

April, 2006

CURRICULUM VITAE

R.L. Jefferies

BIOGRAPHICAL INFORMATION

Name: Robert Lenthall Jefferies
Birthdate: March 13, 1936
Citizenship: Canadian / British Citizenships

University Address:

Department of Botany
University of Toronto
Toronto, Ontario
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100 Walmer Road
Toronto, Ontario
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Degrees:

B.Sc. 1958. Botany (Honours Degree)
subsidiary subjects Chemistry and Microbiology
University of Bristol

Ph.D. 1962. Plant Ecology
University of Bristol

Ph.D. Title: An investigation of the mineral nutrition of selected-callicole and calcifuge species.

Supervisor of Ph.D. Programme: Professor A.J. Willis, Department of Botany,
University of Sheffield, Sheffield, England.

Employment:

2001- Professor Emeritus, University of Toronto
2004- Professor Emeritus, Gerard P. Baerends Chair in Biology
2000-2003 Gerard P. Baerends Chair in Biology (Honorary appointment)
University of Groningen, The Netherlands
1975-2001 Professor
Department of Botany, University of Toronto
1994-1995 Graduate Coordinator for the Department of Botany

- 1991 Distinguished Visiting Professor
Bodega Marine Laboratory, University of California at Davis
- 1989 Visiting Professor
Department of Zoology, University of Groningen, The Netherlands
- 1988-1989 Research Associate
Department of Biology, University College, London
- 1983-1987 Graduate Coordinator for the Department of Botany
- 1985-1987 Associate Chairman of the Department of Botany
- 1979-1985 Cross-Appointed
Department of Zoology, University of Toronto
- 1981 Research Associate
Department of Genetics, University of California
- 1981 Visiting Professor
University of Sydney, N.S.W. Australia
- 1979 Visiting Professor
Botanical Institute, University of Aarhus, Denmark
- 1965-1974 Lecturer in Biology
University of East Anglia, School of Biological Sciences, Norwich, England
- 1973 Visiting Professor
Department of Botany, University of Toronto
- 1969 2 month short-term appointment
Laboratory of Nuclear Medicine
University of California, Los Angeles, U.S.A.
- 1966 3 month short-term appointment
Centre for the Study of Natural Systems
Washington University, St. Louis, Missouri, U.S.A.
- 1964-1965 NATO / SRC Post Doctoral Fellowship
School of Biological Sciences
University of East Anglia, Norwich, England
- 1962-1964 Research Associate
Department of Soils and Plant Nutrition
University of California, Davis, California
- 1960-1962 University Demonstrator in Botany
University of Bristol, England

Professional Affiliations and Activities:

Member of the British Ecological Society
 Council Member of the British Ecological Society, 1970-1973
 Member of the British Grassland Society.
 Member of the Ecological Society of America.
 Associate Editor of Journal of Ecology, January 1988-present.
 Associate Editor of Journal of German Botanical Society (Botanica Acta), Jan 1987-Dec 1995
 Associate Editor of Vegetatio, January 1990-July 1996.
 Associate Editor of Global Change Biology, September 1994-present.
 Associate Editor of Ecoscience, May 1995-present.
 Associate Editor of Biological Conservation, September 1997-present.
 Assessor of the Program of the Graduate School of Functional Ecology at Universities and
 Institutes in the Netherlands, 1999.

ACADEMIC HISTORY

Research Areas:

Responses of higher plants to salinity.
 The use of demographic techniques to examine the life history characteristics of higher plants.
 Herbivore-plant interactions in arctic and coastal rangeland systems.
 Use of electrophoretic techniques to study genetic variation in plant populations.
 Photosynthetic responses of plants – measurements of net photosynthesis using infra-red gas
 analyzers.

Research Grants:

1975	NRC one year grant	\$10,000
1975	Atkinson Foundation grant	\$15,000
1976-1979	NRC three year grant	\$12,000/annum
1977	Opportunity 1977, Ravine study grant (co-recipient Dr. R. Hansell)	\$ 7,000
1979	Opportunity 1979	\$ 3,500
1979-1980	NSERC Grant	\$13,000
1980-1983	NSERC Grant	\$13,000/annum
1979-1980	Environment Canada, Canadian Wildlife Service	\$ 5,000
1979-1980	Department of Indian and Northern Affairs Graduate Training Programme	\$ 3,000
1982	NSERC Northern Supplement	\$ 9,000
1982	Department of Indian and Northern Affairs Graduate Training	\$ 5,700
1983	Department of Indian and Northern Affairs Graduate Training	\$ 3,800
1983-1986	NSERC Grant	\$28,000/annum
1983	NSERC Northern Supplement	\$ 8,000
1983-1986	NSERC Strategic Grant (with Dr. T.C. Hutchinson)	\$49,000/annum

1984	NSERC Northern Supplement	\$ 9,500
	Department of Indian and Northern Affairs Graduate Training Grant	\$ 7,500
1985	NSERC Northern Supplement	\$10,000
	Department of Indian and Northern Affairs Graduate Training Grant	\$11,500
	In addition, graduate students have received training awards (research expenses) from Canadian Wildlife Service, Environment Canada based on applications written by myself (a requirement)	
1985	Peter Kotanen	\$ 1,300
1986-1989	Helen Sadul	\$ 1,300
1986-1989	NSERC Operating Grant	\$40,500/annum
1986-1989	NSERC Northern Supplement	\$ 9,500/annum
1986	Department of Indian and Northern Affairs Graduate Training Grant	\$13,100
1986	Peter Kotanen	\$ 1,300
	Helen Sadul	\$ 1,300
1987	David Hik	\$ 1,300
1989-1992	NSERC Operating Grant	\$45,000/annum
1989-1992	NSERC Infrastructure Grant	\$23,000/annum
1989-1992	DINA Training Grants	\$ 8,643/annum
1989-1992	CWS Training Grants	\$ 2,600/annum
1992-1996	NSERC Operating Grant	\$48,330/annum
	NSERC Infrastructure Grant	\$23,000/annum
1992-1993	CWS Training Grants	\$ 2,700
1992-1993	DIAND Training Grants	\$ 9,800
1993	CWS Grant	\$7,000+\$12,000
1993	NSERC Equipment Grant	\$ 26,300
1994	Arctic Joint Goose Venture	\$ 8,200
1994	DIAND Training Grants	\$ 6,334
1995-1996	NSERC Infrastructure Grant	\$ 21,000
1996-2000	NSERC Research Grant	\$66,100/annum
1996	NSERC/MRC Major Equipment Grant	\$298,000
1996-2001	Flyway Councils	US \$ 30,000/annum
1996-2000	Arctic Goose Joint Venture	\$ 30,000/annum
1996-1997	Arctic Joint Goose Venture/CWS	\$ 12,000
1999	NSERC Equipment Grant (Joint)	\$ 26,000
2000-2006	Arctic Goose Joint Venture	\$ 30,000/annum
2001-2006	NSERC Research Grant	\$66,182/annum
2002	Department of Indian and Northern Affairs Graduate Training Grant	\$ 9,000
2002	NSERC Equipment Grant	\$ 55,000
2003	Department of Indian and Northern Affairs Graduate Training Grant	\$ 10,800
2004	Department of Indian and Northern Affairs Graduate Training Grant	\$ 7,000
2005	DINA Graduate Training Grant	\$ 4,000
2006-2011	NSERC Discovery Grant	\$ 50,000/annum

2006 DINA Graduate Training Grant \$6000

SCHOLARLY AND PROFESSIONAL WORK

- Edwards, K.A., J. McCulloch, G.P. Kershaw, and R.L. Jefferies. 2006. Soil microbial and nutrient dynamics in a wet Arctic sedge meadow in late winter and early spring. *Soil Biology and Biochemistry* (in press).
- Henry, H.A.L. and R.L. Jefferies. 2006. Herbivores as opportunists, migratory connectivity, and catastrophic shifts in Arctic coastal systems. In: *Anthropogenic modification of North American salt marshes* (eds B.R. Silliman, M.D. Bertness and G. R. Huxel). University of California Press, Berkeley, California (in press).
- Drent, R.H. and R.L. Jefferies. 2006. Arctic geese, migratory connectivity and global change: calling the Sorcerer's apprentice to order. *Ardea* 93 (in press).
- Klaassen, M., K.F. Abraham, R.L. Jefferies and M. Vrtiska. 2006. Do Arctic breeders live on their savings and if so, where do they make the investment? *Ardea*, 93(in press).
- Jefferies, R.L., R.H. Drent and J.P. Bakker. 2006. Connecting Arctic and temperate wetlands and agricultural landscapes: the dynamics of goose populations in response to Global Change. In: *Wetlands As a Natural Resource*. (eds J.T.A. Verhoeven, B. Beltman, R. Bobbink and D.F. Whigham). Chapter 19. Springer-Verlag, Berlin (in press).
- Jefferies, R.L., A.P. Jano and K.F. Abraham. 2006. A biotic agent promotes large-scale catastrophic change in coastal marshes of Hudson Bay. *Journal of Ecology*, 94: 234-242.
- Walters, M., J.P. Bakker, M.D. Bertness, R.L. Jefferies and I. Möller. 2005. Salt-marsh erosion and restoration in south-east England: squeezing the evidence requires realignment. *Journal of Applied Ecology*, 42: 844-851.
- Abraham, K.F., R.L. Jefferies and R.F. Rockwell. 2005. Goose-induced changes in vegetation and land cover between 1976 and 1997 in an Arctic coastal marsh. *Arctic, Antarctic and Alpine Research*, 37, 269-275.
- Abraham, K.F., R.L. Jefferies, and R.T. Alisauskas. 2005. The dynamics of landscape change and snow geese in mid-continent North America. *Global Change Biology*, 11: 841-855.
- Ngai, J.T. and R.L. Jefferies. 2004. Nutrient limitation of plant growth and forage quality in Arctic coastal marshes. *Journal of Ecology*, 92: 1001-1010.
- Jefferies, R.L., R.F. Rockwell and K.F. Abraham. 2004. Agricultural food subsidies, migratory connectivity and large-scale disturbance in Arctic coastal systems. *Integrative and Comparative Biology*, 44: 130-139.
- McLaren, J.R. and R.L. Jefferies. 2004. Initiation and maintenance of vegetation mosaics in an Arctic salt marsh. *Journal of Ecology*, 92: 648-660.
- Bertness, M., B.R. Silliman and R.L. Jefferies. 2004. Salt Marshes under Siege. *American Scientist*, 92: 54-61.
- Jefferies, R.L., H. Henry and K.F. Abraham. 2004. Agricultural nutrient subsidies to migratory geese

- and ecological change to Arctic coastal habitats. In Food Webs at the Landscape Level (eds G.A. Polis, M.E. Power and G.R. Huxel), University of Chicago Press, pp. 268-283.
- Riley, R. and R.L. Jefferies. 2004. Subsidy dynamics and global change. In: Food Webs at the Landscape Level (eds. G.A. Polis, M.E. Power and G.R. Huxel), University of Chicago Press, pp. 410-433.
- Jefferies, R.L., R.F. Rockwell and K.F. Abraham. 2003. The embarrassment of riches: agricultural food subsidies, high goose numbers and loss of Arctic wetlands – a continuing saga. Environmental Reviews: National Research Council Canada, 44: 193-232.
- Walker, N.A., H. Henry, D.J. Wilson and R.L. Jefferies. 2003. The dynamics of nitrogen movement in an Arctic salt marsh in response to goose herbivory: a parameterised model with alternate stable states. Journal of Ecology, 91: 637-650.
- Henry, H. and R.L. Jefferies. 2003. Plant amino acid uptake, soluble N turnover and microbial N capture in soils of a grazed Arctic salt marsh. Journal of Ecology, 91: 627-636.
- Henry, H. and R.L. Jefferies. 2003. Interactions in the uptake of amino acids, ammonium and nitrate ions in the arctic salt marsh grass *Puccinellia phryganodes*. Plant, Cell and Environment, 26: 419-428.
- Rockwell, R.F., C.R. Witte, R.L. Jefferies and P.J. Weatherhead. 2003. Response of nesting savannah sparrows to 25 years of habitat change in a snow goose colony. Ecoscience, 10: 33-37.
- Milakovic, B. and R.L. Jefferies. 2003. The effects of goose herbivory and loss of vegetation on ground beetle and spider assemblages in an Arctic supratidal marsh. Ecoscience, 10: 57-65.
- Jefferies, R.L. and R.F. Rockwell. 2002. Foraging geese, vegetation loss and soil degradation in an Arctic salt marsh. Applied Vegetation Science, 5: 7-16.
- Srivastava, D.S. and R.L. Jefferies. 2002. Intertidal plant communities of an Arctic salt marsh: the influence of isostatic uplift and herbivory. Ecoscience, 9: 112-118.
- Henry, H. and R.L. Jefferies. 2002. Free amino acid, ammonium and nitrate concentrations in soil solutions of a grazed coastal marsh in relation to plant growth. Plant, Cell and Environment, 25: 665-675.
- Handa, I.T., R. Harmsen and R.L. Jefferies. 2002. Patterns of vegetation change and the recovery potential of degraded areas in a coastal marsh system of the Hudson Bay lowlands. Journal of Ecology, 90: 86-99.
- Chang, E.R., R.L. Jefferies and T.J. Carleton. 2001. Relationship between the vegetation and soil seed bank in a coastal arctic habitat. Journal of Ecology, 89: 367-384.
- Moran, J.L. and R.L. Jefferies. 2001. Restoration of enriched grasslands: effects of mowing on species richness, productivity and nitrogen retention. Ecological Applications, 11: 1088-1100.
- Milakovic, B., T.J. Carleton and R.L. Jefferies. 2001. Changes in midge (Diptera: Chironomidae) populations of sub-arctic supra tidal vernal ponds in response to goose foraging. Ecoscience, 8:

58-67.

- Anisimov, O., B. Fitzharris, J.O. Hagen, R.L. Jefferies, F. Nelson, T. Prowse and D. Vaughan. 2001. Polar regions (Arctic and Antarctic). In: Climate Change 2001: Impacts, Adaptation, and Vulnerability. (Edited by J.J. McCarthy et al.). Inter-Governmental Panel on Climate Change, Cambridge University Press, Cambridge, pp. 803-841.
- Chang, E.R., T.A. Dickinson and R.L. Jefferies. 2000. Seed flora of La Pérouse Bay, Manitoba, Canada: a DELTA database of morphological and ecological characters. Canadian Journal of Botany, 78: 481-496.
- Handa, T. and R.L. Jefferies. 2000. Assisted revegetation trials in degraded salt marshes of the Hudson Bay lowlands. Journal of Applied Ecology, 37: 944-958.
- Jefferies, R.L. 2000. Allochthonous inputs: integrating population changes and food web dynamics. Trends in Ecology and Evolution, 15: 23-26.
- Wilson, D.J., R. van der Wal, E. Chang, A. Jensen and R.L. Jefferies. 1999. Urea hydrolysis and nitrification in Arctic salt-marsh soils: possible constraints on the growth of forage plants. (Accepted August 17, 1998). Ecoscience, 6: 72-78.
- Forbes, B.C. and R.L. Jefferies. 1999. Revegetation of disturbed arctic sites: constraints and applications. (Accepted July 18, 1998). Biological Conservation, 88: 15-24.
- Maron, J.L. and R.L. Jefferies. 1999. Herbivore-driven death of bush lupine: altered resource availability and loss of native coastal plant assemblages. Ecology, 80: 443-454.
- Jefferies, R.L. 1999. Herbivores, nutrients and trophic cascades in terrestrial environments. In: Herbivores: between Plants and Predators (Edited by H. Olff, V.K. Brown and R.H. Drent). 30th Symposium of the British Ecological Society, Blackwell Scientific Publications, Oxford, pp. 301-330.
- Jano, A.P., R.L. Jefferies and R.F. Rockwell. 1998. The detection of vegetational change by multitemporal analysis of LANDSAT data: the effects of goose foraging. Journal of Ecology, 86: 93-99.
- Hansell, R.I.C., J.R. Malcolm, H. Welch, R.L. Jefferies and P.A. Scott. 1998. Atmospheric change and biodiversity in the Arctic. Environmental Monitoring and Assessment, 49: 303-325.
- Skinner, W.R., R.L. Jefferies, T.J. Carleton, R.F. Rockwell and K.F. Abraham. 1998. Prediction of reproductive success and failure in lesser snow geese based on early season climatic variables. Global Change Biology, 4: 3-16.
- Kotanen, P. and R.L. Jefferies. 1997. Long-term destruction of sub-arctic wetland vegetation by lesser snow geese. Ecoscience, 4: 179-182.
- Jefferies, R.L. 1997. Long-term damage to sub-arctic coastal ecosystems by geese: ecological indicators and measures of ecosystem dysfunction. In Disturbance and Recovery of Arctic

- Terrestrial Ecosystems (Edited by R.M.M. Crawford). NATO, ASI Series, Volume 25, pp. 151-165, Kluwer Academic Publishers, Dordrecht.
- Jefferies, R.L. and J.L. Maron. 1997. The embarrassment of riches? atmospheric deposition of nitrogen and community and ecosystem processes. Trends in Ecology and Evolution, 12: 74-77.
- Abraham, K.F. and R.L. Jefferies. 1997. High goose populations, causes, impacts and implications. In Arctic Ecosystems in Peril: Report of the Arctic Goose Habitat Working Group, A Special Publication of the Arctic Goose Joint Venture of the North American Waterfowl Management Plan (Edited by B.D.J. Batt), U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service, Ottawa, Ont., ISBN: 0-9617279-3-4, pp. 7-72, Paulsen, Memphis, Tennessee.
- Wilson, D.J. and R.L. Jefferies. 1996. Nitrogen mineralization, plant growth and goose herbivory in an arctic coastal ecosystem. Journal of Ecology, 85: 841-851.
- Abraham, K.F., R.L. Jefferies, R.F. Rockwell and C.D. MacInnes. 1996. Why are there so many white geese in North America? (Edited by J. Ratti) Proceedings of 7th International Waterfowl Symposium, pp. 79-92, Memphis, Tennessee.
- Bazely, D.R. and R.L. Jefferies. 1996. Trophic Interactions in Arctic Ecosystems and the Occurrence of a Terrestrial Trophic Cascade. In The Ecology of Arctic Environments (Edited by S.J. Woodin and M. Marquiss). Special Publications of the British Ecological Society. Blackwell Scientific Publications, Oxford, pp. 183-207.
- Srivastava, D.S. and R.L. Jefferies. 1996. A positive feedback: herbivory, plant growth, salinity and the desertification of an arctic salt-marsh. Journal of Ecology, 84: 31-42.
- Strong, D.R., J.L. Maron, S. Harrison, A. Whipple, P.G. Connors and R.L. Jefferies. 1995. High mortality, fluctuation in numbers, and heavy subterranean insect herbivory in bush lupine, Lupinus arboreus. Oecologia, 104: 85-92.
- Jefferies, R.L., F.L. Gadallah, D.S. Srivastava and D.J. Wilson. 1995. Desertification and trophic cascades in arctic coastal ecosystems: a potential climatic change scenario? In Global change and Arctic terrestrial ecosystems (Edited by T.V. Callaghan). European Commission Ecosystems Research Report, 10: 201-206, Luxembourg.
- Jefferies, R.L. 1995. Tundra, Arctic and Sub-Arctic. In Encyclopedia of Environmental Biology (Edited by E.O. Wilson, P.H. Raven, I. Karube, W.A. Nierenberg), Volume 3: 431-446, Academic Press, New York.
- Jefferies, R.L. and J.P. Bryant. 1995. The plant-vertebrate herbivore interface in arctic ecosystems. In Arctic and Alpine Biodiversity: Patterns, Causes and Ecosystem Consequences (Edited by F.S. Chapin III & Ch Körner). Ecological Studies Volume 113: 271-281, Springer-Verlag, Berlin.
- Gadallah, F.L. and R.L. Jefferies. 1995. Comparison of the nutrient contents of the principal forage plants utilized by lesser snow geese on summer breeding grounds. Journal of Applied Ecology, 32: 263-275.
- Gadallah, F.L. and R.L. Jefferies. 1995. Forage quality in brood rearing areas of the lesser snow

- goose and the growth of captive goslings. Journal of Applied Ecology, 32: 276-287.
- Srivastava, D.S. and R.L. Jefferies. 1995. The effect of salinity on the leaf and shoot demography of two arctic forage species. Journal of Ecology, 83: 421-430.
- Srivastava, D.S. and R.L. Jefferies. 1995. Mosaics of vegetation and soil salinity: a consequence of goose foraging in an arctic salt marsh. Canadian Journal of Botany, 73: 75-83.
- Jefferies, R.L., D.R. Klein and G.R. Shaver. 1994. Herbivory and northern plant communities: reciprocal influences and responses. Oikos, 71: 193-206.
- Jefferies, R.L. 1994. Disturbance, herbivory and the resilience of tundra plant communities. Acta Botanica Neerlandica, 43: 220-221.
- Jefferies, R.L. 1994. Disturbance, species' groups and the maintenance of arctic plant assemblages. In: Biodiversity, its complexity and role (Edited by M.M. Watanabe). National Institute for Environmental Studies, Tsukuba, Japan, 159-174.
- Zellmer, I.D., M.J. Clauss, D.S. Hik and R.L. Jefferies. 1993. Growth responses of arctic graminoids following grazing by lesser snow geese. Oecologia, 93: 487-492.
- Williams, T.D., E.G. Cooch, R.L. Jefferies and F. Cooke. 1993. Environmental degradation, food limitation and reproductive output: juvenile survival in lesser snow geese. Journal of Animal Ecology, 62: 766-777.
- Cooch, E.G., R.L. Jefferies, R.F. Rockwell and F. Cooke. 1993. Environment change and the cost of philopatry: an example in the lesser snow goose. Oecologia, 92: 1-11.
- Hik, D.S., R.L. Jefferies and A.R.E. Sinclair. 1992. Grazing by geese, isostatic uplift and the occurrence of multiple stable states of salt-marsh vegetation. Journal of Ecology, 80: 395-406.
- Chou, R., C. Vardy and R.L. Jefferies. 1992. Establishment of leaves and other plant fragments produced by the foraging activities of geese. Functional Ecology, 6: 297-301.
- Jefferies, R.L., J. Svoboda, G. Henry, M. Raillard and R.W. Ruess. 1992. Tundra grazing systems and climatic change. In: Arctic Ecosystems in a Changing Climate: an ecophysiological perspective. Edited by F. Stuart Chapin, III, Robert L. Jefferies, F. James F. Reynolds, Gaius R. Shaver and Josef Svoboda, Academic Press, New York, pp.391-412.
- Chapin, F.S., R.L. Jefferies, J. Reynolds, G.R. Shaver and J. Svoboda. 1992. Arctic physiological ecology in an ecosystem context. In: Arctic Ecosystems in a Changing Climate: an ecophysiological perspective. Edited by F. Stuart Chapin, III, Robert L. Jefferies, James F. Reynolds, Gaius R. Shaver and Josef Svoboda, Academic Press, New York, pp. 3-8.
- Chapin, F.S., R.L. Jefferies, J. Reynolds, G.R. Shaver and J. Svoboda. 1992. Arctic Physiological ecology: a challenge for the future. In: Arctic Ecosystems in a Changing Climate: an ecophysiological perspective. Edited by F. Stuart Chapin, III, Robert L. Jefferies, James F. Reynolds, Gaius R. Shaver and Josef Svoboda, Academic Press, New York, pp. 441-451.
- Hik, D.S., H.A. Sadul and R.L. Jefferies. 1991. Effects of the timing of multiple grazing by geese

- on net above-ground primary production of swards of Puccinellia phryganodes. Journal of Ecology, 79: 715-730.
- Iacobelli, A. and R.L. Jefferies. 1991. Inverse salinity gradients in coastal marshes and the death of stands of Salix: the effects of grubbing by geese. Journal of Ecology, 79: 61-74.
- Jefferies, R.L. and T. Rudmik. 1991. Growth, reproduction and resource allocation in halophytes. Aquatic Botany, 39: 3-16.
- Kerbes, R.H., P.M. Kotanen and R.L. Jefferies. 1990. Destruction of wetland habitats by Lesser Snow Geese: a keystone species on the west coast of Hudson Bay. Journal of Applied Ecology, 27: 242-258.
- Hik, D.S. and R.L. Jefferies. 1990. Increases in the net above-ground primary production of a salt-marsh forage grass: a test of the predictions of the herbivore-optimization model. Journal of Ecology, 78: 180-195.
- Flanagan, L. and R.L. Jefferies. 1989. Effect of increased salinity on CO₂ assimilation, O₂ evolution and the $\delta^{13}\text{C}$ values of leaves of Plantago maritima L. developed at low and high NaCl levels. Planta, 178: 377-384.
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- Flanagan, L.B. and R.L. Jefferies. 1989. Photosynthetic and stomatal responses of the halophyte Plantago maritima L. to fluctuations in salinity. Plant, Cell & Environment, 12: 559-568.
- Ruess, R.W., D.S. Hik and R.L. Jefferies. 1989. The role of Lesser Snow Geese as nitrogen processors in a sub-arctic salt-marsh. Oecologia, 79: 23-29.
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- growth. In: Plant Evolutionary Biology (Edited by L.D. Gottlieb & S.K. Jain). Chapman & Hall, London, pp. 341-369.
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- Wolff, S.L. and R.L. Jefferies. 1987. Morphological and isozyme variation in Salicornia europaea L. (s.l.) in northeastern North America. Canadian Journal of Botany, 65: 1410-1419.
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- Jefferies, R.L. and T.G. Sommerfeldt. 1986. Dryland salinity in the Prairie Provinces of Canada. Reclam. Reveg. Res., 5: 510-514.
- Bazely, D.R. and R.L. Jefferies. 1985. Goose faeces: a source of nitrogen for plant growth. Journal of Applied Ecology, 22: 693-703.
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- perspective. In: Plant Improvement For Irrigated Crop Production Under Increasing Saline Conditions (Edited by R. Staples and U. Luttge). Wiley, New York. Rockefeller Foundation Conference, Bellagio, Italy. October 1982, pp. 213-227.
- Jefferies, R.L. 1984. The phenotype: its development, physiological constraints and environmental signals - implications for the demographer. In: Perspectives in Plant Population Ecology: A Centennial Commemoration of Charles Darwin (1809-1882) (Edited by J. Sarukhan, D.A. Levin, H. Mooney, F. Bazzaz and S. Jain). Held at Oaxtepec, Morelos, Mexico, August 1982, pp. 347-358.
- Jefferies, R.L. and L.D. Gottlieb. 1983. Genetic variation within and between populations of the asexual plant Puccinellia X phryganodes. Canadian Journal of Botany, 61: 774-779.
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- Jefferies, R.L., A.J. Davy and T. Rudmik. 1981. Population biology of the salt-marsh annual Salicornia europaea agg. Journal of Ecology, 69: 17-31.
- Davy, A.J. and R.L. Jefferies. 1981. Approaches to the monitoring of plant populations. In: The Conservation of Rare Species (Edited by H. Syngé). Wiley, London, pp. 219-232.
- Jefferies, R.L. 1981. Osmotic adjustment and the response of halophytic plants to salinity. Bioscience, 31: 42-46.
- Jefferies, R.L. 1980. The role of organic solutes in osmoregulation in halophytic higher plants. In: Genetic Engineering of Osmoregulation (Edited by D.W. Rains, R.C. Valentine, and Alexander Hollander). Plenum, New York, pp. 135-154.
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- Jefferies, R.L., A.J. Davy and T. Rudmik. 1979. The growth strategies of coastal halophytes. In: Ecological Processes in Coastal Environments (Edited by R.L. Jefferies and A.J. Davy). Blackwell Scientific Publications, Oxford, pp. 243-268.
- Jefferies, R.L., A. Jensen and K. Abraham. 1979. A description of the vegetation and the effects of geese on the vegetation at La Pérouse Bay, Manitoba. Canadian Journal of Botany, 57: 1439-1450.
- Bishop, G.F., A.J. Davy and R.L. Jefferies. 1978. Demography of Hieracium pilosella in a Breck grassland. Journal of Ecology, 66: 615-629.
- Jefferies, R.L. 1977. Growth responses of coastal halophytes to inorganic nitrogen. Journal of Ecology, 65: 847-865.
- Jefferies, R.L. and N. Perkins. 1977. The effects on the vegetation of the additions of inorganic

- nutrients to salt-marsh soils at Stiffkey, Norfolk. Journal of Ecology, 65: 867-882.
- Jefferies, R.L. 1977. The vegetation of salt-marshes at some coastal sites in Arctic North America. Journal of Ecology, 65: 661-671.
- Jefferies, R.L. 1976. The North Norfolk Coast. In: Nature in Norfolk, a Heritage in Trust. (Edited by R. Washbourne, A.J. Davy and R.L. Jefferies). Jarrold, Norwich, pp. 130-138.
- Jefferies, R.L., A.J. Davy, P.G. Mallott and M.J. Mutton. 1975. Carbon dioxide exchange in leaves of Spartina anglica Hubbard. Oecologia (Berl.), 20: 351-358.
- Jefferies, R.L. 1973. The ionic relations of seedlings of the halophyte Triglochin maritima L. In: Ion Transport in Plants (Edited by W.P. Anderson). Academic Press, London and New York, pp. 297-321.
- Jefferies, R.L. 1972. Aspects of salt-marsh ecology with particular reference to inorganic plant nutrition. In: The Estuarine Environment (Edited by R.S.K. Barnes and J. Green). Elsevier, Amsterdam, pp. 61-85.
- Mac Bryde, B., R.L. Jefferies, R. Alderfer and D.M. Gates. 1971. Water energy relations of plant leaves during period of heat stress. Oecologia Plantarum, 6: 151-162.
- Young, M., R.L. Jefferies and A.P. Simms. 1970. The regulation of potassium uptake in Lemna minor L. In: Transport and distribution of matter in cells of higher plants (Edited by K. Mothes, E. Muller, A. Nelles and D. Neumann). Deutschen Akademie der Wissenschaften zu Berlin, Berlin, pp. 67-83.
- Jefferies, R.L., D. Laycock, G.R. Stewart and A.P. Sims. 1969. The properties of mechanisms involved in the uptake and utilization of calcium and potassium by plants in relation to an understanding of plant distribution. In: The Ecological Aspects of the Mineral Nutrition of Plants (Edited by Senior Editor I.H. Rorison). British Ecological Society Symposium, Blackwell, Oxford, pp. 281-307.
- Jefferies, R.L., A.J. Willis and E.W. Yemm. 1968. The Late- and Post-glacial history of the Gordano Valley, North Somerset. New Phytologist, 67: 335-348.
- Hope Simpson, J.F. and R.L. Jefferies. 1966. Observations relating to vigour and debility in marram grass (Ammophila arenaria (L.) Link). Journal of Ecology, 54: 271-274.
- Jefferies, R.L. and A.J. Willis. 1964. Studies on the calcicole-calcifuge habit II. The influence of calcium on the growth and establishment of four species in soil and sand culture. Journal of Ecology, 52: 691-708.
- Jefferies, R.L. and A.J. Willis. 1964. Studies on the calcicole-calcifuge habit. I. Methods of analysis of soil and plant tissues and some results of investigations on four species. Journal of Ecology, 52: 121-138.
- Epstein, E. and R.L. Jefferies. 1964. The Genetic Basis of Selective Ion Transport in Plants. Annual Reviews of Plant Physiology, 15: 169-184.

Willis, A.J. and R.L. Jefferies. 1963. Investigations on the water relations of sand dune plants under natural conditions. In: The Water Relations of Plants (Edited by A.J. Rutter). British Ecological Society Symposium, Blackwell, Oxford, pp. 168-189.

Willis, A.J. and R.L. Jefferies. 1958. The plant ecology of the Gordano valley. Proceedings of the Bristol Naturalists' Society, 29: 469-490.

Jefferies, R.L. 1958. Note on the nature of the deposits at Lawrence Weston. Proceedings of the University of Bristol Speleological Society, 8: 121-123.

Major non-referred publication:

Rockwell, R.F., Abraham, K.F. and Jefferies, R.L. 1997. The Best Laid Plans. What happens when conservation efforts work too well? Living Bird, 16, 16-23.

Jefferies, R.L. and K.F. Abraham. 1994. Goose foraging and its effect on plant communities: observations and recording procedures. Ontario Ministry of Natural Resources, pp. 20.

Jefferies, R.L. and R.H. Kerbes. 1985. The effects of foraging by geese on the vegetation in the coastal vicinity of Eskimo Point, N.W.T. Report to Canadian Wildlife Service, 8 pages.

Cargill, S. and R.L. Jefferies. 1980 and 1981. Net primary production of a grazed salt-marsh, and fluxes of nitrogen between the vegetation and the lesser snow goose. (*Anser caerulescens caerulescens*) at La Pérouse Bay, Manitoba. Report to Canadian Wildlife Service, 71 pages and 63 pages respectively.

Books edited:

Chapin, F.S. III, R.L. Jefferies, J.F. Reynolds, G.R. Shaver and J. Svoboda. 1992. Arctic Ecosystems in a Changing Climate: an ecophysiological perspective, pp. 469. Academic Press, New York.

Jefferies, R.L. and A.J. Davy. 1979. Ecological Processes in Coastal Environments. 1st European Ecological Symposium and 19th Symposium of the British Ecological Society, pp. 705. Blackwell Scientific Publications, Oxford.

Washbourne, R.W., A.J. Davy and R.L. Jefferies. 1976. Nature in Norfolk. A Heritage in Trust, pp. 192. Jarrold, Norwich.

Rorison, I.H., A.D. Bradshaw, M.J. Chadwick, R.L. Jefferies, D.H. Jennings and P.B. Tinker. 1969. Ecological Aspects of the Mineral Nutrition of Plants. 9th Symposium of the British Ecological Society, pp. 484. Blackwell Scientific Publications, Oxford.

LIST OF COURSES

Undergraduate Courses:

BIO 150	Organisms, Ecology and Evolution, 1990-
BIO 301	St. Andrew's Field course, 1976-1977
BOT 331	Physiological plant ecology, 1975-1977

BOT 230	Introductory Plant Ecology, 1975-1980
BIO 110	Advanced Lecture Series, 1977-1980
BOT 331	Quantitative and Experimental Ecology, 1977-1978
BIO 302	Contributor to an Arctic Plant Ecology/Arctic Ecosystems Course at the Northern Studies Centre Churchill, 1978-1980, 1982, 1983, 1985, 1991, 1995, 1999, 2000
BIO 110	Advanced Laboratory Series - Plant Ecology, 1983
BIO 233	Introductory Ecology, 1980
BIO 320	Ecology, 1998-
BOT 330	Quantitative and Experimental Ecology, 1983-1985
BOT 330	Advanced plant ecology, 1985-1995
ENV 234	Environmental Biology, 1991-
JBF 434	Applied Ecology, 1993-1994
BIO 428	Global Change Biology, 2000-2001, 2006-

Theses supervised (University of Toronto):

M.Sc. Thesis:

E.M. Dillon. 1978.

Growth and metabolic responses of salt-marsh halophytes in response to salinity.

S. Cargill. 1981.

Effects of geese grazing on an Arctic salt-marsh.

T. Rudmik. 1983.

Responses of Triglochin maritima to salinity.

D.R. Bazely. 1984.

Responses of salt-marsh vegetation to grazing by Lesser Snow Geese (Anser caerulescens caerulescens).

S. Wolff. 1985.

Morphological and genetical variation in Salicornia europaea agg. in northeastern North America.

H. Sadul. 1987.

The effects of Lesser Snow Goose grazing on sub-arctic coastal plant populations.

P.M. Kotanen. 1987.

A comparison of the growth responses of three sedges to foraging by Lesser Snow Geese.

D.S. Hik. 1988.

Experimental studies of the effect of grazing by captive goslings of the Lesser Snow Goose on the vegetation of a subarctic salt-marsh.

F.L. Gadallah. 1993

Forage quality and gosling nutrition in the Lesser Snow Goose.

D.J. Wilson. 1993

Nitrogen mineralization in a grazed sub-arctic salt marsh.

D.S. Srivastava. 1993

The role of lesser snow geese in positive, degenerative feedback processes resulting in the destruction of salt-marsh swards.

A. Naber. 1996

The effects of pruning and defoliation on the carbon/nitrogen relations of arctic woody shrubs.

T. Handa. 1998

Revegetation trials in degraded coastal marshes of the Hudson Bay Lowlands.

B. Milakovic 1998

Invertebrate populations of intact and degraded areas of a supra-tidal marsh at La Pérouse Bay, Manitoba.

E. Chang 1999

Seed and vegetation dynamics in undamaged and degraded coastal habitats of the Hudson Bay.

W. Draper 2001

Woodland fragmentation and plant assemblages

J. McLaren 2002

Patch dynamics and plant clonal growth.

P. O 2002

Effects of goose foraging on vegetation

J. Ngai 2003

Nutrient limitation of plant growth and forage quality in Arctic coastal marshes.

K.M. Buckeridge 2004

The allocation of inorganic nitrogen ($^{15}\text{NH}_4^+$) to soil, microbial and plant biomass in an Arctic salt marsh.

S.K. Hargreaves 2005

Nutrient limitation and plant and soil microbial growth in an Arctic coastal salt marsh.

Ph.D. Thesis:

K. Edwards 2004-present

Nutrient dynamics in freshwater mire soils.

H. Henry 2002

Soil amino acids and plant growth

L.B. Flanagan. 1989.

Limitations to photosynthesis and growth in Plantago maritima in response to changes in

salinity.

Other Teaching and Lectures:

Co-organiser of the first European Ecological Symposium sponsored by European Ecological Societies.

Invitation to a workshop at the University of Georgia on salt-marsh ecology sponsored by the National Academy of Sciences, November 1978.

Guest lecturer at the Advanced Ecology Course, Marine Biological Association, Wood's Hole, Mass., January 1979, June 1979-1986.

Invited speaker at Brookhaven Symposium on Genetic Engineering of Osmoregulation, Nov 1979.

Invited speaker at International Botanical Congress, Sydney, August 1981.

Invited speaker at International Symposium on Plant Population Biology, Mexico, August 1982.

Invited speaker at the International Rockefeller Workshop on the effects of salinity on plants, Bellagio, Italy, October 1982.

Invited speaker at an International Symposium on production in saline lands, Perth, W.A., 1984.

Invited speaker at an International Symposium in honour of Professor G.L. Stebbins. University of California - Davis, Davis, California, 1986.

Invited speaker at an International Symposium in honour of Professor J.J. Barkman. University of Utrecht, The Netherlands, 1987.

Co-Chairman and organizer of a symposium on salinity and plants. International Botanical Congress, Berlin, 1987.

Invited speaker at an International Symposium celebrating the 25th anniversary of the Botanical Institute, University of Aarhus, Denmark, 1988.

Invited speaker at an International Symposium on Climatic Change and Arctic Plant Growth at Oakville, Toronto, July 1987, organized by N.S.F.

Distinguished Seminar Speaker of the Session Ecosystem Centre, Marine Biological Laboratory, Woods Hole, Mass, USA, March 1992.

Invited speaker at the N.S.F. Workshop on herbivory in arctic systems. Fairbanks and Toolik Lake, Alaska, June 1992.

Opening keynote speaker at N.S.F. Workshop on herbivory in arctic systems. Ecosystem Centre, Woods Hole, Mass, November 1992.

Invited speaker at the International Botanical Congress, Tokyo, August 1993.

Invited speaker at Scope International Conference on Arctic and Alpine Biodiversity, Konigsval, Norway, August 1993.

Invited speaker & Chairman of Working Group at International Conference on Arctic Global Change, Oppdahl, Norway, August 1993.

Invited speaker at International Conference on Biodiversity, National Institute for Environmental Studies, Tsukuba, Japan, November 1993.

Invited speaker at International Meeting Celebrating the 40th Anniversary of the Dutch Ecological Society, Groningen, the Netherlands, November 1993.

Invited participant at NSF Workshops on herbivory, Bodega Bay, California, University of California, March, October 1993, March 1994, October 1994, October 1995.

Invited speaker, International Symposium on Plant Mineral Nutrition, University of California at Davis, July 1994.

Invited plenary speaker, 8th North American Arctic Goose Conference, Albuquerque, New Mexico, January 1995.

- Invited participant at NSF Workshop on the future of Toolik Lake Field Station, Alaska, Feb 1995.
- Invited speaker, NATO Advanced Workshop, Rovaniemi, Finland, September 1995.
- Invited speaker at the 30th Symposium of the British Ecological Society, and the Ecological Society of the Netherlands, Univ of Wageningen, Wageningen, The Netherlands. April 1997.
- Invited speaker at a Plenary Session on the Overabundance of Geese, The Wildlife Society of America, Snowmass, Colorado, U.S.A. September 1997.
- Invited speaker at Biological Centrum, University of Groningen, The Netherlands. Nov. 1999.
- Invited speaker at the Department of Botany, University of Washington, Seattle. February 2000.
- Invited speaker at the Academy of Sciences, Amsterdam, The Netherlands. May 2000.
- Invited speaker at the Department of Natural Resources, University of Nebraska, Lincoln, Nebraska, March 2001.
- Invited speaker at International Symposium on Plant-Animal Interactions, Biological Centre, University of Groningen, Haren, The Netherlands, April 2001.
- Invited speaker, International Symposium on Trophic Interactions, Texel, Netherlands, April 2002.
- Invited speaker, International Symposium on Rising Coastlines. Swedish Agricultural University, Umeå, Sweden. May 2002.
- Invited speaker, Science Day, Meeting of the Arctic Council at the University of Groningen, Netherlands. May 2002.
- Invited speaker, International Symposium of the Royal Norwegian Society of Science and Letters on the Arctic, Kongsvoll, Norway. August 2002.
- Invited speaker, Symposium on Arctic Science at the annual meeting of the Society of Integrative and Comparative Biology, Toronto, Canada. January 2003.
- Distinguished lecturer, Program in Ecology and Evolution Colorado State University, Fort Collins Colorado, March 2004.
- Co-organizer of a symposium on the effects of modern agriculture on Arctic goose populations. Intercol Wetlands International Symposium, Utrecht. July 2004.

ADMINISTRATIVE POSITIONS

Department of Botany Committees:

- Teaching Committee, 1975-1977.
- Graduate Committee, 1977-1979, 1998-2000.
- Appointments and Promotions Committee, 1975-1980, 1982-present.
- BIO 110 Policy Committee, 1977-1980, 1982-1983.
- S.W. Users Committee, 1978-1980.
- Graduate Co-ordinator, 1982-1987, 1994-1995.
- Member of the Executive Committee, 1982-1993.
- Member of the Natural Resources Centre Committee, 1983.
- Chairman of the Graduate Committee, 1983-1987, 1994-1995.
- Member of the Undergraduate Programme Review Committee, 1985.
- BIO 150 Policy Committee, 1990-present.
- Chair of Search Committees for Ecology Positions, 1991-1993.
- Member of the Joint Botany/Zoology Graduate Merger Committee, 1997.
- Member of the Graduate Committee, 1999.
- Member of the Search Committee for the position in Ecology at Scarborough, 2000/2001.
- Member of the Search Committee for the position in Ecology at St. George, 2005.

University Committees:

General Committee for the Faculty of Arts and Science, 1976-1977, 1982. Team Leader for Biology 110 course, 1979-1980.

Academic Committee for Division IV of the School of Graduate Studies, 1982-1983, 1983-1986.

Academic Committee for the Life Sciences in the Faculty of Arts and Sciences, 1982-1987.

Executive Committee for Division IV of the School of Graduate Studies, 1983-1985.

Chair of the Arctic Working Group, 1991-1995.

University representative on the Board of the Association of Canadian Universities for Northern Studies, 1991-1995.

Member of SGS Review Committee of the Institute for Environmental Studies, 1993-1994.

Search Committees in Botany and Geography (3), 1998-1999.

Search Committees in Botany and Geography (2), 1999-2000.

General

Member of the Board of the Churchill Northern Studies Centre, 1991-1993

Member of NSERC Ecology and Evolution Grant Panel (No. 18), 1998-2000

Member of National Science Foundation L.T.E.R. Grant Panel, 1998.

Assessor of the Program of the Graduate School of Ecology at University and Institutes in the Netherlands, 1999.

Member of the Grants Panel: Association of Canadian Universities for Northern Studies 2001-2003.

Reviewer for the Millenium Assessment.

Reviewer for the Arctic Climate Assessment Impact

Consultant to the EU project "FRAGILE" – a study of Arctic Ecosystems, 2003-2006.

Reviewer for the zero-order and the first-order draft of the IPCC for 2007.