



Canadian Cooperative Wildlife Health Centre

Annual Report 2005-2006





It is my pleasure to present to you the Annual Report of the Canadian Cooperative Wildlife Health Centre (CCWHC) for the fiscal year 2005-06. This report has been reviewed and approved by the CCWHC Board of Directors, and gives a full account of the year's activities.

This was a year during which the benefits to Canada of the CCWHC partnership between governments at all levels and our veterinary colleges received strong national and international recognition. Two national policy frameworks for managing wild animal diseases in Canada were endorsed by federal, provincial and territorial resource Ministers in October 2005: *Canada's National Wildlife Disease Strategy* and a *National Chronic Wasting Disease Control Strategy*. This was an historic moment for health management in Canada, with major implications for improved public health, food safety, animal industry economies and wildlife conservation. The CCWHC was instrumental in all aspects of the development of these strategic plans.

This was a year also in which Canada's capacity for proactive wildlife disease surveillance and response were challenged and found to meet the highest of international standards. Avian Influenza suddenly joined West Nile Virus and Chronic Wasting Diseases on the list of diseases requiring special surveys. As you will read on Page 10, Canada mounted an impressive inter-agency Avian Influenza program in 05-06 and planned an even more ambitious one for 06-07, all under the leadership and coordination of the CCWHC. The core program of the CCWHC continued despite these extraordinary demands, however. On-going disease surveillance detected a massive epidemic of Tularemia in Deer Mice and of Viral Hemorrhagic Septicemia in fish in the Great Lakes. CCWHC staff contributed to government agency plans and programs all across the country and internationally, and some 300 pages of special educational materials on wildlife diseases were developed for residents of Canada's north. CCWHC staff also assumed leadership roles in the creation and scientific program of PrioNet Canada, a new member of Canada's Network Centres of Excellence for scientific research, with a major theme on Chronic Wasting Disease.

The CCWHC is contributing key knowledge and services to our partner government agencies and key components to the academic programs at each of our veterinary colleges. This unique collaboration has proven its worth year after year, and never more so than in the year just passed. I am delighted to offer you this report of CCWHC activities.

A handwritten signature in blue ink that reads "Charles Rhodes".

Charles Rhodes
Dean, Western College of Veterinary Medicine
Chair, Board of Directors, CCWHC

About the CCWHC

The CCWHC is a university-based, inter-agency partnership through which Canada's 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 2005-2006, 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, and Syngenta Crop Protection.



- The CCWHC has four primary university locations, each serving a large region of Canada:

Charlottetown, PEI
St-Hyacinthe, QC
Guelph, ON
Saskatoon, SK

- West coast activities are carried out through a partnership with the Centre for Coastal Health in Nanaimo, BC. CCWHC activities carried out at CCH were substantially increased in 2005-06 and this new level of activity will continue in the future.
- In 2005, a new Faculty of Veterinary Medicine was established at the University of Calgary. An agreement to establish a Regional Centre of the CCWHC at the new faculty also was finalized in 2005 and it is envisioned that this Centre will evolve over time.

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. Disease Surveillance

Disease surveillance integrates four separate activities into a cohesive program: 1) Detection of diseases, 2) Identification of diseases (diagnosis), 3) Disease information management and 4) Communication. Disease detection is achieved through engagement and support of wildlife personnel across the country. Disease identification is achieved through medical examination of specimens in fully-equipped veterinary diagnostic laboratories, primarily by CCWHC professional staff at the veterinary colleges and elsewhere through collaboration with government laboratories. Disease information management is done through the CCWHC Information Technology Centre, which includes a national database for all surveillance data. Communication is achieved through a range of instruments: regular reports to the CCWHC Board of Directors and the Canadian Wildlife Directors Committee, web site, newsletter and special program reports.

2. Information Services

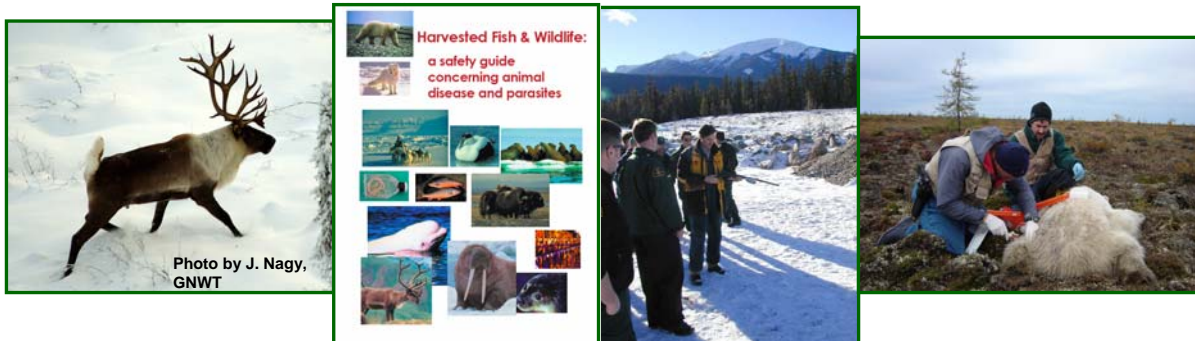
CCWHC personnel respond to requests from partner agency staff for information, advice, representation on committees, participation at meetings, review of documents, scientific planning and other matters related to wild animal diseases and their interactions with public health, agriculture and wildlife conservation. The CCWHC also responds to inquiries from the public and the news media.

3. Education

The CCWHC furnishes educational programs to its agency partners and to its host universities. Agency personnel are offered presentations and short courses on a range of topics related to wild animal health and disease. CCWHC staff participate in courses offered to undergraduate and post-graduate students at its host universities. The CCWHC also furnishes teaching material, research projects and graduate student supervision at each university. Special courses in wild animal health and disease are offered to veterinary students at each of the veterinary colleges.

4. Wildlife Disease Response and Management

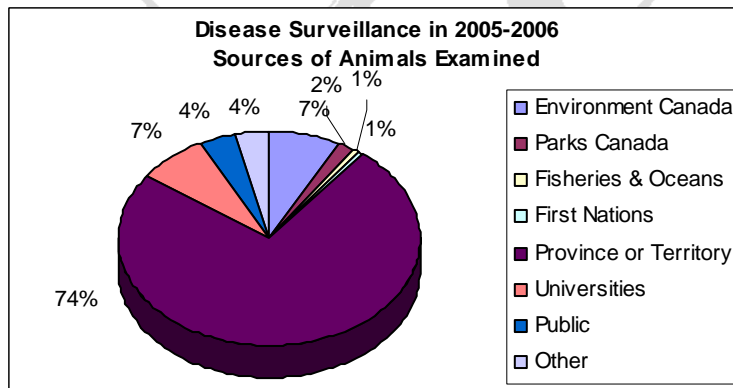
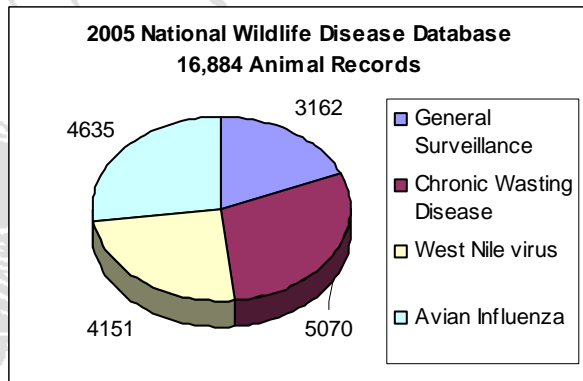
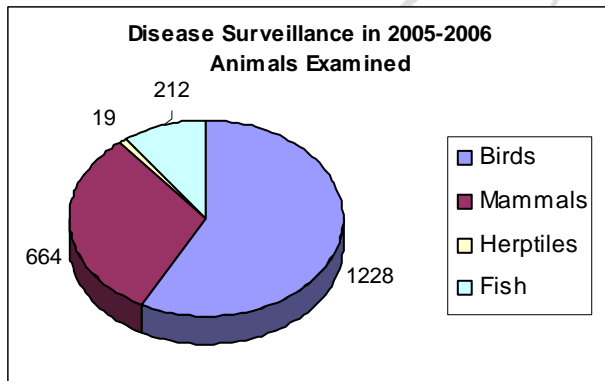
Disease surveillance regularly identifies disease issues requiring more extensive assessment, research or management responses. Targeted special programs to pursue these health issues have become an ever larger proportion of total CCWHC activity, as disease surveillance has accumulated information and as wildlife disease issues of socioeconomic importance have multiplied.



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.

In 2005, the CCWHC Program Examined 2,123 Wild Animal Specimens



Agency	Western & Northern	Ontario & Nunavut	Quebec	Atlantic	Total
Environment Canada	16	28	78	39	161
Parks Canada	21	1	4	12	38
Fisheries & Oceans			6	9	15
First Nations		5	6		11
Province or Territory	279	610	434	259	1582
Universities	133	25		1	159
Public	23	29	27		79
Other	24	45	4	5	78
Total	496	743	559	325	2123

Wildlife Disease Surveillance - Highlights from 2005



Nova Scotia Mainland Moose Recovery Team

In 2003, the Eastern moose (*Alces alces americana*) on mainland Nova Scotia was declared an endangered species under the Nova Scotia Endangered Species Act. The ability to evaluate potential factors limiting this population is hindered by a lack of information, primarily in the subject areas of genetic structure, health, illegal harvest, and habitat suitability and fragmentation. The CCWHC is an active participant on the recovery team, with the role of evaluating the moose population's health and assessing the significance of disease in the population decline.

Plastic ingestion in marine birds

Examination of dead birds has revealed remarkable quantities of plastic ingested by certain species of marine birds. In cooperation with a biologist from Sable Island, Nova Scotia, a research project started by the CCWHC in 2005 aims at monitoring the prevalence of plastic ingestion in Northern Fulmars and its possible effect on these birds.



Tularemia Outbreak in SK Deer Mice

In the Fall of 2004 and the Spring of 2005, a large population irruption and subsequent die-off of Deer mice was reported in Saskatchewan over an estimated area greater than 22,000 square kilometers. Upon further analysis the CCWHC and the Public Health Agency of Canada's National Microbiology Laboratory confirmed the presence of *Francisella tularensis*, the causative agent of Tularemia. Although Tularemia is a zoonotic agent, fortunately no human cases were reported from the area.

Chronic Wasting Disease

In 2005-2006 CWD continued to spread among Canadian wild deer populations. For the first time CWD was detected among wild deer in Alberta with 14 cases being identified as of spring 2006. In Saskatchewan 36 new cases were identified, for a total of 50 cases detected last year in Canadian wild deer. This brings the total number of CWD-affected wild deer detected in Canada to 116.



Die-off of Freshwater Drum from Lake Ontario

Over the course of the summer of 2005, large numbers of dead and dying Freshwater Drum (estimated at several hundred tonnes) were observed in Lake Ontario. Medical examination and extensive follow-up testing revealed Viral Haemorrhagic Septicemia Virus (VHSV), type IV strain. VHS is categorized by the World Organization for Animal Health (OIE) as a "notifiable" disease. There is no indication that this virus is a threat to public health, however it is of concern for species of susceptible fish.

Information Services

The CCWHC responded to a wide range of requests for information and advice from partner agencies in 2005-2006. 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
- Ontario Rabies Advisory Committee
- Expert Witness for Crown—wildlife-related litigation
- Scientific Advisory Committee to the Task Force Group for Bovine Tuberculosis in Manitoba
- Consultations on Human-Animal Conflict
- Cormorant Management Plan - Presqu'île Provincial Park
- Minimizing Wildlife Disease Risks in Ontario—Wildlife Feeding and Baiting Practices
- Ontario Ministry of Agriculture, Food and Rural Affairs: Emergency Management Coordination: Surveillance for Highly Pathogenic Avian Influenza in Wildlife
- Parks Canada Eastern Animal Care Task Force
- Workshop on the Beluga Whale Stranding Program: Necropsy and Health Monitoring
- Environmental Contaminants and traditional foods—the effects of contaminants on animal health
- BC Species at Risk: Health Assessment and Management Resource
- Government of NWT Wildlife Care Committee
- Development of standard operating procedures for the capture & handling of Grizzly Bear and Boreal Caribou
- Working Group for the access to and use of Ketamine by Wildlife Professionals

National

- National Chronic Wasting Disease Control Strategy: Technical Working Group & Inter-agency Oversight Committees
- National Steering Committee on West Nile virus
- Animal capture drug advice, acquisition and distribution to wildlife agency personnel
- The harp seal hunt—Joint meeting of DFO and the World Wildlife Fund
- National Wildlife Disease Strategy
- Public Health Agency of Canada Steering Group on Non-Enteric Zoonoses
- Expert Committee on Animal Health (CFIA)
- PrioNet: Network Centre of Excellence on TSEs—CWD theme leadership/Research Management Committee
- Health Canada's Working Group on Climate Change
- CCWHC Newsletters
- National Wildlife Disease Occurrence Report to the OIE - 2005
- Public Health Agency of Canada Lyme Borreliosis Consultation Committee
- Public Health Agency of Canada: Working Group on Climate Change and Lyme Borreliosis
- 32nd Aquatic Toxicity Workshop
- Animal Determinants of Emerging Disease (ADED): National Zoonoses rounds
- Federal/Provincial Polar Bear Technical Committee
- Development of CAZWV Chemical Immobilization of Wildlife Manual (2nd Edition)
- Inter-agency Wild Bird Influenza Survey—Executive Committee
- CFIA Avian Influenza Advisory Committee
- Bison Diseases Technical Workshop (Parks Canada)
- Canadian Animal Health Surveillance Network and Consultative Committee (CFIA)

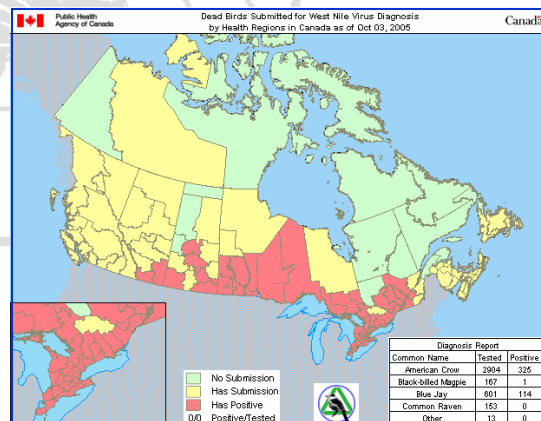
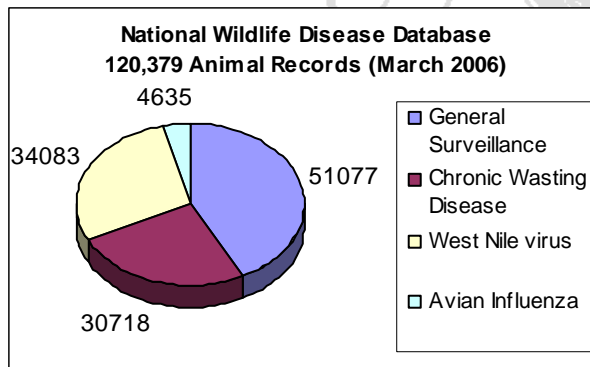
Information Services (Continued)

International

- World Organization for Animal Health (OIE) Working Group on Wildlife Diseases
- Type E Botulism on the Great Lakes - Canada-USA Workshop
- Emerging Infectious Diseases: Joint conference - WDA/AAZV/AAWV - Co-Chaired
- Envirovet Program—Guest Lectures - USA
- Arctic Climate Impacts Assessment, International Symposium on Climate Change in the Arctic
- Foundation for North American Wild Sheep, Wildlife Professionals Annual Meeting
- International Workshop on CWD—State and Provincial Updates—Co-chair
- International Symposium on Emerging Zoonoses
- National Conference on West Nile Virus in the United States
- Symposium on Highly Pathogenic Avian Influenza
- First International Symposium on Game & Ecology

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 Nacional de Costa Rica and the Charles Darwin Research Station, Galapagos Islands, Ecuador.



Data mapping in cooperation with the Public Health Agency of Canada

Canadian Cooperative Wildlife Health Centre

Centre Canadien Coopératif de la Santé de la Faune

English
Français
Español

Announcements
Short Course
Cancelled
Wild Bird
Influenza Survey
National CWD
Control Strategy

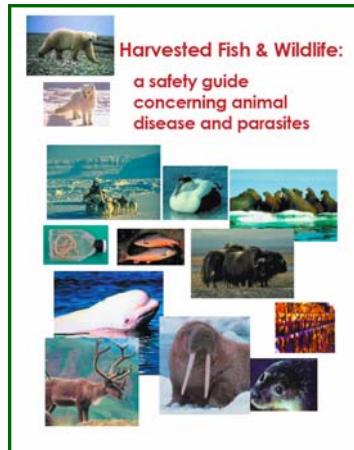
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Informational Websites
The CCWHC website was re-designed in 2005: A new improved appearance and more “user-friendly” navigation for this ever-expanding site.

<http://wildlife.usask.ca>

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 2005-2006.



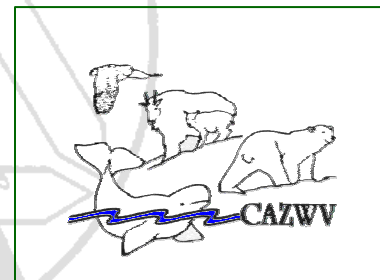
Northern Educational Materials

In cooperation with the ArcticNet Network Centre of Excellence and Trent University, the CCWHC has developed several hundred pages of educational materials related to diseases of wild food animals of importance to northern communities. Included are disease range, host species, human health risks, and handling procedures. The information was compiled and formatted with input from people with direct experience with northern hunters and resource users.



Wildlife Capture and Handling

The provision of educational programs to partner agency personnel remains a focus of the CCWHC. This includes key issues such as the capture and handling of wildlife. In 2005, the CCWHC worked with the Canadian Association of Zoo and Wildlife Veterinarians to complete the 2nd edition of the CAZVV course manual, which is central to the program.



Community-Based Wildlife Health Monitoring

This year marked the fourth year of community-based monitoring of wildlife health in the Sahtu region of the Northwest Territories. This is a collaborative program among the Sahtu Renewable Resources Board, the Department of Environment and Natural Resources, (Government of Northwest Territories), the Research Group for Arctic Parasitology and the Canadian Cooperative Wildlife Health Centre. In 2005-2006 the program generated considerable interest locally, nationally, and internationally with program personnel invited to speak at national and international forums.

Education Summary 2005-2006	
Hours of Instruction to Partner Agencies:	101
Graduate Students Supervised	22
University Courses Taught	6
Scientific Presentations	40

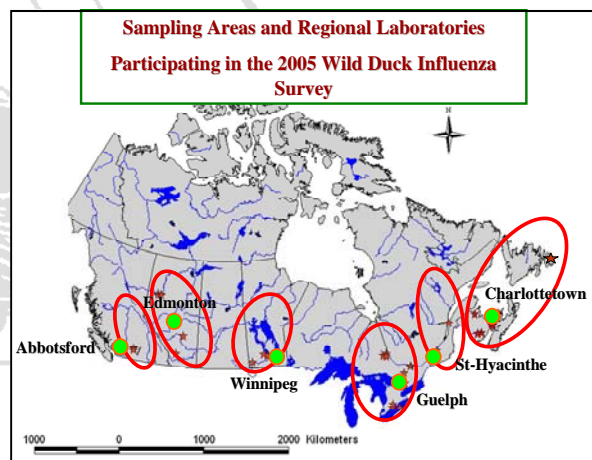
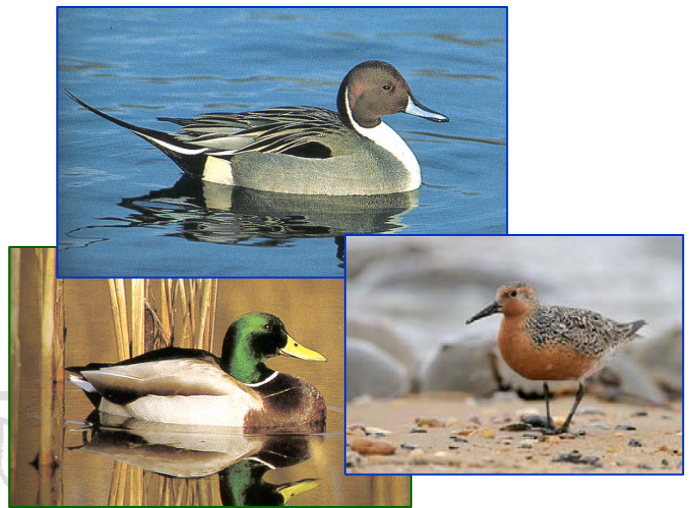
Wildlife Disease Response and Management

Canada's First Inter-Agency Wild Bird Influenza Survey

In 2005 the CCWHC organized and coordinated Canada's first national survey for influenza viruses in wild birds. This survey was developed at the urging of the Public Health Agency of Canada and the Canadian Food Inspection Agency, and used the structure and principle of Canada's National Wildlife Disease Strategy as the basis for action. The 2005 survey was focussed on live healthy wild ducks, the class of birds known to harbour an abundance of influenza strains. The objective of the survey was to document the virus strains present in wild ducks in six general migration corridors across the country. This survey was the start of a multi-year program to monitor wild birds for virus strains or genetic components that may be of concern to animal or human health.

A major benefit of this survey has been building new capacity to detect and respond to influenza viruses in Canada generally. Federal, provincial and territorial government agencies responsible for human health, veterinary services and wildlife pooled their expertise and their resources to carry out the survey and achieved a high level of inter-agency communication and preparedness to deal with future health emergencies.

The results from the 2005 and from on-going wild bird influenza surveys can be reviewed on the avian influenza pages of the CCWHC web site. The H5N1 Eurasian strain was not detected.



Influenza Viruses in Healthy Wild Ducks						
Region	# of Ducks Sampled	# of Ducks with Influenza Virus	%	Ducks with H5	%	Ducks with H7
Canada	4409	1604	36%	254	6%	0
Atlantic	717	327	46%	35	5%	0
Quebec	782	384	49%	28	4%	0
Ontario	786	347	44%	9	1%	0
Manitoba	548	92	17%	5	1%	0
Alberta	796	77	10%	0	0%	0
BC	704	369	52%	174	25%	0

Note: All H5 Strains found were non-pathogenic North American Strains

Wildlife Disease Response and Management (Continued)

In 2005-2006, 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 (business lines 1-3).

- Canada's Inter-agency Wild Bird Influenza Survey
- Health Assessment of Beluga Whales from the St. Lawrence Estuary
- Chronic Wasting Disease Surveillance in Saskatchewan
- Report on Avian Botulism Research
- Bears: Measures of Long-term Stress and Ecosystem Health
- Invasive Alien Species Partnership Program
- Improved Live Trap for Wild Bears



- Tuberculosis, Elk and Wolves in Riding Mountain National Park
- Avian Influenza, Newcastle Disease and West Nile Virus Infections in Ring-billed Gulls in Ontario
- Expanded Surveillance for West Nile Vectors on Vancouver Island
- Health Assessment of Wolves in Riding Mountain National Park
- Health Assessment in Marine Birds from the Northwest Atlantic
- National West Nile Virus Surveillance Program in Wild Birds

- Evaluation of the Role of Climate Change in the Emergence of Pathogens and Diseases in Arctic and Sub-arctic Ungulate Populations
- Avian Botulism: Distribution of Spores in Wetland Environments
- Salmonellosis Monitoring in Songbirds
- Diagnostic Test Development for Key Wildlife Pathogens



- Exposure Levels for Pesticides in Birds of Prey
- National Chronic Wasting Disease Control Strategy
- Risk Assessment of Disease Transmission Between Wild Dall's Sheep and Mountain Goats and Introduced Domestic Sheep, Goats, and Llamas in the NWT
- Coyotes and Bovine Tuberculosis in & around Riding Mountain NP
- Disease Monitoring of Common Eiders on the St. Lawrence River
- Health Assessment of Pine Marten in Quebec

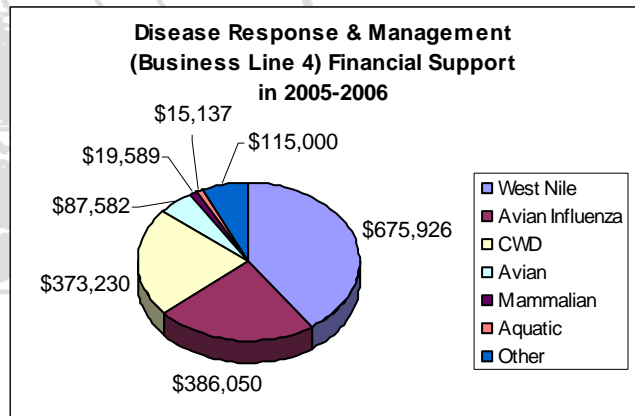
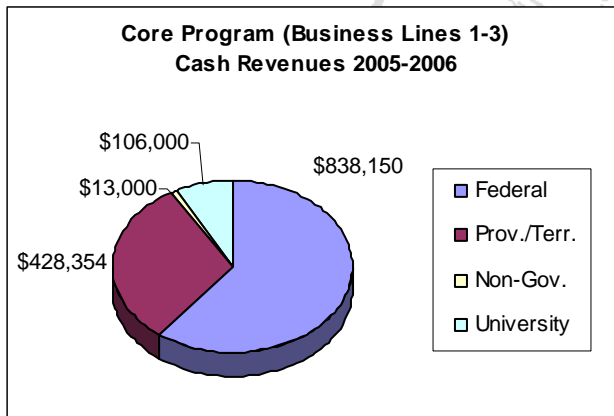
**Total Financial Resources For Disease Response and Management:
\$1,672,514**

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

- Beazley, K., M. Ball, L. Isaacman, **S. McBurney**, P. Wilson and T. Nette. Complexity and information gaps in recovery planning for moose (*Alces alces americana*) in Nova Scotia, Canada. *Alces*. (in press)
- Pollock, B. 2005. Trace elements status of white-tailed deer (*Odocoileus virginianus*) and moose (*Alces alces*) in Nova Scotia. Report prepared for CCWHC and Nova Scotia Department of Natural Resources. 28pp.
- Dobbin G, H. Hariharan, **P-Y Daoust**, S. Hariharan, S. Heaney, M. Coles, L. Price, CA Muckle. 2005. Survey of the bacterial flora of free-living double-crested cormorants (*Phalacrocorax auritus*) on Prince Edward Island, Canada. *Comparative Immunology, Microbiology and Infectious Diseases* 28:71-82.
- Kutz, S.J.**, E. P. Hoberg, **L. Polley**, and E. J. Jenkins. 2005. Global warming is changing the dynamics of arctic host-parasite systems. *Proc. R. Soc. Lond. B* 272: 2571-2576.
- Jenkins, E. J., A.M. Veitch, **S.J. Kutz**, E. P. Hoberg, and **L. Polley**. 2006. Climate change and the epidemiology of protostrongylid nematodes in northern ecosystems: *Parelaphostrongylus odocoilei* and *Protostrongylus stilesi* in Dall's sheep (*Ovis dalli*). *Parasitol.* 132, 1-15.
- Garde, E., **S. Kutz**, H. Schwantje, A.M. Veitch, E. Jenkins, and B. Elkin, 2005. Examining the risk of disease transmission between wild Dall's sheep and mountain goats, and introduced domestic sheep, goats, and llamas in the NWT. Prepared for the Agricultural Policy framework and ENR, Government of the NWT.
- Hoberg, E. P., E.J. Jenkins, B. Rosenthal, M. Wong, E. S. Erb, **S. J. Kutz**, and **L. Polley**. Structural polymorphism and cephalic morphology for first stage larvae of *Parelaphostrongylus odocoilei* (Protostrongylidae: Elaphostrongylinae) in Dall's sheep from the Mackenzie Mountains Canada. *Journal of Parasitology In Press*
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- T. Kuiken, **F.A. Leighton**, R.A.M. Fouchier, J.W. LeDuc, J.S.M. Peiris, A. Schudel, K. Stöhr, and A.D.M.E. Osterhaus, 2005. Pathogen Surveillance in Animals, *Science* 309, 1680-1681.
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- 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. 2005. A dynamic population model to investigate effects of climate on geographic range and seasonality of the tick *Ixodes scapularis*. *International Journal for Parasitology* 35: 375-389.
- Ogden, N.H., A. Maarouf, **I.K. Barker**, M. Bigras-Poulin, L.R. Lindsay, M.G. Morshed, C.J. O'Callaghan, F. Ramay, K.E. Smoyer-Tomic, D. Waltner-Toews, and D.F. Charron. 2006. Climate change and the potential for range expansion of the Lyme disease vector *Ixodes scapularis* in Canada. *International Journal for Parasitology* 36: 63-70.
- Gancz, A.Y., D.A. Smith, **I.K. Barker**, R. Lindsay and B. Hunter. 2006. Pathology and tissue distribution of West Nile virus in North American owls (family: Strigidae). *Avian Pathology* 35: 17-29.
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- 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.
- Yule, A.M., V. LePage, J. Austin, **I.K. Barker** and R.D. Moccia. Chronic exposure to *Clostridium botulinum* neurotoxin Type E in the round goby (*Neogobius melanostomus*). *Journal of Wildlife Diseases*, accepted.
- Whiteside, D.P., **I.K. Barker**, A. Tesoro, P.D. Conlon, K.G. Mehren, R.M. Jacobs, J. Theissen, and M. Spino. Pharmacokinetic disposition of the oral iron chelator deferiprone in the white Leghorn chicken (*Gallus gallus forma domestica*). *Avian Medicine and Surgery*, accepted.
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- S. Monette*, **A. D. Dallaire**, M. Mingelbier, D. Groman, **C. Uhlund**, J.-P. Richard, G. Paillard, L. M. Johansson, D. P. Chivers, H. W. Ferguson, **F. A. Leighton**, E. Simko. Massive mortality of common carp (*Cyprinus carpio carpio*) in the St. Lawrence River in 2001: diagnostic investigation and experimental reproduction of a lymphocytic encephalitis. Accepted for publication, *Vet Path*
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- Cattet, M.R.L.**, Bourque, A., Elkin, B.T., Powley, K.D., Dahlstrom, D.B., and N.A. Caulkett. 2006. Evaluation of the potential for injury with remote drug delivery systems. *Wildlife Society Bulletin* (in press).

Financial Report for 2005-2006 - Core Program Revenues

Financial Support for Core Program (Business Lines 1-3)			
Environment Canada	\$418,800	Nunavut	\$10,969
Public Health Agency of Canada	\$240,000	Prince Edward Island	\$4,735
Parks Canada	\$104,350	Ontario	\$143,500
CFIA	\$75,000	OMNR	\$73,500
Alberta	\$7,000	OMHLTC	\$70,000
British Columbia	\$30,000	Quebec	\$105,000
Manitoba	\$10,000	Saskatchewan	\$37,916
New Brunswick	\$22,536	Yukon	\$8,000
Newfoundland & Labrador	\$16,698	Ducks Unlimited	\$10,000
Northwest Territories	\$14,000	Syngenta	\$3,000
Nova Scotia	\$18,000	Veterinary Colleges/Universities	\$106,000
Total			\$1,385,504

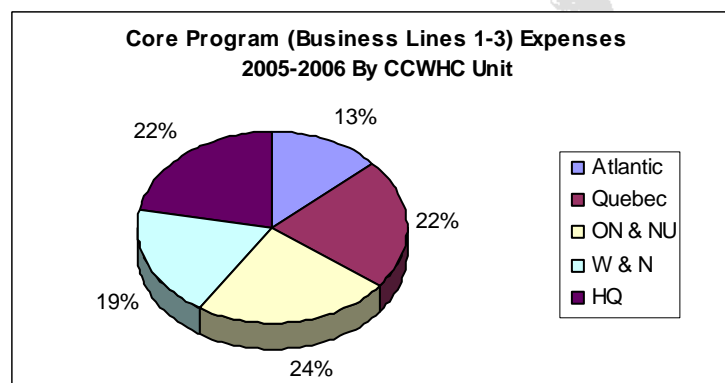
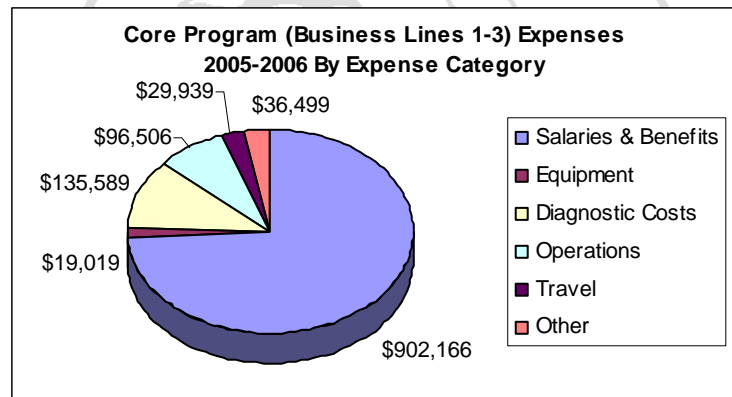


Cash Revenues in 2005-2006	
Core Program: (Business Lines 1-3)	\$1,385,504
Response & Management Targeted Programs: (Business Line 4)	\$1,672,514
Total:	\$3,058,018

Financial Report for 2005-2006 - Core Program Expenses

(Business Lines 1-3, 1 April 2005 to 31 March 2006)

Expense Category	Atlantic	Quebec	Ontario & Nunavut	Western & Northern	Headquarters Office	Totals
Salaries & Benefits	\$101,166	\$158,257	\$159,407	\$131,955	\$351,381	\$902,166
Equipment	\$0	\$6,795	\$4,355	\$3,203	\$4,666	\$19,019
Diagnostic Costs	\$11,428	\$41,120	\$39,840	\$43,201	\$0	\$135,589
Operations	\$162	\$10,326	\$12,748	\$7,020	\$66,250	\$96,506
Travel	\$2,846	\$8,637	\$6,476	\$3,410	\$8,570	\$29,939
Other	\$691	\$0	\$0	\$0	\$35,808	\$36,499
Overhead	\$28,728	\$52,154	\$33,423	\$28,318	\$13,239	\$155,862
Costs Recovered	\$0	\$39,691	\$0	\$9,131	\$242,309	\$291,131
Total Expenses						
Before Cost Recovery	\$145,022	\$277,289	\$256,249	\$217,107	\$479,914	\$1,375,580
After Cost Recovery	\$145,022	\$237,598	\$256,249	\$207,976	\$237,605	\$1,084,449



Canadian Cooperative Wildlife Health Centre Staff and Associates—2005-2006

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, Marie-Eve Remy
Associates	Christian Bédard, Denis Bélanger, Guy Fitzgerald, Nick Ogden, Daniel Martineau, Roger Ruppner, Carl Uhland

Ontario & Nunavut Region

Director	Ian K. Barker
Professional	Doug Campbell, M. Katherine Welch
Technical	Leonard Shirose
Clerical	Carol-Lee Ernst
Associates	Bruce Hunter, John Lumsden, Dale Smith

Western & Northern Region

Director	Trent Bollinger
Professional	Gary Wobeser
Technical	Marnie Zimmer
Associates	Nigel Caulkett, Jan Diederichs, Hélène Philibert, Lydden Polley, Judit Smits, Mark Wickstrom

Headquarters Office

Executive Director	Ted Leighton
Professional	Marc Cattet, Ron Templeman, Patrick Zimmer
Technical	Amy Templeman, Kevin Brown
Clerical	Jacqui Brown
Associates	Maria Forzan

Developing Centres

British Columbia	Craig Stephen (Director), Jane Parmley
Alberta	Susan Kutz (Director)

Canadian Cooperative Wildlife Health Centre Board of Directors—2005-2006

(* 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, Wildlife Division, Newfoundland & Labrador
Hugh Hunt	Executive Director, Resource Stewardship Branch, Saskatchewan Environment
Harvey Jessup	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
Rod Davis	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 * (Chair)	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
Kate McQuarrie	Director, Fish & Wildlife Division, PEI Department of Environment
Mike Sullivan	Director, Fish and Wildlife Branch, NB Dept. of Natural Resources and Energy
Drikus Gissing	Director, Wildlife Services, Nunavut Department of Sustainable Development
Stephen Woodley	Chief Scientist, Ecological Integrity Branch, Parks Canada
TBA	Environment Canada