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Canadian Cooperative Wildlife Health Centre

Annual Report 2004-2005





Environnement
Canada

Environment
Canada

Service canadien
de la faune

Canadian Wildlife
Service



Ottawa, Ontario
K1A 0H3

It is with pleasure that I present to you this Annual Report from the Canadian Cooperative Wildlife Health Centre (CCWHC). This report has been reviewed and approved by the Board of Directors and gives a full account of the activities of the CCWHC in 2004-05.

The work of the Centre continues to expand, and the issues the Centre confronts continue to magnify in importance to Canadian society. The Board, the Canadian Wildlife Directors Committee and the other government and non-government partners in the CCWHC are working to increase the capacity of the organization to meet the challenges of wildlife disease surveillance and management in Canada.

The CCWHC has worked closely with federal, provincial and territorial governments to develop a new coordinated and collaborative national strategy to reduce the socio-economic impacts of wild animal diseases in Canada, including effects on wildlife and environmental conservation, human health and agricultural economies. In 2004-05, this inclusive and collaborative approach was applied to establish a long-term management plan for one particular disease of urgent national concern - Chronic Wasting Disease. Here as well, the CCWHC has played a key role in defining the issue and coordinating a multi-jurisdictional response.

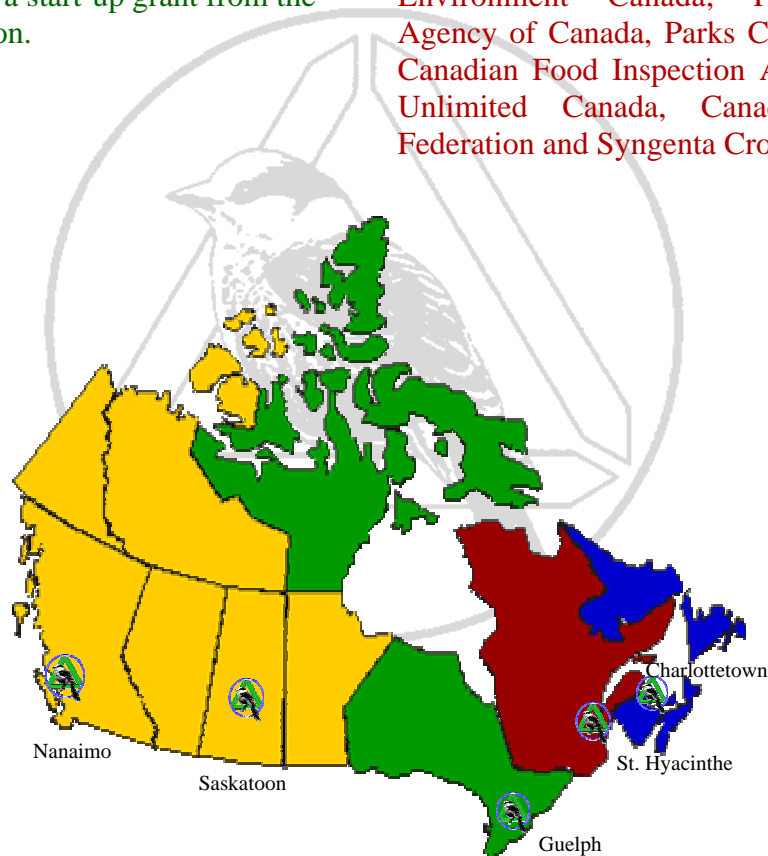
The CCWHC is a unique partnership which brings together academic veterinary institutions, government and non-government agencies in a powerful coalition to address national and regional disease issues. Canada is well served by this partnership, and I am delighted to offer you this report of activities in the 2004-05 fiscal year.

Trevor Swerdfager
Director General – Canadian Wildlife Service
Chair – CCWHC Board of Directors

About the CCWHC

The CCWHC is a university-based, inter-agency partnership through which Canada's four Colleges of Veterinary Medicine, government agencies at all levels and non-government agencies pool their resources and expertise to reduce the economic and ecological costs and impacts of wild animal diseases in Canada

- The CCWHC partnership was established in 1992 with leadership from Environment Canada and the Canadian Wildlife Directors, and with a start-up grant from the Max Bell Foundation.
- In 2004-05, the CCWHC partnership included all provincial and territorial governments; four federal agencies: Environment Canada, Public Health Agency of Canada, Parks Canada Agency, Canadian Food Inspection Agency; Ducks Unlimited Canada, Canadian Wildlife Federation and Syngenta Crop Protection.



- The CCWHC has four primary university locations, each serving a large region of Canada:
- West coast activities occur through a partnership with the Centre for Coastal Health in Nanaimo BC

Charlottetown PEI
St-Hyacinthe QC
Guelph ON
Saskatoon SK

What We Do

The CCWHC has four separate business lines, each carried out on regional and national scales. The first three business lines are supported by annual contributions from CCWHC partner agencies and the universities. The fourth business line—Wildlife Disease Response and Management—is supported by separate funding arrangements for each project and program.

The Four Business Lines of the CCWHC

① Wildlife Disease Surveillance

The constant detection, diagnosis and recording of wild animal diseases in Canada, where each has occurred and in which wild animal species, and identification of potential major disease issues for further attention.



② Information Services

Scientific advice and information to partner agencies in support of their management decisions and the delivery of their programs.

③ Education

Educational programs and services to partner agency personnel and education of wildlife health specialists by participation in university programs.



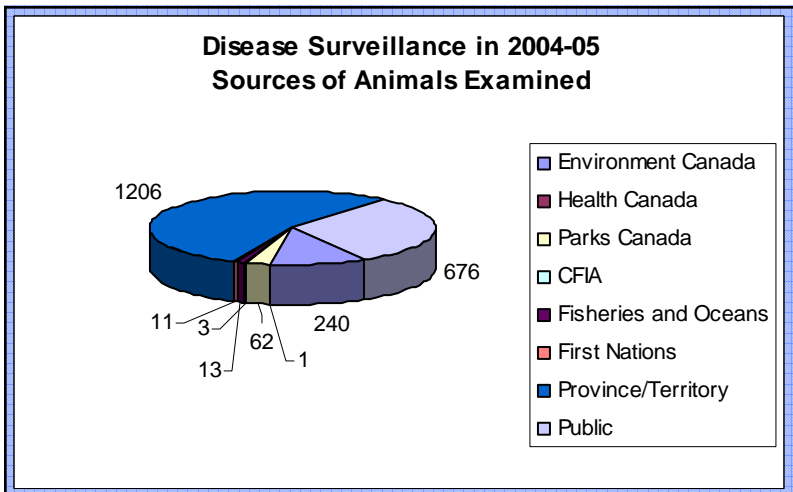
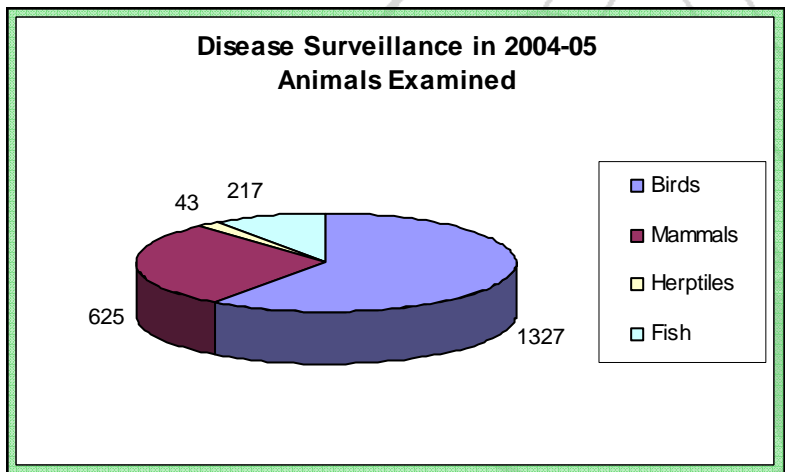
④ Wildlife Disease Response and Management

Targeted special programs are implemented when urgent or important new disease issues require further assessment, response or management.

① Wildlife Disease Surveillance

- Disease surveillance is the foundation of all aspects of Canada's national wildlife disease program. It includes the detection and identification of diseases and their causes, central recording of information in a national database, information analysis, and communication of findings to managers and other stakeholders.
- Disease surveillance is achieved by medical examination of wild animal specimens discovered by wildlife field personnel and sent to the CCWHC and its collaborating laboratories.

In 2004, the CCWHC Program Examined 2,212 Wild Animal Specimens



① Wildlife Disease Surveillance - Highlights from 2004

Quebec Eider Project

- In conjunction with researchers from UQAM, CWS and Université Laval, the CCWHC has been investigating the effect of avian cholera on the survival of Common Eiders (*Somateria mollissima*) in the St. Lawrence Estuary.



Poisoning

- Poisoning continues to plague numerous species of Canadian wildlife from eagles and swans to White-tailed Deer and Black Bears. There were 200 poisoning cases recorded in 2004.

Type E Avian Botulism on the Great Lakes

- This epidemic continues to expand, killing large numbers of Common Loons, mergansers, grebes and gulls. In 2004, 4 new species were affected in large numbers: the Long Tailed Duck, the American Crow, the White-winged Scoter, and the Double-Crested Cormorant.



A New Virus Disease

- In early March of 2004, numbers of dead crows were found in the Pittock Conservation area of Woodstock, in southwestern Ontario. A new virus of the reovirus group appears to be the cause of death. This is a new epidemic disease in the American Crow.

West Nile Virus

- The continental epidemic of West Nile Virus is affecting many species of birds. In addition to the thousands of crows and their close relatives that have died, the CCWHC has documented the disease in 21 other species including: Bald Eagles, several species of hawks and owls and the endangered Sage Grouse.

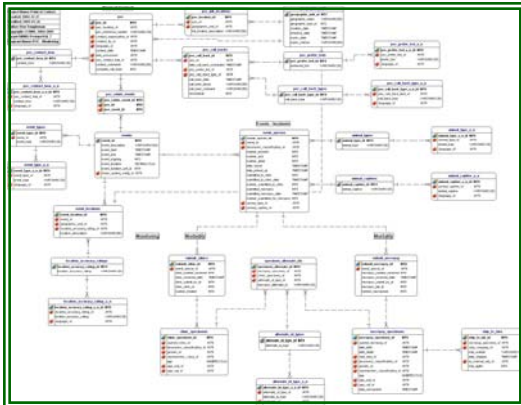


Chronic Wasting Disease

- **32 New Cases** were detected in Saskatchewan in the 2004-05 hunting season. This is an increase of 45% above the 22 cases detected last year, and brings the total number of CWD-affected wild deer detected in Canada to 65.

CCWHC Information Technology Centre

- The CCWHC Information Technology Centre links together and supports the entire CCWHC program.
- The Centre maintains Canada's National Wildlife Disease Database.
- Internet-accessible data input and reporting ensure remote access by all CCWHC partners.
- Through international collaborations, the Database also supports the work of scientists in Universidad Nacionale de Costa Rica and the Charles Darwin Research Station, Galapagos Islands, Ecuador.



New structural design for the National Wildlife Disease Database

- The IT Centre has re-designed the internal structure of the National Database for implementation on the PostgreSQL mainframe platform. This major upgrade of the IT system will provide superior user access and security options, seamless operation in English, French, and Spanish and a large new capacity to record a wide range of biological data.

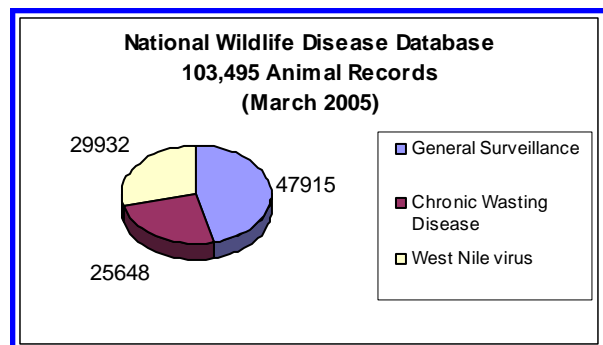
- A pilot project was initiated to enter historical records into the database using the latest scanning technology and high character recognition software.



- The CCWHC database is used, in part, to generate Canada's Annual Wildlife Disease Occurrence Report to the World Organization for Animal Health (OIE).



• Informational Websites



② Information Services

Expert Scientific Review of Chronic Wasting Disease in Canadian Wildlife

To address the alarming expansion of Chronic Wasting Disease in wild deer in Canada from 2000 to 2004, the CCWHC convened an international panel of scientists to review all aspects of this apparent new epidemic. Special funds to cover the Panel's costs were contributed by the Canadian Wildlife Federation and by the Canadian Wildlife Service (Environment Canada).

The Panel was convened in Saskatoon on June 10-12 2004. It received briefs and presentations from a wide range of government and non-government stakeholders, and its report was released by the Panel's chairman at a news conference in Saskatoon on August 4th 2004. The full report is available on the CCWHC website (<<http://wildlife.usask.ca>> - under "publications").

The Panel's report received careful review by wildlife agencies and non-government organizations. There was extensive media coverage and wide public debate regarding management of this disease in wild deer. The report warned that Chronic Wasting Disease has the potential to spread from coast to coast across Canada, with substantial socio-economic consequences. It urged swift and bold measures to stop the spread of the disease, and intensive efforts to develop the new scientific knowledge required to fully control or eradicate it.

On September 18 2004, federal, provincial and territorial Ministers responsible for wildlife management in Canada met and discussed the epidemic of Chronic Wasting Disease in Canadian wildlife. They announced that their ministries would work together with ministries responsible for agriculture and public health to develop and implement a National Chronic Wasting Disease Control Strategy in 2005.

CHRONIC WASTING DISEASE IN CANADIAN WILDLIFE: AN EXPERT OPINION ON THE EPIDEMIOLOGY AND RISKS TO WILD DEER


Prepared by:

Expert Scientific Panel on Chronic Wasting Disease

Dr. Trent Bollinger, CCWHC, SK, Canada
Dr. Peter Caley, CSIRO, Canberra, Australia
Dr. Evelyn Merrill, Univ. of Alberta, AB, Canada
Dr. François Messier, Chair, Univ. of Saskatchewan, SK, Canada
Dr. Michael W. Miller, Colorado Div. of Wildlife, CO, USA
Dr. Michael D. Samuel, Wisconsin Coop. Wildl. Res. Unit, WI, USA
Dr. Emmanuel Vanopdenbosch, Veterinary and Agrochemical Res. Centre, Belgium

Submitted to:

Canadian Cooperative Wildlife Health Centre
Western College of Veterinary Medicine
University of Saskatchewan
52 Campus Drive
Saskatoon, SK, S7N 5B4



July 2004
Final Report

② Information Services (Continued)

The CCWHC responded to a wide range of requests for information and advice from partner agencies in 2004-05. These included participation in regional, national and international meetings, participation on committees, and reports on specific issues. The CCWHC also provided information to the public by responding directly to inquiries, publishing a semi-annual Newsletter, providing numerous media interviews, and maintaining an informational website: <http://wildlife.usask.ca>

Regional

- West Nile Virus—Reports to regional meetings
- Nova Scotia Mainland Moose Recovery Team
- PEI Provincial Rabies Committee
- Eastern Canada Piping Plover Working Group
- Development of standard operating procedures for seals in difficulty
- Ontario Rabies Advisory Committee
- Expert Witness for Crown—wildlife-related litigation
- Presentation on common and important diseases in northern Ontario—First Nations & Inuit Health Branch
- OMHLTC Public Health Branch—Information Session on Wildlife Zoonoses
- Scientific Advisory Committee to the Task Force Group for Bovine Tuberculosis in Manitoba
- Sturgeon River Plains Bison Management Strategy Development Team
- Development of standard operating procedures for wildlife capture and handling in the NWT

National

- Technical Working Group of the National Chronic Wasting Disease Control Strategy
- Inter-agency Oversight Committee of the National Chronic Wasting Disease Control Strategy
- National Steering Committee on West Nile virus
- Animal capture drug advice, acquisition and distribution to wildlife agency personnel
- CCAC Subcommittee on Guidelines for Care and Maintenance of Marine Mammals in Captivity
- The harp seal hunt—Joint meeting of DFO and the World Wildlife Fund
- National Wildlife Disease Strategy: Preparation, Review, Action Plan Draft
- National Wildlife Disease Action Plan Workshop
- Public Health Agency of Canada Zoonoses and Special Pathogens Laboratory Peer Review
- Public Health Agency of Canada Zoonotic Disease Subcommittee
- CFIA—current issues in wildlife
- Expert Panel on Chronic Wasting Disease—Report “Chronic Wasting Disease in Canadian Wildlife”
- PrioNet: Network Centre of Excellence on TSEs—CWD theme leadership
- Health Canada’s Working Group on Climate Change
- CCWHC Newsletters
- Canadian Animal Health Consultative Committees
- National Aquatic Animal Health Program Workshop
- National Wildlife Disease Occurrence Report to the OIE - 2004

International

- World Organization for Animal Health (OIE) Working Group on Wildlife Diseases
- Type E Botulism On the Great Lakes - Canada-USA Workshop
- Emerging Infectious Disease: Joint conference - WDA/AAZV/AAWV - Co-Chaired
- Envirovet Program—Guest Lectures - USA
- Arctic Climate Impacts Assessment, International Symposium on Climate Change in the Arctic
- Western Association of Fish & Wildlife Agencies (USA) - Report on CWD Expert Panel Process.

③ Education

Education is a key activity of the CCWHC. Education supports disease surveillance through instruction and engagement of wildlife field personnel and the public, and creates wildlife health specialists through university programs. Instruction in a wide range of topics related to wild animal health and disease was provided to community groups and to partner agency personnel in 2004-05, including a wildlife forensics course and a community-based wildlife disease education program.

Northern Education Programs



Dr. Brett Elkin and Students in Deline, January 2005

In cooperation with the Government of the NWT and the Sahtu Renewable Resource Board, the Sahtu Monitoring Project is designed to increase awareness about wildlife species and to foster community-based expertise in wildlife health and population monitoring across the Sahtu Settlement area in the NWT. In January 2005, a series of educational seminars about wildlife research, health and monitoring were presented to Renewable Resources Councils (RRC's), schools, and the public in the Sahtu region.

The Program's main objectives are:

1. **Wildlife Health Monitoring:** To continue to establish partnerships with harvesters to provide an efficient means for long-term monitoring of wildlife body condition and health and to build community expertise in issues relating to wildlife health.
2. **Youth Education:** To provide information pertaining to the health, biology, ecology, and management of local species to school students. Also, to promote student involvement in monitoring projects, science and resource management careers.
3. **Historical Occurrence of Wildlife Disease:** Participation with experienced harvesters to document changes in wildlife disease occurrence over several past decades.
4. **Graduate Student Education:** Graduate students continue to be involved in the program ensuring that future researchers are exposed to northern issues and experiences, while establishing between universities and the communities

Kivalliq Education Project

This was the first year of a 3 year project with the Government of Nunavut to provide a series of workshops and the associated educational materials on wildlife diseases to communities in the Kivalliq Region, Nunavut. Workshops will begin in 2005-06.



| Education Summary 2004-05 | |
|--|-----|
| Hours of Instruction to Partner Agencies | 160 |
| Graduate Students Supervised | 14 |
| University Courses Taught | 9 |
| Scientific Presentations | 28 |

④ Wildlife Disease Response and Management

The CCWHC responded to important wildlife disease issues with targeted programs of enhanced surveillance, research and participation in the disease management actions of partner agencies. CCWHC personnel also participated in research to extend knowledge of wildlife health and welfare in Canada. Each of these targeted programs was financed separately from the core CCWHC program.

Disease Response and Management in 2004-05

- Health Assessment of Wolves in Riding Mountain National Park
- National West Nile Virus Surveillance Program in Wild Birds
- Chronic Wasting Disease Surveillance in Saskatchewan
- Tuberculosis, Elk and Wolves in Riding Mountain National Park
- Development of PCR Tests for Wildlife Pathogens
- Avian Botulism: Distribution of Spores in Wetland Environments
- Summary Report on Avian Botulism Research
- Survey for Pesticides in Raptors and Waterfowl in Southern BC (CCH)



- Bears: Measures of Long-term Stress and Ecosystem Health
- Exposure Levels for Pesticides in Birds of Prey
- Epidemic Diseases in Double-crested Cormorants
- Avian Influenza, Newcastle Disease and West Nile Virus Infections in Ring-billed Gulls in Ontario
- Seroprevalence of West Nile Virus in Song Birds
- Expanded Surveillance for West Nile Vectors on Vancouver Island (CCH)

- Evaluation of the Role of Climate Change in the Emergence of Pathogens and Diseases in Arctic and Sub-arctic Ungulate Populations
- Risk Assessment of Disease Transmission Between Wild Dall's Sheep and Mountain Goats and Introduced Domestic Sheep, Goats, and Llamas in the NWT



- Health Assessment of Beluga Whales from the St. Lawrence Estuary
- Health Assessment of Amphibians on Agricultural Lands
- Revision of CAZWV Chemical Immobilization Course Manual
- National Chronic Wasting Disease Control Strategy
- Federal-Provincial Fish Health Management Advisory Committee Operation (CCH)

Total Financial Resources For Disease Response and Management:
\$1,316,301

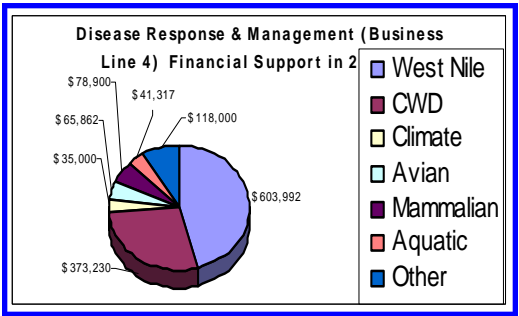
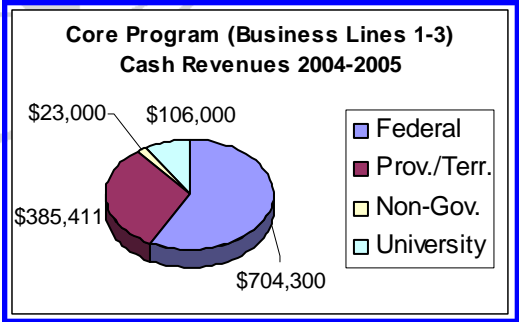
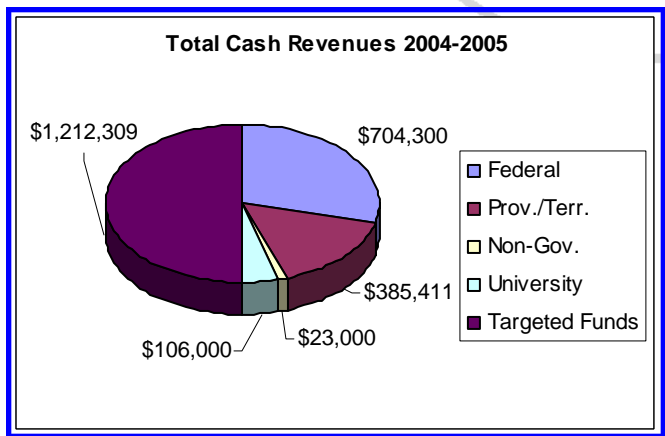
Publications and Reports: A Sample of Publications in Journals by CCWHC Staff

- Whiteside, D.P., **I.K. Barker**, K.G. Mehren, R.M. Jacobs, and P.D. Conlon. 2004. Clinical evaluation of the oral iron chelator deferiprone for the potential treatment of iron overload in bird species. *Journal of Zoo and Wildlife Medicine* 35: 40-49.
- Ogden, N.H., L.R. Lindsay, D. Charron, G. Beauchamp, A. Maarouf, C.J. O'Callaghan, D. Waltner-Toews & **I.K. Barker**. 2004. Investigation of the relationships between temperature and development rates of the tick *Ixodes scapularis* (Acari: Ixodidae) in the laboratory and field. *Journal of Medical Entomology* 41: 622-633.
- Bertelsen, M.F., R.-A. Ølberg, G.J. Crawshaw, A. Dibernardo, L.R. Lindsay, M. Drebot, and **I.K. Barker**. 2004. West Nile Virus infection in the eastern loggerhead shrike (*Lanius ludovicianus migrans*); pathology, epidemiology and immunization. *Journal of Wildlife Diseases* 40: 538-542.
- Gancz, A.Y. **I.K. Barker**, R. Lindsay, A. Dibernardo, K. McKeever, and **B. Hunter**. 2004. Epidemiology of a West Nile Virus outbreak in North American owls - Ontario 2002. *Emerging Infectious Diseases* 10: 2135-2142.
- Gancz, A.Y., **I.K. Barker**, **G.D. Campbell**, L. Lindsay, **D.B. Hunter**. 2004. Detection of West Nile Virus in North-American owls and raptors by a rapid antigen-capture assay. *Emerging Infectious Diseases* 10: 2204-2206.
- Ogden, N.H., M. Bigras-Poulin, C.J. O'Callaghan, **I.K. Barker**, L.R. Lindsay, A. Maarouf, K.E. Smoyer-Tomic, D. Waltner-Toews, and D. Charron. A dynamic population model to investigate effects of climate on geographic range and seasonality of the tick *Ixodes scapularis*. *International Journal for Parasitology*, In press.
- Lair, Stéphane**, K. G. Mehren, E. S. Williams, and **I. K. Barker**. Renal tubular neoplasms in black-footed ferrets (*Mustela nigripes*) - 38 cases. *Veterinary Pathology*, In press.
- Wobeser, G., T. Bollinger, F.A. Leighton, B. Blakley** and P. Mineau. Secondary poisoning of eagles following intentional poisoning of coyotes with anticholinesterase pesticides in western Canada. *Journal of Wildlife Diseases* 40:163-172.
- Dubey, J.P., R.J. Cawthorn, C.A. Speer, and **G. Wobeser**. Redescription of *Sarcocystis rileyi* (Apicomplexa: Sarcocystidae). *Journal of Eukaryotic Microbiology* 50:476-482.
- Jardine, C. **G.A. Wobeser** and E. Simko. 2004. Malignant mesenchymal tumors in two white-tailed jack rabbits (*Lepus townsendii*). *Journal of Wildlife Diseases* 40:754-758.
- G. Wobeser**. Disease management in wildlife. *Journal of Mountain Ecology* 7(suppl.):85-88.
- Jenkins, E. J., **G.D. Appleyard**, E. P. Hoberg, B. M. Rosenthal, **S.J. Kutz**, A. M. Veitch, H. M. Schwantje, B. T. Elkin, **L. Polley**. 2005. Geographic distribution of the muscle-dwelling nematode *Parelaphostrongylus odocoilei* in North America, using molecular identification of first-stage larvae. *Journal of Parasitology* In press.
- Kutz, S. J.**, E. P. Hoberg, J. Nagy, **L. Polley**, and B. Elkin. 2004. 'Emerging' parasitic infections in arctic ungulates. *Integrative and Comparative Biology* 44:109-118.
- Desmarchelier, M., B. Lussier, **G. Fitzgerald** et **S. Lair**. Plastie en H chez une Petite Buse (*Buteo platypterus*). *Pratique des animaux exotiques*, In Press.
- Ramos, J. **G. Fitzgerald** et **S. Lair**. Présentation clinique et pathologie des infections par le virus du Nil occidental sur les oiseaux de proie au Québec durant l'année 2002. *Le médecin vétérinaire du Québec* 34(3): 243-245. 2004
- McKinney, M.A., A. Arukwe, S. De Guise, **D. Martineau**, P. Béland, **A. Dallaire**, **S. Lair**, M. Lebeuf, R.J. Letcher. Characterization and Profiling of Hepatic Cytochromes P450 and Phase II Xenobiotic Metabolizing Enzymes in Beluga Whales (*D. leucas*) from the St. Lawrence River Estuary and the Canadian Arctic. *Aquatic Toxicology* 69(1): 35-49. 2004
- Lair, S.** Réglementation sur la garde en captivité des animaux non- domestiques au Québec. *Le médecin vétérinaire du Québec*. (Submitted for Publication)
- Guenette, S. and **S. Lair**. Anesthesia of the Leopard Frog (*Rana pipiens*): A Comparative Study Between Four Different Agents. *Journal of Herpetological Medicine and Surgery* (Submitted for publication)
- Desmarchelier, M, Y. Rondenay, G. Fitzgerald, **S. Lair**. Monitoring of the ventilatory status of anesthetized birds of prey using end-tidal carbon dioxide measured with a microstream capnometer *Journal of Zoo and Wildlife Medicine* (Submitted for publication)
- Clark, R. and **T. Bollinger**. Invisible threat - the Impact of Disease on Wild Duck Populations. *Conservator (Ducks Unlimited Canada)* Vol 25 #1. 2005
- C. Duncan, H. Scwantje, **C. Stephen**, J. Campbell, K. Bartlett. *Cryptococcus gattii* in wildlife of Vancouver Island, BC, Canada. *Journal of Wildlife Diseases* (Submitted)
- Stephen C.** Olaloku N. 2004. Zoonotic Protozoal Parasites of Wildlife Origin: Relevance to the Capital Regional District Water Supply Area. Report to the Capital Regional District Water Department

Financial Report for 2004-2005 - Core Program Revenues

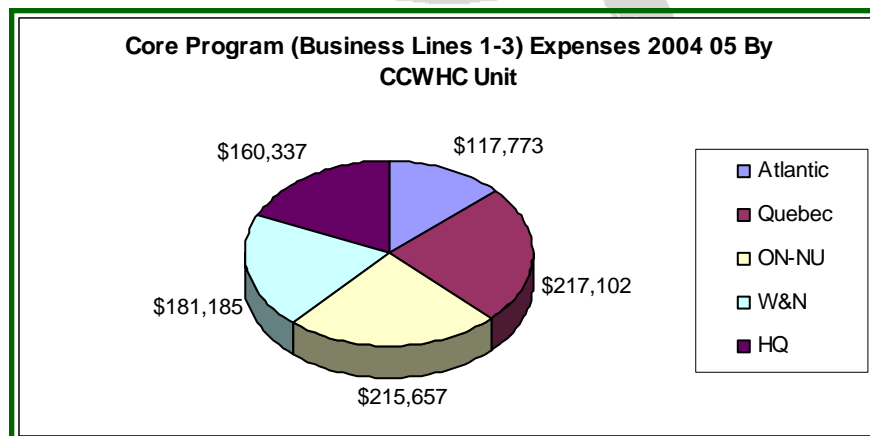
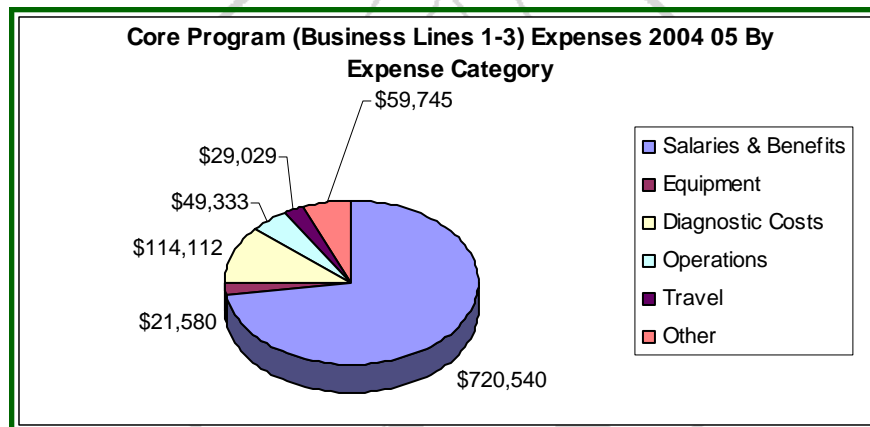
| Financial Support for Core Program (Business Lines 1-3) | | | |
|---|-----------|----------------------------------|--------------------|
| Environment Canada | \$381,600 | Prince Edward Island | \$4,735 |
| Health Canada | \$194,000 | Ontario | \$212,300 |
| Parks Canada | \$78,700 | OMNR | \$73,500 |
| CFIA | \$50,000 | OMHLTC | \$70,000 |
| Alberta | \$7,000 | OME | \$68,800 |
| British Columbia | \$30,000 | Quebec | \$25,000 |
| Manitoba | \$10,000 | Saskatchewan | \$34,523 |
| New Brunswick | \$5,000 | Yukon | \$8,000 |
| Newfoundland & Labrador | \$11,685 | Canadian Wildlife Federation | \$10,000 |
| Northwest Territories | \$11,168 | Ducks Unlimited | \$10,000 |
| Nova Scotia | \$11,000 | Syngenta | \$3,000 |
| Nunavut | \$15,000 | Veterinary Colleges/Universities | \$106,000 |
| Total | | | \$1,218,711 |

| Cash Revenues in 2004-05 | |
|--|--------------------|
| Core Program: (Business Lines 1-3) | \$1,218,711 |
| Response & Management Targeted Programs: (Business Line 4) | \$1,316,301 |
| Total: | \$2,535,012 |



Financial Report for 2004-2005 - Core Program Expenses (Business Lines 1-3)

| Expense Category | Atlantic | Quebec | Ontario & Nunavut | Western & Northern | Headquarters Office | Totals |
|---------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|
| Salaries & Benefits | \$87,048.08 | \$167,366.36 | \$139,066.00 | \$122,900.00 | \$204,160.21 | \$720,540.65 |
| Equipment | \$0.00 | \$11,722.51 | \$4,245.00 | \$1,802.00 | \$3,811.06 | \$21,580.57 |
| Diagnostic Costs | \$12,058.87 | \$29,112.57 | \$42,500.00 | \$30,441.00 | \$0.00 | \$114,112.44 |
| Operations | \$671.10 | \$13,999.21 | \$1,465.00 | \$3,987.00 | \$29,211.48 | \$49,333.79 |
| Travel | \$2,633.95 | \$11,151.45 | \$5,470.00 | \$5,420.00 | \$4,354.49 | \$29,029.89 |
| Other | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$49,745.11 | \$59,745.11 |
| Overhead (15%) | \$15,361.80 | \$49,013.00 | \$28,911.00 | \$24,682.50 | \$43,692.35 | \$161,660.65 |
| Costs Recovered | \$0.00 | -\$75,263.04 | \$0.00 | -\$8,047.00 | -\$174,637.19 | -\$263,947.23 |
| Total Expenses | | | | | | |
| Before Cost Recovery | \$117,773.80 | \$292,365.10 | \$221,657.90 | \$189,232.50 | \$334,974.35 | \$1,156,003.65 |
| Total after Cost recovery | \$117,773.80 | \$217,102.06 | \$215,657.90 | \$181,185.50 | \$160,337.42 | \$892,056.68 |



Staff and Associates of the Canadian Cooperative Wildlife Health Centre - 2004-05

Atlantic Region

| | |
|---------------------|---------------------------|
| Director | Pierre-Yves Daoust |
| Professional | Scott McBurney* |
| Technical | Darlene Jones* |
| Associates | Gary Conboy, David Gorman |

Quebec Region

| | |
|---------------------|--|
| Director | Stéphane Lair |
| Professional | André D. Dallaire*, Cecile Aenishaenslin |
| Technical | Kathleen Brown* |
| Associates | Christian Bédard, Denis Bélanger, Guy Fitzgerald, Daniel Martineau, Roger Ruppanner, Carl Uhland |

Ontario & Nunavut Region

| | |
|---------------------|--|
| Director | Ian K. Barker |
| Professional | Doug Campbell*, M. Katherine Welch * |
| Technical | Melissa Coady*, Cheryl Massey* |
| Clerical | Carol-Lee Ernst* |
| Associates | Bruce Hunter, John Lumsden, Dale Smith |

Western & Northern Region

| | |
|---------------------|---|
| Director | Trent Bollinger* |
| Professional | Greg Appleyard, Susan Kutz, Gary Wobeser |
| Technical | Marnie Paskaruk* |
| Associates | Nigel Caulkett, Jan Diederichs, Hélèn Philibert, Lydden Polley, Judit Smits, Mark Wickstrom |

Headquarters Office

| | |
|---------------------------|---|
| Executive Director | Ted Leighton* |
| Professional | Marc Cattet*, Ron Templeman* |
| Technical | Patrick Zimmer*, Amy Templeman*, Dan Coode* |
| Clerical | Jacqui Brown* |
| Associates | Maria Forzan, Craig Stephen |

* Salary paid from CCWHC core program budget

Board of Directors of the Canadian Cooperative Wildlife Health Centre in 2004-2005

(* Members of the Executive Committee of the Board of Directors)

| | |
|--------------------------------|--|
| Michel Damphousse | Directeur du développement de la faune, Secteur Faune Québec, MRNF |
| Jack Dubois | Wildlife Director, Wildlife & Ecosystem Protection Branch, Manitoba Conservation |
| Cameron Prince | Executive Director, Animal Products Directorate, Canadian Food Inspection Agency |
| Susan Fleck* | Director, Wildlife Management Division, NWT ENR |
| Jim Hancock | Director, Inland Fish and Wildlife Division, Newfoundland & Labrador |
| Hugh Hunt | Executive Director, Resource Stewardship Branch, Saskatchewan Environment |
| Harvey Jessop | Acting Director, Fish and Wildlife Branch, Yukon Department of Environment |
| Cameron Mack * | Director, Wildlife Policy Branch, Ontario Ministry of Natural Resources |
| Colin Maxwell | Executive Vice President, Canadian Wildlife Federation |
| Bruce Morgan | Director, Biodiversity Branch, BC Ministry of Water, Land and Air Protection |
| Henry Murkin | Chief Biologist, Ducks Unlimited (Canada) |
| Frank Plummer | Director General, CIDPC, Public Health Agency of Canada |
| Charles Rhodes * | Dean, Western College of Veterinary Medicine, University of Saskatchewan |
| Barry Sabean | Director, Wildlife Division, Nova Scotia Department of Natural Resources |
| Jim Skrenek | Director, Fish & Wildlife, Alberta Sustainable Resource Development |
| Art Smith | Director, Fish & Wildlife Division, PEI Department of Environment |
| Mike Sullivan | Director, Fish and Wildlife Branch, NB Dept. of Natural Resources and Energy |
| Trevor Swerdfager * (Chair) | Director General, Canadian Wildlife Service, Environment Canada |
| Joe Tigullaraq | Director, Wildlife Services, Nunavut Department of Sustainable Development |
| Mike Wong | Executive Director, Ecological Integrity Branch, Parks Canada |

