

International group of scientists warns nuclear radiation has devastating impacts on ecosystems

February 6 2023, by Jayme DeLoss



Members of the International Biodiversity Network gathered in July 2019 in Panama. They are, in front, from left: Líder Sucre and Cristián Bonacic; and standing, from left: Vance LaVelle, Claudio Benedito Valladares Padua, Mary Pearl, Eduardo Ditt, Suzana Padua, Raman Sukumar, Lorena Calvo, Lourdes Mujica, Damayanti Buchori, Melly Reuling and A. Alonso Aguirre. Credit: A. Alonso Aguirre

Russian President Vladimir Putin has threatened the use of "tactical" nuclear weapons in the war in Ukraine, but nuclear weapons of any kind would cause widespread devastation, according to a new position paper by a group of renowned scientists from around the world. They want to make policymakers and the public aware of the ecosystem impacts and long-lasting consequences of nuclear radiation.

The authors are members of the International Biodiversity Network, an organization of globally recognized experts in biodiversity, [climate change](#), [ecosystem health](#) and ecosystem services, including A. Alonso Aguirre, dean of Colorado State University's Warner College of Natural Resources.

Any release of nuclear [radiation](#)—including accidental leaks—would be detrimental to all life on Earth, the authors representing 10 countries conclude.

"Even a 'tactical nuclear war' could alter all life on planet Earth," said Cristian Bonacic, lead author and a professor of [ecosystems](#) and the environment at the Pontifical Catholic University of Chile. "Food production and chain effects with migratory movements would be on a scale never before seen, ending the current Anthropocene era. As

scientists, we want to call the attention of all decision-makers to the risks associated with radiation."

Radiation doesn't stay where it's released and triggers cascading effects as it spreads through air and water. Contamination can last hundreds or even thousands of years and could alter how the biosphere functions.

High levels of radiation cause death and disease and could lead to extinction of local animals and plants that are already endangered. Some ecosystems might be pushed beyond their limits for mitigation or adaptation, the scientists warn.

"We have to be very careful about what's going to happen to our ecosystems and [ecosystem services](#) that provide basic, essential needs for human life," Aguirre said. "Nuclear war would cross these boundaries beyond what the planet can sustain."

Accidental radioactive leaks have caused extensive environmental impacts. Following the Chernobyl nuclear reactor explosion in 1986, radioactive dust was found throughout most of Europe. Fish with high levels of radiation have been caught off the coast of California since the Fukushima [nuclear disaster](#) spilled radioactive material into the Pacific Ocean in 2011.

The paper states that the shelling of the Zaporizhzhia Nuclear Power Plant in Ukraine represents a particular risk for radioactive leaks.

The authors warn that a [nuclear explosion](#) would cause widespread hunger by disrupting the global food web; toxic air, water and soil; habitat destruction; and death. They urge all scientists to speak out about the hazards of nuclear radiation for the preservation of humanity and ecosystems.

"Scientists warning on the ecological effects of radioactive leaks on ecosystems" is published in *Frontiers in Ecology and Evolution*.

More information: Cristian Bonacic et al, Scientists warning on the ecological effects of radioactive leaks on ecosystems, *Frontiers in Ecology and Evolution* (2023). [DOI: 10.3389/fevo.2022.1099162](https://doi.org/10.3389/fevo.2022.1099162)

Provided by Colorado State University

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