

Our world is in crisis. We are facing not one, but a highly interconnected set of problems that threaten the quality and sustainability of our socio-ecological system. In many ways, this is a unique period in human and earth history, a "no-analog" period. But in other ways this has happened before. Many times. Just not at the global scale of today's crisis. The history of human-dominated socio-ecological systems is one of successive crises that were either successfully addressed, leading to sustainability, or not, leading to collapse. What can we learn from these past smaller scale crises that can help us better understand and respond to the global current one? Several authors are beginning to address these questions, including an article in this issue and in more detail in a recent book by myself and others.

The goal of studying history has always been to understand the past in order to understand and deal with the present and the future. So what has changed? Three key changes enable us to learn very new and different things from the study of history: *i*) There is an enormous influx of new paleoenvironmental data being generated from sophisticated analyses of ice cores, tree rings, sediments and other records. This data can now be integrated with the massive and growing body of human historical records to create a more comprehensive picture of how humans have interacted with the rest of nature over multiple time and space scales; *ii*) our ability to visualize all of this information and share it over the internet has increased by orders of magnitude in recent years, allowing a much larger community of scholars to be involved; and *iii*) our ability to use all this information to understand and model complex dynamic, co-evolutionary, systems of humans embedded in nature is rapidly improving.

These changes present enormous opportunities and challenges. There are technical challenges concerning how to represent and utilize data of highly variable type, quality, and spatial and temporal coverage and how to build and test truly integrated models of humans embedded in ecological systems. But perhaps even larger challenges have to do with the cultural and

sociological difficulties of transcending disciplinary boundaries. Creating a transdisciplinary synthesis of earth's history will require a long-term, concerted effort among a broad range of researchers from across the humanities, and the social and natural sciences. These researchers come from very different academic cultures, with different techniques, reward systems, languages, etc. But mounting this effort can be a very effective means to transcend these disciplinary boundaries, by providing shared goals and a common project to focus the activity.

To develop this integrated, transdisciplinary, understanding, a project of the global change research community has been initiated titled: *Integrated History and future of People On Earth* (IHOPE; <http://www.aimes.ucar.edu/activities/ihope.shtml/>). IHOPE is co-sponsored by both the *Past Global Changes* (PAGES; <http://www.pages.unibe.ch/>) project of the *International Geosphere/Biosphere Programme* (IGBP; <http://www.igbp.kva.se/>) and the *International Human Dimensions Programme* (IHDP; <http://www.ihdp.org>) with active participation from all communities in planning and implementation. The *Analysis, Integration and Modeling of the Earth System* (AIMES; <http://www.aimes.ucar.edu/>) project of the IGBP is the central node for the IHOPE initiative. It is anticipated that IHOPE will soon become a project of the entire *Earth System Science Partnership* (ESSP; <http://www.essp.org/>). The new *Stockholm Resilience Center* (SRC; <http://www.stockholmresilience.su.se/>) at Stockholm University will host the IHOPE secretariat.

IHOPE is a concerted, global, transdisciplinary effort. We need this level of effort to understand the diverse relationships between humans and rest of nature. And we desperately need this understanding in order to create a sustainable and desirable future for humanity.

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