include a prize-winning book on the US perception of the National Socialist threat to Latin America and several edited volumes, special issues, and articles on (US) transnational and environmental history.

Julia Ludewig is an associate professor of German at Allegheny College (Pennsylvania, US). An interdisciplinary teacher and scholar, she is fascinated by stories and how they shape societies. Her primary analytical texts are comics and graphic novels, but she is branching out to research the cultural production in various media. She believes that the humanities have an important role in addressing today's most pressing issues, with effective communication as a prime avenue of applied scholarship.

Davide Orsini holds a PhD in anthropology and history and a certificate in science, technology, and society (STS) from the University of Michigan. His research has focused on the social, political, and ecological implications of nuclear-power applications after WWII. Davide is PI of the research project "(Dis)Empowered Communities: A Comparative Study of Decommissioning Nuclear Sites," based at the RCC. He previously was a Marie Skłodowska-Curie Fellow at the RCC, a Zurich-Munich Fellow, and assistant professor at Mississippi State University.

Monica Vasile is an environmental historian and anthropologist who explores how people and animals shape each other through wildlife conservation. Her current work traces hands-on practices of recovering species, focusing on the reintroduction of Przewalski's horses in Mongolia, takahē in New Zealand, and marmots in Canada. She was an RCC Fellow in 2016–17 and 2018–19, and is currently based at the University of Oulu.

Springs: *The Rachel Carson Center Review* is an open-access online publication for peer-reviewed articles, creative nonfiction, and artistic contributions that showcase the work of the Rachel Carson Center for Environment and Society (RCC) and its community across the world. In the spirit of Rachel Carson, it publishes sharp writing with an impact. Surveying the interrelationship between environmental and social changes from a wealth of disciplines and perspectives, it is a place to share rigorous research, test out fresh ideas, question old ones, and to advance public and scholarly debates in the environmental humanities and beyond.

Springs is available online. To view, please visit https://springs-rcc.org

ISSN 2751-9317

Rachel Carson Center