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**Canadian
Cooperative
Wildlife
Health Centre**



**Centre
Canadien
Coopératif de la
Santé
de la Faune**

Newsletter 1-1, Winter 1992

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Canadian Cooperative Wildlife Health Centre is underway!

After nearly 6 years of planning and negotiation a new organization devoted to the well-being of free-living Canadian wildlife is now active. The Canadian Cooperative Wildlife Health Centre (CCWHC) is a unique cooperative endeavor among Canada's four colleges of veterinary medicine, Environment Canada, and the governments of all provinces and territories. Two private organizations, the Max Bell Foundation and the Canadian Wildlife Foundation, generously stepped in to provide funding to help ensure the project got off the ground.

The centre is based on the growing realization that disease, in all its many forms, is important in the ecology of wild species and that disease must be factored into the wildlife management equation. Disease in wildlife is often thought of in terms of spectacular die-offs, such as those caused by avian cholera or botulism in waterfowl, or conditions that cause recognizable clinical signs, e.g., meningeal worm infection in moose. Such conditions represent the visible "tip of the iceberg" and other less obvious conditions also exact a price from wild animals. It is now becoming clear that interactions among nutrition, weather, predation, and disease are often very complex. The problem for

the wildlife manager is two-fold: first to assess the extent and significance of disease in a population and, secondly, to decide if and how management could be used to reduce the severity or extent of disease. Wildlife managers traditionally have had to make management decisions based on incomplete information. This is particularly true of problems related to disease. The major reason for a lack of data on disease in Canadian wildlife has been the absence of any method for systematically investigating and diagnosing disease occurrences or for recording information on the occurrence of disease in various species. For example, although botulism kills thousands of waterfowl every year in Canada, there is no record of when, where or how many birds have died. Another problem has been the tendency to separate problems related to poisons and environmental pollutants from those caused by infectious agents. This separation is artificial because disease problems caused by poisons and those caused by bacteria, viruses, parasites and other agents are intricately intertwined. Poisons, nutritional deficiencies, and other stressors affect resistance to infectious agents, while animals succumbing to poisons are often weakened by infectious agents or may actually die of some factor other than the poison. Solving disease problems usually involves investigation and assessment of many different causative factors.

The CCWHC was organized to address the problem of the lack of a national system for investigation of disease occurrences and for recording, compiling and disseminating information on disease to wildlife managers. It was recognized very early that it would be impossible to establish a "new" laboratory devoted to this purpose, because the cost of the expertise and equipment required for the diagnostic disciplines of pathology, parasitology, bacteriology, virology, mycology, toxicology, and epidemiology. It was also recognized that a single facility could not respond quickly to disease problems across the country. Fortunately, the basic facilities and expertise for such a system already existed at the four veterinary colleges and these, together with the National Wildlife Research Centre, Environment Canada, Hull, provide the basis for a system of regional centres unlike that anywhere else in the world. Cooperative funding through the CCWHC allows: (i) strengthening of the individual laboratories, (ii) linking these laboratories with the biologists and field staff of resource agencies across the country who are confronted by disease problems in the wild and, (iii) establishing a central database for recording and disseminating information.

A question that is often asked is how the CCWHC will interact with existing arrangements for disease diagnostic work, for example, the relationships that exist in some provinces between wildlife biologists and the veterinarians at provincial veterinary diagnostic laboratories. The answer is straight-forward: the CCWHC encourages continuation of these arrangements because we recognize the value of the expertise available in these laboratories and because their contribution strengthens the framework for disease investigation in Canada. We will actively collect information from these laboratories and other sources about the occurrence of disease and incorporate this information into the national database. The CCWHC will also be available to assist provincial laboratories, when requested to do so.

How the CCWHC will work:

The CCWHC is basically an organization for linking veterinary expertise in the diagnosis of disease with biologists who encounter disease problems in the field. To do this, the CCWHC has four Regional Centres, each with a responsibility to provide diagnostic and investigative support to resource agencies in the area. The Centre at the Atlantic Veterinary College, Charlottetown will serve the Atlantic provinces; the Centre at the Faculté de Médecine Vétérinaire, Université de Montréal, Saint-Hyacinthe will serve Québec; the Centre at the Ontario Veterinary College, Guelph will serve Ontario, and the Centre at the Western College of Veterinary Medicine, Saskatoon will serve the western provinces, the Yukon and the Northwest Territories. This regional approach was taken to assure quick response to problems and to establish a more personal relationship between biologists and disease specialists; however, each of the centres will be able to call on the others for assistance in dealing with any particular problem and the special expertise of individual staff at all the centres will be utilized.

There is no charge to member agencies for diagnostic services. Assistance with field investigation of disease problems will be provided when requested by an agency. Results of all investigations will be reported directly by the Regional Centre to the biologists or agencies involved, as well as to the Headquarters Office, which is located in Saskatoon. This information, together with information collected from other sources, such as the provincial veterinary laboratories and the university researchers, will form the nucleus of a central database on disease.

A major responsibility of the centre will be the dissemination of information on diseases in Canadian wildlife. This will take several forms including newsletters, of which this is the first, quarterly and annual reports on activities of the centres, updates on important current disease problems (such as the outbreak of Newcastle disease virus that occurred in waterbirds in 1990 and again in 1992), interchange of data on disease occurrence with the National Wildlife Health Research Centre, U.S. Fish & Wildlife Service, response to requests for information and advice on disease problems from member agencies, and offering of short courses on disease topics for wildlife biologists.

The CCWHC is governed by a Board of Directors, made up of representatives of the participating agencies, who will set policy and determine the direction of the organization. The system will be managed by two co-directors, based in Saskatoon, and regional coordinators at each of the veterinary colleges. A short biographical sketch of these people is include below as well as a photograph of the group at the first joint meeting held in Guelph in early November. A small number of additional staff will be hired throughout the system and these members will be introduced in subsequent newsletters.

How to contact the Centre:

Telephone and fax numbers for the Regional Centres are:

Atlantic Region:

Tel: (902) 566-0667

Fax: (902) 566-0958

Québec Region:

Tel: (514) 773-8521 ext 307

Fax: (514) 773-2161

Ontario Region:

Tel: (519) 832-8800 ext 4616

Fax: (519) 824-5930

Western/Northern Region:

Tel: (306) 966-5099

Fax: (306) 966-8747

Headquarters Office:

Tel: 1-800-567-2033*

Fax: (306) 966-8747

*A toll-free 800 number has been established on an experimental basis to facilitate reporting disease events or for requests for information. Requests for information about disease, or for assistance, received at Headquarters Office, will be transferred to the appropriate Regional Centre to facilitate rapid response.

The people involved:

Atlantic Regional Coordinator: **Pierre-Yves Daoust**. Born and raised in the province of Québec. Obtained DVM degree from the Université de Montréal and then completed PhD in veterinary pathology at the University of Saskatchewan in 1981. Worked for 2 years as a research assistant in the Department of Veterinary Pathology, University of Guelph, and for 4 years as a diagnostic pathologist with the Alberta Ministry of Agriculture. Became certified as a diplomate of the American College of Veterinary pathologists in 1985. Member of the faculty of the Department of Pathology & Microbiology, Atlantic Veterinary College since 1987. Interests: Biology and diseases of all free-ranging species with a particular interest in marine birds. Address: Department of Veterinary Pathology & Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, P.E.I. C1A 4P3.

Québec Regional Coordinator: **Daniel Martineau**. Born in Montréal, Québec. Obtained a DVM degree at Université de Montréal in 1976 and then was in veterinary practice with farm animals for 2 years, followed by 4 years with Agriculture Canada. Subsequently, undertook training in veterinary pathology at the Université de Montréal (residency and M.Sc.) and at Cornell University, Ithaca, N.Y. (residency, Ph.D., diplomate of the American College of Veterinary Pathologists). Member of the faculty of the Department of Veterinary Pathology, Université de Montréal since May 1992. Interests include viral etiology of fish tumors and impact of industrial contaminants on cetaceans and pinnipeds from the St. Lawrence Estuary. Address: Faculté de Médecine Vétérinaire, Département de Pathologie, Université de Montréal, Saint-Hyacinthe, P.Q. J2S 7C6.

Ontario Regional Coordinator: **Ian Barker**. Born in Québec and raised in Ontario, he obtained his DVM and an MSc in veterinary parasitology at the Ontario Veterinary College, University of Guelph. Spent 5 years at the University of Melbourne, Australia, where he obtained a PhD in veterinary parasitology/pathology, and was wildlife pathologist. Member of the faculty, and wildlife pathologist, in the Department of Veterinary Pathology, OVC, University of Guelph since 1975. Interests: diseases of captive and free-living wildlife (amphibia to mammals). Address: Department of Veterinary Pathology, Ontario Veterinary College, University of Guelph, Guelph, Ontario N1G 2W1.

Western and Northern Region, and Headquarters (Co-Director): **F. A. (Ted) Leighton**. Raised in rural New York and Nova Scotia. He received an AB degree from Cornell University in 1970 and a DVM from the University of Saskatchewan in 1979. He did post-graduate study in veterinary pathology at Cornell University leading to a PhD in 1984. Diplomate of the American College of Veterinary Pathologists. He joined the faculty of the Department of Veterinary Pathology at the Western College of Veterinary Medicine in 1984 and became department Head in 1988. Interests: diseases of free-living wildlife, particularly those caused by environmental pollutants. Address: Department of Veterinary Pathology, WCVM, University of Saskatchewan, Saskatoon, Sask., S7N 0W0.

(Co-Director) **Gary Wobeser**. Raised on a farm near Regina, Saskatchewan. Received a BSA (Fisheries and Wildlife Management), MSc (Zoology), and DVM from the University of Guelph. Returned to the Department of Veterinary Pathology, University of Saskatchewan for PhD. Member of the faculty of the Department of Veterinary Pathology, Western College of Veterinary Medicine since 1974. Interests: disease in free-living wildlife, particularly infectious diseases and waterfowl. Address: Department of Veterinary Pathology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Sask. S7N 0W0.

The regional coordinators and co-directors took advantage of another meeting at the University of Guelph in November to get together and plan operations of the diagnostic services of CCWHC. This was also an opportunity to distribute caps bearing the new logo to stress that although we come from a variety of institutions, we all wear the "same hat". From left to right are: Daniel Martineau, regional coordinator Québec region; Ted Leighton, co-director and Western/Northern region; Gary Wobeser, co-director and

Western/Northern region; Pierre-Yves Daoust, regional coordinator Atlantic region; and Ian Barker, regional coordinator Ontario region.



The logo:

The logo we have chosen has three elements: a circle to indicate the cooperative nature of the CCWHC with participation from all resource agencies in Canada; a stylized triangle to emphasize the epidemiological principle that health represents an interaction among three components: the animal, disease agents, and other elements of the environment; and the Canada or gray jay, a wild species that occurs in all provinces and territories.

Disease update:

Two rather extensive outbreaks of disease occurred among wild geese in Saskatchewan this past autumn. The first involved lesser snow geese on Redberry Lake (52°43'N, 107°09'W) northwest of Saskatoon. Several hundred geese died in one bay over a short period of time. Dead birds submitted to the Western/Northern Regional Centre, by staff of a project studying white pelicans on this lake, were in excellent body condition but had severe enteritis (inflammation of the intestine). The disease fitted the pattern of a condition called "epizootic necrotizing enteritis of wild geese" that has been recognized in Manitoba and Saskatchewan each autumn since 1983. The disease results from overgrowth of the bacterium *Clostridium perfringens* in the intestine and is believed to be associated with the rapid diet change that occurs when geese from the arctic shift to a grain diet on the prairies. This bacterium produces potent toxins that damage the lining of the intestine. All of the outbreaks to date have occurred on saline wetlands but why this is so, and many other aspects of the disease, are unknown.

The second occurrence was an outbreak of avian cholera (infection with the bacterium *Pasteurella multocida*) among geese on the Miry Creek area of the South Saskatchewan River (50°48'N, 108°53'W) in October. Specimens were submitted to the Western/Northern Regional Centre by staff from Saskatchewan Department of Natural Resources and Canadian Wildlife Service. These specimens, together with a limited field investigation by CCWHC staff, indicated that white-fronted geese were the most commonly involved species, with smaller numbers of lesser snow, Canada and Ross' geese and a few ducks also dying. The total mortality is unknown, partially because of very rapid scavenging of carcasses, but consisted of at least several hundred birds. Many

eagles concentrated in the area (66 were counted at one time by a CWS biologist) and four eagles found dead in the area also died of avian cholera. This outbreak of avian cholera is unusual because the disease has only been identified on two previous occasions among southward migrating waterfowl in Canada. An outbreak of avian cholera occurred in snow geese in southern Manitoba in the autumn of 1979. The other instance occurred among several species of geese and sandhill cranes at Miry Creek in 1991. Both of these previous outbreaks followed recognized outbreaks among the same species on the breeding grounds during summer but, to our knowledge, no die-off was recognized in the arctic in 1992. This is also the first time that eagles have been recognized to die of this disease in association with a die-off among waterfowl in Canada. The frequency of occurrence and the geographical distribution of avian cholera die-offs among waterfowl has increased dramatically during the past two decades and this disease is now considered the most important infectious disease of waterfowl. Two recent reviews of the disease have been published: Botzler, 1991. Epizootiology of avian cholera in wildfowl, *J. Wildl. Dis.* 27:367-395; Wobeser, 1992. Avian cholera and waterfowl biology. *J. Wildl. Dis.* 28:674-682.

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Online @ <http://wildlife1.usask.ca/newsletters/newsletter1-1.htm>