

Thomas F. Homer-Dixon, B.A., Ph. D.

Curriculum Vitae, September 2024

Born: 1956, Victoria, CANADA **Citizenship:** Canadian

Contact information

Cascade Institute
Rose Garden Cottage
Royal Roads University
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General Research Interests

Complex threats to human wellbeing, and responses
Climate change, energy security, and public policy
Causes and resolution of violent conflict
Structure and change of political ideologies
Growth and decline of social systems

Education

1989: PhD, Political Science, Massachusetts Institute of Technology. Dissertation: *They and We: An Empirical and Philosophical Study of a Theory of Social Conflict*. Supervisor: Hayward Alker.

1980: BA (First Class Honours), Political Science, Carleton University, Ottawa.

Employment

Royal Roads University:

Executive Director, Cascade Institute, January 2020-ongoing.

University of Waterloo:

Faculty: University Research Chair, 2019-2021; CIGI Chair of Global Systems, Balsillie School of International Affairs, 2008-2018; Full Professor, Faculty of Arts, 2008-2014; Full Professor, Faculty of Environment, 2014-2021, with cross-appointment, Department of Political Science, Faculty of Arts.

Administration: Founding Director, Waterloo Institute for Complexity and Innovation, 2009-2014; Associate Director, 2014-16.

University of Toronto:

Faculty: Joint appointment: University College and the Department of Political Science, 1993-2008; Assistant Professor, 1993; promoted to Associate Professor, 1998; promoted to full Professor, 2006; appointed George Ignatieff Chair of Peace and Conflict Studies, University College, 2007.

Administration: Director, Peace and Conflict Studies Program, University College, 1990-2001; Director, Centre for Peace and Conflict Studies, University College, 2001-2004; Founding Director, Trudeau Centre for Peace and Conflict Studies, University College, 2004-2007.

Research: 1990-1993, Principal Investigator (salaried), *Project on Environmental Change and Acute Conflict*.

Other:

1983-1989

Research position with Project Athena at MIT in Cambridge, Massachusetts; consultant to the World Resources Institute, Washington, DC.

1975-1983

Employment in the construction, forestry, and petroleum industries in western Canada and as the leader of a national student organization based in Ottawa.

Books, sole author

Commanding Hope: The Power We Have to Renew a World in Peril (Knopf Canada, 2020).

The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization (Knopf Canada, Island Press (US), Jan van Arkel (The Netherlands), 2006; Souvenir Press (UK), Text Publishing (Australia), 2007).

The Ingenuity Gap (Knopf Canada, Knopf (US), and Jonathan Cape (UK), 2000; Boreal (Quebec), 2002; and Espasa (Spain), 2003).

Environment, Scarcity, and Violence (Princeton University Press, 1999).

Books, edited

Carbon Shift: How the Twin Crises of Oil Depletion and Climate Change Will Define the Future, ed. with Nicholas Garrison (Random House of Canada, 2009).

Ecoviolence: Links among Environment, Population, and Security, ed. with Jessica Blitt (Rowman & Littlefield, 1998).

Science in Society: Its Freedom and Regulation, ed. with Anne Perkins, Ottawa: CSP Publications, 1982.

Significant Awards

2010

Outstanding Performance Award, University of Waterloo.

2006

National Business Book Award, Canada, for *The Upside of Down*.

2001

Governor General's Literary Award for Non-Fiction, Canada Council for the Arts, for *The Ingenuity Gap*.

2000

Lynton Keith Caldwell Prize; the Science, Technology and Environmental Politics Section of the American Political Science Association, for *Environment, Scarcity, and Violence*.

1999

Northrop Frye Award for linking teaching and research, University of Toronto.

Research

Current projects:

Identifying high-leverage intervention points in social and technological systems

Understanding causal mechanisms of synchronized global crises (polycrisis)

Mapping ideological structure, change, and polarization

Modeling nonlinear psychology of dehumanization

Developing a general theory of how societies innovate (or do not)

2012-2020

Led the Ideological Conflict Project and the Rapid Ideological Change Project, which coupled complex-systems methods with research in cognitive science, history, and political science to study the structure and change of political ideology.

2015-2020

Conducted research for, and wrote, a trade book on the role and meaning of hope in the 21st century: *Commanding Hope: The Power We Have to Renew a World in Peril*.

1997-2006

Conducted research in ten countries and across a dozen disciplines while writing two trade books: *The Ingenuity Gap* and *The Upside of Down*.

1994-1996

Directed, jointly with the American Association for the Advancement of Science in Washington, D.C., the *Project on Environment, Population, and Security*, which produced policy-oriented studies of causal links between environmental and demographic stress and violent conflict in Rwanda, South Africa, Pakistan, Mexico, and Gaza.

1990-1998

Directed, jointly with the American Academy of Arts and Sciences, in Cambridge, Massachusetts, the *Project on Environmental Change and Acute Conflict*, which analyzed the links between environmental change and violent conflict in the developing world (1990-93); and the *Project for Environmental Scarcity, State Capacity, and Civil Violence*, which studied the effects of renewable resource scarcity on state capacity in China, India, and Indonesia (1994-98).

Grants and funds raised

2021-2024

A total of Can\$16 million to support the operations and research of the Cascade Institute, raised from twenty academic granting agencies, philanthropies, and individuals (<https://cascadeinstitute.org/about/funding/>).

2019-2021

McConnell Foundation, Can\$600,000 for Cascade Institute start-up and years 2 through 4 operations.

2019-2020

Winslow Foundation, US\$100,000 for Cascade Institute start-up operations.

2018-2024

SSHRC Insight Grant, Can\$232,000 for the Ideological Conflict Project: Application and Field Testing of Conflict Resolution Tools.

2013-14

Centre for International Governance Innovation, Can\$120,000 for the Ideological Conflict Project.

2011

Balsillie School of International Affairs, Can\$110,000 for a study of the ideational sources of conflict (co-PI with Professor Timothy Donais of Wilfrid Laurier University).

2008

Centre for International Governance Innovation, Can\$30,000 for a workshop on emergency responses to severe climate change.

2003-2012

Winslow Foundation, US\$105,000 in three separate grants for general research support.

1997-2001

Winslow Foundation, Rockefeller Foundation, and the William and Flora Hewlett Foundation; US\$90,000 for research and travel related to writing *The Ingenuity Gap* and to promotion after publication.

1994

Rockefeller Foundation, New York, and Pew Charitable Trusts, Philadelphia; US\$440,000 for the *Project on Environmental Scarcity, State Capacity, and Civil Violence*.

1994

Pew Charitable Trusts, Global Stewardship Initiative; US\$300,000 for the *Project on Environment, Population, and Security*.

1990

Donner Canadian Foundation, Toronto; Can\$220,000 for the *Project on Environmental Change and Acute Conflict*.

1990-1995

Other small grants for research on environment-conflict linkages and for dissemination of research results from the Pew Charitable Trusts, the Rockefeller Foundation, the International Development Research Centre, the Canadian Institute for International Peace and Security, the Royal Society of Canada, the Rotary Club of Toronto, and the Canadian Department of National Defense, totaling Can\$150,000 .

Refereed Articles

"The Causal Mechanisms of Crisis Entanglement," with Michael Lawrence (lead author), Scott Janzwood, Johan Rockström, Ortwin Renn, and Jonathan Donges, *Global Sustainability* 7, e6 (2024): 1-16. <https://doi.org/10.1017/sus.2024.1>.

"Synchronous Failure: The Emerging Causal Architecture of Global Crisis," with Brian Walker, ReINETTE Biggs, Anne-Sophie Crépin, Carl Folke, Eric F. Lambin, Garry. D. Peterson, Johan Rockström, Marten Scheffer, Will Steffen, and Max Troell, *Ecology and Society* 20, no. 3 (2015): 6.

"The Ideological Conflict Project: Theoretical and Methodological Foundations," with Stephen Mock, *CIGI Papers* 74 (2015).

"The Conceptual Structure of Social Disputes: Cognitive-Affective Maps as a Tool for Conflict Analysis and Resolution," with Manjana Milkoreit, Steven Mock, Tobias Schröder, and Paul Thagard, *SAGE Open* (January-March 2014): 1-20.

"A Complex Systems Approach to the Study of Ideology: Cognitive-affective Structures and the Dynamics of Belief Change," with Jonathan Leader Maynard, Matto Mildenerger, Manjana Milkoreit, Steven Mock, Stephen Quilley, Tobias Schröder (lead author), and Paul Thagard, *Journal of Social and Political Psychology* 1, no. 1 (2013): 337–363.

"Detecting and Coping with Disruptive Shocks in Arctic Marine Systems: A Resilience Approach to Place and People," with Eddy Carmack (lead author) et al., *Ambio* 41 (2012): 56-65.

"Tipping Toward Sustainability: Emerging Pathways of Transformation," with Frances Westley (lead author) et al., *Ambio* 40 (2011): 762-80.

"The Newest Science: Replacing Physics, Ecology Will Be the Master Science of the 21st Century," *Alternatives Journal* 35, no. 4 (2009): 8-38.

“Resource Scarcity and Innovation: Can Poor Countries Attain Endogenous Growth?” with Edward Barbier, *Ambio* 28, no. 2 (1999): 144-7.

“Environmental Scarcity and Violent Conflict: The Case of South Africa,” with Valerie Percival, *Journal of Peace Research* 35, no. 3 (1998): 279-98.

“Environmental Scarcity and Violent Conflict: The Case of Rwanda,” with Valerie Percival, *Journal of Environment and Development* 5, no. 3 (September 1996): 270-91.

“Strategies for the Study of Causation in Complex Ecological-Political Systems,” *Journal of Environment and Development* 5, no. 2 (Spring 1996): 132-48.

“The Ingenuity Gap: Can Poor Countries Adapt to Resource Scarcity?” *Population and Development Review* 21, no. 3 (September 1995): 587-612.

“Environmental and Demographic Threats to Canadian Security,” *Canadian Foreign Policy* 2, no. 2 (Fall 1994): 7-40.

“Environmental Scarcities and Violent Conflict: Evidence from Cases,” *International Security* 19, no. 1 (Summer 1994): 5-40.

“On the Threshold: Environmental Changes as Causes of Acute Conflict,” *International Security* 16, no. 2 (Fall 1991): 76-116.

“Environmental Change, Economic Decline, and Civil Strife in Developing Countries,” *International Studies Notes* (Spring 1991).

“Graphical Argument Analysis: A New Approach to Understanding Argument, Applied to a Debate about the Window of Vulnerability,” with Roger Karapin, *International Studies Quarterly* 33, no. 4 (December 1989): 389-410.

“A Common Misapplication of the Lanchester Square Law: A Research Note,” *International Security* 12, no. 1 (Summer 1987): 135-39.

Refereed Book Chapters

“Complexity: Shock, Innovation, and Resilience,” chapter 6 in *Co-operatives in a Post-Growth Era: Creating Co-operative Economics*, eds. Sonja Novkovic and Tom Webb (Zed Books, 2014).

“Environmental Scarcities and Civil Violence,” with Tom Deligiannis, in *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, eds. Hans Günter Brauch et al., Hexagon Series on Human and Environmental Security and Peace, vol. 4 (Berlin, Heidelberg, New York: Springer-Verlag, 2008).

“The Environment and Violent Conflict: A Response to Gleditsch,” with Daniel Schwartz (first author) and Tom Deligiannis, chapter 13 in *Environmental Conflict*, eds. Paul Diehl and Nils Petter Gleditsch (Boulder, Colorado: Westview Press, 2001).

“Environmental Change, Global Security, and U.S. Policy,” with Jeffrey Boutwell, *American Defense Annual 1994*, ed. Joe Kruzel (Lexington, 1994).

“Physical Dimensions of Global Change,” chapter 2 in *Global Accord: Environmental Challenges and International Responses*, ed. Nazli Choucri (Cambridge, Massachusetts: MIT Press, 1993).

Selected Non-Refereed Publications

“Why So Much Is Going Wrong at the Same Time,” *Vox*, October 18, 2023.

“What Happens when a Cascade of Crises Collide?” with Johan Rockström, *The New York Times*, November 13, 2022.

“A Big Bet on Geothermal could Help Prevent a Climate Catastrophe,” with Ian Graham and Ellen Quigley, *Globe and Mail*, May 27, 2022.

“The American polity is cracked and might collapse. Canada must prepare,” *Globe and Mail*, January 1, 2022.

“However the pandemic unfolds, it’s time for oil use to peak—and society to prepare for the fallout,” with Yonatan Strauch and Angela Carter, *Bulletin of the Atomic Scientists*, September 8, 2020.

“President Trump Will Make Chaos the New Normal” *Globe and Mail*, November 24, 2016.

“Consider the Global Impacts of Oil Pipelines” (with seven co-authors), *Nature*, Comment, June 26, 2014.

“What’s Behind These Fracturing Countries? Stalled Economies,” *Globe and Mail*, April 11, 2014.

“Unconventional Wisdom: Economies Can’t Just Keep on Growing,” *Foreign Policy*, January 2011.

“Disaster at the Top of the World,” *New York Times*, Monday, August 23, 2010.

Der Heilsame Schock: Wie der Klimawandel unsere Gesellschaft zum Guten verändert (Munich: oekom, 2010). Based on the text of a keynote speech titled “Climate Change and the Renewal of Civilization” given at a conference on The Great Transformation: Climate Change as Cultural Change, Essen Germany, June 2009.

“Complexity Science and Public Policy,” *Oxford Leadership Journal* 2, no. 1 (2011).

“Blocking the Sky to Save the Earth,” with David Keith, *New York Times*, September 20, 2008.

“A Straw Man in the Wind: A Response to David Victor” *The National Interest* (January-February, 2008).

“A Swiftly Melting Planet,” *New York Times*, Thursday, October 4, 2007.

"Terror in the Weather Forecast," *New York Times*, Tuesday, April 24, 2007.

"Positive Feedbacks, Dynamic Ice Sheets, and the Recarbonization of the Global Fuel Supply: The New Sense of Urgency about Global Warming," Chapter 2 in *A Globally Integrated Climate Policy for Canada*, eds. Steven Bernstein, Jutta Brunnée, and Andrew Green (Toronto: University of Toronto Press, 2007).

"The End of Ingenuity," *New York Times*, Wednesday, November 29, 2006.

"Unleash Capitalism's Creativity on Climate Change," *Globe and Mail*, Saturday, October 21, 2006.

"Caught Up in Our Own Connections," *New York Times*, August 13, 2005.

"Coal in a Nice Shade of Green," with Julio Friedmann, *New York Times*, March 25, 2005.

"Outs of the Energy Box," with Julio Friedman, *Foreign Affairs* 83, No. 6 (November/December 2004): 72-83.

"Bringing Ingenuity to Energy," in *Fueling the Future: How the Battle over Energy is Changing Everything*, eds. Andrew Heintzman and Evan Solomon (Anansi, 2003).

"Now Comes the Real Danger," *Globe and Mail*, September 12, 2001.

"The Rise of Complex Terrorism," *Foreign Policy* (January/February 2002).

"The Virulence of Violence: Small Arms, Many Wars, Large Threat," *Washington Post*, February 4, 2001.

"A World that Turns Too Fast," *Financial Times*, London, January 2, 2001.

"Environmental Scarcities and Civil Violence," in *US Policy and the Global Environment: Memos to the President*, A Report of the Environment Policy Forum, eds. Donald Kennedy and John Riggs (Washington, DC: Aspen Institute, 2000).

"Environmental Scarcity, Mass Violence, and the Limits of Ingenuity," *Current History*, November 1996.

"Environmental Change and Violent Conflict," with Jeffrey Boutwell and George Rathjens, *Scientific American*, February 1993.

"Taxes, Fuel Consumption, and Carbon Dioxide Emissions," Global Environmental Policy Project, G90-07, Kennedy School of Government, Harvard University, July 1990.

Selected Invited Presentations

“Resilience in the Polycrisis,” Keynote, Disaster Recovery Institute Canada, Symposium Gatineau QC, April 11, 2024.

“Climate and Conflict: Reflections after 30 years,” Keynote, conference on Climate Change & (In)Security: Trends, Lessons, Challenges, University of Oxford, CHACR, UK Army, September 30, 2021.

“Climate Change and Global Food Supply: What You Should Know,” World Government Summit, Dubai, UAE, February 13, 2017.

“Climate Change, Security, and Fragile States,” Global Affairs Canada, Ottawa, Ontario March 30, 2016.

“Synchronous Failure: The Emerging Causal Architecture of Global Crisis,” University of Southern California, School of International Relations, November 12, 2015.

“Shock, Complexity, and Resilience: Prospering in a Nonlinear Age,” Financial Planning Standards Council, Toronto and Vancouver, November 19 and 20, 2014.

“China in the Global Economy: Challenges and Opportunities,” Royal Canadian Mint, Ottawa, Ontario, May 27, 2014.

“Growth, Environmental Damage, and Innovation,” Annual Conference of the Institute for New Economic Thinking, Toronto, Ontario, April 12, 2014.

“Urban Resilience in a Turbulent World: Shock, Creativity, and Prosperity,” Dallas Institute of Humanities and Culture; keynote for conference on What Makes a Resilient City? Dallas, Texas, April 19, 2013.

“The Coming Energy Transition,” Canadian Nuclear Safety Commission, Ottawa, December 13, 2012

“Challenges to Growth: 2013 and Beyond,” HSBC Global Forecast; Toronto, Saskatoon, Edmonton, Calgary, and Vancouver, November 19-23, 2012.

“Climate Change and Violent Conflict,” Seminar XXI, Washington, D.C., March 5, 2012.

“Catastrophic Dehumanization: The Psychological Dynamics of Severe Conflict,” Oxford Martin School, University of Oxford, April 17, 2012.

“Civilization Far from Equilibrium: Energy, Complexity, and Human Survival,” keynote, Equinox Summit: Energy 2030, Perimeter Institute, Waterloo, Ontario, June 7, 2011.

“Critical Infrastructure in Canada: Crisis, Resilience, and Systemic Innovation,” Public Safety Canada, Ottawa, December 1, 2010.

“The Ingenuity Gap: What Makes Our Problems So Hard?” Royal Society for the Arts, London, England, October 15, 2010.

“Complexity, Crisis, and Change: Implications for Federal Public Service,” 2010 Manion Lecture, Canada School of Public Service, Ottawa, May 5, 2010.

“The Ontology of Dangerous Outcomes: Uncertainty, Resources, and Governance in a Complex Future,” International Risk Governance Council, Zurich, Switzerland, December 16, 2009.

“Climate Change and the Renewal of Civilization,” keynote for conference on The Great Transformation: Climate change as cultural change, Essen, Germany, June 8, 2009.

“Convergence and Crisis: Challenges to Foreign Ministries in a Turbulent World,” keynote for conference on the Future of Foreign Ministries, Toronto, June 3, 2009.

“A Theory of Societal Collapse: Convergent Stress, Thermodynamic Disequilibrium, and Brittleness,” Winchester Lecture, University of Oxford, May 6, 2009.

“Climate Change, the Arctic, and Canada: Avoiding Yesterday's Analysis of Tomorrow's Crisis,” 20th Anniversary Conference of the National Round Table on the Environment and the Economy, Ottawa, Ontario, Oct. 30, 2008.

“Conflict in a Nonlinear World: Complex Adaptation at the Intersection of Energy, Climate, and Security,” Ingar Moen Memorial Lecture, Science & Technology Symposium, Defence Research and Development Canada, Ottawa, Ontario, April 25, 2007.

“Ingenuity Theory: Adapting to Complexity,” Carl Gustaf Bernhard Lecture, Royal Swedish Academy of Sciences, Stockholm, Sweden, April 27, 2005.

“Ingenuity Theory: Can Humankind Create a Sustainable Civilization?” Royal Society, London, England, October 2, 2003.

“Synchronous Failure: The Real Danger of the 21st Century,” Robert J. Pelosky, Jr., Distinguished Speaker Series, Elliott School of International Affairs, George Washington University, November 25, 2002.

Courses Taught

University of Waterloo, 2011-2018:

MA, PhD:

Complexity and Global Governance, GGOV 622

Global Environmental Governance, GGOV 620

Graduate Seminar in Security Governance, GGOV 631

PhD:

Core Seminar in Research Methods, GGOV 701

University of Toronto, 1993-2008:

Undergraduate:

Complex Social Systems: War and Peace, POL486H

Security Ontology: Threats, Referents, and Values, JUP460Y

Conflict Management and Strategic Negotiation in International, Intergroup, and
Interpersonal Relations, UNI360Y

Social Adaptation to Complex Change, UNI360Y

Environmental Conflict and Security, POL346H

Introduction to Peace and Conflict Studies, UNI 260Y

PhD:

Core Seminar in International Politics, POL2200Y (PDF)