

## World view

By Michael Paul Nelson



### Why environmental science needs to rethink its focus

**With government funding in decline, researchers should prioritize data collation and training the next generation of scientists.**

**T**his year, the US Department of Agriculture will close its office of forest-service research in Portland, Oregon – and similar ones nationwide. For a century, this office and its research station have managed wildfire prevention, scientific research and conservation across the Pacific Northwest.

What is at risk is not particular grants, but the idea of long-term, place-based research itself. As a socio-ecologist working in this region, my immediate concern is what the loss means for research: the quiet disappearance of decades of institutional memory, field sites, data and the human relationships that make sustained enquiry possible.

My own research projects – linked to the ecology of western US forests, and wolf and moose populations near Lake Superior in the Upper Midwest – have always depended on continuity more than novelty: on long time series, careful measurement and slow, cumulative reflection and understanding. Such diligent work is particularly vulnerable when funding becomes episodic and politically fragile. You cannot easily pause a 60-year data set or mothball a forest and expect to pick up where you left off.

Now I face the hard truth that not everything can be saved, and I've had to think about what that means. This moment is not just about tightening belts or looking for new sources of funding. It is about recognizing that the conditions under which the US research culture was formed are changing, perhaps for a long time, perhaps permanently. We are living through a period in which the scaffolding underpinning entire bodies of knowledge is no longer secure. US environmental scientists need to recognize this and adjust how we work and what we value most.

Naming our reality matters, because it frees us to think differently about what research can be. When resources contract, the most responsible response is not to strengthen commitment to expansionary habits, but to ask what we are actually trying to protect. Is it every individual project, or is it the capacity of our research communities to keep asking meaningful questions, train thinkers and preserve what we already know? Those are not the same thing.

Many scientists are still in a phase of trying to preserve their entire pre-crisis research footprint by stretching existing projects and finding pockets of money to keep laboratories running. That is a natural first response, but not a sustainable one. If we don't find fresh ways of keeping science moving forwards, those bearing the cost will be the most vulnerable members of our community: graduate students, postdocs and early-career scholars, cast aside

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from languishing projects.

The shift in research culture has pushed me to remember something that researchers in the arts and humanities have long known. Philosophers, historians, literary scholars and artists have spent decades building rigorous, generative bodies of work with minimal external funding. Their tools include close reading, archival work, collaboration, theory and – crucially – imagination. They know how to make research thrive when money is scarce, because it usually is.

Many of us working in more-generous scientific research environments must now learn that lesson. Intellectual life does not end when familiar structures collapse. Instead, it requires imagination to continue.

In my research group, that has meant turning back to what we already have: decades of data sets, interviews, field notes and survey responses that were gathered for one set of questions but contain many others waiting to be asked. We have been re-examining material that has never been fully analysed, looking for patterns that speak to today's ecological and social concerns.

Some colleagues are forming synthesis teams, pooling data across sites or writing conceptual papers that help to make sense of fragmented literatures. None of this requires buying helicopters or sensor networks. It requires time, curiosity and intellectual generosity.

This is where senior researchers have a special responsibility. Beyond offering encouragement or occasional mentoring, we need to actively help junior colleagues to find their footing in this new research reality by sharing data, co-authoring papers, building collaborative projects and using whatever institutional leverage we have to protect their time and visibility. We also need to be honest with graduate students about future directions and job prospects, and to work with them to imagine forms of scholarly life that do not depend on a model of endless growth.

Institutions matter, too. If universities continue to signal, through promotion, tenure and hiring, that only large grants and ever-expanding projects count as real research, faculty members will be trapped in a race that ever fewer can win.

Research leaders must make it explicit that synthesis, data stewardship, conceptual work, interdisciplinary collaboration and public-facing scholarship are core contributions, not consolation prizes. They must also recognize that state agencies, foundations and private funders now have different priorities and limited resources, and pursuing them will require researchers to adapt, not repack old projects.

The age of abundance in US environmental research is ending, at least for a while. What must replace it is an age of stewardship, memory and imagination; one in which we take care of the knowledge we have, the people who produce it and the institutions that sustain it. This moment of constraint can also be a moment of renewal.