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## A CONVERSATION WITH JESSICA HELLMANN: REDUCING THE IMPACT OF CLIMATE CHANGE

Interviewed by Riane Eisler, JD, PhD (hon)

**Abstract:**

*IJPS* Editor-in-Chief Riane Eisler talks with Jessica Hellmann, Director of the University of Minnesota Institute on the Environment, Russell M. and Elizabeth M. Bennett Chair in Excellence in the Department of Ecology, Evolution, and Behavior, and a pioneer in the field of reducing the impact of climate change.

**Keywords:** environment, climate change adaptation, natural resource management, science-society-climate intersections, population, conservation, domination, partnership.

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**Riane Eisler:** Jessica, you have been a pioneer in the field of climate change adaptation. What in your life led you to this work?

**Jessica Hellmann:** I'm not entirely sure! Happenstance and mentorship are certainly ingredients. There are several features of my upbringing that played a role in forming my interests. I'm a Midwesterner and the grandchild of farmers and small-town business people. I spent quite a lot of time outside and learned to appreciate working landscapes and land stewardship. I love wilderness too, but I orient toward landscapes that work for both people and nature. I think that's where I got my interest in natural resource management. Late in college I also realized that the academic life was pretty amazing, and I knew I wanted to continue hanging out on a university campus. So I applied to graduate school. I was raised in a household with a strong emphasis on the physical sciences, but my studies had gravitated to the biological sciences. It struck me that ecological systems were far more complex than most built or physical systems, and that trying to understand how ecological systems respond to systemic change would be a

challenging and worthwhile pursuit. Around this time, some of the very first papers were coming out about whether climate change could alter living ecosystems. It sounds funny now, more than 20 years later, but the first climate change research in ecology was about determining if climate change was even affecting nature. I demonstrated how climate change translates through one living thing to another, something called “indirect effects,” and how these indirect effects (climate affecting one species via its influence on another) can be larger in magnitude and significance than direct effects on physiology or species performance. Thus, the effects of climate are about relationships, and the impacts of climate change involve the complex interactions within a system.

**Eisler:** I love the accessibility and inclusiveness of your personal web site. You write that “Decisions aren’t just for the science community to make. The public needs to understand the science and to be part of that conversation.” As you know, the goal of our journal is “To share scholarship and create connections for cultural transformation to build a world in which all relationships, institutions, policies, and organizations are based on principles of partnership.” Do you see commonalities with this in the work the Institute on the Environment does on behalf of people and the planet?

**Hellmann:** I believe that science and universities have much to offer the “real world.” There already are many good ideas about how to make the world a better place, but we do not have all the answers or ideas we need. Our job as scholars is to push the envelope of ideas. Personally, I am energized by those ideas that are closely tied to usefulness in the real world. But ideas are not enough. We need all of our social institutions—government, communities, companies, advocacy groups—to see good ideas into practice. If we are not working together, progress is slow and time and money are wasted. And we don’t have a lot of time left (with respect to climate change, for example) to mess around.

**Eisler:** The website for the Institute on the Environment points to an innovative approach, stating, “This is not academia as usual,” and you emphasize the need to

recognize science-society-climate intersections. As a leader in climate adaptation science, do you see a change in the paradigm affecting dialogue, research, and policy about addressing our climate challenges?

**Hellmann:** Adaptation *is* an important paradigm shift, and you can see that shift in ecology and natural resource management. Though ecology is a relatively young field, we have a suite of established norms and shared understanding about best practices for conservation, preservation, and restoration. Most of the time those best practices involve holding or restoring ecosystems to a historic baseline, making a system the way it is “supposed” to be. There are some challenges in defining this baseline (such as, deciding *which* historic baseline to use), but there were few challenges to the historic paradigm before climate change. But climate change up-ends the idea of historic baselines, or even “native” species. Because of climate change, we cannot return a species or an ecosystem to the way it used to be. Instead, we have to ask in each case what we are trying to achieve, and then use tools available to use to try to achieve those goals. That means that if we want to keep a species from going extinct, we might need to move it to a place where it did not historically live. Or if we want a functioning ecosystem, we might need to manage it for transition, encouraging it to change from one type of community (say, a forest) to another (say, a grassland). How to think about and manage for change has turned many of our fundamental ideas about conservation on their heads, and I think that’s both interesting and important.

**Eisler:** The old “conquest of nature” mentality has been part of the guiding values of what I call a domination system. Your institute’s mission is “to lead the way toward a future in which people and the environment prosper together.” What do you think is needed to bring this about?

**Hellmann:** A sustainable future needs good ideas and resourceful people to see it built, and our institute is committed to generating both. We know that we cannot create a sustainable, healthy planet without significantly changing the behavior of people on it. Human activities that release greenhouse gas emissions are a case in point. But we also

know that we cannot create a prosperous future for humanity without a healthy planet. We cannot have healthy people without a planet, and we cannot have a healthy planet without people. I do like the word “prosper” because prosperity is a state of well-being and fulfillment. By prosperous people and planet, I mean supporting human lives with meaning and purpose that sustains and renews planetary resources.

**Eisler:** You have emphasized the role of science and science communication as part of a broader conversation about the environment that includes politics, culture, and faith-based communities. How might we have more partnership-oriented dialogue regarding science and the environment that includes those who have been disempowered, such as women, the poor, and other marginalized populations such as African Americans in the United States?

**Hellmann:** The environment affects all people. We are all stewards of the earth, and we all feel the impacts of environmental change, positive and negative. These consequences are not shared equally among people and places, however. The historically marginalized and disenfranchised are often the most vulnerable to climate change, for example, and climate justice is a topic that should engage all climate scientists. Yet, there are considerable strengths in marginalized communities that make them resilient and useful models for other communities. Some communities have strong social bonds, for example, that make them resilient to extreme events caused by climate change. Other communities can learn from them.

**Eisler:** Your Institute’s website notes that “By 2050, the world population is expected to reach about 9 billion. That’s almost 2 billion more people who need food, water and shelter to survive.” Your Institute has many important projects on land use, new energy creation, and other changes in our of Earth’s land, water, and air systems, yet I did not see any projects addressing family planning and raising the status of women to halt exponential population growth. Are you working with organizations that address these issues, which affect not only our planet’s carrying capacity but social values that

devalue the female half of humanity and anything stereotypically associated with women, such as caring for people and keeping a healthy home environment?

**Hellmann:** We do work with organizations that engage in family planning and other empowerment techniques to reduce birth rates in low-income countries. A number of our projects on global land use and the importance of preserving natural capital, for example, are closely tied to the UN Sustainable Development Goals that work to enhance livelihoods and reduce poverty, factors that positively impact birth rates. Because we are based in a developed country, however, other aspects of our work focus on the high per capita consumption of American life styles and how to reduce the burden of this consumption on the environment. It is important to recognize that it's not just how many people live on Earth but *how* each of those people live. The impact of each American consumer is far larger than people in developing countries.

**Eisler:** In my book, *The Real Wealth of Nations: Creating a Caring Economics*, I propose that the old economic paradigm which reflects the devaluation of women and anything stereotypically considered “soft” or “feminine” (whether in women, men, or social policy) should be changed to include the value of the three life-sustaining sectors: the volunteer economy, the household economy, and the natural economy. How do you see the role of economics in your interdisciplinary environmental work?

**Hellmann:** One of the flagship projects at the Institute on the Environment is called the Natural Capital Project, a collaborative endeavor with Stanford University, the Nature Conservancy, and the World Wildlife Fund. The Natural Capital Project studies and reveals the contribution of natural products and services to our economy and our individual lives. Natural capital includes wetlands that purify our drinking water and pollinators that help to produce our food. The traditional economy pretends that these things come for free, or that the environment is a free dumping ground for pollutants. But when nature is degraded, it comes at a measurable cost in dollars and quality of life, and we must protect healthy ecosystems that provide key resources for people.

**Eisler:** The Center for Partnership Studies developed new metrics that, unlike GDP and GNP, highlight the economic value of caring for people and for nature: Social Wealth Economic Indicators (SWEIs). I understand you are working on a new book about the value of nature. Could you share more about this and how this approach might open channels for greater partnership with nature?

**Hellmann:** My book is about two complementary things. First, I explore our stewardship duty to help nature adjust to climate change. I talk about different natural resource management tools that we can use for climate change adaptation, and tradeoffs and unintended consequences that we need to watch for and evaluate.

Second, I talk about how people should deploy nature and natural processes in our own adaptation to climate change: that we should deploy natural solutions in our cities and rural areas to help mitigate the risks of climate change, including things like green roofs to reduce extreme urban heat, and restoring or expanding wetlands to increase agricultural irrigation under drought conditions. I have this grand hope that climate change will have a silver lining—that it will be a reason to bring nature back into human landscapes because we need it. In so doing, we and all living things might be better off.

**Eisler:** What are some things that our readers can do to support your important work?

**Hellmann:** I would love for people to get more engaged in climate change adaptation. The debate about stopping climate change continues to ravage this country, and thus, participating in the global conversation about stopping greenhouse gas emissions is incredibly important. At the same time, we are living with climate change already, and there is more to come. We need to prepare for those changes. We must invest in new infrastructure—and I hope we capitalize on green infrastructure because it works and is cost-effective—and we need to build systems and policies to manage change as it happens. Adaptation is a political decision, involving priorities of spending and beneficiaries. We want those political decisions to reflect a wide range of people and

perspectives; to make that happen, we all need to get engaged. And, I hope people will find my book an inspiration and a guide.

**Eisler:** Is there anything else you would like to add?

**Hellmann:** Just to say thank you for your excellent questions, and for the opportunity to share ideas that are important to me.

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Jessica Hellmann, PhD, is the director of the Institute on the Environment at the University of Minnesota, an internationally recognized organization working to solve grand environmental challenges. She is also the Russell M. and Elizabeth M. Bennett Chair in Excellence in the Department of Ecology, Evolution and Behavior. Hellmann's research focuses on global change ecology and climate adaptation, and she was among the first to propose and study ways to reduce the impact of climate change through new techniques in conservation management. She also regularly counsels state and national governments on habitat management, restoration and endangered species conservation. Her work on adaptation extends to human systems, including work to assess the vulnerability of nations around the world to climate change and their readiness to adapt to climate change. Hellmann earned her Ph.D. in biology from Stanford University and served as a postdoctoral fellow at Stanford and the University of British Columbia before joining the faculty at the University of Notre Dame until 2015. Hellmann has authored dozens of scientific journal articles and works with the media to provide expert input on ways to minimize the adverse impacts of environmental change on people and nature. She is currently working on a book about helping natural systems adapt to a changing climate.

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