Forestry graduate programs and research funding in Canadian universities

by John A. McLean¹

The qualifications for professional foresters in Canada are based on baccalaureate programs that meet national accreditation standards set out by the Canadian Forestry Accreditation Board (CFAB). Students who complete these programs, plus a period of usually two years in the field mentored by a professional forester and pass a provincial policy examination, may then become a registered professional forester in the province of their choice. There are seven schools in Canada that currently meet CFAB accreditation standards and these schools have recently been detailed by Luckai (2002). Together with the University of Toronto's Faculty of Forestry, these schools are members of the Association of University Forestry Schools of Canada (AUFSC). The faculty members who instruct in these programs are generally required to engage in research and the training of graduate students—the highly qualified personnel that will continue the quest for the improved knowledge needed to manage our extensive national forest heritage to the highest standards of sustainable forest management. Earlier versions of curricula concentrated on measuring the volume of trees on the landscape and designing the most cost-effective ways to move these logs to sawmills and pulp mills across the land. In the new millennium there is a requirement to manage the forest-

ed landscape for the full range of values and products that they contain or protect as described for the programs at the University of Northern British Columbia by Dewhurst and Kessler (1999).

Forestry schools in Canada have developed a series of programs to meet graduate student needs in their areas. In order to attract students some faculties have extended or changed their names but all emphasize the multidisciplinary nature of forestry in the 21st century. In the AUFSC schools, the University of Toronto no longer teaches an undergraduate program for professional foresters. The Faculty of Forestry at the University of Moncton in Edmundston was given Faculty status in September 2000 and presently offers a Master of Science research degree. Lakehead University's Faculty of Forestry and the Forest Environment offers the masterate programs, Master of Science

John A. McLean

Table 1. Current graduate enrolment in Faculties of Forestry¹ in Canadian Universities (as of February 1, 2002)

University	Ph.D.			Masters (with thesis)			Masters (non-thesis)			Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
University of British Columbia Faculty of Forestry	49	23	72	62	53	115	12	0	1	188
University of Northern British Columbia Natural Resources and Environmental Studies	5	4	9	33	32	65	5	5	10	84
University of Alberta, Faculty of Agriculture, Forestry and Home Economics Department of Renewable Resources	19	9	28	13	18	31	8	1	9	68
Lakehead University Faculty of Forestry and the Forest Environment	0	0	0	19	7	26	2	0	2	28
University of Toronto Faculty of Forestry ²	31	14	45	9	10	19	4	11	15	79
Université Laval Faculté de Foresterie et géomatique	60	22	82	56	33	89	16	13	26	197
Université de Moncton Faculté de foresterie	0	0	0	6	2	8	0	0	0	8
University of New Brunswick Faculty of Forestry and Environmental Management	7	9	16	27	5	32	0	2	2	50
Totals	171	81	252	225	160	385	36	29	65	702

¹Forestry broadly defined. Note the various names adopted by schools across Canada that host CFAB accredited undergraduate programs that are the approved basis for registered professional foresters.

²Undergraduate forestry program disbanded in 1996.

¹ Associate Dean, Graduate Studies and Research, Faculty of Forestry, The University of British Columbia, 2424 Main Mall, Vancouver, B.C. V6T 1Z4. E-mail: mclean@interchg.ubc.ca

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Table 2. Summary of the Universities that received funding from the Sustainable Forest Management National Centre of Excellence (SFM-NCE) in 2001

University	\$ Awarded
Dalhousie University	\$80 800
Université de Moncton	\$35 000
University of New Brunswick ¹	\$95 000
Université du Québec à Rimouski	\$36 000
Université du Québec à Chicoutimi	\$25 000
Université Laval*	\$107 275
Université du Québec à Trois-Rivières	\$45 350
Université du Québec à Montréal	\$530 200
Université de Montréal	\$147 870
Concordia University	\$23 686
McGill University	\$150 000
University of Ottawa	\$128 000
University of Toronto	\$107 000
University of Guelph	\$165 000
University of Western Ontario	\$63 000
Lakehead University ¹	\$61 000
Lakehead University ²	\$135 000
University of Manitoba	\$94 800
University of Winnipeg	\$45 000
University of Saskatchewan	\$25 000
University of Alberta ¹	\$742 100
University of Alberta ²	\$751 500
University of Calgary	\$103 500
University of British Columbia ¹	\$206 000
University of British Columbia ²	\$170 300
Total	\$4 073 381

¹Faculties that host a CFAB-accredited professional forestry program.

²Other Faculties at AUFSC universities that carry out research supported by the SFM-NCE.

in Forestry and Master of Forestry. Neither the University of Moncton nor Lakehead University offers Ph.D. programs in Forestry.

Ph.D. and Masters programs are offered at the other five AUFSC schools. In addition to the Ph.D. degree, the Faculty of Forestry and Environmental Management at the University of New Brunswick offers a Master of Science in Forestry, a Master of Science in Forest Engineering, a Master of Forestry and a Master of Forest Engineering; Laval University offers a Master of Science with thesis or a non-thesis essay option; the University of Toronto's Faculty of Forestry offers a Master of Science in Forestry and a Master of Forest Conservation; the University of Alberta's Faculty of Agriculture, Forestry and Home Economics offers a research Master of Science degree, a course work-based Master of Forestry and a combined MBA/MF degree; the University of Northern British Columbia's Faculty of Natural Resources and Environmental Studies offers Masters of Arts and Masters of Science degrees in Natural Resources and Environmental Studies; the University of British Columbia's Faculty of Forestry offers a Master of Forestry and Master of Applied Science in addition to their Master of Science degree. A total of 702 graduate students are registered in graduate programs in AUFSC faculties as of February 1, 2002 (Table 1). In the Masters programs overall, 42% are women while 36% of the Ph.D. students are women. Of the 702 students, 450 (64%) are in masterate programs and 252 (36%) are Ph.D. students. Overall, 65 of the Masters candidates are registered in non-thesis programs—a clear indication of the desire of today's foresters to upgrade their knowledge base.

Table 3. Forest Renewal B.C. research allocations by agency in 2001

Agency	Award	%
University of British Columbia – Forestry	\$1 179 839	9.7
University of British Columbia – Other	\$388 009	3.2
University of Northern British Columbia	\$661 842	5.5
Simon Fraser University	\$391 186	3.2
University of Victoria	\$139 177	1.2
Royal Roads University	\$255 510	2.1
University College of the Cariboo	\$162 973	1.3
Universities (total)	\$3 176 536	26.2
B.C. Ministry of Forests	\$3 947 949	32.6
Pacific Forestry Centre	\$781 594	6.5
First Nations	\$453 401	3.7
Industry	\$191 064	1.6
Consultants	\$552 544	4.6
SIFERP/NFREP ¹	\$2 623 237	21.7
Other	\$374 796	3.1
Total	\$12 101 121	100.0

¹ SIFERP = Southern Interior Forest Extension and Research Partnership; NFREP = Northern Forest Research and Extension Partnership.

A major role in co-coordinating university research across Canada and across disciplines is being carried out by the Sustainable Forest Management of Canada's Forests National Centre of Excellence (SFM-NCE). The mission and research framework of this NCE has recently been described by Adamowicz *et al.* (2002). The AUFSC faculties represent only a portion of the university-based forestry research endeavours in Canada. A survey of the funding granted by the SFM-NCE for 2001 showed that AUFSC schools received 32.4% of the \$4 073.381 awarded (Table 2). Twenty-two universities across the full breadth of Canada received funding from the network in 2001. Presently, 31 universities have submitted funding proposals for 2002 (G. Binsted, pers. com.).

There are also forest research funding programs in some provinces. In British Columbia, six provincial universities received 26.2% of the \$12 101 121 research budget allocated by Forest Renewal B.C. in 2001 (Table 3). The recent change of government in B.C. is leading to a revision of forestry research support objectives in a new Forestry Investment Initiative. In Quebec, Le Fonds québécois de la recherche sur la nature et les technologies distributes research dollars to a wide variety of provincial research groups. Universities play an important role in the preparation of highly qualified personnel who will be the researchers and professors of tomorrow. Provincial and federal governments need to sustain their support for this critical enterprise if Canada is to maintain its leadership role in world forestry affairs.

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