

Obituaries

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ROBERT JEFFERIES, 73 || PROFESSOR, ECOLOGIST AND NOBEL PRIZE WINNER

U of T prof had a field day with Arctic snow geese

In fact, he had many of them. He began studying the birds 31 years ago and returned to the field every summer to gather more data

BY GAY ABBATE

Robert Jefferies, one of the world's leading Arctic scientists and global-change biologists, shared the 2007 Nobel Peace Prize.

But most Canadians would scarcely know of this achievement. This University of Toronto professor was, above all, a modest man who never trumpeted his greatest professional accomplishment. He was a member of the Intergovernmental Panel on Climate Change that received the coveted Peace Prize along with former U.S. vice-president Al Gore.

Colleagues and close friends of Prof. Jefferies cannot recall his mentioning the award, much less bragging about it. "Most people at the U of T are probably unaware that he was part of the group that won the Nobel Peace Prize for their work on climate change," said Spencer Barrett, a friend and colleague in the ecology and evolutionary biology department.

Prof. Jefferies, a plant biologist by training, worked on many environmental problems during his 45-year career. The main focus of his ecological research was the Hudson-James Bay system, particularly La Pèrouse Bay near Churchill, Man. It was there that he began to study the nesting snow geese 31 years ago, returning every summer, more recently as part of the Hudson Bay project, a collaborative research program designed to study the impact of the migrating birds on Northern Canada.

His research has made the area one of the best understood northern ecosystems in the world.

Other scientists, mainly zoologists, have studied snow geese and their migratory patterns: They winter in the southern U.S. and fly north in the summer to breed. But as an ecology biologist, Prof. Jefferies looked beyond that, said U of T botany professor Peter Kotanen. "He asked how are these birds interacting with their food, with their habitat, what is determining their success or failure in these northern environments. He played a pivotal role in that biology."

He understood the symbiotic relationship between the geese and their environment. Traditionally, they have fed on vegetation and their droppings have fertilized the following year's growth. Prof. Jefferies was among the first to recognize that the geese had begun multiplying in unprecedented numbers and that their increased population was turning part of the Arctic into a desert. He also realized that the loss of vegetation allowed seawater to seep in and further degrade the environment which, in turn, caused a decline among other animals living there.

He concluded that human behaviour was responsible for the population explosion.

Farmers in the southern U.S. were cultivating more land and no longer plowing their fields in the fall, thereby providing the wintering geese with an unlimited supply of alfalfa,



Robert Jefferies is seen here in 1985 in his natural habitat - La Pèrouse Bay near Churchill, Man.

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Tom Hutchinson
professor emeritus of botany
at Trent University

soybeans, corn and other grains. When the geese returned north, they were better fed than ever before and therefore in better condition to multiply.

His efforts to document the consequences of climate change and wildlife populations were central to setting North American wildlife management policy. His work also played a role in the establishment of Wapusk National Park on Hudson Bay.

"It is the measure of Bob's greatness as a scientist that he was able to look at the global picture," said Tom Hutchinson, professor emeritus of botany at Trent University. He said that Prof. Jefferies was one of an elite group of scientists who recognized that what was happening with the snow geese in Canada was being duplicated in Europe with other migrating goose populations.

One of Prof. Jefferies' lasting achievements was the creation in 1990 of the first-year biology course, BIO 150, Organisms in their Environment, which is required of most science students. He taught it for the past 19 years because he said he loved the course. It is the largest class in Canada with 1,600-1,800 students.

"Classes of this size are challenging at the best of times, but Bob volunteered year after year to teach the ecology section because of his commitment to educating young

people about global change and ecology," Prof. Barrett said.

Prof. Jefferies was very involved with the ArcticWOLVES (Arctic Wildlife Observatories Linking Vulnerable Ecosystems) project of the International Polar Year. Much older than most of the members, "Bob was an awesome ecologist and his scientific interests were much broader than those of the rest of us," said Dominique Berteaux, a biologist at Université du Québec at Rimouski and project leader with ArcticWOLVES.

Robert Jefferies was born in Trowbridge, Wiltshire, in southwest England. He grew up with a sister in the small town of Clevedon in Somerset, where his father, Herbert, was the district council's chief financial officer. Robert's mother, Violet, taught elementary school. Having grown up in the Wiltshire countryside, she loved nature and had an ex-

tensive knowledge of British wildflowers, which she shared with her young son.

A bright student, he funded his entire education from the age of 11 with scholarships. He was a boarder at Colston's School in Bristol, graduating in 1955. He majored in botany with specialties in chemistry and microbiology at the University of Bristol. After receiving his degree in 1958, he began a doctorate in plant ecology, which he completed in 1962. He then moved to the University of California at Davis for a two-year fellowship in the soil and plant nutrition department.

In his first year there, he met his future wife, Susan Locke, when the California native crashed a party at his apartment.

They married in July 1964, and moved to England where he took a position at the University of East Anglia in Norwich.

In 1973, he took a sabbatical and came to the University of Toronto as a visiting professor. He was asked to stay on, and never left. He loved Canada and became a Canadian citizen. "He felt himself very Canadian," his wife Susan said.

Prof. Hutchinson was chair of the botany department when Prof. Jefferies came to U of T, and it was he who introduced him to the Arctic, inviting him to Tuktoyaktuk, on the shore of the Arctic Ocean at the tip of the Northwest Territories.

When conducting field research in the north, Prof. Jefferies was always ready to leave camp and begin work, said David Hik, Canadian research chair in northern ecology at the University of Alberta. Prof. Hik said they spent many hours sitting in a cold building picking the leaves of clipped grass out of trays so they could measure the effects of goose-grazing on salt-marsh plants. "He taught me how to be meticulous, methodical, ambitious, curious, and to have an absolutely splendid time doing all of those things."

When Prof. Jefferies retired in 2001 he continued to teach and supervise graduate students and to conduct research. Most recently, he was studying whether the exploding goose population was changing the hunting practices of native communities, many of whom rely on the land for food.

He was scheduled to teach his BIO 150 course again in September and to spend part of the summer up north.

Working in Churchill in the summer means coping with freezing temperatures or mud and the constant threat posed by bears.

Conducting research under such conditions is an adventure for graduate students and young faculty, but they tend to change the focus of their research as they get older, said Prof. Barrett. But Prof. Jefferies never did. "Bob was doing that in his 70s and publishing top-notch work in international journals. Some guy."

Prof. Jefferies was very supportive of his wife's work as curator of contemporary ceramics at the Gardiner Museum in Toronto and recently as a freelance consultant.

He loved science and teaching, but did not allow work to dominate his life. His was a balanced life, his wife said. The couple entertained, and he enjoyed travelling, quiet family time, reading newspapers, listening to jazz and drinking good French wine.

"He really did set the example for how to be a first-rate scientist yet not lose your humanity in this very demanding profession," said Rowan Sage, a fellow botanist at the U of T.

ROBERT JEFFERIES

Robert Lenthall Jefferies was born on March 13, 1936, in Trowbridge, England. He died July 8, 2009, at St. Michael's Hospital in Toronto of a cerebral hemorrhage. He was 73. He leaves his wife Susan, daughters Alison and Rachel, five grandchildren, and his sister, Marion Hamlin.

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