

Science Panel Members

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Pascal Badiou

Dr. Pascal Badiou is a research scientist with Ducks Unlimited Canada's Institute for Wetland and Waterfowl Research. As the program coordinator for Ducks Unlimited Canada's Agriculture and Wetlands Greenhouse Gas Initiative, Badiou is overseeing a series of national research projects that are examining the role of prairie wetlands and riparian zones in carbon sequestration and greenhouse gas cycling. Prior to joining Ducks Unlimited Canada, Badiou worked as an aquatic scientist specializing in water quality and aquatic ecology for an environmental consulting firm in Winnipeg.

In general, Badiou's research interests focus on the ecology of wetlands and shallow lakes. He is particularly interested in how multiple stressors such as droughts, eutrophication, nonindigenous species and pesticides interact to affect the ability of wetlands to enhance water quality and regulate greenhouse gas emissions. Within wetlands, Badiou is interested in planktonic and benthic algae, especially the formation of cyanobacterial blooms and the environmental conditions that promote their development. Lastly, Badiou is interested in how the use of alternative management practices such as urban wetlands and small dams may improve downstream water quality, as well as acting as a sinks for carbon. Badiou has a B.Sc. in environmental science and a Ph.D. in wetland ecology from the University of Manitoba. He is an adjunct professor in the University of Manitoba's Department of Environment and Geography.

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John Jacobs

Professor Jacobs completed a doctorate in physical geography at the University of Colorado in 1973, with emphasis on climatology and arctic and alpine environments. During his graduate studies he participated in fieldwork in Alaska, Antarctica and the Canadian Arctic. He taught from 1974 – 1989 at the University of Windsor, where he developed his research interests in the eastern Arctic. He joined Memorial University of Newfoundland in 1989 as Professor of Geography, and served as Department Head of Geography and as Deputy Chair of the Graduate Program in Environmental Science, while continuing research in the northern Canada. In 2004, Dr. Jacobs was named Honorary Research Professor of Geography. His current research is focused on climate variability and change in northeastern Canada, and includes field-based studies of boreal and alpine ecosystems in Labrador as part of the International Polar Year Program. Dr. Jacobs has a long-held interest in the sustainability of indigenous northern communities and is involved in community-based climate change monitoring initiatives with Labrador Innu and Inuit.

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Jeremy Kerr

Professor Jeremy Kerr completed his B.Sc. at the University of Ottawa magna cum laude, his thesis (published in 1995) addressing the human causes of extinction risk around the world. He went on to graduate work at York University, where he won the Governor General's Gold Medal. He accepted a Natural Sciences and Engineering Research Council Postdoctoral position with Professor Lord Robert May in Zoology at Oxford, where he also worked with Sir Richard Southwood and was affiliated with Merton College. Having stubbornly refused to apply for positions anywhere except Canada for most of his post-doc, the Canada Centre for Remote Sensing, headed by Josef Cihlar, offered him a research position in September 2000. He moved to the University of Ottawa in mid-2002. His current research is funded by NSERC, CFI, MRI, INAC, Environment Canada, Parks Canada and the Canadian Space Agency and contracts handled through Ottawa's Institute of Environment. Professor Kerr's teaching responsibilities include Introduction to Ecology, Spatial Ecology, and field courses in Ontario and the Caribbean. Learn more about Professor Kerr's ongoing research and projects at <http://www.science.uottawa.ca/~jkerr/>.

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Micheline Manseau

Dr. Micheline Manseau is a Northern Ecologist and occupies a shared position between Parks Canada and the Natural Resource Institute at the University of Manitoba. The main research interests of her lab focus on Conservation Ecology, Animal and Landscape Ecology and Community-Based Resources Management. In the area of Conservation Ecology and Animal Ecology, Manseau's projects focus on the delineation of ecological boundaries and the establishment of new protected areas. In the area of Animal and Landscape Ecology, her interests are also at the landscape scale, using landscape modeling and genetic data to define population structure and to identify critical areas and movement corridors for wildlife species. She works in different regions of western and northern Canada and in all cases; the projects are done in collaboration with government, communities and industries. This collaborative approach allows for the use of different knowledge systems, innovative approaches and strong linkages with management. More information on projects and publications can be found on her website at <http://www.lecol-ck.ca/>.

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Gordon Orians

A long time leader in the environmental sciences, Gordon Orians, who has been inducted into both the National Academy of Sciences and the American Academy of Arts and Sciences, served 10 years as the director of the UW Institute for Environmental Studies. During his 35 years as a UW professor of zoology, Orians conducted extensive research into the complex and often delicate relationships that exist between ecology and animal social organization and behavior. His research has shed much light on habitat selection, mate selection and mating systems, selection of prey

and foraging patches, and plant-herbivore interactions. Orians now serves as Professor Emeritus of Biology at the University of Washington.

Collaborating with psychologists, geographers, planners, and landscape painters, Orians has worked to make the discoveries of the laboratory known and accessible to the public. Orians serves as chair of the National Academy of Sciences committee that produced the report on cumulative effects of oil and gas activities on the North Slope of Alaska.

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Stuart Pimm

Stuart Pimm became a conservation biologist watching species become extinct in Hawai'i in the 1970s. That experience lead to his commitment to study the scientific issues behind the global loss of biological diversity. Pimm has written over 150 scientific papers including three review articles in *Nature* and *Science* and four books including *The Balance of Nature? Ecological issues in the conservation of species and communities* and his new global assessment of biodiversity's future: *The World According to Pimm: a scientist audits the Earth*. His research covers the reasons why species become extinct, how fast they do so, the global patterns of habitat loss and species extinction, the role of introduced species in causing extinction and, importantly, the management consequences of this research. His commitment to the interface between science and policy has lead to his testimony to both House and Senate Committees on the re-authorization of the Endangered Species Act. Current work includes studies of endangered species and ecosystem restoration in the Florida Everglades, and setting priorities for protected areas in the Atlantic Coast forest of Brazil (one of the world's "hotspots" for threatened species. His awards include a Pew Scholarship for Conservation and the Environment (in 1993) and an Aldo Leopold Leadership Fellowship (in 1999). The Institute of Scientific Information recognized him in 2002 as being one of the world's most highly cited scientists. In 2004, Pimm was elected to the American Academy of Arts and Sciences.

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Peter Raven

Peter Raven is a nationally and internationally renowned conservationist who holds the position of Engelmann Professor of Botany at Washington University in St. Louis, Missouri. Dr. Raven also serves as Director of the Missouri Botanical Garden, where he has transformed the Garden into one of the world's leading plant conservation centers. Prior to arriving in St. Louis, Dr. Raven completed his undergraduate work at the University of California, Berkeley, secured a Ph.D. at the University of California, Los Angeles, and taught for nine years at Stanford University.

A prolific writer, Dr. Raven has authored more than 400 articles and 16 books. He holds numerous prestigious positions, including president-elect of the American Association for the Advancement of Science (AAAS); member of the Pontifical Academy of Scientists; Home Secretary of the U.S. National Academy of Sciences; member of the President's Committee of Advisors on Science and Technology; and Chairman of the National Geographic Society's Committee for Research and Exploration. Raven has also been the recipient of Guggenheim and MacArthur Foundation Fellowships. Time magazine, in its 1999 Earth Day issue, declared that Raven is one of its "Heros of the Planet" who is "doing extraordinary things to preserve and protect the environment."

Today Raven focuses much of his attention to what he considers the menace of a "sixth extinction" – a potential mass extinction of living organisms that would be brought about by the mushrooming human population and by human carelessness and commerce. In the new millennium, Dr. Raven is calling for an "age of biology," within which humans

strive to fully understand the diversity of the worlds living organisms and use the properties of those organisms as a means to develop sustainability and conserve biodiversity.

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Terry Root

Dr. Terry Root's work focuses on large-scale ecological questions investigating factors shaping the ranges and abundances of animals, primarily birds. This research led to her book *Atlas of Wintering North American Birds: An Analysis of Christmas Bird Count Data*. This continent-wide examination helped reveal the importance of scale in ecological research, prompting further investigation of the integration of large- and small-scale studies. Her small-scale studies have focused on possible mechanisms, such as physiological constraints, that may be helping to generate the observed large-scale patterns. Her work demonstrated that climate and/or vegetation are important factors shaping the ranges and abundances of birds. In a meta-analysis of about 150 articles, Dr. Root and her co-authors found a strong global signal that both animals and plants are changing along with the increase in the global temperature. Species are shifting their ranges poleward and up in elevation, and they are changing the timing of spring events (e.g., migration, blooming) by 5 days/decade over the last 30 years. These findings will help forecast the possible consequences of global warming on animal communities. Additionally, Dr. Root has investigated gender-based differences in scientific communities by quantifying the opportunities and obstacles women and men face in science.

Dr. Root did her Bachelors degree in Mathematics and Statistics at the University of New Mexico, after which she worked as a scientific programmer at Bell Laboratory and on NASA's Voyager Project. Returning to school, she obtained her Masters degree in Biology at the University of Colorado in 1982 and her Ph.D. in Biology from Princeton University in 1987. She was on the faculty as an Assistant and Associate Professor in the School of Natural Resources and Environment at The University of Michigan from 1987 to 2001. She has served on the National Research Council

Committee on Environmental Indicators. In 1989 she became an Elective Member of the American Ornithologists Union (AOU), the largest professional ornithology society in North American. She was elected to the Governing Council of the AOU in 1993 and she became a Fellow of AOU in 1995. She was a Lead Author of the Intergovernmental Panel on Climate Change, Working Group 2 Third Assessment Report, with responsibility for the impacts of climate change on wildlife. Dr. Root has taught courses in conservation biology, wildlife biology, ecology and ornithology.

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Nigel Roulet

Dr. Nigel Roulet is a Professor of Geography and the Director of the McGill School of Environment (as of November 1, 2003). He was the Director of the Centre for Climate and Global Change Research at McGill University from 1996 until 2002.

Nigel's research interests focus on the interaction of ecosystem hydrology, climatology, and ecology of the temperate, boreal, and arctic ecosystems. He is currently the lead scientist of the Eastern Peatland team (formally the Peatland Carbon Study) of Fluxnet – Canada. He is also the principal investigator of the Canadian Global Coupled Climate Carbon Model (CGC3M) network. Nigel is active in the climate and global change community having been involved in the United Nation Environmental Program assessment of climate change, called the Intergovernmental Panel on Climate Change.

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James Schaefer

James Schaefer is Associate Professor in the Biology Department at Trent University where he teaches Ecology, Mammalogy, and Conservation Biology. Prior to his university appointment in 1998, he was Senior Wildlife Biologist with the provincial Wildlife Division in Labrador. He has also served as Director of the interdisciplinary Environmental & Life Sciences Graduate Program at Trent. He received his B.Sc. in Biology from McGill University in 1981, his M.Sc. (entitled - Fire and woodland caribou: an evaluation of range in southeastern Manitoba) in 1988, and his Ph.D. from the University of Saskatchewan in 1995.

Dr. Schaefer's research interests are focussed on the behaviour, demography, and conservation of large terrestrial mammals and on the issues of spatial and temporal scaling in ecology. Many of his recent studies have centred on woodland caribou, the threatened forest-dwelling populations scattered across the Boreal Forest.

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David W. Schindler O.C., F.R.S., F.R.S.C.

Dr. David W. Schindler holds the Killam Memorial Chair and is Professor of Ecology at the University of Alberta, Edmonton. From 1968 to 1989, as a scientist with Fisheries and Oceans Canada, he founded and directed the Experimental Lakes Project near Kenora, Ontario, conducting experiments on whole ecosystems to directly test the effects of nutrient inputs, acid rain, climate change and other human insults. His work on eutrophication and acid rain has been widely used in formulating ecological management policy in Canada, the USA and in Europe.

Dr. Schindler received his doctorate from Oxford University, where he studied under Charles Elton as a Rhodes Scholar. He has served as President of the American Society of Limnology and Oceanography, and as a Canadian National Representative to the International Limnological Society. He is the author of over 300 scientific publications.

Dr. Schindler has received numerous national and international research awards, including the the first Rigler Medal of the Canadian Society of Limnologists (1984), the 1984 Outstanding Achievement Award of the Institute of American Fisheries Biologists, 1985 G.E. Hutchinson Medal of the American Society of Limnology and Oceanography, the 1988 Naumann-Thienemann Medal of the International Limnological Society, the first (1991) Stockholm Water Prize, the Volvo International Environment Prize (1998), the Queen's Jubilee Medal (2003) the 2003 Killam Prize for Natural Sciences (2003) and the Tyler Prize for Environmental Achievement (2006). In 2001 he was awarded Canada's highest scientific honor, the NSERC Gerhard Herzberg Gold Medal for Science and Engineering. He is a Fellow of the Royal Society of Canada, the Royal Society of London (UK), a foreign member of the Royal Swedish Academy of Engineering Sciences, and a member of the U. S. National Academy of Sciences. He has received ten honorary doctorates from Canadian and US universities. In January 2004 he was appointed an Officer in the Order of Canada. In 2008, a professor in aquatic sciences at Trent University was named for Schindler.

In Alberta, Dr. Schindler was a federal member of the Alberta Pacific Review Panel (1989-90). He chaired Alberta Environment's 2005 review of Lake Wabamun. He was a member of the Alberta Government's Environmental Protection Committee (2006), and currently serves on the Board of Directors of the provincial Safety, Security and Environment Institute. He chairs the International Review Committee for the Alberta Ingenuity Water Research Center. From 2000 until 2003 he was a member of Environment Canada's Science and Technology Advisory Board. He was named one of 100 top Edmontonians of the first century at Edmonton's centennial celebration. It was also recently announced that Schindler will be inducted into the Alberta Order of Excellence in

October of 2008.

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Jim Strittholt

Dr. Jim Strittholt is President and Executive Director of the Conservation Biology Institute and has over 10 years experience in applying computer mapping technologies (including GIS and remote sensing) to address various ecological assessments and conservation planning projects in the U.S. and internationally. He holds undergraduate degrees in Botany, Zoology and Secondary Education from Miami University (Oxford, Ohio) where he also earned a Masters in Zoology in vertebrate population genetics. Jim earned a Ph.D. in 1994 from Ohio State University in a self-designed multi-disciplinary program emphasizing landscape ecology, conservation planning, and computer mapping technologies. While a truly multi-disciplinary degree, he conducted most his research and developed most of his technical skills from the Center for Mapping - a NASA Center of Excellence. While at Ohio State, Jim earned numerous academic achievement awards including being chosen as a University Presidential Fellow during his final year.

He has experience working with large mammals, field research on forests and vertebrates, and has over six years of high school teaching experience. Over the last six years, he has been principle investigator on numerous projects including nature reserve designs, conservation gap analyses, forest and watershed assessments, ecological modeling, and remote sensing applications in conservation. He has also authored numerous reports, peer-reviewed articles, and white papers. Finally, he has taught numerous workshops on conservation planning. Areas of expertise include conservation planning, landscape ecology, geographic information systems, and remote sensing.

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Nancy Turner

An internationally-distinguished scholar and scientist who has devoted her career to documenting First Nations knowledge and cultural heritage, Nancy Turner is a pioneer of ethnobotany. Her focus, as a University of Victoria environmental studies professor, is on the plant classification system used by Aboriginal people and on their various traditional uses of plants. In 2002 she was presented with the Canadian Botanical Association's most prestigious honour, the Lawson Medal.

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Andrew J. Weaver

Dr. Andrew J. Weaver is a Professor and Canada Research Chair in climate modeling and analysis in the School of Earth and Ocean Sciences, University of Victoria (UVic). He has authored or coauthored over 180 peer-reviewed papers in climate, meteorology, oceanography, earth science, policy, education and anthropology journals. He was involved as a Lead Author in the United Nations (UN) Intergovernmental Panel on Climate Change second, third and fourth scientific assessments and was co-chair of the UN WCRP CLIVAR-PAGES Intersection Panel. He is currently the Chief Editor of the Journal of Climate. He has served on numerous other national and international committees over the last decade. In 1997, he was awarded the NSERC E. W. R. Steacie Memorial Fellowship, in 2001 he was elected Fellow of the Royal Society of Canada, and in 2002 he received a Killam Research Fellowship. In 2006 he received a UVic Distinguished Alumni Award and in 2007, Dr. Weaver was elected Fellow of the Canadian Meteorological and Oceanographic Society (CMOS) and received the CMOS President's prize. In 2008, Dr. Weaver received a Guggenheim Fellowship from the John Simon Guggenheim Memorial Foundation and was appointed to the Order of British Columbia.

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