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**Canadian  
Wildlife  
Administration**

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**June 1982**

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**Gestion  
de la faune  
au Canada**

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**Juin 1982**



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# **Canadian Wildlife Administration**

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**June 1982**

**“Co-operative  
wildlife  
programs”**

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# **Gestion de la faune au Canada**

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**Juin 1982**

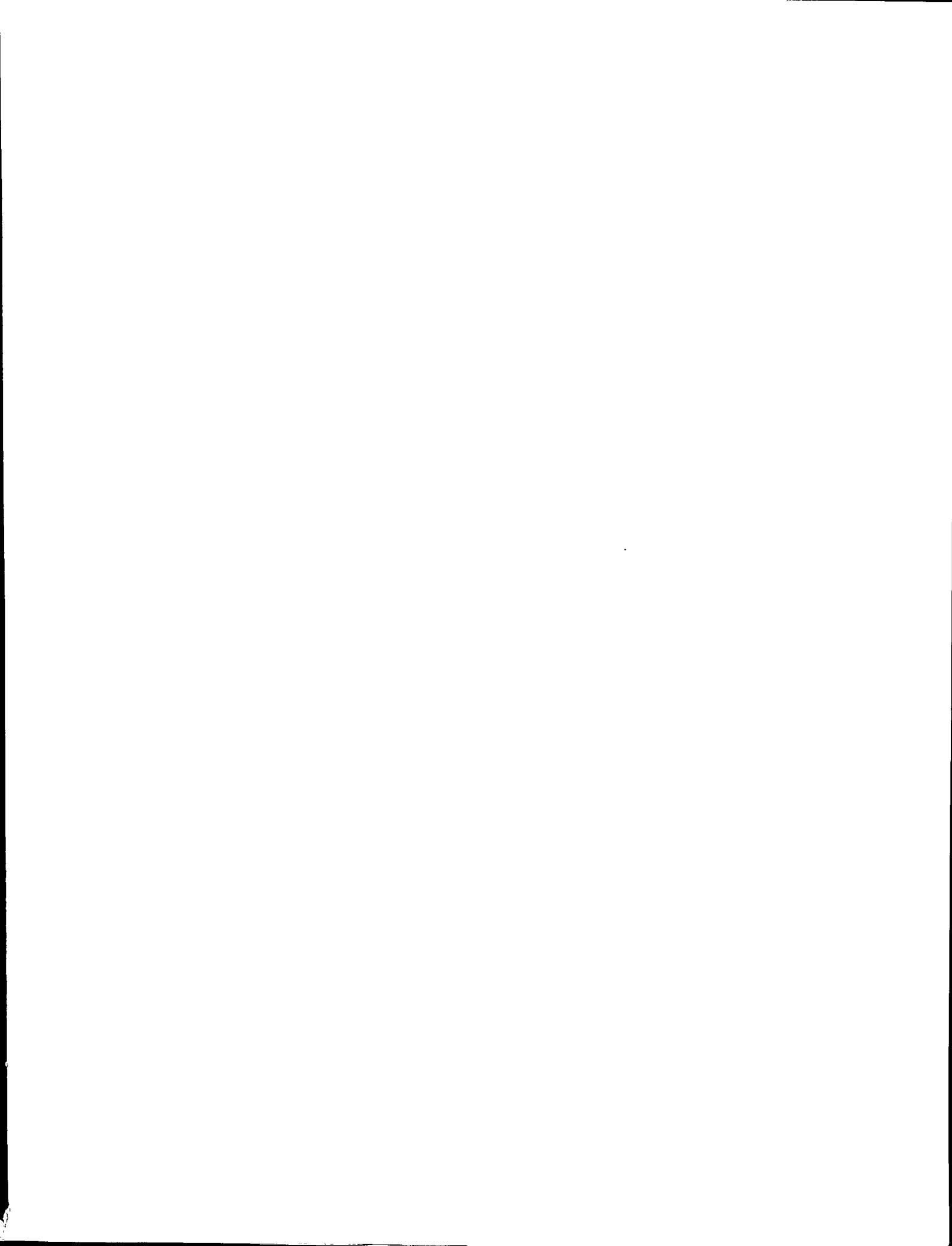
**“Programmes  
conjoints  
sur la faune”**

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**Compiled by the  
Canadian Wildlife Service,  
Environment Canada  
for the forty-sixth  
Federal-Provincial Wildlife Conference**

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**Compilé par le  
Service canadien de la faune,  
Environnement Canada,  
pour la quarante-sixième  
Conférence fédérale-provinciale sur la  
faune**



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Seventy-five nations, covering over 75% of the world's land surface area, had, by the end of 1981, ratified or acceded to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). "Trade", as used by CITES, means the international movement of species and specimens of animals and plants and covers both commercial and non-commercial shipments. With the exception of Belgium, the Netherlands, and Luxembourg, all major "consumer" nations are now adhering to the articles of the Convention. On the other hand, a number of important "producer" states such as Mexico, Thailand, Burma, and numerous African nations including the Sudan, Ethiopia, Mozambique, Angola, and Chad have shown little inclination to get involved. Bearing in mind the basic philosophy of CITES is that consumer states will not import designated species or products from producer states unless covered by appropriate documentation, it is difficult to understand the non-participation of developing and producer states in this most widely used and accepted international trade agreement. It becomes all the more difficult to understand when major producer states in the developing world are only required to each pay between 0.01 and 0.16% of the operating costs of the CITES Secretariat while consumer nations are individually paying from 3.28 to 25.0% of the annual budget of just under one million U.S. dollars. However, despite the costs, the intent of the Convention is good.

CITES is not without its problems and unless all parties fully co-operate the agreement can hardly be expected to work. It is not only the matter of the operational costs of the administrative arm of CITES — the Secretariat — but also very considerable administrative hidden costs of participating nations. In Canada, for instance, our obvious costs are those involving the CITES office of the Canadian Wildlife Service. Hidden costs include the time expended by officers in the federal department of External Affairs dealing with legislative problems; time spent by customs officers enforcing legislation at ports of entry and the time expended and expenses incurred by members of the Royal Canadian Mounted Police Customs and Excise Section following up and investigating species and products illegally entered into Canada. However, the operation of CITES is not confined to the federal government alone. All provinces and territories have designated specific officers to perform the function of

À la fin de 1981, 75 pays couvrant plus de 75 % de la surface de la terre avaient ratifié la Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction (CITES) ou y avaient adhéré. Aux termes de la Convention, "commerce" signifie le transport international entre deux pays d'espèces ou de spécimens d'animaux et de plantes et couvre tous les envois commerciaux ou non. À l'exception de la Belgique, des Pays-Bas et du Luxembourg, toutes les principales nations "consommatrices" adhèrent maintenant aux articles de la Convention. Par ailleurs, un certain nombre de pays "producteurs" importants, par exemple le Mexique, la Thaïlande, la Birmanie et beaucoup de pays d'Afrique dont le Soudan, l'Éthiopie, le Mozambique, l'Angola et le Tchad, se montrent peu disposés à devenir parties à la Convention. Compte tenu du fait que la CITES stipule que les pays consommateurs ne peuvent importer certaines espèces ou certains produits des pays producteurs sans que les permis appropriés aient été délivrés, il est difficile de comprendre pourquoi certains pays en développement et certaines nations productrices ne sont pas parties à cet accord commercial international largement accepté et utilisé. Et il est en plus difficile de comprendre cet état de choses compte tenu du fait que les principaux pays producteurs du Tiers monde ne sont tenus de payer chacun qu'entre 0,01 et 0,16 % des coûts de fonctionnement du Secrétariat de la CITES, tandis que les pays consommateurs assument chacun de 3,28 à 25 % du budget annuel légèrement inférieur à un million de dollars américains. C'est cher mais la cause est bonne.

En outre, la CITES a ses problèmes à régler et, à moins que toutes les parties ne coopèrent pleinement, on peut difficilement s'attendre à ce que l'accord donne les résultats voulus. Il ne s'agit pas seulement des coûts de fonctionnement de l'organe de gestion de la CITES, c'est-à-dire le Secrétariat, mais également des coûts administratifs cachés considérables dans les pays participants. Au Canada, par exemple, les coûts évidents sont liés au bureau de la CITES au Service canadien de la faune. Les coûts cachés comprennent le temps consacré par les agents du ministère fédéral des Affaires extérieures aux problèmes législatifs; le temps consacré par les douaniers à faire appliquer la loi aux ports d'arrivée ainsi que le temps consacré et les fonds dépensés par les membres de la Section des douanes et de l'accise de la Gendarmerie royale du Canada pour faire les recherches relatives aux espèces et aux produits entrés illégalement au Canada. Toutefois, la mise en oeuvre de la CITES ne relève pas uniquement du gouvernement fédéral.

provincial/territorial management and scientific authorities for CITES within their respective jurisdictions. The officers concerned are required to issue CITES export permits, answer questions from the public concerning exports, draft species status reports, and advise the federal CITES Management and Scientific Authorities on many aspects of problems faced by the public, the application of permit requirements, and the scientific evaluation of wildlife populations within their jurisdictions. The hidden costs are high, but freely given by all jurisdictions in a true spirit of co-operation to make CITES work in Canada.

Probably the most serious of the problems facing the future of CITES is lack of understanding of the agreement. Many non-governmental organizations (NGOs) and even some governments appear to have lost sight of the original intent of the Convention as expressed by Recommendation 99(3) of the 1972 Stockholm Conference on the Human Environment which reads:

*"It is recommended that a plenipotentiary conference be convened as soon as possible, under appropriate governmental or inter-governmental auspices, to prepare and adopt a convention on export, import and transit of certain species of wild animals and plants."*

This rather innocent statement has led instead to the inclusion of the word "endangered" in the title of the Convention which in turn is interpreted by many NGOs as meaning that all species listed in the CITES Appendices should be considered endangered. This in turn has led to NGO pressure being brought to bear on a number of governments to "list" species, mainly animals, and severely restrict if not prohibit trade or movement of such species for humanitarian purposes that have nothing to do with the biological or trade status of the animal. Although the motives for such pressures and ideals cannot be criticized, CITES is not the vehicle that should be used. Such pressures, and listings, can easily and in fact do, bring pressures to bear on nations managing wild populations of the animals concerned.

CITES, as visualized by the International Union for the Conservation of Nature and Natural Resources (IUCN), was to be a co-operative venture between producer and consumer nations to stop illegal trade resulting from illegal hunting and collecting of specific species of wild animals and plants. As it is

Toutes les administrations provinciales et territoriales ont désigné des agents particuliers chargés d'assumer les fonctions d'organe de gestion et d'autorité scientifique provincial et territorial pour la CITES sur leur territoire respectif. Ces agents délivrent les permis d'exportation de la CITES, répondent aux demandes de renseignements du public au sujet des exportations, rédigent des rapports sur la situation des espèces et donnent des conseils aux organes de gestion et aux autorités scientifiques de la CITES au gouvernement fédéral sur de nombreuses facettes des problèmes concernant le public, l'application des exigences relatives aux permis et l'évaluation scientifique des populations fauniques sur leur territoire. Les coûts cachés sont élevés mais ils sont assumés généreusement par toutes les jurisdictions qui font preuve d'un véritable esprit de coopération pour assurer l'application de la CITES au Canada.

L'un des principaux problèmes mettant en cause l'avenir de la CITES est fort probablement le fait que l'accord est mal compris. Beaucoup d'organismes non gouvernementaux et même quelques gouvernements semblent avoir perdu de vue le but premier de la Convention exprimé dans la recommandation 99(3) de la Conférence sur l'environnement humain tenue à Stockholm en 1972 qui se lit comme suit:

*"Il est recommandé de convoquer dans les plus brefs délais, sous les auspices gouvernementaux ou intergouvernementaux appropriés, une conférence de plénipotentiaires qui rédigerait et adopterait une convention sur l'exportation, l'importation et le transit de certaines espèces animales et végétales sauvages".*

Ce simple énoncé a conduit à l'inclusion de l'expression "menacées d'extinction" dans le titre de la Convention et, de ce fait, de nombreux organismes non gouvernementaux considèrent que toutes les espèces inscrites aux annexes de la CITES devraient être considérées comme menacées d'extinction. Et c'est pour cette raison que ces organismes font des pressions auprès d'un certain nombre de gouvernements pour qu'ils inscrivent aux annexes certaines espèces, surtout des animaux, et posent des restrictions ou des interdictions quant au commerce et au transport de ces espèces pour des fins humanitaires qui n'ont rien à voir avec la situation biologique ou commerciale des animaux en question. On ne peut certes critiquer ni les motifs ni les idéaux qui animent ces organismes, mais la CITES n'est pas le moyen dont il faudrait se servir. Ces pressions et les inscriptions aux annexes peuvent facilement im-

the consumer that creates the desire and markets for exotic species and products, it was agreed that importing states would only allow entry of species and products that had been legally exported. This in turn would make it difficult for the poacher to sell his wares to the affluent markets.

Although CITES was not developed to hinder or otherwise interfere with legitimate trade resulting from legitimate management of any species within any country, some producer nations are possibly being penalized by the interpretation of CITES in a few consumer states. As an example, many African nations have to crop certain wild animals such as leopard, crocodile and rhinoceros during the application of legitimate, biologically sound management programmes. A very profitable method of cropping is to sell selected animals to visiting big game hunters who are prepared to pay vast amounts of money to obtain trophies of rare or exotic animals. It has been traditional for many years in most African countries to encourage trophy hunting by visiting sportsmen as a source of revenue to support wildlife management. If the United States or West Germany, prohibits the import of legitimately taken hunting trophies, the country in which they could be taken will lose an important source of revenue. As CITES does not prohibit trophy hunting, any ban on import of such trophies can and does restrict management and thus can be considered a non-co-operative interference in another country's management practices. Recognizing the principles involved in trophy hunting, Canada has always allowed the import of Appendix I species hunting trophies when covered by proper export and import permits. Too much interference by developed countries — the consumer states — can only lead to dissatisfaction with, possible withdrawal from, or non-adherence to CITES by penalized developing countries.

The fact that CITES is the most widely accepted international natural resources agreement in existence today is also causing problems. Although technically it is a trade agreement, it is almost universally known as an endangered species agreement, which implies far more than trade. Certainly the majority of NGOs view it as an endangered species agreement and lobby accordingly during CITES general conferences of the Parties. A number of developing nations consider the approach to be an encroachment into their internal affairs.

poser un fardeau aux pays qui gèrent des populations sauvages des espèces concernées, et c'est ce qui se produit en fait.

Aux yeux des membres de l'Union internationale pour la conservation de la nature et de ses ressources (IUCN), la CITES devait être appliquée en coopération par les pays producteurs et les pays consommateurs en vue de mettre un terme au commerce illégal résultant de la chasse et de la collecte illégales de certaines espèces de faune et de flore sauvages. Étant donné que c'est le consommateur qui crée le besoin et les marchés pour les espèces et les produits exotiques, il a été convenu que les états importateurs ne permettraient l'entrée que des espèces et des produits légalement exportés. Ainsi, le braconnier aurait de la difficulté à vendre sa marchandise aux acheteurs des pays riches.

La CITES ne vise pas à empêcher ou à entraver le commerce légal résultant d'une gestion légitime des espèces dans les divers pays, mais certaines nations productrices sont peut-être pénalisées par la façon dont certains états consommateurs interprètent la CITES. Par exemple, dans beaucoup de pays d'Afrique, il faut tuer certains animaux sauvages, par exemple des léopards, des crocodiles et des rhinocéros, dans le cadre de programmes de gestion légitimes et pertinents sur le plan biologique. Il est très profitable pour ces pays de vendre certains animaux aux chasseurs étrangers de gros gibier disposés à payer de grosses sommes d'argent pour acquérir des trophées d'animaux rares ou exotiques. Depuis de très nombreuses années, la plupart des pays d'Afrique invitent les chasseurs de trophées étrangers à venir chasser pour recueillir des fonds en vue de financer la gestion de la faune. Si les États-Unis ou la République fédérale d'Allemagne interdisent l'importation des trophées de chasse pris légalement, les pays d'où proviennent ces trophées pourraient perdre une importante source de revenus. La CITES n'interdisant pas la chasse aux trophées, l'interdiction d'importer des trophées de chasse nuit en fait aux activités de gestion et peut par conséquent être considérée comme une ingérence dans les pratiques de gestion d'un autre pays. Reconnaissant les principes touchant à la chasse aux trophées, le Canada permet depuis toujours l'importation des espèces inscrites à l'annexe I susceptibles de devenir des trophées de chasse lorsque les permis d'exportation et d'importation voulus sont délivrés. Si les pays développés (les états consommateurs) interviennent trop, il n'en résultera que du mécontentement chez les pays en développement pénalisés qui pourraient se retirer de la CITES ou refuser d'y adhérer.

Does CITES have a future? The answer is "yes", but only if there is a better understanding of the intent of the agreement. No agreement can be static and to be truly effective it must evolve with changing environmental requirements and the general wish of the people. After 10 years of gestation, CITES is coming of age and must be evaluated against today's needs; conditions have changed considerably since the 1973 Washington conference at which the agreement was prepared and adopted. Recognizing this fact, a Canadian proposal to evaluate the biological and trade status of all CITES species, put to the 1981 New Delhi CITES conference, was unanimously accepted and all nations should now be preparing up-to-date data. The new data, when compared to previous data, should indicate whether or not CITES is beginning to have any effect on the biological status of the species the agreement was designed to protect. If there are no positive signs of the success of CITES, then consideration must be given as to why the Convention is not having any effect, if CITES is the right tool, for what is required or if a new agreement should be drawn up to meet today's needs.

The survival of any wild natural resource should not depend on the efforts of a single government. Natural resources are not limited by political boundaries and any governmental effort to conserve the resource must include intergovernmental co-operation. Without such co-operation, the world's natural resources face a very bleak future.

**John B. Heppes**  
*Administrator*  
*Convention on International Trade*  
*in Endangered Species*

Le fait que la CITES soit l'accord international concernant les ressources naturelles le plus accepté de nos jours pose également des problèmes. Sur le plan technique, il s'agit d'un accord sur le commerce, mais il est presque universellement connu comme un accord sur les espèces menacées d'extinction, ce qui met en cause bien plus que le seul commerce. Sans aucun doute, la majorité des organismes non gouvernementaux le considèrent comme un accord concernant les espèces menacées d'extinction et font des pressions en conséquence durant les assemblées générales des Parties à la CITES. Un certain nombre de pays en développement considèrent que cette façon d'agir constitue une ingérence dans leurs affaires intérieures.

La CITES a-t-elle un avenir? Bien sûr, mais seulement si les objectifs de l'accord sont mieux compris. Aucun accord ne peut demeurer stationnaire et, pour être vraiment efficace, il doit évoluer en fonction des changements dans les exigences environnementales et les désirs des gens. Après dix ans, la CITES commence à avoir de l'âge et elle doit être évaluée en fonction des besoins actuels; la situation a considérablement changé depuis la conférence tenue à Washington en 1973 et au cours de laquelle l'accord a été élaboré et adopté. Compte tenu de cela, la proposition du Canada concernant l'évaluation de la situation biologique et commerciale de toutes les espèces visées par la CITES qui a été faite lors de la conférence de la CITES à New Delhi en 1981 a été acceptée à l'unanimité et tous les pays devraient maintenant mettre à jour leurs données. Les nouvelles données, comparées aux anciennes, devraient indiquer si la CITES commence à avoir des effets sur la situation biologique des espèces qu'elle devait protéger. Si l'on constate que la CITES n'a aucun effet positif, il faudra chercher à savoir pourquoi, déterminer si la CITES est le bon outil ou s'il faut élaborer un nouvel accord pour satisfaire les besoins actuels.

La survie des ressources naturelles sauvages ne devrait pas dépendre des efforts d'un seul gouvernement. Les ressources naturelles ne respectent pas les frontières politiques et tous les efforts déployés par un gouvernement pour protéger une ressource doivent s'inscrire dans le cadre d'une coopération intergouvernementale. Sans cette coopération, les ressources naturelles du monde entier font face à un avenir très sombre.

**John B. Heppes**  
*Administrateur*  
*Convention sur le commerce international des*  
*espèces de faune et de flore sauvages*  
*menacées d'extinction*

## Canadian Wildlife Service Bird banding

### Introduction

Canadians began using banding in 1905 to study the comings and goings of migratory birds. Since then, ornithologists have used banding, or results obtained from banding, for many other purposes: wherever individual birds must be identified, a band is used, perhaps with an additional marker.

About 200 000 birds of 300 species are banded in Canada every year: half of the birds are migratory game birds, the other half are nongame. Banding effort is not now evenly distributed throughout Canada. Of the birds banded in 1979, 41% were in Ontario. The nongame component is even more biased to Ontario, with 67% of banding occurring there.

Background information about Canadian banding is available in a pamphlet entitled *Bird banding in Canada*. Summaries of banding taking place are available in Canadian Wildlife Service (CWS) Progress Notes, no. 102 for 1977, no. 117 for 1978, and no. 125 for 1979. A summary of waterfowl banding from 1918 to 1978 is found in Progress Note no. 106. The publications are all available at the following address:

Distribution Section  
Canadian Wildlife Service  
Department of the Environment  
Ottawa, Ontario  
K1A 0E7

*Canada Geese lining up to be banded at Ontario Place, Toronto*

*Grèves du Canada en attente pour l'« opération baguage », Ontario Place, Toronto*



## Service canadien de la faune Baguage des oiseaux

### Introduction

Les Canadiens ont commencé à faire du baguage en 1905 pour étudier les allées et venues des oiseaux migrateurs. Depuis, les ornithologues utilisent le baguage et ses résultats à de nombreuses autres fins: lorsqu'il faut identifier un oiseau, on utilise une bague et quelquefois une autre marque.

Chaque année, environ 200 000 oiseaux appartenant à 300 espèces sont bagués au Canada: la moitié se compose d'oiseaux migrateurs considérés comme gibier, l'autre moitié d'oiseaux non gibier. Actuellement, les activités de baguage ne sont pas réparties uniformément dans tout le Canada. En 1979, 41 % des oiseaux ont été bagués en Ontario. Pour ce qui est des oiseaux non gibier bagués, la différence est encore plus importante puisque 67 % de ces oiseaux ont été bagués en Ontario.

Il existe une brochure intitulée *Le baguage d'oiseaux au Canada* qui contient des renseignements de base sur le baguage au Canada. Des résumés des activités de baguage effectuées en 1977, 1978 et 1979 sont exposés respectivement dans les cahiers de biologie n°s 102, 117 et 125 du Service canadien de la faune. Le cahier de biologie n° 106 contient un résumé des activités de baguage des oiseaux aquatiques de 1918 à 1978. On peut se procurer ces publications à l'adresse suivante:

Section de la distribution  
Service canadien de la faune  
Ministère de l'Environnement  
Ottawa (Ontario)  
K1A 0E7

### Rapport sur les migrations

Un grand nombre de données ont été accumulées au fil des ans grâce aux bagues retrouvées. Le SCF, avec la collaboration de bagueurs de l'Ontario Bird Banding Association, prépare actuellement un rapport sur les données recueillies qui, pour la plupart, n'ont jamais été publiées sous forme concise. Des cartes dessinées par ordinateur indiquant la répartition des bagues récupérées constitueront une partie importante de ce rapport. Le SCF se servira de cette étude pour établir les priorités relatives aux futures activités de baguage.

## Migration report

Voluminous information has been accumulated from band recoveries over the years. CWS, together with banders from the Ontario Bird Banding Association, is now preparing a report that will display this data, most of which has never been available in a concise form. Computer drawn maps of recovery distributions will be an important part of this report. CWS will use this study to help set priorities for future banding.

## Efforts to increase band reporting

Most bird bands are never recovered for one of two reasons: either the banded bird dies in obscurity, or the person who finds the band does not report it. There is nothing we can do about birds dying in obscurity, but we can increase the reporting rate for recovered bands by telling the public how to report them to us.

There is a good reason why CWS has not been more active in soliciting bands in the past. The analysis of banding data could have been biased by any unevenness in reporting rate that might have resulted from advertising. To prevent this, CWS and the US Fish and Wildlife Service agreed not to campaign for bird bands. Now new methods of analysing banding data are available that avoid this bias. We will now be more active in trying to increase band reporting and encourage other wildlife agencies to spread the good word.

Any banded or colour-marked birds should be reported to

Bird Banding Office  
Canadian Wildlife Service  
Ottawa, Ontario  
K1A 0E7

## Efforts en vue d'inciter les gens à signaler les bagues trouvées

La plupart des bagues ne sont jamais récupérées pour l'une des deux raisons suivantes: l'oiseau bagué meurt sans laisser de trace ou bien la personne qui trouve une bague ne la signale pas. On ne peut rien faire pour les oiseaux qui disparaissent, mais on peut faire augmenter le nombre de bagues signalées en indiquant au public comment procéder.

Dans le passé, le SCF n'a pas, pour une bonne raison, insisté sur la nécessité de signaler les bagues trouvées. L'analyse des données du baguage aurait pu être faussée suite à une répartition inégale des récupérations qui aurait pu résulter d'une campagne de publicité. Pour éviter une telle situation, le SCF et le Fish and Wildlife Service des États-Unis ont convenu de ne pas faire de publicité au sujet des bagues. Il existe maintenant de nouvelles méthodes d'analyse des données du baguage qui ne risquent pas d'être faussées par ce facteur. Nous allons maintenant essayer d'inciter les gens à signaler les bagues trouvées et encourager les autres organismes qui s'intéressent à la faune à faire de même.

Les oiseaux bagués ou marqués à la couleur devraient être signalés à l'adresse suivante:

Baguage des oiseaux  
Service canadien de la faune  
Ottawa (Ontario)  
K1A 0E7

## Baguage des rapaces

En 1979, on a bagué quelque 6 000 rapaces au Canada. Il s'agit d'une réalisation importante dans un domaine où les responsabilités fédérales et provinciales se chevauchent. Les rapaces sont protégés par des lois provinciales; les bagueurs doivent donc détenir un permis provincial pour capturer et marquer ces oiseaux. Toutefois, étant donné que les résultats du baguage des rapaces sont partagés à l'échelle internationale, le SCF fournit des bagues spéciales et les bagueurs de rapaces doivent aussi avoir un permis de baguage fédéral.

## Raptor banding

In 1979, about 6000 raptors were banded in Canada. This is a major achievement in an area where federal and provincial responsibilities overlap. Raptors are protected by provincial legislation, and so banders need provincial permits to trap and mark these birds. However, because the results of raptor banding are shared internationally, CWS supplies special bands and raptor banders also need the federal banding permit.

Some raptors are easier to trap and handle than others, so species such as Sharp-shinned Hawk and American Kestrel predominate in the banding totals. Saw-whet Owls are now being banded in large numbers for the first time. These birds have been captured by mist-netting at night with great success near Kingston, Ontario. Mist nets are made of material so fine that birds fly into them and are caught. They have been little used for nocturnal species.

CWS has implemented a new marking program to help provincial authorities keep track of captive raptors: birds kept for falconery, or for scientific or breeding purposes. The special markers are numbered sequentially and both CWS and the relevant province keep records on the marked bird. The markers can not be removed without damaging them.

## Do we need more or less banding?

The Canadian banding effort is unevenly distributed: many birds are banded near population centres, but relatively few throughout the rest of Canada. Also banding of many species has been inadequate. For example, up to 1978 there were only eight bandings of Common Scoters during all of the years of banding in Canada, despite the fact that about 20 000 of these birds are killed by hunters every year. About 100 000 eiders are killed in Newfoundland annually, but there have been only six band recoveries of eiders there from a total of less than 4000 bandings since 1918.

Certains rapaces sont plus faciles à capturer et à manipuler que d'autres; les espèces comme l'Épervier brun et la Crêcerelle d'Amérique apparaissent donc en plus grand nombre dans les rapports. Les Petites Nyctales sont maintenant baguées en grand nombre pour la première fois. Ces oiseaux sont capturés la nuit avec beaucoup de succès près de Kingston, en Ontario, à l'aide de filets japonais qui sont fabriqués au moyen de fils ténus où les oiseaux s'emmêlent. On s'en sert peu pour les espèces nocturnes.

Le SCF a mis en oeuvre un nouveau programme de marquage pour aider les autorités provinciales à garder la trace des rapaces en captivité (oiseaux gardés pour la fauconnerie, pour des fins scientifiques ou pour la reproduction). Les marqueurs spéciaux sont numérotés en ordre et le SCF et le service provincial pertinent gardent tous deux des dosiers sur les oiseaux marqués. Il est impossible d'enlever les marqueurs sans les endommager.

## Faut-il augmenter les activités de baguage?

Au Canada, les activités de baguage ne sont pas réparties uniformément: beaucoup d'oiseaux sont bagués près des centres de population mais ils le sont en nombre relativement petit dans le reste du pays. Par ailleurs, le baguage de nombreuses espèces est inadéquat. Par exemple, jusqu'en 1978, on n'a bagué que huit Macreuses à bec jaune durant toutes les années où l'on a fait du baguage au Canada, en dépit du fait que les chasseurs en tuent environ 20 000 chaque année. Environ 100 000 eiders sont tués chaque année à Terre-Neuve, mais on n'a récupéré que six bagues d'eiders sur les quelque 4 000 oiseaux bagués depuis 1918.

Le baguage des oiseaux non gibier est encore moins représentatif. Cette situation résulte en grande partie du fait que les gouvernements libèrent peu de fonds pour le baguage des oiseaux non gibier et que le baguage est coûteux dans les aires de reproduction de nombreuses espèces. Suite aux efforts spéciaux déployés pour le baguage du Plectophane des neiges en Ontario, on a bagué 513 oiseaux de cette espèce en 1979. Toutefois, on n'en a bagués que 14 dans les Territoires du Nord-Ouest. On prête peu d'attention à de nombreuses espèces d'oiseaux non gibier.

Nongame-bird banding has been even less representative than game-bird banding. This is largely because government funding is much lower for nongame-bird work and it is expensive to band in the breeding grounds of many species. Because of a special effort to band Snow Buntings in Ontario, 513 were banded there in 1979. But only 14 were banded in the northern territories. Many nongame species receive little attention. In 1979, only one bird was banded in the two species of marsh wren, for example. Given the minuscule chance of recovery for this band, this is effectively no banding. There has never been a recovery in Canada of a Canadian-banded marsh wren. This is unfortunate, as information on the movement of marsh wrens would help to ensure their conservation.

Although the migration report described above is not yet complete, we know that it will show that we do not know enough about the movements of many species, both game and nongame. This information is needed to determine the effects of environmental hazards on bird populations.

More banding is required for many species in many parts of Canada. For this, we will need more qualified banders. But to qualify as a bander, especially when mist-netting is involved, takes considerable knowledge and experience that must be obtained through practice. This practice is hard to obtain now because there are so few banders and because there is no national organization of banders to foster training.

So although CWS will always discourage mass banding without purpose, it is now encouraging an increase in well-planned, well-organized banding activity. Banding organizations such as the Long Point Bird Observatory on Lake Erie should serve as models for interested groups throughout Canada.

**Steve Wendt**  
*Headquarters*

En 1979, par exemple, on n'a bagué qu'un seul oiseau appartenant à l'une des deux espèces de Troglodyte à dos rayé. Étant donné les chances infimes de récupérer cette bague, on peut dire qu'il n'y a eu en fait aucun baguage de cette espèce. On n'a jamais récupéré au Canada un Troglodyte à dos rayé bagué ici et c'est malheureux car des renseignements sur les déplacements des Troglodytes à dos rayé nous aideraient à assurer leur protection.

Le rapport sur les migrations susmentionné n'est pas encore terminé, mais nous savons qu'il nous fera voir des lacunes dans nos connaissances des déplacements de nombreuses espèces d'oiseaux considérés comme gibier ou non. Ces données sont nécessaires pour déterminer les incidences des dangers environnementaux sur les populations d'oiseaux.

Il faut augmenter les activités de baguage de nombreuses espèces dans de nombreuses régions du Canada. Il nous faut donc davantage de bagueurs compétents. Mais pour avoir les compétences requises pour faire du baguage, notamment à l'aide de filets japonais, il faut avoir des connaissances considérables et beaucoup d'expérience qui s'acquièrent par la pratique. Cela est difficile actuellement parce qu'il existe peu de bagueurs et à cause de l'absence d'une organisation nationale de bagueurs qui assurerait la formation des intéressés.

Donc, bien que le SCF soit toujours contre le baguage massif sans but, il encourage maintenant une augmentation des activités de baguage bien planifiées et bien organisées. Les organisations de baguage, comme le Long Point Bird Observatory au lac Érié, devraient servir de modèles pour les groupes intéressés partout au Canada.

**Steve Wendt,**  
*Administration centrale*

# Co-operative wetlands inventory in the Maritimes

Wetlands in the Maritime Provinces are being surveyed through a joint federal-provincial initiative known as "Wetland Mapping and Designation Program." The work is almost completed in Nova Scotia and is over half-way along in Prince Edward Island. Surveying in New Brunswick should start in late 1982, and the entire project should be completed by 1984.

Wetlands in southern Canada were classified during the mid 1960s under the Canada Land Inventory program of capability mapping for waterfowl. However, that system rated wetlands by their capability to support waterfowl production and did not provide a measure of their overall value to wildlife or other valued resources. Also, coastal wetlands of all types were lumped into one category as staging areas for waterfowl. Thus, initial efforts to establish a more comprehensive wetland inventory in the Maritimes began in Nova Scotia in 1977 when the provincial government studied a freshwater wetland classification and evaluation scheme developed in Massachusetts by Francis C. Golet (1972). In 1978, the Canadian Wildlife Service (CWS) began pilot studies towards a marine wetlands classification and inventory system in two coastal sections of Nova Scotia. The two inventories developed independently until August 1980 when funding became available through a new federal-provincial program, "Wetland mapping and designation." A full-scale inventory was then implemented combining the marine and freshwater programs; it includes all wetlands over 0.25 ha in size.

The program is a joint federal-provincial venture co-ordinated by the CWS of Environment Canada, with both tasks and costs shared by the Wildlife Division of the Department of Lands and Forests in Nova Scotia, and by the provincial Fish and Wildlife Division with assistance from Ducks Unlimited (Canada) in Prince Edward Island. Its overall objective is to provide information on the classification, size, distribution, and value to wildlife and other resources of wetlands in the Maritimes.

# Inventaire coopératif des terres humides des Maritimes

Les terres humides des provinces maritimes font l'objet d'un inventaire effectué dans le cadre d'un programme fédéral-provincial de cartographie et de désignation des terres humides. Le travail est presque terminé en Nouvelle-Écosse et plus de la moitié des travaux sont achevés dans l'Île-du-Prince-Édouard. Au Nouveau-Brunswick, l'inventaire devrait commencer à la fin de 1982 et l'ensemble des travaux devraient être terminés en 1984.

Les terres humides du sud du Canada ont été classées au milieu des années 60 dans le cadre de l'Inventaire des terres du Canada lors de la cartographie des terres en fonction des possibilités qu'elles offrent pour les oiseaux aquatiques. Toutefois, selon ce système, les terres humides ont été classées suivant leur capacité d'appuyer la production d'oiseaux aquatiques et leur valeur globale pour la faune ou d'autres ressources de valeur n'a pas été prise en compte. De plus, les terres humides côtières de tous les types ont été inscrites dans une seule catégorie à titre d'aires de repos pour les oiseaux aquatiques. C'est pourquoi des efforts sont déployés pour établir un inventaire plus complet des terres humides dans les Maritimes depuis 1977, année où le gouvernement provincial de la Nouvelle-Écosse a étudié un système de classification et d'évaluation des terres humides d'eau douce élaboré au Massachusetts par Francis C. Golet (1972). En 1978, le Service canadien de la faune (SCF) a entrepris des études-pilotes en vue d'élaborer un système de classification des terres humides marines dans deux sections de la côte de la Nouvelle-Écosse. Les deux inventaires ont été réalisés indépendamment jusqu'en août 1980, date à laquelle des fonds ont été libérés dans le cadre du nouveau programme fédéral-provincial de cartographie et de désignation des terres humides. Un inventaire complet a alors été entrepris en combinant les programmes concernant les eaux douces et marines; le nouveau programme englobe toutes les terres humides d'une superficie supérieure à 0,25 ha.

Il s'agit d'un programme fédéral-provincial conjoint coordonné par le SCF (Environnement Canada); les tâches et les coûts sont partagés entre la Division de la faune du ministère des Terres et Forêts de la Nouvelle-Écosse et la Division de la pêche et de la faune de l'Île-du-Prince-Édouard qui reçoit l'aide de Canards Illimités (Canada). L'objectif global est l'obtention de données sur la classification, la superficie, la répartition et la valeur pour la faune et les autres ressources des terres humides des Maritimes.

The inventory is based on air photo interpretation using vertical colour air photographs (mostly 1:10 000 scale), supported by follow-up field checks where necessary. The freshwater component uses a modified Golet classification and evaluation system. The major features of the system include the identification of wetland classes and subclasses based on dominant vegetative types, water depth and permanence, wetland size and hydrologic location, types of surrounding habitat, vegetative interspersion, and water-to-cover ratio. Once the classification is completed and field checks are carried out, the wetlands are evaluated by combining a wetland's classification with its juxtaposition and water chemistry. Through the application of certain specifications and ranks, a numeric score is derived which reflects the value of the wetland to wildlife. The field data sheets used for the freshwater component of the inventory are coded for entry into a computerized data base.

The marine wetlands classification system used for the program incorporates portions of a system developed by Cowardin *et al.* (1979). Salt marshes are classified according to the ratio of high to low marsh and the number of ponds per hectare. Also, all inter- and sub-tidal marine and estuarine wetlands are classified along with their substrate or flat type, including the presence of eelgrass beds. Surrounding alternate habitats such as beaches, sand dunes and spits, and nearshore islands are also classified because they help to determine the intensity of use of marine wetlands by wildlife. No evaluation scoring similar to that done for the freshwater component is possible; however, the coastline is divided into discrete units and unit scores are calculated. Each unit score is calculated by adding up the scores from six marine types (salt marshes, coastal saline ponds, estuarine flats, beaches, dunes, and islands) and five conditional factors (tidal influence, vegetation presence, size, exposure factor, and juxtaposition factor), and adding to that a value for the disturbance status of the unit. The total score is an indication of the productivity of each unit and is designed to provide a relative measure of the importance to wildlife of individual coastal bays, lagoons, estuaries, and other marine wetlands.

L'inventaire se fonde sur l'interprétation de photos aériennes en couleurs prises à la verticale (échelle 1:10 000 surtout) et sur des vérifications effectuées au besoin sur le terrain. Pour la composante "eau douce", on utilise une formule modifiée du système de classification et d'évaluation de Golet. Parmi les principales caractéristiques du système, on compte la détermination des classes et des sous-classes de terres humides selon les types de végétation dominants, la profondeur et la permanence de l'eau, la superficie et l'emplacement hydrologique des terres humides, les types d'habitat environnants, l'espace-ment végétal et le rapport eau/couvert. Une fois la classification terminée et les vérifications sur place effectuées, on évalue les terres humides en combinant la classification, le facteur juxtaposition et la chimie des eaux. Au moyen de certaines spécifications et cotes, on tire une marque numérique qui illustre la valeur de la terre humide pour la faune. Les feuilles de données recueillies sur le terrain pour la composante "eau douce" de l'inventaire sont codées pour être entrées dans une base de données informatisée.

Le système de classification des terres humides marines utilisé pour le programme comporte des éléments d'un système élaboré par Cowardin et coll. (1979). Les marais salants sont classés selon le rapport marais haut/marais bas et le nombre d'étangs par hectare. De plus, toutes les terres humides estuariennes et marines intertidales et sous-tidales sont classées selon leur substrat ou leur type d'estran, y compris la présence de zostère marine. Les divers habitats environnants, tels que les plages, les dunes et les flèches, ainsi que les îles situées près de la côte, sont également classés parce qu'ils aident à déterminer l'intensité de l'utilisation des terres humides marines par la faune. Il n'est pas possible de faire un pointage semblable à celui des terres à eau douce; toutefois, on divise le littoral en unités distinctes et on calcule les points pour chaque unité. On additionne les points accordés à six types de terres humides marines (marais salants, étangs sa-lins côtiers, estrans estuariens, plages, dunes et îles) et à cinq facteurs conditionnels (influence des marées, présence de végétation, superficie, facteur d'exposition et facteur de juxtaposition), et l'on ajoute au nombre obtenu une certaine valeur pour le degré de perturbation de l'unité concernée. Le total indique la productivité de chaque unité et vise à donner une indication relative de l'importance des baies, lagunes, estuaires et autres terres humides marines pour la faune.

The end products of the inventory will be a computer data base and atlases for each county.

Data for all freshwater wetlands, salt marshes, and tidal ponds are being stored in computer data banks at provincial resource centres. Researchers and planners will have access to the data banks and retrieval will be on a provincial, county, water basin, or sub-basin basis. Numerous tabular summaries illustrating the location, distribution, size, and importance of wetlands will be compiled and made available to users.

When the freshwater and marine inventories have been completed, atlases on the 1:50 000 scale, using the National Topographic Series base maps, will be prepared for each county. Those maps will show all marine wetlands, their classification, size, and coastal unit scores, along with all freshwater wetlands that have a relatively high wildlife value (Golet score of 60+) and will show their size, wetland classification, and score.

A copy of each county atlas will be distributed to appropriate municipal planning offices. It will contain details of the classification and scoring system along with recommendations for use of the maps. Other agencies involved with land management of wetland resources will receive copies of either the county atlases or an overall provincial atlas.

The wetlands inventory when completed will be available to assist federal, provincial, municipal, and town planning agencies in making decisions relating to land use. Also, it will help the provinces to develop wetlands policies and will provide a data base for a wide variety of wetland research and management programs.

Associated with this program is provision for the negotiation of federal-provincial agreements for wetland habitat protection. Under such agreements, important wetlands could be designated on the wetlands maps. Both senior levels of government could agree not to finance activities in designated wetlands which would alter the natural habitat. Thus government assistance for agricultural drainage, industrial installations, sewage treatment plants, and so on, would not be approved for designated wetlands. It is hoped that such federal-provincial agreements can be developed soon after completion of the inventory.

L'inventaire a comme but final l'élaboration d'une base de données informatisée et d'atlas pour chaque comté.

Les données sur toutes les terres humides à eau douce, les marais salants et les étangs littoraux sont emmagasinées dans les banques de données informatisées des centres des ressources provinciaux. Les chercheurs et les planificateurs auront accès aux banques de données et la recherche de données se fera à l'échelon de la province, du comté, du bassin ou du sous-bassin. De nombreux sommaires indiquant l'emplacement, la répartition, la superficie et l'importance des terres humides seront dressés sous forme de tableaux et mis à la disposition des utilisateurs.

Une fois les inventaires terminés, des atlas à l'échelle 1:50 000 seront préparés pour chaque comté à l'aide des cartes de base du système de référence cartographique nationale. Ces cartes indiqueront toutes les terres humides marines, leur classification, leur superficie et les pointages des unités côtières, ainsi que toutes les terres humides à eau douce qui ont une valeur relativement élevée pour la faune (pointage Golet supérieur ou égal à 60) avec leur superficie, leur classification et leur pointage.

Un exemplaire de chaque atlas de comté sera distribué aux bureaux de planification municipaux appropriés. Chaque document contiendra un exposé détaillé du système de classification et de pointage ainsi que des recommandations pour l'utilisation des cartes. Les autres organismes s'occupant de la gestion des terres humides recevront une copie des atlas de comté ou un atlas provincial.

L'inventaire achevé des terres humides sera utile aux organismes de planification fédéraux, provinciaux, municipaux et locaux pour la prise de décisions en matière d'utilisation des terres. Par ailleurs, il aidera les administrations provinciales à élaborer des politiques concernant les terres humides et il servira de base de données pour un large éventail de programmes de recherche et de gestion relatifs aux terres humides.

Dans le cadre de ce programme, on prévoit la négociation d'ententes fédérales-provinciales concernant la protection des habitats des terres humides. En vertu de ces ententes, les terres humides importantes pourraient être désignées sur les cartes des

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terres humides. Les hauts fonctionnaires des deux paliers de gouvernement pourraient convenir de ne pas financer les activités qui perturberaient l'habitat naturel des terres humides désignées. Ainsi, les aménagements pour le drainage agricole, les installations industrielles, les usines de traitement des eaux usées, etc., ne recevraient aucune aide des gouvernements sur des terres humides désignées. Il faut espérer que de telles ententes fédérales-provinciales pourront être conclues peu après l'achèvement de l'inventaire.

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*Région de l'Atlantique*

# Co-operative research

## The Parks Canada – Canadian Wildlife Service Western and Northern Region experience

### Introduction

In these days of dwindling budgets and tight restrictions on hiring at all levels of government, co-operative arrangements between agencies can often be an efficient way to get the services of specialists. The long-standing co-operation between Parks Canada and the Canadian Wildlife Service (CWS) is an example of such an arrangement.

The CWS had its origin in the old National Parks Branch of the Department of Mines and Resources in 1947 which had responsibility for administration of the Migratory Birds Convention Act and employed ornithologists for that purpose. The department also needed biologists to help manage the national parks. Since most of the perceived problems involved large mammals like elk, moose, deer, and bear, mammalogists were also hired. Before the 1950s few people visited national parks. To attract visitors, tourist authorities engaged in publicity campaigns and supported programs that today might be questioned. One such program involved enhancing sport fisheries by hatchery production and heavy fish stocking. Not only were waters which had previously been devoid of trout stocked, but exotic fishes were introduced (such as eastern brook trout in Alberta). Biologists with limnological backgrounds joined the parks branch to study fishery problems.

*Grizzly bear immobilized with a tranquilizing drug by CWS and Parks Canada staff studying bear movements*

*Grizzli immobilisé à l'aide d'un tranquillisant administré par des employés du CF et de Parcs Canada qui étudient les déplacements des ours.*



# Recherche coopérative

## Parcs Canada – Service canadien de la faune Expérience dans la région de l'Ouest et du Nord

### Introduction

En ces périodes de restrictions budgétaires et de contraintes sévères au niveau de l'embauchage à tous les paliers de gouvernement, les arrangements coopératifs entre organismes constituent souvent un moyen efficace d'obtenir les services de spécialistes. La longue tradition de coopération entre Parcs Canada et le Service canadien de la faune (SCF) est un bon exemple d'arrangement de ce genre.

Le SCF, qui a été réorganisé en 1947, tire son origine de la Direction des parcs nationaux du ministère des Mines et des Ressources qui avait pour fonction d'appliquer la Loi sur la Convention concernant les oiseaux migrateurs et qui, à cette fin, employait des ornithologues. Le ministère avait également besoin de biologistes pour la gestion des parcs nationaux. Étant donné que la majorité des problèmes rencontrés touchaient de grands mammifères, tels que le wapiti, l'orignal, le cerf et l'ours, des mammalogistes faisaient également partie du personnel. Avant les années 50, les parcs nationaux recevaient peu de visiteurs. Pour inciter les gens à visiter les parcs, les responsables du tourisme ont entrepris des campagnes de publicité et appuyé des programmes qui, aujourd'hui, pourraient être mis en question. Dans le cadre d'un de ces programmes, on encourageait la pêche sportive en produisant des poissons dans des bassins d'élevage et en pratiquant un ensemencement soutenu. Non seulement ensemençait-on avec des truites les eaux où ce poisson avait disparu, mais on y introduisait également des espèces exotiques (par exemple des omble de fontaine en Alberta). Des biologistes ayant des connaissances en limnologie se sont joints à la Direction des parcs pour étudier les problèmes liés à la pêche.

En 1965, le SCF a été libéré de la tutelle de la Direction des parcs nationaux et est devenu un service d'égale importance au ministère des Affaires indiennes et du Nord.

Cependant, les deux services se trouvaient toujours au même ministère et des arrangements de travail officieux permettaient à la Direction des parcs nationaux de profiter en permanence des connaissances et des compétences du SCF.

In 1965 the CWS was removed from the direct control of the National Parks Branch and elevated to a parallel rank within the Department of Indian and Northern Affairs.

However, both agencies were still in the same department and a close informal working arrangement enabled the National Parks Branch to avail itself of CWS expertise on a continuing basis.

When the Department of the Environment was set up in 1970, CWS and Parks Canada suddenly found themselves in different departments. Federal departments have traditionally been jealous of their budgets and co-operative arrangements between them are formal. An interdepartmental agreement between Parks Canada and the Environment Management Service, which at that time included CWS, stipulated that Parks Canada supply 16 person-years for CWS parks-related positions (11.5 of which were assigned to CWS Western and Northern Region), and provide operating budgets for projects that they requested. The agreement provided for three categories of projects: category A included projects requested by Parks Canada and for which they paid all operating expenses; category B project costs were shared between Parks Canada and CWS and included studies of mutual interest (such as the wood bison restoration program); category C projects were studies where CWS used national parks as study areas to conduct its own work. An example is the long-term program to save the endangered Whooping Crane which nests in Wood Buffalo National Park.

The provisions of the Parks Canada/Environmental Management Service agreement have remained largely intact, but implementation has been simplified with the reunion of Parks Canada and CWS in the Department of the Environment in 1980. Working arrangements are now governed by a new but similar letter of agreement between Parks Canada and the Environmental Conservation Service, the present umbrella agency embracing CWS.

## Parks research needs

Over the years CWS biologists have conducted a great variety of studies for Parks Canada. Information requirements have fallen into three general categories: resource inventory, research, and advice on ecological matters. The boundary between resource inventory and research is often blurred.

Lors de la création du ministère de l'Environnement en 1970, le SCF et Parcs Canada se sont brusquement retrouvés dans deux ministères distincts. Depuis toujours, les ministères fédéraux sont jaloux de leur budget et leurs arrangements coopératifs se font par les voies officielles. Suivant une entente interministérielle entre Parcs Canada et le Service de la gestion de l'environnement, qui englobait alors le SCF, Parcs Canada devait fournir 16 années-personne pour les postes du SCF relatifs aux parcs (dont 11,5 étaient affectées à la région de l'Ouest et du Nord du SCF) ainsi que les crédits de fonctionnement requis pour les projets. L'entente prévoyait trois catégories de projets: la catégorie A comprenait les projets demandés par Parcs Canada qui en assumait toutes les dépenses de fonctionnement; la catégorie B englobait les études d'intérêt commun dont les coûts étaient partagés entre Parcs Canada et le SCF (par exemple le programme de rétablissement du bison des bois); et la catégorie C regroupait les études pour lesquelles le SCF utilisait des parcs nationaux pour ses travaux (par exemple le programme à long terme de sauvegarde de la Grue blanche d'Amérique qui niche dans le parc national de Wood-Buffalo).

Les dispositions de l'entente entre Parcs Canada et le Service de la gestion de l'environnement sont demeurées à peu près intactes mais son application a été simplifiée suite à la réunion entre Parcs Canada et le SCF au ministère de l'Environnement en 1980. Les arrangements sont maintenant régis par une entente nouvelle mais similaire entre Parcs Canada et le Service de la conservation de l'environnement, organisme sous les auspices duquel se trouve maintenant le SCF.

## Besoins en matière de recherches (Parcs Canada)

Au fil des ans, les biologistes du SCF ont effectué un large éventail d'études pour Parcs Canada. Les renseignements requis se classent dans trois grandes catégories: inventaire des ressources, recherche et conseils d'ordre écologique. La limite entre l'inventaire des ressources et la recherche est souvent floue. Idéalement, dans le cadre d'un inventaire, on prélève des échantillons des ressources naturelles suivant un plan rationnel, on prépare un résumé des données obtenues ainsi qu'un rapport exposant les résultats par secteur. Par ailleurs, la recherche comporte l'établissement d'hypothèses sur les

*Forage production and utilization studies are an important part of CWS's work for Parks Canada*

*Les études sur la production et l'utilisation du fourrage constituent une partie importante des travaux réalisés par le SCF pour Parcs Canada.*



Ideally, inventories consist of sampling natural resources according to a rationally designed plan and summarizing and reporting results by area. Research, on the other hand, involves establishment of hypotheses about the causes of natural phenomena or about the relationships between them, followed by studies designed to test the hypotheses.

Many studies on national parks contain elements of both inventory and research: a survey of possible problem situations leads to formulation of an hypothesis which must then be tested.

Increased public pressure on parks has created a need for more detailed inventories of all resources including landforms, soils, vegetation, water, and wildlife. These data are essential for resource conservation decisions relating to rare and vulnerable species like woodland caribou and problem species like bears; as a data base for environmental impact assessments; as a source of information for interpretation of park features to the public; as a baseline from which to monitor changes in park systems; and as a means of pinpointing unique or fragile areas.

Methodologies for resource inventories have changed considerably with time. Single-resource inventories of ungulates, avifauna, vegetation, geological features resulted in maps and data bases

causes des phénomènes naturels ou sur leurs relations, puis des études destinées à vérifier ces hypothèses.

De nombreuses études sur les parcs nationaux comportent des éléments des activités d'inventaire et de recherche; l'examen de problèmes possibles conduit à la formulation d'une hypothèse qui doit ensuite être vérifiée.

À cause de la pression accrue exercée par le public sur les parcs, il faut faire davantage d'inventaires détaillés de toutes les ressources, y compris les formes du terrain, les sols, la végétation, les eaux et la faune. Ces données sont essentielles pour les décisions en matière de conservation des ressources relatives aux espèces rares et vulnérables, comme le caribou des bois, et aux espèces qui posent des problèmes, comme l'ours; comme base pour les évaluations des incidences environnementales; comme source d'information pour l'interprétation des caractéristiques des parcs à l'intention du public; comme base de surveillance des changements intervenant dans le réseau des parcs; et comme moyen de localiser avec précision les secteurs uniques ou fragiles.

Les méthodes utilisées pour faire l'inventaire des ressources ont considérablement changé au cours des ans. Les inventaires de ressources uniques (onculés, avifaune, végétation, caractéristiques géologiques) aboutissaient à la production de cartes et de

that were hard for managers and planners to correlate. Parks Canada has gradually moved to the concept of integrated biophysical inventories. In fact, Parks Canada is funding in the mountain national parks some of the best work being done in this field in the world.

Research needs of Parks Canada have centred on endangered wildlife; on the problems created by garbage-habituized bears, over-populations of wapiti, bighorn sheep die-offs, deteriorated winter ranges, and wolf predation; and on fish management problems like determination of the most cost-effective approach to fish stocking. Many of the early CWS studies were designed to provide short-term solutions to special problems. When new problems cropped up there was often nothing helpful to Parks Canada managers in the accumulated data base. As a result, CWS and Parks Canada have moved toward longer-term, systems-oriented research projects such as studies of predator/herbivore/forage systems and energy flow in lakes. Once the managers understand better how natural systems in various parks actually work they will be more able to predict population and habitat changes. Studies of problem situations have thus developed into integrated baseline systems studies. Although integrated studies are likely to give the most information, studies aimed at solving critical problems will always be needed.

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## The present parks program

In 1981, CWS Western and Northern Region staff working in national parks from Manitoba to British Columbia and the Yukon conducted studies ranging from research on aquatic systems to inventories of ungulate habitat use in alpine areas.

Limnological work in progress includes an inventory of aquatic organisms in Nahanni National Park in the Northwest Territories and similar studies in conjunction with biophysical inventories in Kootenay, Mt. Revelstoke, and Glacier national parks. Other research aims to relate trout growth to physical parameters and food resources in mountain lakes. This work has produced useful guidelines for cost-effective fish stocking. CWS is studying a kokanee population in Kluane National Park because basic movement and life history data are required to evaluate the status of the population and

bases de données que les gestionnaires et les planificateurs avaient de la difficulté à mettre en corrélation. Peu à peu, Parcs Canada s'est efforcé de faire des inventaires biophysiques intégrés. En fait, Parcs Canada finance, dans les parcs nationaux des montagnes, des travaux qui comptent parmi les meilleurs réalisés dans ce domaine dans le monde entier.

Les besoins de recherche de Parcs Canada portent principalement sur les espèces fauniques menacées, sur les problèmes créés par les ours habitués aux déchets, par la surpopulation de wapitis, par la disparition progressive des mouflons d'Amérique, par la dégradation des aires d'hivernage et par les loups, et sur les problèmes de gestion du poisson tels que la détermination des méthodes les plus rentables pour enssemencer les étendues d'eau. Bon nombre des premières études effectuées par le SCF visaient à fournir des solutions à court terme pour des problèmes spécifiques. Lorsque de nouveaux problèmes surgissaient, les gestionnaires de Parcs Canada ne trouvaient souvent rien d'utile dans les données accumulées. Par conséquent, le SCF et Parcs Canada effectuent maintenant des recherches à long terme orientées sur les systèmes, par exemple des études sur les systèmes prédateur-herbivore-fourrage et sur le cycle de l'énergie dans les lacs. Quand les gestionnaires comprendront mieux comment fonctionnent réellement les systèmes naturels dans les divers parcs, ils seront mieux en mesure de prévoir les changements dans les populations et les habitats. Les études portant sur des problèmes précis sont donc devenues des études intégrées des systèmes de base. Même si les études intégrées permettent d'obtenir davantage d'informations, les études visant à résoudre des problèmes cruciaux seront toujours nécessaires.

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## Le programme actuel

En 1981, le personnel de la région de l'Ouest et du Nord du SCF travaillant dans les parcs nationaux, depuis le Manitoba jusqu'en Colombie-Britannique et au Yukon, a effectué, entre autres, des recherches sur les systèmes aquatiques et des inventaires des habitats des ongulés dans les zones alpines.

Les travaux de limnologie en cours comprennent un inventaire des organismes aquatiques dans le parc national de Nahanni, dans les Territoires du Nord-Ouest, et des études similaires effectuées de concert avec des inventaires biophysiques dans les parcs nationaux Kootenay, du mont Revelstoke et Glacier.

to manage it. The limnological program has increased our knowledge of the biogeography of fishes and aquatic invertebrates which in turn has shed new light on deglaciation and post-glacial dispersion in northwestern Canada.

Another current water-related project is the updating of computer models of the relation between hydrology and plant communities in the Peace-Athabasca Delta. This study is timely, because hydroelectric developments on the Slave River are now proposed.

Many national parks in western Canada have large populations of grazing ungulates. Adjustment of ungulate numbers to available winter forage has long been a problem. A compounding factor over the years has been the use of certain park areas by cattle grazed on permit by local ranchers and by horses belonging to visitors and to tourist outfitters. CWS has a long history of range-related studies in national parks, and CWS staff are frequently called on as advisors when range appears to be deteriorating.

Bears are a continuing problem in most Canadian parks. A recently concluded CWS radio-telemetry study on grizzly bears in Jasper National Park showed that male grizzlies move surprising distances in the course of a year and that most bears spent some time outside the park where they were killed.

A project in progress in Riding Mountain National Park in Manitoba seeks to integrate studies of forage availability and use by ungulates with studies of ungulate population dynamics and distribution, and with studies of wolves. The impact of wolves on ungulates, including moose, elk, and white-tailed deer, has been evaluated. The project has produced important spin-off papers on wolf behaviour, range ecology, and park management.

Wood Buffalo National Park is one of the few places in North America where large herds of bison live in an historic relationship with wolves. Current studies are documenting numbers, seasonal distribution, and movements of bison, and the impact of wolf predation on the herds. Part of this research involves intensive observations of wolf-bison interactions. Among other things, the scientists found that various sex and age classes of bison co-operate to defend calves against wolves.

D'autres recherches ont pour but d'établir des relations entre la croissance de la truite et les paramètres physiques ainsi que les ressources alimentaires dans les lacs des montagnes. Ces travaux ont permis d'élaborer des lignes directrices utiles pour l'ensemencement rentable des étendues d'eau. Des chercheurs du SCF étudient une population de kokanis dans le parc national de Kluane parce qu'il faut obtenir des données de base sur les déplacements et le cycle évolutif pour évaluer l'état de la population et la gérer. Grâce au programme limnologique, nous avons accru nos connaissances dans le domaine de la biogéographie des poissons et des invertébrés aquatiques et nous avons aussi recueilli des informations nouvelles sur la période de déglaciation et la dispersion post-glaciaire dans le nord-ouest du Canada.

Un autre projet en cours concernant les eaux est la mise à jour des modèles informatiques des relations entre l'hydrologie et la végétation dans le delta des rivières de la Paix et Athabasca. Cette étude est opportune compte tenu des projets hydro-électriques sur la rivière des Esclaves.

Beaucoup de parcs nationaux de l'ouest du Canada abritent d'importantes populations d'ongulés. L'ajustement du nombre d'ongulés en fonction du fourrage disponible en hiver pose depuis toujours un problème. À cela s'ajoute le fait que, depuis des années, certains secteurs des parcs sont utilisés comme pâturages pour le bétail par des éleveurs locaux qui détiennent un permis à cette fin et par les chevaux qui appartiennent aux visiteurs et aux pourvoyeurs. Le SCF effectue depuis longtemps des études sur les aires de pâturage dans les parcs nationaux et le personnel du SCF est souvent consulté lorsque les aires en question semblent se dégrader.

Les ours posent des problèmes de façon continue dans la plupart des parcs au Canada. Une étude télemétrique achevée récemment au moyen de dispositifs radio a porté sur les grizzlis dans le parc national de Jasper et a montré que les mâles parcourrent des distances étonnantes au cours d'une année et que la plupart des ours passent quelque temps en dehors des limites du parc où ils sont tués.

Dans le cadre d'un programme en cours au parc national du mont Riding, au Manitoba, on cherche à intégrer des études sur la disponibilité du fourrage et son utilisation par les ongulés à des études sur la dynamique et la répartition des populations d'ongulés et à des études sur les loups. Les relations entre les loups et les ongulés, y compris l'orignal, le wapiti et le cerf de Virginie, sont évaluées. Ain-

The largest project currently under the CWS/Parks Canada agreement is the wildlife portion of the biophysical inventory of the mountain national parks. These wildlife surveys are integrated with studies of landform, soils, and vegetation. Much of the field work is done by teams representing CWS, the Canadian Forestry Service, and the Alberta Institute of Pedology.

Information from the inventories is proving immediately useful in evaluating probable environmental impacts of highway, railway, and recreational developments in Banff and Jasper national parks. Useful spin-off papers have described range extensions and behavioural observations, evaluated usefulness of inventory techniques and schemes of organizing inventory teams, and have documented impact of developments on park flora and fauna.

Another interesting activity is the reconnaissance of areas, mostly in the Arctic, considered to have national park potential. CWS wildlife biologists participate in these surveys on interdisciplinary teams with geomorphologists, botanists, and park planners.

## **Program planning mechanisms**

Parks Canada decides which projects it wishes CWS to conduct under the CWS/Parks Canada agreement through two planning processes. Parks Canada resource conservation staff make long-term plans to acquire information needed to implement park master plans; other projects arise from emergency requests from Parks Canada operational staff. Programs are reviewed annually before the start of each fiscal year by Parks Canada and CWS staff. Terms of reference for new projects are drawn up stating information and product (reports, maps, etc.) requirements and reporting dates. Program requirements for 3 years are also tentatively outlined by parks staff.

CWS experts have considerable influence on the planning process through their close involvement with Parks Canada staff. CWS staff and Parks Canada resource conservation staff are in close contact at regional offices and in individual parks and can adjust project terms of reference and funding as the work proceeds.

si, un nombre important de documents sur le comportement du loup, l'écologie des aires de pâturage et la gestion des parcs ont été produits.

Le parc national de Wood-Buffalo est l'un des derniers secteurs en Amérique du Nord où d'importantes hardes de bisons vivent traditionnellement avec des loups. Dans le cadre des études actuelles, on recueille des données sur le nombre d'individus, la répartition saisonnière, les déplacements du bison et les incidences sur les hardes de la chasse par les loups. Par ailleurs, on observe avec attention les relations entre le loup et le bison. Les scientifiques ont constaté entre autres que les bisons des deux sexes et de différents groupes d'âge coopèrent pour défendre les bisonneaux contre les loups.

Le plus important travail réalisé actuellement en vertu de l'entente SCF/Parcs Canada concerne l'aspect faunique de l'inventaire biophysique des parcs nationaux des montagnes. Ces relevés fauniques sont intégrés à des études des formes du terrain, des sols et de la végétation. Des équipes représentant le SCF, le Service canadien des forêts et l'Institut de pédologie de l'Alberta effectuent une grande partie des travaux sur le terrain.

Les données recueillies lors des inventaires s'avèrent immédiatement utiles pour l'évaluation des incidences environnementales probables des routes, des voies de chemins de fer et des aires de loisirs dans les parcs nationaux de Jasper et de Banff. On a produit des documents utiles décrivant les élargissements des aires de dispersion et les comportements observés, évaluant l'utilité des techniques d'inventaire et les modes d'organisation des équipes chargées des inventaires, et rassemblé de la documentation sur les conséquences des aménagements sur la flore et la faune des parcs.

Une autre activité intéressante consiste à déterminer les secteurs, surtout dans l'Arctique, qui pourraient être intégrés au réseau des parcs nationaux. Les biologistes de la faune du SCF participent à ces travaux dans le cadre d'équipes multidisciplinaires dont font partie des géomorphologues, des botanistes et des planificateurs de parcs.

## **Mécanismes de planification des programmes**

Parcs Canada choisit, par le biais de deux processus de planification, les projets qu'il désire voir réaliser par le SCF en vertu de l'accord conclu entre les

## Program advantages and potentials

The co-operative arrangement outlined above has considerable advantages for each party.

1. It provides Parks Canada with a wide range of expertise in ecological problems without the necessity of hiring their own experts.
2. It maintains in CWS a "critical mass" of scientists and professionals, thus ensuring the mutual stimulation essential to productivity.
3. Parks Canada receives at no cost the services of CWS support staff like stenographers, clerks in financial and materiel management, library services, personnel services, and higher management. Such services are very costly when added to the bills of private contractors.
4. CWS staff obtains experience at Parks Canada's expense that is useful in other CWS programs.

The co-operative approach has considerable flexibility and potential for future development to the benefit of both parties.

**E.S. Telfer**  
*Western and Northern  
Region*

deux services. Les responsables de la conservation des ressources de Parcs Canada élaborent des plans à long terme visant l'acquisition des informations nécessaires pour appliquer les plans cadres; d'autres projets résultent de demandes expresses formulées par le personnel de Parcs Canada chargé des opérations. Chaque année, le personnel de Parcs Canada et du SCF passe en revue les programmes avant le début de l'exercice financier. On élabore les mandats pour les nouveaux projets en précisant les informations et les produits (rapports, cartes, etc.) requis ainsi que les dates pour la présentation des rapports. Le personnel des parcs esquisse également, à titre provisoire, les exigences des programmes pour trois ans.

Les spécialistes du SCF ont une grande influence sur le processus de planification puisqu'ils travaillent en étroite collaboration avec le personnel de Parcs Canada. Le personnel du SCF et les responsables de la conservation des ressources de Parcs Canada travaillent de concert dans les bureaux régionaux et dans les parcs nationaux et ils peuvent modifier les objectifs d'un projet et le financement à mesure que les travaux progressent.

## Avantages et possibilités

L'arrangement coopératif décrit recèle des avantages considérables pour les deux parties.

1. Parcs Canada a accès à un large éventail de connaissances et de compétences en matière d'écologie sans être tenu d'engager des spécialistes.
2. Un groupe important de scientifiques et de professionnels travaillent au SCF, assurant ainsi une stimulation essentielle à la productivité.
3. Parcs Canada profite gratuitement des services du personnel de soutien du SCF, par exemple les sténographes, les commis aux finances et à la gestion du matériel, les employés de la bibliothèque, les employés du service du personnel et les cadres. Ces services sont très coûteux lorsqu'ils sont assurés par des adjudicataires privés.
4. Le personnel du SCF acquiert de l'expérience aux dépens de Parcs Canada et cette expérience est utile pour les autres programmes du SCF.

La démarche coopérative est d'une grande souplesse et présente un potentiel important pour les travaux futurs tout en profitant aux deux parties.

**E.S. Telfer**  
*Région de l'Ouest et du Nord*

Canadian Wildlife Service

# The Creston Valley Wildlife Management Area

## Co-operation in wildlife conservation

*"It is my considered opinion that the unreclaimed portions of the Kootenay Flats constitute the largest and most important resting and feeding ground for waterfowl in the interior of British Columbia."*

J.A. Munro, 1947

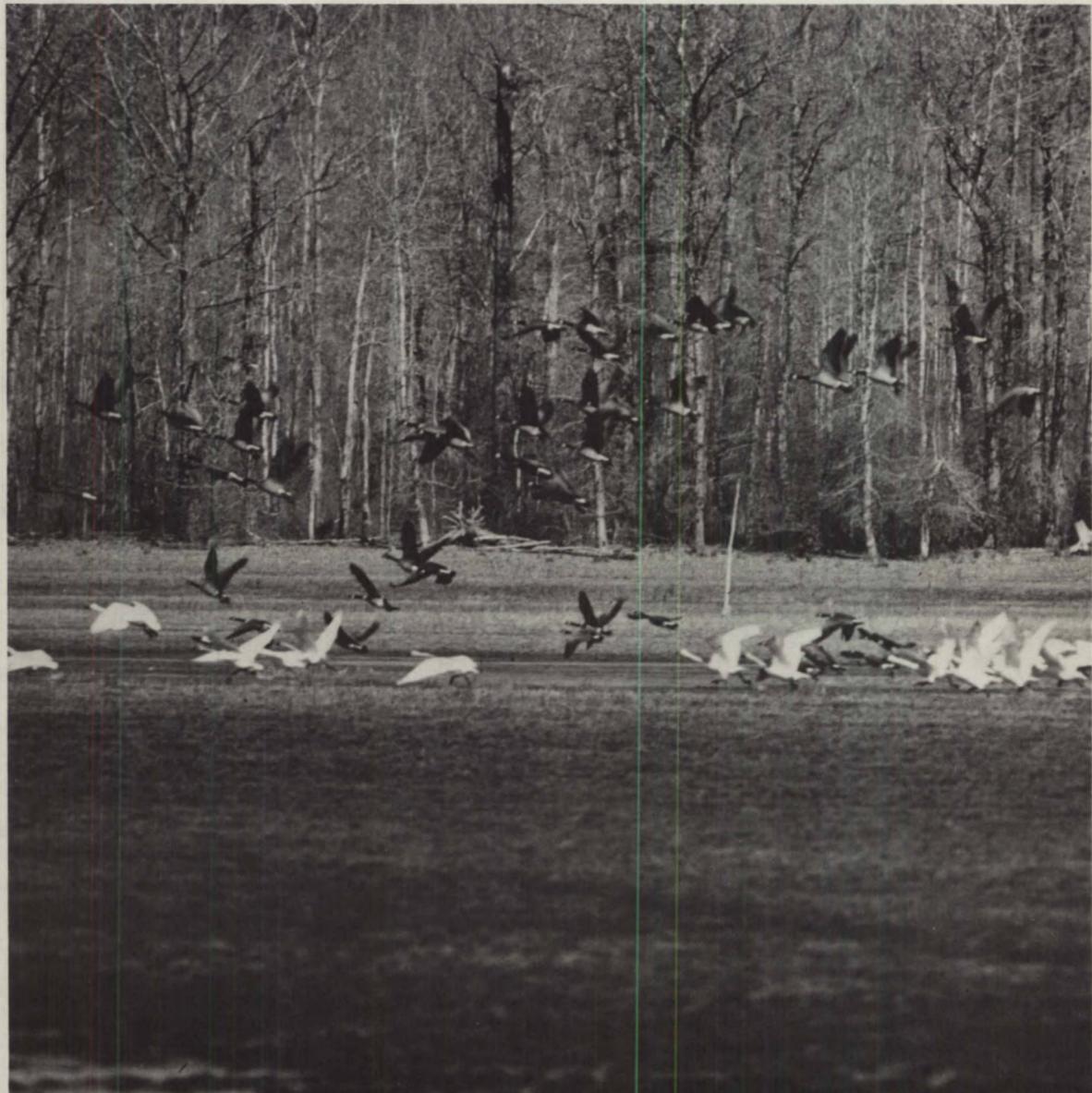
Service canadien de la faune

# L'aire de protection de la faune de la vallée de Creston

## Coopération pour la conservation de la faune

*"Selon moi, les portions non assainies des plaines Kootenay constituent la plus importante et la plus vaste aire de repos et d'alimentation utilisée par les oiseaux aquatiques à l'intérieur de la Colombie-Britannique".*

J.A. Munro, 1947



Whistling Swans and  
Canada Geese, Corn  
Creek Marsh Unit, Creston  
Valley Wildlife Manage-  
ment Area. Spring migra-  
tion

Des Cygnes siffleurs et des  
Bernaches du Canada,  
unité du marais Corn  
Creek, aire de protection  
de la faune de la vallée de  
Creston. Migration printanière.

## Introduction

The valley of the Kootenay River near Creston has, for generations, impressed its inhabitants and visitors with its climate, its fertility, its scenic qualities, and its wildlife. Famed as "The Valley of the Swans," the Creston Valley is a critical stopping place for waterfowl during spring and fall. Properly managed, these wetlands can also play a vital role in contributing young birds to the continental waterfowl population and especially that of western North America.

Each spring, since before recorded history, the Kootenay River has overflowed its banks, flooding the valley floor. As the muddy flood receded, layers of soil riding the river from miles upstream, settled out and filled-in the valley bottom, layer by layer. This flat, wet alluvial floodplain became an enormous marsh.

Large numbers of waterfowl visit the valley each spring and fall, but the same annual flood that had created the plain and its wetlands restricted its usefulness for many species. Spring flooding washed away nests of ground-nesting birds. Later, the marshes were left too dry for broods of young waterfowl. Wide water-level fluctuations reduced plants used for food by migrating waterfowl. Another factor was insufficient cover. Tall, dense, grassy cover in large blocks is very productive of many kinds of wildlife. Flooding helped to prevent the development of such cover, and over-utilization by livestock severely depleted that which did grow.

Natural barriers prevented these wetlands from being used much for public recreation. The abundance of creeks and rivers, the lack of roads, and the absence of public-use and public-information facilities, were major obstacles. The scarcity of suitable habitat limited opportunities for public enjoyment of wildlife.

Since the late 1800s, much of the broad alluvial floodplain marsh has been progressively dyked, drained, and devoted to agriculture, roads, and housing.

## Introduction

Depuis de nombreuses décennies, la vallée de la rivière Kootenay, près de Creston, impressionne ses habitants et ses visiteurs par son climat, sa fertilité, ses panoramas et sa faune. Connue sous le nom de "vallée des cygnes", la vallée de Creston constitue une halte vitale pour les oiseaux aquatiques au printemps et en automne. Judicieusement aménagées, ces terres humides peuvent également jouer un rôle important en permettant la production de jeunes oiseaux qui se joignent à la population d'oiseaux aquatiques, notamment à celle de l'ouest de l'Amérique du Nord.

Depuis toujours, la rivière Kootenay sort chaque printemps de son lit et inonde la vallée. Lorsque les eaux boueuses se retirent, les couches de sol qui ont descendu la rivière sur des milles se déposent et se superposent dans le fond de la vallée; elles ont fini par constituer cette plaine alluviale inondable qui est devenue un immense marais.

De grands nombres d'oiseaux aquatiques visitent la vallée chaque année au printemps et à l'automne; toutefois, l'inondation annuelle qui avait créé la plaine et les terres humides empêchait leur utilisation par de nombreuses espèces. L'inondation du printemps détruisait les nids des espèces qui nichent au sol. Par la suite, les marais devenaient trop secs pour les couvées d'oisillons aquatiques. Les importantes fluctuations du niveau de l'eau limitaient le nombre des plantes pouvant servir à l'alimentation des oiseaux aquatiques durant les migrations. Par ailleurs, le couvert était insuffisant. Les grandes étendues herbeuses, denses et hautes sont très productives et abritent de nombreuses espèces fauniques. L'inondation empêchait l'établissement d'un tel couvert et le bétail qui utilisait trop le secteur détruisait ce qui réussissait à pousser.

À cause de barrières naturelles, ces terres humides n'étaient pas beaucoup utilisées par le grand public à des fins récréatives. L'abondance des ruisseaux et des cours d'eau, le manque de routes et l'absence d'installations publiques et de services d'information constituaient les principaux obstacles. Étant donné la rareté des habitats convenables, le public avait très peu d'occasions d'observer la faune.

Depuis la fin du XIX<sup>e</sup> siècle, on a aménagé des digues, asséché et utilisé à des fins agricoles une grande partie de la plaine alluviale inondable et l'on y a construit des routes et des maisons.

Following many years of effort by private citizens, and biologists of the provincial and federal governments, the Creston Valley Wildlife Management Area was created by an act of the B.C. Legislature in 1968. It secured the remaining 6800 ha of unclaimed valley floor for wildlife management and public recreation. It also established a unique co-operative project, paving the way for participation by the Government of the Province of British Columbia, the Government of Canada, and a variety of private agencies and individuals. The act states:

*"The Creston Valley Wildlife Management Area is hereby reserved, set apart, and established for the purposes of wildlife conservation, management, and development. . . . The Management Area shall be maintained and developed for the purposes for which it is established and, in particular, as a waterfowl management area. . . ."*

#### *C.V.W.M.A. Act, 1968*

The management authority established by the act is responsible for the conservation, management, and development of wildlife in the area. It is composed of the directors of the B.C. Fish and Wildlife Branch, the Canadian Wildlife Service (CWS), and a representative of the public.

Après de nombreuses années d'efforts déployés par des particuliers et par des biologistes des gouvernements provincial et fédéral, une loi de l'Assemblée législative de la Colombie-Britannique, adoptée en 1968, a créé l'aire de protection de la faune de la vallée de Creston. Aux termes de la loi, les 6800 ha non assainies de la vallée sont consacrées à la gestion de la faune et aux loisirs publics. La loi a également entraîné l'établissement d'un projet coopératif unique, ouvrant la voie à la participation du gouvernement de la Colombie-Britannique, du gouvernement du Canada et d'un large éventail d'organismes privés et de particuliers. Aux termes de la loi,

*"l'aire de protection de la faune de la vallée de Creston est établie pour assurer la conservation, la gestion et la mise en valeur de la faune. . . . l'aire de protection doit être entretenue et aménagée pour les fins prévues au moment de sa création et, en particulier, comme aire de gestion des oiseaux aquatiques. . . ."*

#### *C.V.W.M.A. Act, 1968.*

L'organe de gestion créé aux termes de la loi est chargé de la conservation, de la gestion et de la mise en valeur de la faune. Cet organe se compose des directeurs de la Direction de la faune aquatique et terrestre de la Colombie-Britannique, du Service canadien de la faune (SCF) et d'un représentant du public.

*North Duck Lake, Creston Valley Wildlife Management Area, Creston, B.C.*

*Le lac North Duck, aire de protection de la faune de la vallée de Creston, Creston (C.-B.)*



## Management objectives

The act specifies that the C.V.W.M.A. be maintained and developed in particular as a waterfowl management area and permits other activities and development within the C.V.W.M.A., as are not inconsistent with this requirement, nor with the stated overall purposes of wildlife conservation, management, and development.

Development and management of this project are based on the provisions of the act and upon the following, more specific, objectives adopted by the management authority and endorsed by its public advisory committee:

1. To maintain the Creston Valley Wildlife Management Area as wildlife habitat through the preservation of the existing wetlands and associated uplands.
2. To enhance the Creston Valley Wildlife Management Area for all indigenous species of wildlife, particularly as a breeding and staging area for waterfowl while maintaining as nearly a natural condition as is consistent with good management.
3. To encourage the involvement of interested groups and individuals in the implementation of the purposes as defined in the Creston Valley Wildlife Management Area Act and the objectives of the Creston Valley Wildlife Management Authority through personal effort, expertise, and contributions.
4. To encourage and enhance the recreational use of the Creston Valley Wildlife Management Area in a manner consistent with the purposes for which it was established.
5. To permit other uses of the Creston Valley Wildlife Management Area that are not inconsistent with the purposes for which the area was established.
6. To use the Creston Valley Wildlife Management Area to further public awareness and understanding of environmental values and wildlife management through interpretation, outdoor education, and the active encouragement of research.
7. To develop, apply, and evaluate management techniques related to the objectives of the Creston Valley Wildlife Management Authority.

## Objectifs de la gestion

La loi précise que l'aire de protection de la faune de la vallée de Creston doit être entretenue et aménagée notamment comme aire de gestion des oiseaux aquatiques et elle permet d'autres activités et aménagements dans les limites de l'aire de protection pourvu qu'ils n'aillent pas à l'encontre des exigences de la loi ni des objectifs généraux déclarés en matière de conservation, de gestion et de mise en valeur de la faune.

La réalisation et la gestion de ce projet se fondent sur les dispositions de la loi et sur les objectifs particuliers suivants adoptés par l'organe de gestion et appuyés par le comité consultatif public:

1. Faire en sorte que l'aire de protection de la faune de la vallée de Creston demeure un habitat faunique grâce à la préservation des terres humides existantes et des hautes terres environnantes.
2. Mettre en valeur l'aire de protection de la faune de la vallée de Creston pour toutes les espèces fauniques indigènes, notamment en tant qu'aire de reproduction et de repos pour les oiseaux aquatiques, tout en assurant autant que possible le maintien d'un état naturel compatible avec de bonnes pratiques de gestion.
3. Encourager les groupes et les particuliers intéressés à participer à la réalisation des buts déterminés dans la Loi sur l'aire de protection de la faune de la vallée de Creston (Creston Valley Wildlife Management Area Act) et des objectifs de l'organe de gestion de la faune de la vallée de Creston par des efforts, des compétences et des apports personnels.
4. Encourager et accroître l'utilisation de l'aire de protection de la faune de la vallée de Creston à des fins récréatives compte tenu des buts pour lesquels elle a été établie.
5. Permettre d'autres utilisations de l'aire de protection de la faune de la vallée de Creston qui ne sont pas incompatibles avec les buts pour lesquels elle a été établie.
6. Utiliser l'aire de protection de la faune de la vallée de Creston pour sensibiliser le public aux valeurs environnementales et à la gestion de la faune par le biais de l'interprétation, de l'éducation en plein air et en encourageant activement la recherche.
7. Élaborer, appliquer et évaluer des techniques de gestion en fonction des objectifs de l'organe de gestion de la faune de la vallée de Creston.

## Co-operation in conservation

The management authority has concluded agreements with Ducks Unlimited (Canada) for their participation in the construction of most of the water-level-control structures within the management area.

Ducks Unlimited (Canada) funding is derived primarily through private donations from the United States.

Agencies, in addition to Ducks Unlimited (Canada), which have participated in varying degrees in the projects, or which continue to do so, include 21 provincial departments and branches, 14 federal departments, ministries and branches, and 28 corporate and private organizations.

Permanent management authority staff are employed by contract and are paid from a trust fund to which both participating government agencies contribute. Temporary staff are usually hired from B.C. Ministry of Environment appropriated funds administered from the Victoria head office of the ministry. The B.C. Hydro and Power Authority project in Duck Lake was funded directly through that corporation's offices.

Funds for other major construction projects within the management area have come from the B.C. Parks Branch, the B.C. Department of Highways, and the B.C. Department of Public Works.

*Checking Wood Duck nesting boxes, Leach Lake, Creston Valley Wildlife Management Area, Creston, B.C.*

*Vérification des nichoirs de Canards huppés, lac Leach, aire de protection de la faune de la vallée de Creston (C.-B.)*



## Coopération pour la conservation

L'organe de gestion a conclu des accord avec Canards Illimités (Canada) pour obtenir la participation de cet organisme à la construction de la plupart des ouvrages de régularisation du niveau des eaux situés dans l'aire de protection.

Les fonds fournis par Canards Illimités (Canada) proviennent en majeure partie de dons faits par des particuliers américains.

Parmi les organismes qui, en plus de Canards Illimités (Canada), ont participé à divers degrés aux travaux ou continuent de le faire, on compte 21 ministères et directions provinciaux, 14 ministères, services et directions fédéraux et 28 organisations constituées ou privées.

Le personnel de direction permanent est engagé à contrat et payé à même un fonds de fiducie auquel contribuent les deux organismes gouvernementaux participants. Habituellement, le personnel temporaire est payé au moyen d'un fonds approprié du ministère de l'Environnement de la Colombie-Britannique administré par le bureau central du ministère à Victoria. Les travaux de la B.C. Hydro and Power Authority au lac Duck ont été financés directement par cette société.

La Direction des parcs, le ministère des Routes et le ministère des Travaux publics de la Colombie-Britannique ont également fourni des fonds pour d'autres aménagements importants dans l'aire de protection.

La Direction des relevés de la Colombie-Britannique, le ministère du Procureur général (C.-B.), la GRC, la Direction de la planification et de la gestion (eaux) d'Environnement Canada, la Commission mixte internationale et l'Inland Natural Gas Company Limited ont également offert des services importants. Le Fish and Wildlife Service des États-Unis a fourni une aide technique précieuse.

Les méthodes de budgétisation, d'administration et de comptabilité tiennent compte de la nature coopérative du projet et ont été élaborées en fonction des besoins des divers organismes. Le SCF, la Direction de la faune aquatique et terrestre de la C.-B., le Bureau du Contrôleur général et la Commission des achats ont participé à l'établissement de ces méthodes.

Substantial services have been received from the B.C. Surveys Branch, B.C. Attorney-General's Department, the RCMP, Environment Canada's Water Planning and Management Branch, the International Joint Commission, and Inland Natural Gas Company Limited. The US Fish and Wildlife Service has provided much valuable technical assistance.

Budgeting, administrative, and accounting procedures take into account the co-operative nature of the project and have been developed in response to the requirements of the various agencies. The CWS, the B.C. Fish and Wildlife Branch, the Office of the Comptroller-General, and the Purchasing Commission have assisted in establishing these procedures.

This is the first co-operative federal-provincial project aimed at conservation and management of wildlife, in particular waterfowl, habitat in British Columbia.

## Present status

Since the management area's creation, there have been two major physical developments: one is the improvement of wetland habitats for waterfowl production and migration, and for use by other wildlife species; the other is the construction of facilities for public access, public use, and public information/education.

Some 80% of the management area's wetlands are now secure from the Kootenay River's annual floods, assuring adequate breeding habitat not only for waterfowl, but also for scores of other bird species, ungulates, and furbearers. Waterfowl now raised on the wetlands have increased from a handful to nearly 3500 annually. Elk and deer young are now successfully raised. Otter, beaver, and muskrat are also increasing.

Trespass and over-grazing have been eliminated, the practice of branding initiated, and pasture-management schemes implemented to the overall benefit of all concerned. A public recreation area and a campground were completed and have been in operation for several years, greatly increasing the attractiveness of the valley to tourists. A wildlife interpretation centre has been built and attracts in excess of 30 000 people annually. Roads and trails on the remainder of the management area help to increase the total public use to an estimated 55 000 visitor-days.

Il s'agit du premier projet coopératif fédéral-provincial concernant la conservation et la gestion des habitats fauniques, notamment des oiseaux aquatiques, en Colombie-Britannique.

## Situation actuelle

Depuis la création de l'aire de protection, on a effectué deux aménagements importants; premièrement, on a amélioré les habitats humides en fonction de la production et de la migration des oiseaux migrateurs et pour leur utilisation par d'autres espèces fauniques; deuxièmement, on a construit des installations pour le public, (accès, utilisation, information et éducation).

Environ 80 % des terres humides de l'aire de protection sont maintenant à l'abri des inondations annuelles de la rivière Kootenay, assurant ainsi un habitat convenable pour la reproduction non seulement des oiseaux aquatiques, mais aussi d'importants groupes d'autres espèces d'oiseaux, d'ongulés et d'animaux à fourrure. Le nombre des oiseaux aquatiques élevés dans les terres humides est passé de quelques sujets à près de 3 500 chaque année. De jeunes wapitis et cerfs y sont maintenant élevés avec succès. Le nombre des loutres, des castors et des rats musqués augmente également.

Il n'y a plus d'entrées non autorisées et de surutilisation comme pâtrages; on commence à faire du baguage et on applique des plans de gestion des pâtrages au profit de tous les intéressés. On a terminé l'aménagement d'une aire de loisirs et d'un terrain de camping publics; ces installations existent depuis plusieurs années et elles attirent de nombreux touristes dans la vallée. On a construit un centre d'histoire naturelle qui attire plus de 30 000 personnes chaque année. Les routes et les sentiers dans le reste de l'aire de protection permettent d'augmenter l'utilisation totale par le public évaluée à 55 000 visiteurs-jours.

*Région du Pacifique et du Yukon*

# Co-operative Great Blue Heron inventory in Ontario

The Great Blue Heron is an easily recognized and conspicuous species which usually nests colonially in trees. It is familiar to most residents of Ontario. Herons are at the top of the aquatic food chain and hence are potentially vulnerable to a variety of humanly induced disturbances ranging from wetland drainage to acid rain and the use of toxic substances. Additionally, cutting of nesting trees and destruction of colony sites affects the well-being of some populations. Although the Great Blue Heron is currently rather common and widely distributed across much of Ontario its continued well-being and future population status have become the source of some concern to naturalists and government wildlife specialists.

The Canadian Wildlife Service (CWS) has legislative responsibility under the Migratory Birds Convention Act for the protection of heron populations, as well as for other migratory birds. In order to fulfill that responsibility basic information on the distribution, numbers, and general status of nesting Great Blue Herons is required. Significant population declines or long-term trends herald trouble requiring special management measures. The Ontario government also has concern for the status of Great Blue Herons, and responsibilities for the management of Great Blue Heron nesting and feeding habitat. Hence when the Long Point Bird Observatory (LPBO) sought support for a relatively low cost Ontario Heronry Inventory, which would make extensive use of volunteer labour, both CWS and the Ontario Ministry of Natural Resources (MNR) were receptive.

After completion of pilot studies in 1978 and 1979 (financed in part by CWS and MNR) LPBO submitted an unsolicited proposal to the federal Department of Supply and Services (DSS) for support for a volunteer-based Great Blue Heron Inventory in Ontario. After discussions with CWS a DSS contract with LPBO was successfully negotiated, with CWS serving as scientific authority and federal supporter of the project. The Ontario government through MNR also supported the project in an amount equal to the CWS contribution. Table 1 shows the funding of the heron inventory work carried out in 1980 and 1981 under the DSS contract. The Great Blue Heron Inventory contract work began in May 1980.

# Inventaire coopératif du Grand Héron en Ontario

Le Grand Héron (*Ardea herodias*) est un oiseau remarquable facile à identifier qui niche habituellement en colonie dans les arbres. La plupart des résidents de l'Ontario le connaissent bien. Les hérons se trouvent au sommet de la chaîne alimentaire aquatique et sont donc susceptibles d'être touchés par un large éventail de perturbations causées par l'homme, comme par exemple l'assèchement des terres humides, les précipitations acides et l'utilisation de substances toxiques. Par ailleurs, la coupe des arbres qui servent à la nidification et la destruction des héronnières nuisent au bien-être de certaines populations. Actuellement, même si le nombre de Grands Hérons est assez élevé et si les populations sont réparties dans une grande partie de l'Ontario, l'état présent et futur de cette espèce commence à préoccuper des naturalistes et des fonctionnaires spécialistes de la faune.

Le Service canadien de la faune (SCF) est responsable, aux termes de la Loi sur la Convention concernant les oiseaux migrateurs, de la protection des populations de hérons ainsi que des autres oiseaux migrateurs. Pour être en mesure d'assumer ses responsabilités, le SCF a besoin de renseignements de base sur la répartition, les populations et l'état général des Grands Hérons durant la nidification. La diminution importante du nombre d'individus ou les tendances à long terme annoncent des problèmes nécessitant des mesures de protection spéciales. Le gouvernement de l'Ontario se préoccupe également de la situation des Grands Hérons et il a des responsabilités à assumer relativement à la gestion des aires de nidification et d'alimentation du Grand Héron. Ainsi, lorsque le Long Point Bird Observatory (LPBO) a demandé de l'aide pour un inventaire relativement peu coûteux des héronnières en Ontario, qui serait fait en grande partie par des bénévoles, le SCF et le ministère des Richesses naturelles (MRN) de l'Ontario se sont montrés disposés à fournir l'aide demandée.

*Table 1. Sources of funds for the LPBO heron inventory*

	1980-81	1981-82	Total
	(\$)	(\$)	(\$)
Canadian Wildlife Service	3 500	6 152	9 652
Ministry of Natural Resources	3 500	5 000	8 500
Dept. Supply and Services	20 253		20 253
Sub-total	27 253	11 152	
	Grand total		38 405

LPBO regularly produces a quarterly newsletter on its activities and has a noteworthy history of organizing and co-ordinating projects in which amateur ornithologists can participate. A Great Blue Heron survey seemed like a natural, and LPBO's network of co-operators and their well developed information dissemination system made LPBO a logical organizer for a province-wide heron survey. Local knowledge of heron colonies and their changing status could be drawn upon, and, when combined with similar information from other areas, could form the basis for a province-wide inventory. The volunteer approach was tried during the pilot stage which concentrated on developing field methodology and a uniform data recording scheme. The pilot studies were carried out at colonies that were previously known to LPBO. Techniques were also developed for surveying for new, unknown colonies.

## Inventory methods

Volunteers for the Great Blue Heron inventory were recruited through personal contacts and advertising efforts of the Long Point Bird Observatory. Among those contacted were naturalists groups, wildlife biologists employed by the provincial and federal governments, and individuals known to have participated in similar natural history surveys in Ontario. Potential participants were asked to write for further information and to indicate what area of the province they were prepared to census. Volunteers either censused local colonies known to them, or were assigned one or more colonies from a log of existing colonies maintained by the Long Point Bird Observatory. Volunteers were provided with all the available data on their particular colony

*Tableau 1. Origine des fonds pour l'inventaire du Grand Héron — LPBO*

	1980-81	1981-82	Total
	(\$)	(\$)	(\$)
Service canadien de la faune	3 500	6 152	9 652
Ministère des Richesses naturelles	3 500	5 000	8 500
Ministère des Approvisionnements et Services	20 253		20 253
Total partiel	27 253	11 152	
	Total général		38 405

Après avoir réalisé des études-pilotes en 1978 et 1979 (financées en partie par le SCF et le MRN), le LPBO a présenté une offre spontanée au ministère fédéral des Approvisionnements et Services (MAS) pour obtenir de l'aide en vue de la réalisation, par des bénévoles, d'un inventaire des Grands Hérons en Ontario. Après examen avec le SCF, le MAS a conclu un contrat avec le LPBO; le SCF jouait le rôle d'autorité scientifique et appuyait le projet à l'échelon fédéral. Le gouvernement de l'Ontario, par le biais du MRN, a également appuyé le projet et a fourni une contribution égale à celle du SCF. Le tableau 1 fait état du financement des travaux relatifs à l'inventaire du Grand Héron effectués en 1980 et en 1981 en vertu du contrat conclu avec le MAS. Les travaux prévus au contrat ont commencé en mai 1980.

Le LPBO publie régulièrement un bulletin trimestriel sur ses activités; cet organisme organise et coordonne depuis longtemps des projets auxquels les ornithologues amateurs peuvent participer. La réalisation d'un inventaire du Grand Héron apparaissait comme une activité normale, et à cause de son réseau de collaborateurs et de son bon système de diffusion de l'information, il semblait tout à fait logique que le LPBO organise l'inventaire à l'échelon provincial. Les données locales sur les colonies de hérons et les changements dans leur situation pouvaient être utilisées et, une fois combinées à des informations similaires provenant d'autres régions, elles formeraient la base d'un inventaire provincial. L'utilisation de bénévoles a été mise à l'essai durant l'étape-pilote portant sur l'élaboration des méthodes à utiliser sur le terrain et sur

sites including photocopies of 1:50 000 topographic maps, and, when available, sketch maps showing the exact locations of the colonies. They also received instruction sheets, field record sheets, and report forms (see App. 1, 2, and 3) as well as surveyors flagging tape.

The census method is fully described in the instruction sheets supplied to volunteers (Appendix 1). Briefly, volunteers enter a colony during June at a time judged to be early-middle chick stage. Flagging tape is tied around a nest tree and the nests are tallied on the field sheet as active, inactive, or of unknown status. The participant then moves to the next tree and repeats the procedure. Flagging the trees ensures that all trees in the colony are covered and that none are double counted. All flagging material is removed before leaving the colony, and all field data transcribed to the reporting sheets and mailed to the LPBO organizers. To determine observer variability and reliability, a number of colonies were censused more than once either by a separate team of volunteers or by personnel hired directly by LPBO as part of the heron inventory contract.

Contract staff also were responsible for censusing colonies that were not covered by volunteers. LPBO staff conducted aerial surveys of sample areas to relate known colonies covered by volunteers and LPBO ground observers to all colonies in the sample block. Results were extrapolated to other portions of the province covered by volunteers. Figure 1 shows in large scale approximate distribution of heron colonies in the portions of Ontario covered by the Great Blue Heron inventory. Accessibility prevented much of northern Ontario from being included in the inventory, hence figures provided are minimums.

All volunteers were canvassed to determine their interest and availability for censusing in 1981 and considerable effort was spent on feedback mechanisms so that volunteers could see the fruits of their labours. At the end of each season a newsletter summarizing results was sent to all participants to let them know that their data were being used and to maintain enthusiasm for future contributions. (I have borrowed rather heavily on those summaries in producing this account.) The following quote from the summer 1981 newsletter, prepared by Joanne Siderius, a contractor to the Long Point Bird Observatory, highlights the effort of the many volunteer observers.

l'établissement d'un mode d'enregistrement uniforme des données. Les études-pilotes ont été effectuées dans des colonies connues au LPBO. On a également élaboré des techniques pour l'inventaire de colonies nouvelles et inconnues.

## Méthodes d'inventaire

Les bénévoles pour l'inventaire du Grand Héron ont été recrutés par le biais de contacts personnels et d'annonces publiées par le Long Point Bird Observatory. Des groupes de naturalistes, des biologistes de la faune travaillant aux gouvernements provincial et fédéral et des particuliers ayant participé à des travaux similaires en Ontario ont été contactés. On demandait aux intéressés d'écrire pour obtenir de plus amples renseignements et pour indiquer quel secteur de la province ils étaient disposés à recenser. Les bénévoles examinaient les colonies locales qu'ils connaissaient ou bien ils étaient chargés d'examiner une ou plusieurs colonies déterminées d'après le registre des colonies existantes tenu par le Long Point Bird Observatory. On fournissait à chaque bénévole toutes les données disponibles sur les colonies qu'il devait examiner ainsi que des photocopies de cartes topographiques à l'échelle 1:50 000 et, si possible, des croquis cartographiques indiquant l'emplacement exact des colonies. On leur fournissait également des feuilles d'instruction, des feuilles d'enregistrement sur le terrain et des feuilles de rapport (voir annexes 1, 2 et 3) ainsi que du ruban indicateur.

La méthode de dénombrement est expliquée en détail dans les feuilles d'instruction remises aux bénévoles (annexe 1). Brièvement, le bénévole visite une colonie en juin peu après l'éclosion des œufs alors que les poussins sont encore petits. Il attache un ruban indicateur autour de l'arbre qui porte le nid et inscrit sur la feuille d'enregistrement l'état du nid: actif, inactif ou inconnu. Il passe ensuite à l'arbre suivant et répète l'opération. En mettant des rubans indicateurs, on s'assure que tous les arbres de la colonie sont examinés et une seule fois. L'observateur enlève tous les rubans avant de quitter la colonie; il transcrit les données recueillies sur le terrain sur les feuilles de rapport et les envoie aux organisateurs du LPBO. Afin de déterminer la variabilité et la fiabilité des observateurs, une équipe distincte de bénévoles ou des employés engagés directement par le LPBO aux termes du contrat concernant l'inventaire du Grand Héron ont examiné plus d'une fois un certain nombre de colonies.

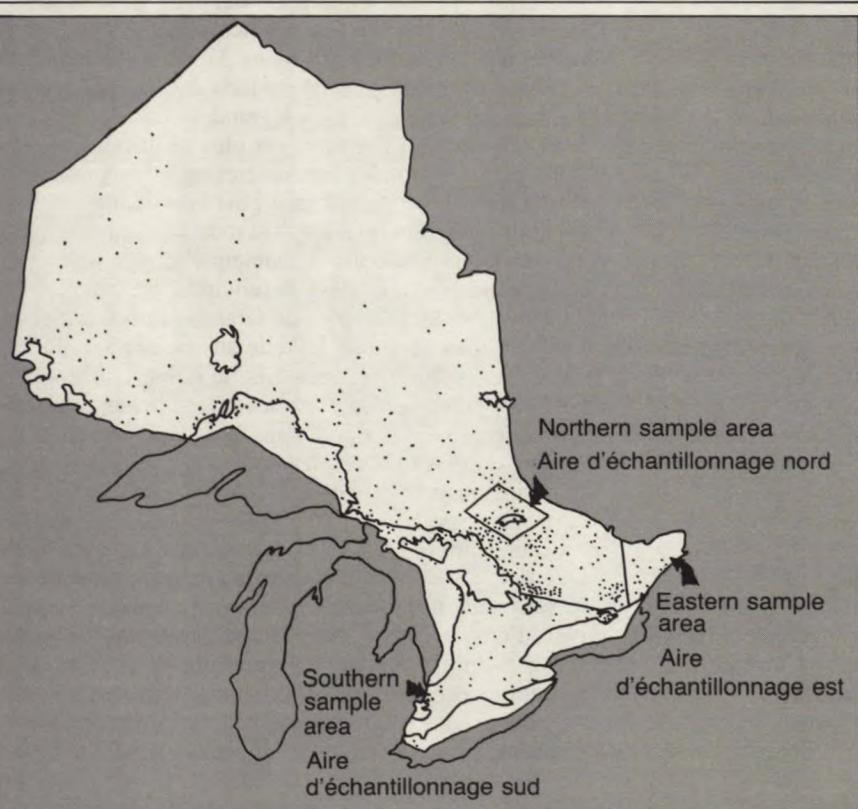


Figure 1. Distribution of active Great Blue Heron colonies in Ontario as of 21 August 1981

Figure 1. Répartition des colonies actives de Grands Hérons en Ontario au 21 août 1981

*Credit for the success of the 1980–81 census undoubtedly goes to the 162 people who in one or both years braved the swamps and wild bush of Ontario during the mosquito, black fly and deer fly season to census a colony. Volunteers were responsible for 73 per cent of all censusing trips, and about half of them censused more than one colony in the same year. Some people spent hours looking for the right beaver pond, or had to wade about in waist-high water, while some were lucky enough to get the aid of a friend with a plane. Volunteers were not only diligent in collecting accurate records, but were very concerned with minimizing disturbance to the herons.*

A special effort was made to census the larger Great Blue Heron colonies. Censuses were conducted at 37 of 44 active colonies larger than 50 nests in size, and approximate size estimates were obtained for another five large colonies. In total there were 15 colonies with more than 100 nests and most of the larger colonies were located in southwestern Ontario. The largest colony, about 300 active nests, is situated near Dunnville in the Regional Municipality of Haldimand-Norfolk. Across the province there was an average of 35.2 pairs of Great Blue Herons per colony. Colony size decreased with increasing latitude; however, the

Le personnel engagé à contrat était également responsable de l'examen des colonies qui n'étaient pas visitées par les bénévoles. Le personnel du LPBO a effectué des relevés aériens dans les aires d'échantillonnage pour établir des rapports entre les colonies connues visitées par les bénévoles et les observateurs sur le terrain du LPBO et toutes les colonies du quadrilatère d'échantillonnage. On a extrapolé les résultats aux autres secteurs de la province examinés par des bénévoles. La figure 1 illustre, sur une grande échelle, la répartition approximative des héronnières dans les secteurs de l'Ontario visités dans le cadre de l'inventaire du Grand Héron. À cause de la difficulté d'accès, une grande partie du nord de l'Ontario n'a pas été incluse dans l'inventaire et les chiffres indiqués sont donc des minima.

On a effectué un examen approfondi de tous les bénévoles pour déterminer leur intérêt et leur disponibilité pour le dénombrement de 1981 et l'on a accordé une grande importance à l'information de façon à ce que les bénévoles prennent connaissance du fruit de leur travail. À la fin de chaque saison, on envoyait à tous les participants un bulletin contenant un résumé des résultats pour leur faire voir que leurs données étaient utilisées et pour conserver leur enthousiasme en vue d'autres travaux. (J'ai beaucoup utilisé les bulletins susmentionnés pour la rédaction du présent rapport.) Le texte suivant est tiré du bulletin de l'été 1981, rédigé par Joanne Siderius, engagée à contrat par le Long Point Bird Observatory, et souligne les efforts déployés par les nombreux observateurs bénévoles.

*"Sans aucun doute, l'inventaire de 1980–1981 a été un succès grâce aux 162 personnes qui ont, une ou plusieurs fois, bravé les marécages et les broussailles de l'Ontario et affronté les maringouins, les mouches noires et les taons pour faire l'inventaire des colonies. Les bénévoles ont effectué 73 pour cent des activités de dénombrement, et environ la moitié d'entre eux ont visité plus d'une colonie en un an. Certains ont passé des heures à chercher le bon étang de castors ou ont dû marcher dans l'eau jusqu'à la taille, et d'autres ont eu la chance d'avoir l'aide d'un ami qui les a conduits en avion. Non seulement les bénévoles se sont-ils appliqués à recueillir des données exactes, mais ils ont également fait en sorte de déranger le moins possible les hérons".*

number of colonies per unit area was greatest in central Ontario and lowest in the south (Fig. 1). There seems to be a tendency for Great Blue Herons to concentrate in a small number of colonies in the southern part of the province where the number of potential colony sites is somewhat limited as a result of conflict with human populations. Whatever the reason for the concentration of Great Blue Herons at a relatively small number of sites in southwestern Ontario, the significant point is that populations in that area of the province are more vulnerable to further loss of habitat or disturbance. At present the greatest threat to colonies appears to be the direct loss of feeding or nesting habitat through drainage of wetlands and timber cutting. However, pollutants pose an increasing threat and there is already evidence that acid rain is affecting important heron food resources in lakes and wetlands in central and northern Ontario where a large number of colonies are located.

As a result of this truly co-operative effort to determine the status of Great Blue Herons in Ontario we now know that there are about 435 known active colonies representing an estimated 13 100 breeding pairs. There is also detailed information on colony size and location, with detailed site description information available for each.

Good coverage was achieved in the southern portion of Ontario, and a baseline now exists against which future inventories may be compared. It is recommended that all larger colonies be surveyed every year, as well as all colonies in a selected sample survey region to determine if significant population declines or distributional changes are occurring.

**S.G. Curtis**  
*Ontario Region*

Des efforts particuliers ont été déployés pour le dénombrement dans les grandes héronnières. On a effectué des dénombrements dans 37 des 44 colonies actives regroupant plus de 50 nids et on a fait des estimations pour cinq autres grandes colonies. Au total, 15 colonies regroupaient plus de 100 nids et la plupart des grandes héronnières se trouvent dans le sud-ouest de l'Ontario. La plus importante colonie, qui comporte quelque 300 nids actifs, se trouve près de Dunnville dans la municipalité régionale de Haldimand-Norfolk. Pour la province, on compte en moyenne 35,2 couples de Grands Hérons par colonie. À mesure que la latitude augmente, la taille des colonies diminue; toutefois, le nombre de colonies par secteur est le plus élevé dans le centre de l'Ontario et le plus faible dans le sud (figure 1). Il semble que les Grands Hérons tendent à se concentrer dans un petit nombre de colonies dans le sud de la province où le nombre de héronnières potentielles est plutôt limité à cause de la présence de l'homme. Quelle que soit la raison pour laquelle les Grands Hérons se concentrent dans un nombre relativement petit d'emplacements dans le sud-ouest de l'Ontario, il est important de souligner que les populations de cette partie de la province sont plus susceptibles d'être touchées par la perte d'habitat et par des perturbations. Pour le moment, il semble que la plus grande menace pour les colonies soit la perte directe des aires d'alimentation ou de nidification suite à l'assèchement des terres humides et à la coupe des arbres. Cependant, les polluants constituent une menace croissante et il existe des preuves que les précipitations acides influent déjà sur les ressources alimentaires des hérons dans les lacs et les terres humides du centre et du nord de l'Ontario où se trouve un grand nombre de colonies.

Grâce à ces véritables efforts de coopération en vue de déterminer l'état du Grand Héron en Ontario, nous savons maintenant qu'il existe quelque 435 colonies actives qui regroupent environ 13 100 couples reproducteurs. Nous possédons également des renseignements détaillés sur les dimensions et l'emplacement des colonies, ainsi qu'une description précise de chacune.

Le sud de l'Ontario a fait l'objet d'un examen approfondi et nous disposons maintenant d'une base de comparaison pour les inventaires futurs. Il est recommandé d'examiner chaque année les colonies importantes ainsi que toutes les colonies dans une aire d'échantillonnage donnée pour déterminer les baisses de population importantes ou les changements de répartition.

**S.G. Curtis**  
*Région de l'Ontario*

## Appendices

*Appendix 1. Instruction sheet used in the Great Blue Heron Inventory in Ontario*

*Annexe 1. Feuille d'instruction utilisée pour l'inventaire du Grand Héron en Ontario*

### Ontario heronry inventory: census of Great Blue Heron colonies

#### Census Instructions

**Long Point Bird Observatory, P.O. Box 160,  
Port Rowan, Ontario N0E 1M0**

**Read instructions, field and record sheets carefully before planning your census**

#### When to do your census:

Colonies should not be entered during the courtship/early incubation stage, when nest desertion may result, or after the nestlings are large, when they may scramble out of their nests. The best time is shortly after hatching, and censuses in Ontario should be done during the last weeks of July. Do not census on cold, wet or very hot days, because eggs and young may die from exposure. Avoid going just after a day or two of rain, as it will then be difficult to determine which nests are in use (see instructions below).

#### Before you go:

Every effort should be made to obtain authorization from the landowner before entering the colony. Contact the owner listed on the sheet describing your colony to ask permission to visit it.

Explain that you are part of a study being conducted by the Canadian Wildlife Service, the Ministry of Natural Resources and the Long Point Bird Observatory and that the census techniques being used have been tested and shown not to disturb the birds unduly. Say when and for how long you plan to be on the property. If no landowner is given on your information sheet, try to find out (and be sure to send us this information along with your census record sheets). If you can't find the owner, you might notify someone living near the colony of your intention to census and ask whether that person knows of any objections to your doing so. If you run into any difficulties, contact OHI at the address above or, if time is short, call us collect (Tel: 519-586-2909).

## Annexes

### Inventaire des héronnières de l'Ontario: dénombrement des colonies de Grands Hérons

#### Directives pour le dénombrement

**Long Point Bird Observatory, C. P. 160  
Port Rowan (Ontario) N0E 1M0**

**Lire attentivement les directives, les feuilles d'enregistrement sur le terrain et les formulaires de rapport avant de planifier le dénombrement**

#### Date du dénombrement

Les colonies ne devraient pas être visitées durant la période des amours et au début de la période d'incubation, au moment où les nids peuvent être désertés, ou après que les oisillons sont devenus grands, alors qu'ils peuvent tomber du nid. Le meilleur moment se trouve peu après l'éclosion et les dénombremens en Ontario devraient être faits au cours des dernières semaines de juin. Ne faites pas le dénombrement lorsque le temps est froid, humide ou très chaud parce que les oeufs et les oisillons laissés sans protection pourraient mourir. N'y allez pas juste après un ou deux jours de pluie car il vous sera difficile de déterminer les nids qui sont utilisés (voir directives plus bas).

#### Avant de partir

Vous devriez tâcher d'obtenir l'autorisation du propriétaire du terrain avant d'aller visiter la colonie. Contactez le propriétaire inscrit sur la feuille décrivant la colonie dont vous êtes responsable et demandez-lui la permission de la visiter.

Dites que vous participez à une étude effectuée par le Service canadien de la faune, le ministère des Ressources naturelles de l'Ontario et le Long Point Bird Observatory, que les techniques de dénombrement utilisées ont été mises à l'essai et que les oiseaux ne seront pas dérangés outre mesure. Précisez la date et la durée de votre visite. Si le nom du propriétaire n'est pas indiqué sur votre feuille d'information, essayez de le trouver (veuillez nous faire parvenir ce renseignement avec votre rapport). S'il vous est impossible de trouver le propriétaire, vous pourriez informer quelqu'un résidant près de la colonie de votre intention de faire un dénombrement et lui demander s'il y a des objections à ce sujet. Si vous avez des problèmes, contactez les responsables de l'inventaire des héronnières de l'Ontario à l'adresse susmentionnée ou, si le temps presse, téléphonez-nous à frais virés (519-586-2909).

#### Matériel nécessaire

Il vous sera plus facile de faire le travail avec un ou deux aides.

- Vos feuilles d'enregistrement des données sur le

**What to take with you:**

- One or two helpers will make the job easier.
- Your field sheet, extra paper, 2 pens or pencils (in case one gets lost). A clipboard will be helpful.
- Flagging tape, provided by the organizers.
- Rubber boots or waders may be needed, and insect repellent is recommended.
- Binoculars, if you have them, are useful in examining each tree for nests.
- Compass and topographic map.
- In remote areas, carry a small survival kit, in case you become lost.

**Just before you go:**

Tell someone at home when you are going to the colony and where it is. It is easy to become lost at some sites. You may wish to tag trees along your route into the colony to mark the way out.

**How to do the census:**

Enter the colony and move about quietly under the nest trees. The adults will normally fly off. Don't attempt to hide, as the birds are less alarmed if they can see you. If you see nestlings scrambling out of the nests, or if you see predators moving in (e.g. ravens or gulls), leave without finishing the count; but try to get at least an estimate of the total number of nests present by moving rapidly through the colony and making a quick count of visible nests.

Mark each nest tree as you count the number of "active" and "inactive" nests and those of "unknown status" (see below). Tear off a strip of coloured surveyor's tape and tie it around the trunk or convenient branch, so that the same tree will not be counted again later. Carefully count the number of active, inactive and unknown status nests in that tree, record your count on the field sheet, and go on to the next occupied tree. There is often more than one nest per tree, so care must be taken to look through the foliage to get a complete count. Binoculars help in finding and classifying nests.

"Active" nests are those being used by breeding birds. If you cannot see nest contents, look for adults on the nest, or "white-washing" (excrement) on the nest, branches and ground directly below the nest. Presence of large blue eggshells, food items or dead chicks on the ground are other indications of active nests. White-washing is increasingly evident as the season progresses, but may be temporarily washed away by heavy rains.

terrain, du papier, deux stylos ou crayons (au cas où vous en perdriez un). Une plaquette à pince vous serait utile.

- Du ruban indicateur fourni par les organisateurs.
- Des bottes en caoutchouc ou des cuissardes peuvent être nécessaires et l'utilisation d'un insectifuge est recommandée.
- Des jumelles (si vous en avez) sont utiles pour examiner les arbres en vue de déterminer la présence de nids.
- Une boussole et une carte topographique.
- Dans les secteurs reculés, apportez une petite trousse de survie au cas où vous vous perdriez.

**Avant de partir**

Indiquez à quelqu'un chez vous la date de votre visite à la colonie et son emplacement. Il est facile de se perdre à certains endroits. Vous pouvez marquer les arbres en vous rendant à la colonie pour pouvoir retrouver votre chemin.

**Méthode de dénombrement**

Entrez dans la colonie et rendez-vous sans bruit sous les arbres portant des nids. Les adultes s'envoleront généralement. N'essayez pas de vous cacher car les oiseaux sont moins inquiets s'ils vous voient. Si vous voyez des oisillons qui essaient de sortir du nid ou si vous apercevez des prédateurs (par exemple des corbeaux ou des goélands), quittez les lieux sans achever le dénombrement; toutefois, essayez au moins de faire une estimation du nombre total de nids en vous déplaçant rapidement dans la colonie et en comptant les nids visibles.

Marquez chaque arbre à mesure que vous comptez le nombre de nids des catégories "actif", "inactif" et "état inconnu" (voir plus bas). Attachez un bout de ruban indicateur de couleur autour du tronc ou d'une branche accessible; ainsi, vous ne compterez pas deux fois les mêmes nids. Comptez avec soin les nids "actifs", "inactifs" et ceux dont l'état est inconnu dans cet arbre, inscrivez les données sur les feuilles d'enregistrement des données sur le terrain et passez à un autre arbre occupé. Il y a souvent plus d'un nid par arbre; donc, examinez chaque arbre avec soin pour être sûr de compter tous les nids. Des jumelles sont utiles pour trouver et classer les nids.

Les nids "actifs" sont ceux utilisés par les oiseaux reproducteurs. Si vous ne pouvez voir le contenu du nid, regardez s'il y a des adultes sur le nid ou s'il y a de la fiente sur le nid, les branches et le sol directement sous le nid. La présence de coquilles d'oeuf bleues, d'aliments ou de poussins morts sur le sol indique également que le nid est actif. À mesure que la saison avance, les taches de fiente sont de plus en plus nombreuses, mais elles peuvent disparaître temporairement après de fortes pluies.

"Inactive" nests are those without any of the above signs of activity. If a nest's status is doubtful (e.g. if it is directly below an active nest so the source of its white-washing is unclear), record it as "status unknown". Do not judge the status of a nest on its size, as first year nests may be very flimsy, and large old nests may no longer be used. Make a good effort to classify each nest as "active" or "inactive", as the number of nests actually in use gives us our best estimate of total population size.

Upon completing your count, double-check to make certain that there are no untagged trees containing nests. Make sure your field sheet is complete, remove the surveyor's tape and leave.

Even the largest colonies (250+ nests) can normally be censused by two people using this method within 2 hours. The birds do not suffer from a disturbance of this duration if it is not wet, very cold or very hot.

#### **After the census:**

Fill in the census record sheet and return it by July 15, 1981 to OHI, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario NOE 1M0. Even incomplete data are of use to us. Keep the field sheet for your own records, and if you have further correspondence with us concerning this colony, we would appreciate your referring to the colony number written on the upper right corner of this sheet.

If you have to leave a colony before completing your census, because of poor weather conditions, predators or some other reason, try to return and complete the count later on in June or early July.

If you can fill in any information which was missing from the information sheet which we sent you with these instructions, please send this on to us for addition to the Ontario Heronry Inventory permanent file.

#### ***Thank you for your help!***

We will send you a report on results this fall.

Les nids "inactifs" ne comportent aucune des caractéristiques susmentionnées. Si l'état d'un nid est incertain (par exemple, s'il est situé directement sous un nid actif et qu'il est donc impossible de déterminer d'où provient la fièvre), inscrivez-le dans la catégorie "état inconnu". Ne jugez pas de l'état d'un nid d'après sa taille; en effet, les nids d'un an peuvent être très peu solides et les vieux nids assez grands peuvent ne plus être utilisés. Faites de votre mieux pour classer chaque nid dans la catégorie "actif" ou "inactif" étant donné que le nombre de nids utilisés nous donne la meilleure idée de la taille de la population totale.

Après avoir terminé le dénombrement, vérifiez à nouveau la colonie pour être sûr que tous les arbres portant des nids ont été marqués avec du ruban. Assurez-vous d'avoir rempli au complet votre feuille d'enregistrement des données sur le terrain, enlevez les rubans attachés aux arbres et quittez les lieux.

Même les plus grandes colonies (plus de 250 nids) peuvent normalement être dénombrées par deux personnes au moyen de la méthode décrite en moins de deux heures. Les oiseaux ne souffrent pas d'un tel dérangement pourvu que le temps ne soit ni humide, ni très froid ou très chaud.

#### **Après le dénombrement**

Veuillez remplir les feuilles de rapport et les faire parvenir d'ici le 15 juillet 1981 à l'Inventaire des héronnières de l'Ontario, Long Point Bird Observatory, C. P. 160, Port Rowan (Ontario) NOE 1M0. Même des données incomplètes nous sont utiles. Veuillez garder les feuilles d'enregistrement des données sur le terrain pour vos dossiers; si vous avez d'autres renseignements à nous communiquer au sujet de "votre" colonie, nous vous saurions gré de préciser le numéro de la colonie inscrit au coin supérieur droit de la feuille.

Si vous devez quitter une colonie avant d'en avoir terminé le dénombrement à cause du temps, de la présence de prédateurs ou pour toute autre raison, essayez d'y retourner et de terminer le dénombrement plus tard en juin ou au début de juillet.

Si vous avez des informations additionnelles qui n'étaient pas précisées sur la feuille d'information que nous vous avons envoyée avec les directives, veuillez nous les communiquer pour nos dossiers permanents sur l'inventaire des héronnières de l'Ontario.

#### ***Merci de votre aide***

Nous vous enverrons un rapport sur les résultats à l'automne.

*Appendix 2. Field record sheet used in the Great Blue Heron Inventory in Ontario*

*Annexe 2. Feuille d'enregistrement sur le terrain utilisée pour l'inventaire du Grand Héron en Ontario*

<i>Numéro de la colonie</i>							
<b>Inventaire des héronnières de l'Ontario</b>							
<b>Dénombrement du Grand Héron:</b>							
<b>Feuille d'enregistrement des données sur le terrain</b>							
Date du dénombrement: _____		Heure: de _____ à _____					
(mois)	jour	année	(début) (fin)				
Nom de l'observateur (ou des observateurs): _____							
Nom ou emplacement de la colonie: _____							
<p>Inscrivez le nombre de nids dans chaque arbre dans la colonne appropriée: par exemple, 5 nids au total, 3 actifs, 2 inactifs. Il devrait y avoir peu de nids classés dans la catégorie "état inconnu".</p> <p>Si vous ne pouvez achever le dénombrement, essayez au moins de faire une estimation aussi exacte que possible de nombre total de nids présents.</p> <table> <tr> <td>Total des nids dans l'arbre</td> <td>N<sup>bre</sup> de nids actifs (adultes, oeufs ou jeunes présents, fiente visible)</td> <td>N<sup>bre</sup> de nids inactifs (pas d'adultes, d'oeufs, de jeunes, ni de fiente)</td> <td>N<sup>bre</sup> de nids dont l'état est inconnu</td> </tr> </table>				Total des nids dans l'arbre	N <sup>bre</sup> de nids actifs (adultes, oeufs ou jeunes présents, fiente visible)	N <sup>bre</sup> de nids inactifs (pas d'adultes, d'oeufs, de jeunes, ni de fiente)	N <sup>bre</sup> de nids dont l'état est inconnu
Total des nids dans l'arbre	N <sup>bre</sup> de nids actifs (adultes, oeufs ou jeunes présents, fiente visible)	N <sup>bre</sup> de nids inactifs (pas d'adultes, d'oeufs, de jeunes, ni de fiente)	N <sup>bre</sup> de nids dont l'état est inconnu				
Veuillez remplir le verso de la feuille avant de quitter la colonie							

Recto

Total des nids dans l'arbre	N <sup>bre</sup> de nids actifs	N <sup>bre</sup> de nids inactifs	N <sup>bre</sup> de nids dont l'état est inconnu

Indiquez le type des arbres portant des nids: à feuilles caduques \_\_\_\_\_ conifères \_\_\_\_\_ les deux \_\_\_\_\_ vivant \_\_\_\_\_ mort \_\_\_\_\_ les deux \_\_\_\_\_

Hauteur moyenne approximative des nids: \_\_\_\_\_

Sol humide \_\_\_\_\_ ou sec \_\_\_\_\_ sous les arbres portant des nids (cocher l'un des deux).

Conditions générales durant le dénombrement (température approximative, précipitation):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Verso

*Appendix 3. Report form  
used in the Great Blue  
Heron Inventory in  
Ontario*

	Colony Number _____			
<b>Ontario Heronry Inventory Great Blue Heron Census: Record Sheet</b>				
Complete as soon as possible after your census, and mail to: OHI, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ont. N0E 1M0.				
1. Name and address of chief censuser: _____				
2. Colony name and location: _____				
3. Date of census: _____ (month, day, year) Time of day: _____ to _____ (start) (end)				
4. Weather conditions during census (Approximate temperature, amount of precipitation): _____				
5. Census results:				
No of nests:	Active nests	Inactive nests	Status Unknown	Total
Are the above totals actual counts _____ or an estimate _____ (check one)				
If the count was incomplete give the reason below: _____				
If more than one census was done, record the most reliable here, give the results of other censuses on the back of this sheet.				

Front

Was it easy _____ or difficult _____ to get a complete count of the nests in this colony? (Check one). If difficult, give reasons: _____	
6. Total no. nest trees: _____	
7. Tree type supporting nests (Check one): deciduous _____ coniferous _____ both _____	
8. Status of nest trees (Check one): alive _____ dead _____ both _____	
9. Estimated average height of nests above ground: _____	
10. Condition of heronry terrain (Check appropriate space for each): Easy _____ or difficult _____ to find heronry and way home. Easy _____ or difficult _____ to walk through heronry. Wet _____ or dry _____ under nest trees.	
11. Were the directions provided adequate for you to find the colony? If not, explain why and forward amended sketch map and/or written instructions, for future censusers: _____	
12. Was there any evidence during your census visit of threats to the future of this heronry (give details): _____	
13. Please comment on the census methods and instructions, for the benefit of future censusers. Were the instructions and record sheets clear and straightforward? Yes _____ No _____. Please describe specific difficulties and make suggestions for changes. THANK YOU FOR YOUR HELP!	

Back

*Annexe 3. Feuille de rapport utilisée pour l'inventaire du Grand Héron en Ontario*

Numéro de la colonie _____									
<b>Inventaire des héronnières de l'Ontario Dénombrement du Grand Héron: Feuille de rapport</b>									
Remplir aussitôt que possible après avoir effectué le dénombrement et envoyer à: Inventaire des héronnières de l'Ontario, Long Point Bird Observatory, C. P. 160, Port Rowan (Ontario) N0E 1M0									
1. Nom et adresse du principal observateur: _____									
2. Nom et emplacement de la colonie: _____									
3. Date du dénombrement: _____ Heure: de _____ à _____ (mois      jour      année)      (début)      (fin)									
4. Conditions météorologiques durant le dénombrement (température approximative, précipitations): _____									
5. Résultats du dénombrement:									
Nbre de nids:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Nids actifs</th> <th style="width: 25%;">Nids inactifs</th> <th style="width: 25%;">État inconnu</th> <th style="width: 25%;">Total</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </tbody> </table>	Nids actifs	Nids inactifs	État inconnu	Total				
Nids actifs	Nids inactifs	État inconnu	Total						
Est-ce que les chiffres indiqués ci-dessus sont exacts _____ ou s'agit-il d'une estimation _____ (cocher l'énoncé approprié)									
Si un dénombrement complet n'a pas été effectué, veuillez en donner la raison: _____									
Si plus d'un dénombrement a été fait, inscrivez ici les résultats du plus fiable et donnez les résultats des autres dénominbrments au verso de la présente feuille.									

Recto

Était-il facile \_\_\_\_\_ ou difficile \_\_\_\_\_ d'effectuer un dénombrement complet des nids dans la colonie visitée? (Cocher l'endroit approprié.) Si cela était difficile, veuillez indiquer pourquoi: \_\_\_\_\_

6. Total des arbres portant des nids: \_\_\_\_\_
7. Type des arbres portant des nids (cocher un seul): à feuilles caduques \_\_\_\_\_ conifères \_\_\_\_\_ les deux \_\_\_\_\_
8. État des arbres portant des nids (cocher un seul): vivant \_\_\_\_\_ mort \_\_\_\_\_ les deux \_\_\_\_\_
9. Hauteur moyenne estimative des nids: \_\_\_\_\_
10. État du terrain dans la héronnière (cocher l'endroit approprié dans chaque cas):
 

Facile \_\_\_\_\_ ou difficile \_\_\_\_\_ de trouver la héronnière et le chemin de retour.  
 Facile \_\_\_\_\_ ou difficile \_\_\_\_\_ de marcher dans la héronnière.  
 Sol humide \_\_\_\_\_ ou sec \_\_\_\_\_ sous les arbres portant des nids.
11. Les indications fournies pour trouver la héronnière étaient-elles suffisantes? Sinon, expliquez pourquoi et faites-nous parvenir le croquis cartographique modifié et (ou) des directives par écrit en prévision des prochains dénominbrments:  
\_\_\_\_\_
12. Durant votre visite, avez-vous remarqué que l'avenir de la héronnière pouvait être menacé (donnez des détails):  
\_\_\_\_\_
13. Veuillez nous faire part de vos remarques au sujet des méthodes et des directives pour le dénominbrment, au profit des futurs observateurs. Est-ce que les directives et les feuilles de rapport étaient clairs et simples?  
 Oui \_\_\_\_\_. Non \_\_\_\_\_. Veuillez préciser les difficultés rencontrées et proposer les changements souhaités.

*Merci de votre aide*

Verso

**Canadian Wildlife Service**

## Federal-provincial co-operation at Percé

In Quebec the Canadian Wildlife Service (CWS) participates in joint programs with various organizations such as municipal, provincial, and federal government agencies, and non-governmental groups like Ducks Unlimited. Among these programs that which takes place at the Percé Wildlife Interpretation Centre and at Bonaventure Island has become one of the most successful.

**Service canadien de la faune**

## Coopération fédérale-provinciale à Percé

Au Québec, le Service canadien de la faune (SCF) s'occupe de quelques programmes conjoints avec des organismes aussi divers que les municipalités, les sociétés de conservation du genre de Canards Illimités, et les autres ministères aussi bien fédéraux que provinciaux. Parmi ces programmes, celui concernant le Centre d'interprétation faunique de Percé (CIFP) et de l'île Bonaventure s'avère un des plus importants.



*View of Percé from Bonaventure Island, showing areas formerly cultivated. The cliffs sheltering the Gannet colonies face in the opposite direction, backs to the camera.*

*Vue de Percé à partir de l'île Bonaventure, dans la partie qui était autrefois habitée et cultivée. Les falaises abritant les colonies de Fous de Bassan sont dans la direction opposée, dos au photographe.*

## Bonaventure Island

Bonaventure Island has long been known for its numerous colonies of nesting seabirds. The Gannet colony, for example, is the second largest in the world and is the most accessible one in North America. In 1981, it attracted more than 80 000 visitors from across Canada and the United States. For centuries people and birds successfully shared the island. In 1919, however, the pressures of over-exploitation of the birds made protection necessary; the island was subsequently declared a migratory bird sanctuary. In 1963, the last permanent (human) resident left and in 1971 Bonaventure Island was incorporated into the Quebec government's system of conservation parks.

Since that time, CWS staff members have been stationed on the island each summer to guide and interpret the sites for visitors. In 1973, with growing numbers of visitors, an informal working relationship was established between CWS and the Quebec Ministry of Recreation, Hunting and Fishing under the auspices of a special agreement between Quebec and Ottawa.

## L'île Bonaventure

L'île Bonaventure est depuis longtemps célèbre pour ses nombreuses espèces d'oiseaux marins qui viennent y nicher. La colonie de Fous de Bassan, par exemple, est la seconde en importance au monde et la plus accessible d'Amérique du Nord. En 1981, elle a attiré plus de 80 000 visiteurs venus de partout au Canada et aux États-Unis. Pendant des siècles, humains et oiseaux ont cohabité dans l'île; mais en 1919, suite à une surexploitation de la ressource avienne, l'île devenait un refuge d'oiseaux migrateurs. En 1963, le dernier résident permanent quittait les lieux et l'île Bonaventure devint en 1971 propriété du gouvernement du Québec qui l'intégra à son réseau de parcs de conservation.

Dès cette époque, un gardien du SCF était présent dans l'île pendant la belle saison et agissait à toutes fins utiles comme guide et naturaliste auprès des visiteurs. En 1973, en vue de répondre aux besoins de plus en plus croissants du public concernant l'interprétation de la faune, on établit des liens plus ou moins informels entre le SCF et le ministère québécois du Loisir, de la Chasse et de la Pêche (MLCP), collaboration qui s'inscrivait toutefois dans le cadre d'une entente spéciale entre Québec et Ottawa.



*The Gannets nest in colonies generally on rock edges.*

*Les Fous de Bassan nichent en colonie et s'installent généralement sur les corniches rocheuses.*

In 1975, the Percé Wildlife Interpretation Centre opened its doors. Situated above the village of Percé it offers an exceptional view of the bay, Percé Rock, and Bonaventure Island. Facilities at the centre include a theatre and an exhibits hall.

CWS naturalists on Bonaventure Island carry out a program under a master plan of interpretation of Atlantic coast biology. Under this master plan, the Percé centre's primary objective is "to interpret for the public the wildlife of the Gulf of St. Lawrence in the context of the Atlantic coast wildlife region, using firstly the unique wildlife present at Percé of which one, the seabirds of Bonaventure Island, will be highlighted."

## The federal-provincial agreement

After 4 years of negotiations and studies the federal minister of Fisheries and Oceans, Mr. Roméo LeBlanc, and his provincial counterpart, Mr. Yves Duhaime, signed an agreement in September 1977 to jointly develop research and interpretation programs on Bonaventure Island.

Under the agreement, the Quebec Ministry of Recreation, Hunting and Fishing established a plan describing the role and objectives for the park, the acceptable activities that could be undertaken on the island, the dates for seasonal operations, and identified the necessary personnel. It was under this plan in 1981 that the Quebec ministry provided the services of five wildlife and four historical interpreters. The plan also facilitated the provision by Quebec of two buildings for CWS use, one for the use of naturalists, the other for researchers. For its part, CWS is responsible for the application of the Sanctuary Regulations under the Migratory Birds Convention Act. The agreement permits CWS to pursue its research work on seabird population status and evolution, and the quality of seabird habitat on the island. CWS also contributes two person-years to the co-operative implementation of the interpretation program.

The Small Craft Harbours Division, Fisheries and Oceans Canada, maintains a public wharf reserved for boats used under the program.

En 1975, le centre d'interprétation faunique de Percé a ouvert ses portes. Situé tout en haut du village de Percé, il offre une vue exceptionnelle sur la baie, le roché percé et l'île Bonaventure. Le public y a accès à un théâtre et à une salle d'exposition.

Des naturalistes du SCF sont présents dans l'île Bonaventure et un plan directeur d'interprétation de la région biologique de la côte atlantique y est mis en œuvre. Selon les termes de ce document, le centre aura comme but premier: «d'interpréter au bénéfice du public la faune du golfe du Saint-Laurent dans le contexte de la région faunique de la côte atlantique, en utilisant prioritairement les éléments fauniques présents à Percé dont un des éléments, le spectacle des oiseaux marins de l'île Bonaventure, sera privilégié».

## L'entente fédérale-provinciale

Après quatre ans de pourparlers et d'études, le ministre fédéral des Pêches et Océans, M. Roméo LeBlanc, et son homologue québécois, M. Yves Duhaime, paraphe la 7 septembre 1977 une entente selon laquelle l'île Bonaventure ferait l'objet d'une attention toute spéciale de la part des deux gouvernements dans le but de développer la recherche et l'interprétation sur ce territoire.

Selon cet accord, le MLCP s'engageait à mettre en œuvre un plan déterminant les buts et les objectifs du parc, les principales activités à privilégier dans l'île, la durée des opérations saisonnières et le personnel à affecter. C'est ainsi que le MLCP, par exemple, a fourni à l'été 1981 les services de cinq interprètes de la nature et quatre interprètes de l'histoire. C'est également en vertu de cette entente que le Québec a mis deux bâtiments à la disposition du personnel du SCF. Une de ces maisons sert aux naturalistes, l'autre aux chercheurs.

De son côté, le SCF a la responsabilité de l'application de la Loi sur les refuges d'oiseaux migrateurs. L'entente lui permet de poursuivre ses travaux de recherche touchant l'état des populations d'oiseaux, l'évolution de ces populations et la qualité du milieu qui les supporte. Pour les besoins de l'interprétation proprement dite, le SCF s'est engagé à affecter l'équivalent de deux années-personne qui, de concert avec l'équipe fournie par le MLCP, doivent servir à la mise en application du programme.

## Day-to-day operations

At Bonaventure Island, equipment and services provided by the Quebec ministry include four footpaths leading to the Gannet colonies; visitor greeting services and structures comprising a map of the island, storage space, an observation tower, an exhibits room, a museum, and a program of historical interpretation; brochures on the Gannet; and a panel illustrating the annual cycle of the Gannet. The Quebec ministry is also responsible for interpreting the human history of the area and for providing four interpreters during the summer season.

In addition to this list, there is a team of 11 naturalists who interpret nature and the area's birds. Their important activities include guided walks on the island; spontaneous talks to visitors observing the Gannet colonies; and chats with tourists at the interpretation centre, on the wharf, on Percé beach, at the provincial campground, and at the local youth hostel.

Five of these naturalists are hired by the Quebec ministry each summer; the six others are seasonal employees of CWS. These seasonal naturalists receive their training at the Percé Wildlife Interpretation Centre at the beginning of each season. The group works under the direction of the chief naturalist at the centre.

La Division des installations portuaires pour petites embarcations du ministère des Pêches et Océans s'est engagée, pour sa part, à entretenir un quai public réservé aux bateaux qui assurent la liaison entre Percé et l'île Bonaventure.

## Comment s'établit la collaboration?

À l'île Bonaventure, équipements et services fournis par le MLCP comprennent quatre sentiers conduisant aux colonies de Fous de Bassan; les services et structures d'accueil, dont une carte de l'île, une cache, une tour d'observation, une salle d'exposition, un musée et un programme d'interprétation de l'histoire; des dépliants d'information sur le comportement du Fou de Bassan; un panneau illustrant le cycle annuel du fou. Le ministère québécois est également responsable de l'interprétation de l'histoire humaine et, pour ce faire, a engagé quatre interprètes en vue de la période estivale.

À ce groupe, on peut ajouter une équipe de onze naturalistes à qui est confié le mandat de l'interprétation de la nature et des oiseaux. Parmi leurs principales activités, on compte les randonnées guidées dans l'île Bonaventure, les séances spontanées d'information aux visiteurs observant les colonies de Fous de Bassan (vagabondage) et les causeries au centre d'interprétation, sur le quai, sur la plage de Percé, au camping provincial Baie de Percé et à l'auberge de jeunesse.

Cinq de ces naturalistes sont engagés par le MLCP pour la période estivale. Les six autres sont sous la responsabilité du SCF. Soulignons que c'est au centre d'interprétation de Percé que tous les interprètes saisonniers reçoivent leur formation au début de chaque saison. Tous travaillent sous la direction du chef-naturaliste du centre.

Les responsables du CIFP s'accordent à dire que, depuis la signature de l'entente fédérale-provinciale en 1977, le programme conjoint d'interprétation à Percé fonctionne relativement bien. Au début de l'été, tous les naturalistes participent à une session intensive de formation d'une durée d'un mois. En principe, des membres du SCF sont présents à toutes les entrevues d'étudiants embauchés dans le cadre des programmes d'emplois saisonniers. Cette participation est capitale car l'entrevue est un prérequis à la formation. À l'été de 1981, pourtant, cette

*Perched about the village, on the side of the hill, the Percé Wildlife Interpretation Centre is the focal point of all Canadian Wildlife Service activities in the region.*

*Perché en haut du village, à flanc de colline, le centre d'interprétation faunique de Percé est le pivot de toutes les activités du Service canadien de la faune dans cette région.*



Since the signing of the federal-provincial agreement in 1977, the co-operative interpretation program has functioned quite well at Percé. At the start of each summer all naturalists participate in an intensive month-long training session. CWS staff members are present at all interviews of seasonal employees. Such participation is important because these interviews are a prerequisite to the subsequent training session. However, in summer 1981, this procedure was not followed. We hope that this is a temporary problem, and that this program will become as successful as our other joint activities.

**Pierre Morency**  
*Interpretation Coordinator  
Quebec Region*

concertation dans le choix du personnel n'a pu se réaliser, comme on aurait pu le souhaiter, dans le cadre d'un programme vraiment homogène, tant au niveau de l'expérience que de la formation des naturalistes.

Au Centre d'interprétation faunique de Percé, on ose espérer qu'il s'agit là d'un problème temporaire, car dans tous les autres secteurs vitaux, le programme conjoint d'interprétation du ministère québécois du Loisir, de la Chasse et de la Pêche et du Service canadien de la faune à Percé fonctionne comme prévu, c'est-à-dire avec succès.

**Pierre Morency**  
*Coordonnateur à l'interprétation  
Région du Québec*

## Crown Lands and Forests Act

New Brunswick passed legislation in 1980 that will significantly change the way in which forested provincial crown lands will be managed. This legislation will take effect in April 1982. In brief, the management of the provincial crown forests held under Crown Timber Licences will be undertaken, on behalf of the Crown, by licensees. A Forest Management Agreement for each Crown Timber Licence will be signed and will call for a 25-year industrial plan, a 25-year management plan, and a 5-year operational plan for each licence.

The Department of Natural Resources is preparing a management manual which will give structure to the relationships to exist between the licensee, sub licensees, and the department. The manual will describe the responsibilities of each party and will establish management standards. Performance will be evaluated by the department and certain procedures and rules will be put into regulations in order to have the force of law.

At this time, December 1981, the manual is still in draft form; adjustments will be required when the manual is in use. Latitude for decisions to be made in the field must be provided as well.

We believe the legislation will allow improved management of wildlife habitat on forestlands in New Brunswick. The intent of the act with regard to the integrated management of resources on forested land is clear. Among their other objectives, managers of provincial crown forests will try to preserve each area's value as fish and wildlife habitat. In general, wildlife habitat will be managed on the basis of the principles of diversity and inter-spersion of forest stand types and age classes. Certain areas such as deer wintering areas and riparian strips will require specific forest management plans.

*Fish and Wildlife  
Department of Natural Resources*

## The importance of a pat on the back

The success or failure of many co-operative wildlife programs comes down to the importance placed on the work by the people involved. Often it is a matter of personalities. The care and enthusiasm devoted to field work, literature searches, and evaluation can be directly proportional to the camaraderie and personal satisfaction of the workers. Yet planning the public relations aspects of co-operative wildlife programs frequently gets left to the last. It doesn't seem to have a high priority, perhaps because wildlife professionals feel they have no training in public relations.

Using examples of co-operative programs currently underway in Nova Scotia, I'd like to encourage other wildlife professionals to consider the importance of a pat on the back for the other guy. Everyone likes a pat on the back, from the president down to the office boy. It's the grease that keeps things rolling, and it ensures a welcome back to get other programs started. Too often, results become so much the focus of a project that people are forgotten.

The Nova Scotia Department of Lands and Forests is currently involved in a joint program with Acadia University to study the biology of the bobcat in the province. With high fur prices, trapping pressure on this animal has increased. We needed to know how this pressure, combined with extended forestry operations, mining exploration, and greater use of snowmobiles and all-terrain vehicles, would affect our animals. There are few conclusive studies on the North American bobcat and none on the bobcat in Nova Scotia. The university's wildlife department is staffing the project and Lands and Forests is providing logistical support for this baseline study.

Bobcat carcasses had to be collected from trappers across the province, and they responded well to the request. Our district staff handled 525 carcasses and funnelled them to Acadia for their work. Staff and students were excited about the success of their first year.

At this point the people in the department's district offices knew nothing of the results, despite the fact it was they who made the project a success. So often, the staff collect data for years on end and never know where it goes or the importance of their contribution. Their interest and initiative falters because they feel the people doing the research have lost interest, or that the job is designed just to keep people busy.

In this case, a message printed in the department's in-house newsletter told all the staff (including the minister) how significant the efforts of the district staff were. The message told how never before in North America had such a collection been so successful in numbers of carcasses collected. By putting the district staff on the back, you can guarantee that the project will go ahead with as much if not more vigour next year, people will try to break the record again.

Three universities besides Acadia are involved in wildlife research with the department. The Bras d'Or Institute in Sydney is providing the lab and students for sampling soil and examining forest regeneration on budworm-prone Cape Breton Island. Students at St. Francis Xavier University in Antigonish are observing Piping Plover populations and Osprey behaviour, and students at Dalhousie University in Halifax are studying Osprey nesting success. In all cases the students are doing the work and Lands and Forests gets the benefits.

But the universities need recognition too. They rely on funding from governments (representing the public), and they are always trying to attract the best students. Wildlife agencies that use university services must give credit, especially in these times of university cutbacks. In press releases and photographs released to the media, the university's name must figure prominently. It is useful to arrange television or film coverage of the students at work and explain how it ties in with the government's work. Another good idea is an article in the students' hometown paper. High school students with university potential will be interested to learn what is available to students with higher education. Photographs (especially of field work) supplied to the university calendar or the campus and alumni newspaper will be appreciated by the co-operating students and their professors.

In a small province like Nova Scotia, the efforts of private individuals and private conservation organizations are essential to the success of many co-operative wildlife programs. Without Ducks Unlimited (DU), for example, our waterfowl habitat program would be almost nil. By spring 1982 there will be 69 DU projects operating in the province, covering 4860 ha. At the border with New Brunswick, some of the Atlantic region's largest wetland areas are being developed by DU. On our side of the border nine projects on crown lands total almost 4200 ha. This has not only increased waterfowl production, but from these border marshes we also recorded first-time breeding for Shoveler, American

Coot, Gadwall, Long-billed Marsh Wren, Black Tern, Redhead, Virginia Rail, and Ruddy Duck. Nova Scotia's trappers have also increased their harvest of muskrats and other aquatic furbearers since DU began its work here 16 years ago.

We can't give DU enough credit. All wildlife agencies across Canada should make the public aware of DU at every opportunity to help build its membership. We should all wear our DU pins and car decals and be ready to answer questions. DU projects are often on private lands and such human interest material is always sought after by the media. It can be the government wildlife agency's role to make the proper connections with the help of government media experts.

The private landowner also figures heavily in our wildlife programs. About two-thirds of our province is privately owned, which contrasts sharply with most other jurisdictions (except P.E.I.), where crown land is the majority. In Nova Scotia the wisdom of landowners' decisions about the use of their land is important to the survival of wildlife.

There is no law to protect a tree containing a Bald Eagle nest, but the largest number of eagle nest trees in eastern Canada can be found on Cape Breton Island. Lands and Forests is conducting extensive aerial surveys to try and locate as many of them as possible. Most are on private land, some of it owned by non-residents. To protect the nests, we inform the landowner. They usually take great pride in the knowledge that such a regal bird nests on their woodlot. We provide these owners with professional advice on how to protect the nest and on how to conduct forestry operations without endangering the birds. If we take an interest in their proprietary rights, the landowners usually take an interest in our work and support our cause too.

We're also lucky to have a man who volunteers hundreds of hours and most of his farm to the rehabilitation of, and research on, eagles and other raptors. Cyril Coldwell is a retired farmer in the Gaspereau River valley. Cyril takes care of most of the injured birds that are turned in to Lands and Forests. From a lifetime of study he knows more about them than we do, in most cases. We can afford very little financial reward, but an article written in our quarterly newsletter, featuring Cyril and his work, made him a hero in his community. The local school requested class sets of the magazine so they could study the work of their friend and neighbour. Such recognition often means more than a cheque for his expenses.

Co-operative programs between government departments seem to be the hardest to give proper credit for. You get into the realm of political policies and federal-provincial responsibilities. Often the projects overlap jurisdictions, and the departments are forced into an association. But every mention of the program should carry both banners. The federal government is eager to increase its visibility by carrying the "Canada" symbol on everything from folders to Columbia's space arm. But hard feelings can develop and ruin a working relationship if the little guy in the project doesn't get his credit.

Our department, the Department of Fisheries and Oceans, and St. Francis Xavier University have successfully shared credit in the media for a co-operative project. Nothing was known of the South River sea trout run that had a reputation stretching back 200 years. Within recent years the trout had declined from former numbers. Individually none of the agencies could tackle this major research project, but with money from Lands and Forests, staff, including skilled researchers, from the university, and the help of the nearby Fisheries and Oceans fish hatchery, the project has shown some success. A fish fence in a large river near a heavily populated center draws a lot of attention. All the people involved take pains to mention everyone taking part. A story in the local newspaper by the biologist heading up the project gave all the parties the credit they deserved.

We were all taught that wildlife management is really people management. Seasons, bag limits, and land use planning affect wildlife more than anything else. They are all tools for people management. The success of our co-operative wildlife programs depends on people management too. Public relations is one of the most important tools in the wildlife profession, but it is too often "left until later" or ignored completely. In Nova Scotia we are learning to recognize the importance of a pat on the back, because it is often all we can pay for services rendered.

**Anthony P. Duke**  
*Wildlife Biologist*  
*Wildlife Division*  
*Department of Lands and Forests*

# Wildlife administration

The organization of the Wildlife Branch of the Ontario Ministry of Natural Resources has not changed since the publication of *Canadian Wildlife Administration* in June 1980. Since 1981, however, there have been a number of staff changes. J. A. Shannon, supervisor of services section, who passed away in 1979, was succeeded by M. C. Smith. The latter is the former deer and bear program coordinator, a position which is now filled by H. L. Smith, formerly district biologist at Maple.

P. F. Allen and W. L. Sleeth joined policy development section as policy planning specialists. D. G. Fraser, moose research scientist, resigned from his position in wildlife research and was replaced by D. Voigt who took on the newly designated position of field studies scientist. R. Hepburn, deer research scientist has retired. A newly created position to replace him, entitled population dynamics scientist, remains vacant.

The objectives in 1980 were to maintain wildlife populations and habitats as a stable base from which to provide continuing recreation and commercial opportunities. These have been revised as follows:

- to conserve Ontario's wildlife and wildlife habitat;
- to provide an optimum number of wildlife-based outdoor recreation opportunities accessible to and for the continuing benefit of the people of Ontario;
- to provide an optimum contribution to the economy of Ontario through: (a) tourism and its related industries; and, (b) commercial utilization of wildlife;
- to provide natural food for Ontario residents; and,
- to minimize property damage and health and safety hazards caused by some wildlife populations.

Policy section has been developing a comprehensive wildlife policy and strategy, which will help us to achieve a unified direction for all programs of wildlife management, and the varied programs that affect essential habitat for wildlife. Drafting such a policy includes defining more precisely the government's responsibility for wildlife.

This policy should assure a unified approach in all wildlife programs which can be integrated with all other land uses.

Many existing programs for the management of wildlife and its habitat will remain in place. Extensive revisions and refinements will be applied in 1982 to the programs of managing deer, moose, and small game. Programs now subject to reviews, revisions, and refinements are those dealing with non-game, woodland caribou, black deer, waterfowl, forest habitat, lakeshore habitat, wetlands, and extension.

The total budget for the Wildlife Branch in 1980-81 was \$14 102 900. Direct revenue was \$7 617 571.56.

*Wildlife Branch  
Ministry of Natural Resources*

# **La gestion des ressources fauniques**

La gestion des ressources fauniques relève du ministère du Loisir, de la Chasse et de la Pêche dont fait partie la Direction générale de la faune, formée des Directions de l'aménagement et de l'exploitation de la faune, de la recherche faunique et de la conservation de la faune. En plus, on y retrouve la Direction générale des opérations régionales à laquelle sont rattachés les services régionaux de l'aménagement et de l'exploitation de la faune, et de la conservation de la faune.

Au secteur de l'aménagement et de l'exploitation de la faune, les objectifs sont les suivants:

- assurer le maintien et l'amélioration des ressources fauniques du territoire québécois en recherchant l'équilibre écologique et l'utilisation rationnelle des ressources;
- assurer une saine gestion des territoires de chasse, de pêche et de trappage relevant du domaine public au Québec;
- promouvoir la participation des utilisateurs dans la gestion de la faune du Québec.

Au secteur de la recherche faunique, les objectifs sont les suivants:

- acquérir et améliorer les connaissances sur la faune sauvage du Québec en vue de rationaliser son aménagement;
- effectuer des travaux portant sur la dynamique et sur l'habitat des différentes espèces fauniques et recommander les mesures appropriées à leur développement.

Au secteur de la conservation de la faune, les objectifs sont les suivants:

- assurer l'application et le respect de la Loi sur la conservation de la faune dans l'ensemble du territoire québécois;
- faire respecter la Loi des parcs, la Loi fédérale sur les pêcheries et la Loi sur la Convention concernant les oiseaux migrateurs;
- élaborer des cours de formation sur la sécurité en forêt et la conservation de la faune;
- participer activement à l'élaboration des cours de formation sur la sécurité en forêt avec la collaboration des associations de chasse et de pêche et des autres organismes impliqués;
- favoriser et encourager la participation des citoyens à la conservation de la faune et du milieu.

*Direction générale de la faune,  
Ministère du Loisir, de la Chasse et de la Pêche*

# Wildlife conservation and military training

## Compatible programs at CFB Shilo

From time to time, various groups express concern about the ecological destruction and harassment of wildlife that supposedly occurs on intensively used military reserves such as CFB Shilo. Initially, when the military training program intensified at Shilo in the early 1970s, both natural resource managers and military staff were concerned as to how well militia, artillery, and tank training programs would mix with wildlife conservation. So far, thanks to communication and co-operation between the Department of National Defence (D.N.D.) and the Manitoba Department of Natural Resources the military program has been intensified without significant loss of wildlife or wildlife habitat. In fact, big game populations on the military reserve have increased, and much has been learned about them and many other wildlife species in the last 10 years. Military occupation of the land has maintained the area in a nearly natural state: grazing and cultivation, often detrimental to wildlife habitat in marginally productive areas, has been restricted.

The Shilo Military Reserve is a 60 000 ha area of crown land located 160 km west of Winnipeg. Originally this area was homesteaded, but because it was such poor farmland, it reverted to the Crown in 1895. The D.N.D. began using the area for military training in the early 1900s but it was never used year round until World War II.

In 1973, a NATO agreement was reached whereby the Federal Republic of Germany would use CFB Shilo for leopard tank and mobile artillery training. This was in addition to the ongoing Canadian Forces training program. Since Shilo is provincial crown land under lease, a new federal-provincial agreement was required.

Under this agreement, the D.N.D.

- conducts an ongoing program of decontamination of explosives;
- maintains a program of fire prevention, detection, and suppression;
- restricts military use and vehicular traffic in the Bald Head Hills and Epinette Creek, areas that are ecologically fragile or inaccessible; and
- removes damaged or diseased timber and compensates the province for any timber removal required for the training program.

The Manitoba Department of Natural Resources

- designs a wildlife-use program in accordance with safe periods on the ranges;

- permits oil, gas, and mineral exploration and production as arranged with D.N.D.; and
- issues hay or grazing permits or both as required on lands not used by D.N.D.

A Shilo Environmental Advisory Committee (SEAC) was established in this agreement. The committee was to advise the CFB Shilo base commander and the Department of Natural Resources on environmental and resource issues and concerns. This seven-member group is composed of professional biologists, botanists, resource planners, and military staff from federal and provincial agencies as well as the University of Manitoba and the Manitoba Museum of Man and Nature.

SEAC meets several times per year to review program proposals and changes in military training and resource-use programs. Frequently, specific advice as to how the training program can be conducted without detriment to the environment has been requested by the base commander. In some cases SEAC has provided answers through direct consultation.

When SEAC was initially formed, there was little background information available. When asked for advice the members could only recommend that biological studies and surveys be carried out. For example, the base commander asked two questions. First, should leopard tank training areas be rotated or maintained in the same area over a period of years? Second, how important is area 8 near Epinette Creek as a "wildlife sanctuary" when intensive training exercises are in progress? SEAC did not have the answers but did recommend that range reclamation and elk distribution studies be conducted to find out. The lease agreement did not assign responsibility for supporting such studies, which are necessary if SEAC is to be properly informed. However, D.N.D., the West German government, and Manitoba all directly contributed either funds, expertise, or facilities and equipment, which attests to their commitment to good land stewardship.

Other agencies such as the University of Manitoba and the World Wildlife Fund (Canada) have contributed to this joint effort through support of other biological studies of the little known western hognose snake and northern prairie skink.

Other biological studies recommended or underway include

- an evaluation of the distribution and frequency of leafy spurge, a noxious weed;
- an analysis of long-term changes in vegetation on the ranges; and
- an evaluation of the effects of frequent fires on vegetation.

At times D.N.D. staff have been accused of harassing big game directly or indirectly during their training programs. However, studies show that the elk have adapted very well to military activity: they feed on grasses in the tank battle runs at night and spend the day resting in aspen forest adjacent to the battle runs and shell impact zones. Calves are born each spring in these same areas.

For the past 5 years, D.N.D. has greatly assisted the Department of Natural Resources in monitoring the big game populations on the military reserve by providing helicopters for aerial surveys of elk. This monitoring resulted in the first elk hunting season for Shilo in 1979.

White-tailed deer sport hunting has been allowed at CFB Shilo for many years. The Manitoba Wildlife Branch determines whether wildlife stocks are sufficient to have a sport hunting season and selects the dates. D.N.D. stops all training exercises for 2 weeks in mid November and ensures that the general area is reasonably safe from unexploded shells.

Range control staff regularly patrol all areas of Shilo throughout the year and call in conservation officers when violators of the Wildlife Act are encountered. Patrols during the hunting season are a joint effort.

That D.N.D., the Manitoba Department of Natural Resources, and others have initiated projects or programs in addition to those specified in the original federal-provincial agreement is a healthy sign. Military and natural resources staff have worked closely in managing wildlife at Shilo. SEAC has served well in its advisory role and has provided a connecting link between co-operating agencies. Certainly, Manitoba looks to this joint effort as a shining example of federal-provincial co-operation for effective wildlife management.

**Merlin W. Shoesmith**

*Wildlife Branch*

*Manitoba Department of Natural Resources*

# The burning issue

Sixty years ago moose were uncommon in the southern half of British Columbia, so uncommon that the native peoples south of the Hazelton–Prince George area are said to have had no name for them. Then moose began to expand their range, and within four decades, spread east, west, and south right to the U.S. border. This remarkable expansion in range almost certainly came about because of European settlement and fire.

Fire often can be a positive factor in the productivity of forests and grasslands. The role natural wildfire has played in renewing the fertility of ranges and in transforming climax forest from an area holding few mammals and birds into a vibrant habitat filled with new and varied life that thrives on recycled minerals and fibres, has often been remarked.

So it was with the spread of the moose. When gold seekers and settlers came to B.C. they brought fire to the land on a scale that, in all likelihood, it had never known before. Miners cleared and burned to reach the minerals more easily. Ranchers periodically set fire to the ranges to encourage the tender young growth preferred by their cattle. Settlers and farmers slashed and cut and then set fires to rid their new land of the resulting debris, and often their fires escaped to rage through the adjoining forest. Later the railways came and sparked off many a burn along their rights of way. Old forests rapidly succumbed, to be replaced by grassland and aspen grove, birch and willow, serviceberry, red osier, false box, and other bushy growth. Fireweed and vetch and a hundred other succulent grasses and forbs sprang out of the ashes—and the moose moved in from the north. Deer, elk, black bear, and lesser creatures multiplied as well, prospering on the successional vegetation that followed the fires.

For years after European settlement began, wildfire, whether resulting from human activities or from lightning strikes, frequently swept unchecked through the forests of the interior. It was a time when lack of stewardship over much of the province's forest lands inadvertently worked to benefit any wildlife species that did not depend on climax vegetation. Timber seemed a limitless resource and little thought was given to fire losses. In modern times, however, B.C.'s timber resources have become the mainstay of the province's economy, and attitudes have changed dramatically. The province

has half of Canada's softwood resource, and produces over 70% of Canada's revenue from export of primary wood products and almost half the country's revenue from total wood and paper exports. Billions of dollars are involved. Trees are big business.

Although the first sawmill went into operation in British Columbia in 1846, the need to protect this forest wealth was not generally recognized until the first decade of the present century. In 1910 a Royal Commission on Timber and Forestry echoed a growing conviction, declaring that "Protection from fire is the supreme need of our forest." In the ensuing years the notion that fire in the forests was invariably damaging, a catastrophe to be avoided at all cost, became as firmly entrenched in the mind of the general public as it was among forest managers and the forest industry. Eventually the ubiquitous admonition to "Prevent Forest Fires" became so well ingrained that it was interpreted to mean that every tree must be protected from flame, no matter what its commercial value or lack of it. As for wildlife, the picture of forest creatures fleeing before the flames or perishing in a holocaust tended to obscure any thought of long-term benefits to wildlife populations from fire.

On the other hand, the early cavalier loggers, who took only prime timber and left the rest, had bequeathed a legacy of forest debris that posed an extreme fire hazard. All too often wildfires coursed through the old slash and into standing timber. In 1938 a slash fire at Campbell River on the east coast of Vancouver Island burned over 30 000 ha. The big fire sparked legislation that gave the Forest Service authority to order the burning of slash on any coast logging operation. It was thought better to set fire to the debris under controlled conditions than to leave it as a serious fire hazard. In 1967, by which time the forest industry had expanded into the interior, the mandatory slash burning legislation was extended to apply over the entire province.

"Prescribed burning" had come to the province. But this first official sanction of the controlled use of fire in the woods on a large scale was to serve one purpose only; to reduce the hazard to commercial timber stands. Even so the practice was regarded skeptically and with some apprehension by both the forest industry and the public, by now thoroughly convinced that fire on a large scale could only be devastating to forests and to wildlife. A prescribed fire that escaped to burn over 6600 ha in the Kamloops Forest Region in 1973, destroying property and homes, bore out their fears, but it also

brought about a thorough examination of the existing controlled burning program and resulted in more scientific methods being applied. By this time the usefulness of prescribed burning for silvicultural and reforestation purposes had also begun to be appreciated. That fire should be used to benefit wildlife was not yet generally accepted by the Forest Service, however.

Forest protection had become highly efficient by the 1950s. With better fire-reporting systems, aircraft and helicopters, better land access, new machinery, fire retardants, and trained crews using sophisticated techniques, forest fire detection and suppression have reached a state of fine art today. Comparatively few wildfires escape control if it is economically feasible to reach them. In accessible areas protection can and has been extended to timber of no commercial value. The consequence of the overprotective attitude has been loss of useable habitat for wildlife species dependent on successional growth and on grasslands. An all-embracing policy of fire suppression has broken the cycle of natural fires that formerly cleansed and renewed forests and grasslands, and has stood in the way of controlled use of fire to restore wildlife ranges.

Lack of control over the land base is the abiding despair of wildlife managers. Forest managers, on the other hand, have primary control over vast areas of crown land in B.C. that have been officially designated as 'forest land.' Some of the implications of this situation were outlined briefly by Chief of Wildlife Management D. Ray Halladay in a recent address:

*On average approximately 153 000 ha of wildlife habitat is logged each year—most of it is clear cut. This alters the food, water and shelter available for wildlife. Species which are adapted to early seral stages may benefit (e.g. Blue Grouse); many species may decline initially and increase beyond original numbers at later successional stages (e.g. moose); and those that are adapted to climax (decadent) stands may decline or disappear permanently (e.g. caribou). The impact depends on the species, the site, when and how it is logged, rotation, silvicultural practices, and other use activities associated with logging or the access it creates. Obviously wildlife and forest managers must consult early and work closely to develop the best integrated logging/wildlife plans.*

Before that kind of co-operation was to receive official sanction, conflicts arose. Logging might perform some of the same functions as natural fire, but in the eyes of the wildlife manager it was not a perfect substitute; nor was it being planned or carried out to serve the manager's purposes. Wildlife biologists saw situations in which they were virtually certain applying controlled fire to clear away unwanted brush or scrub forest of little commercial use would increase the value of a range for wildlife (and sometimes for domestic cattle as well). The Forest Service embrace of fire suppression as a firm, immutable principle stood in their way. Moreover, the forest interests were hardening their stance against any alienation of so-called forest land. Their attitude grew out of broader problems. In the same address referred to above, Halladay noted that many resource conflicts had begun to crystallize in B.C. in the 50s and 60s.

*The cause was clear and remains the basis of conflicts today—more people, extracting more resources, developing more access and realizing space was limiting the expansion—or indeed the maintenance—of previous uses and benefits. We discovered there was, with few exceptions, no more Grass Beyond the Mountains, no unexplored and untapped resource wealth. As Mike Halleran put it... "The sum of the demands being placed on our natural resources pool is far greater than the land's capacity to meet them."*

*Among the conflicts that developed were those between forestry and wildlife. Forestry had grown to become the mainstay of our economy—the value of wildlife had grown too, but largely for recreational use and not as a "marketed commodity." But they were not alone. Mining, power development, agricultural, and urban interests were also creating limits for resource and other land use interests... concurrent to the increase in competition for land use was the tremendous increase in public awareness of the values and consequences of the various use options. People became environmentally concerned—managers were forced to consider optimization rather than maximization.*

In time the intensity of the conflict and the fruitlessness of frequent confrontations persuaded some resource managers to begin to think in terms of co-operation and co-ordination of effort. Clearly the optimum yield from land that offered opportunity to develop a mix of values could only be achieved by planning and working together. Let us admit that there were, and are, hardnosed individuals in both

the forestry and wildlife camps who would not yield a tittle to their opposite numbers. However, it is also fair to record that the Fish and Wildlife Branch was undoubtedly the first government resource agency in B.C. consistently advocating a co-operative approach and integrated planning for resource use. Cynics might point out, with some truth, that the wildlife managers had nothing to lose and little to concede; nevertheless the resource management philosophy they espoused proved to be the wave of the near future. Here and there in the Forest Service they began to find allies. By February 1981, Ray Halladay was able to report,

*There is no doubt that wildlife and forest managers are proponents and practitioners of integrated/co-ordinated resource management. We have each actively helped to develop and to use a variety of administrative approaches to that end. Approaches such as forest folios, resource referrals, co-ordinated management plans and a variety of special area plans readily come to mind. Each has helped to refine joint management approaches and to solve problems. Each has had limitations. We need now to capitalize on that experience. We need to further the meeting of our prime goal (maintain the land base) by ensuring the development of more effective joint working plans. The new Ministry of Forests Act requires such an approach, albeit there is still an emphasis on the generation of wealth from timber harvest and processing. Still the mandate given to forest managers under that Act is to "manage, protect and conserve the forest and range resources of the Crown, having regard to immediate and long term economic and social benefits." Foresters now must plan the use of forest and range resources so that, "the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation, and other natural resource values are co-ordinated and integrated, in consultation and co-operation with other Ministries and agencies of the Crown and with the private sector." That legislative base is recognized as an opportunity for integrating wildlife and forestry. What remains is the formalization of the process to meet the intent of the legislation.*

The new (1979) forest legislation was tangible evidence of the adoption of a broader approach to the management of British Columbia's forest lands. Anyone at all aware of the genesis of legislation will recognize that the broadened outlook must have had advocates within the government forest agency itself. If there were any doubts on that point, the

response to the Fish and Wildlife Branch's first attempt at "formalization of the process to meet the intent of the legislation" soon dispelled them.

Early in 1980 the branch began negotiations to set up a mutually agreed process for the use of fire as a wildlife management tool in provincial forests. Chief Forester Bill Young and then-chief of Forest Protection Don Owen, and his second, Henry Doerksen, provided full co-operation. The Ministry of Forests had already moved beyond the use of fire as a clean-up agent after logging, and had begun to employ it as a tool in silviculture, particularly in the preparation of sites for reforestation. So an agreement was worked out and formally signed by both ministries on 21 April 1981.

Each agency's role and responsibilities "in planning, administering and conducting the placement of prescribed, controlled fire to enhance wildlife management" is described in the agreement, and the particular expertise of each is recognized; the staff of the Ministry of Forests as experts in the management of fire, the staff of the Ministry of Environment as experts in the manipulation of wildlife habitat through the use of fire. Their respective responsibilities are spelled out in general terms in the following clauses:

*Regional Managers, Forests will complete five-year fire management plans for their respective regions to facilitate the use of prescribed fire. These plans will include the use of fire to enhance forest and range habitats for wildlife and they will be prepared through consultation with the Regional Director, Environment. The Regional Director, Environment will identify requirements for the use of prescribed fire for wildlife habitat enhancement and will make recommendations for their inclusion in the Ministry of Forests' five-year plans. As part of those Five-Year Fire Management Plans, the Ministry of Forests, where possible, will identify ranges, watersheds, or areas of the province where timber production may be of secondary importance to other resource interests. Fire Management plans will be developed for utmost enhancement of wildlife habitat in these areas. The financial responsibilities for completing all aspects of the burns identified within each Five-Year Plan will be that of the Ministry of Forests, where it is agreed at the time of approving the plan that the preponderance of benefits are forest and range related, and the Ministry of Environment, where it is agreed at the time of approving the plan,*

*that the preponderance of benefits are to wildlife or as otherwise agreed to. In the spirit of co-operation, staff of the Ministry of Environment and Ministry of Forests will participate in the implementation and monitoring of all burns designed to enhance habitats for wildlife, except as otherwise agreed to....*

*Where the use of prescribed fire is required to enhance specific habitats to meet wildlife management objectives and is not included in the five-year plan developed by the Regional Manager, Forests, the Regional Director, Environment, may identify areas requiring treatment with fire and may initiate burning proposals with Regional Manager, Forests.*

Under the agreement the regional director of the Ministry of Environment is responsible for drawing up written plans for a burn in his district, in consultation with the regional manager for forests. The plan must include a statement of the overall purpose, location, and extent of the proposed burn, status of the land, any conflicts with other agencies, a description of the vegetation, animals, and public use of the area before treatment, and the objectives of the burn in relation to the same three elements: plus the timing of the proposed operation, provision for monitoring and evaluation, and what supplementary support may be expected from groups outside the government agencies. "Supplementary support" is specifically defined to mean "the financial, material or labour support provided to the Ministry of Environment by private or public agencies, associations and persons to offset costs...." The provision for acceptance of this kind of supplementary support could often mean the difference between a controlled burn being undertaken or having to be postponed because of budgetary constraints. Its inclusion is also a tribute to the useful contribution made by hunting guides and sports-person's groups who have already assisted the Wildlife Branch in a number of prescribed fires carried out with the co-operation of local Ministry of Forests staff prior to the agreement coming into being.

Most controlled burns initiated by the wildlife managers prior to the new arrangement coming into effect took place on small parcels of land under the jurisdiction of the Ministry of Environment. For example, a prescribed burning program has been under way on the Junction Wildlife Management

Area in central B.C. for some time. Its purpose is to improve the bunchgrass range for California bighorn sheep and mule deer. It has been effective in removing unwanted shrub vegetation and restoring desirable grasses and forbs to the range, which this particular band of sheep use the year round. There have been noticeable benefits to some upland bird species as well, and casual observations confirm that certain songbirds and small mammals have also increased in the area, in turn supporting larger populations of raptors and other predatory species. Similar encouraging results have been apparent from tentative burning programs in other parts of the province, improving range and forage for moose, elk, deer, and wild sheep. With the agreement in place, plans for many more prescribed fire applications are being set up, many of them to be financed out of the province's new Habitat Conservation Fund, which is supported by a \$3 surcharge on each hunting and sport fishing licence sold in the province.

As the program proceeds the results on representative types of forest and range will be evaluated in detail to provide guidelines for future use of the technique. Meanwhile, whatever the ecological benefits might prove to be in the long run, it is evident now that wildlife and the people of B.C. both stand to gain through the greater understanding that has developed between the two government resource agencies. Wildlife managers and forest managers working out plans together are building understanding, learning respect for each other's expertise, and developing co-operative attitudes that will carry over into other areas. The prescribed fire agreement is evidence that old biases are dying.

When the moose spread southward in B.C., it was the combination of European settlement and fire that created the conditions for their expansion of territory. With the modern day understanding of the beneficial effects of controlled fire in the forests, the continuing presence of moose in many areas may well depend on a conscious use of fire to maintain their habitat. In some circumstances it will depend even more upon the growing co-operation of foresters and wildlife managers and the development of integrated plans in which prescribed fire will be only one of several options for management. Again quoting Ray Halladay:

*The moose population in British Columbia is estimated to be 240 000. They are largely creatures of mixed forests. We are proposing to manage to increase the population to 300 000 animals distributed throughout their present range. This objective is based on public demand and a knowledge that the maintenance of critical habitat and the enhancement of habitat for moose is compatible with modified logging practices. Modifications can include not logging or selectively logging critical habitat; limiting the size and shape of clear cuts, their juxtaposition and their creation over time; applying prescribed fires, selective logging or land clearing to enhance important ranges; and controlling access, or retiring forest roads. We don't believe these modifications differ markedly from existing arrangements for co-ordinated forest/wildlife management. But it will require more consulting on joint plans before commitments are made. It means key moose habitats (sites) must be identified and logging prescriptions worked out for them, including the distribution of annual cuts, before logging begins. It depends on full knowledge of each manager as to what silvicultural practices or habitat enhancements are acceptable or needed.*

The “burning issue” has been resolved in British Columbia. In its resolution we seem to be well on our way to an unprecedented era of co-operation between wildlife managers, whose resource must use the land base, and foresters, whose legislative mandate gives them primary management responsibility over most of it.

**Geoff Warden**  
*Fish and Wildlife Branch  
Ministry of Environment*

# Ducks Unlimited in P.E.I.

## A decade of co-operation

### Introduction

Wetlands are the most productive of all wildlife habitats. There is no renewable resource in which society takes greater interest than wildlife nor is there one to which fewer hectares of land or government monies are devoted.

Due to the absence of big game animals and the restricted number of upland species, the wildlife associated with wetlands have greater social, recreational, and economic significance on Prince Edward Island (P.E.I.) than in other regions of North America. Trout fishing, waterfowl hunting, trapping, bird watching, and other recreational uses of wetlands are an integral part of the quality of life in P.E.I. As a step towards ensuring the maintenance and improvement of wildlife habitat, the provincial government and Ducks Unlimited (DU) (Canada) have co-operated for the past 10 years in developing wetlands in the province.

### Socio-economic values of wetlands

#### Consumptive-use values

##### 1. Hunting

Approximately 17% of the P.E.I. population hunt waterfowl. The indirect economic values due to spinoff factors have not been calculated but can be estimated to approximate \$1 400 000 based on surveys conducted in Atlantic Canada. Over 56 000 recreation-days are spent annually in pursuit of waterfowl on P.E.I. Waterfowl, a direct product of wetlands, therefore contribute significantly to the people of the province from both a sociological and economic aspect.

##### 2. Fishing

Sport fishing is probably the single most important outdoor recreational activity on P.E.I. Between 25 and 30% of the population engages in trout angling. Much of the trout fishery is associated with person-made impoundments.

In addition, a significant proportion of tourists who visit P.E.I. purchase fishing licenses, and many return year after year to enjoy this aspect of their vacation. The money spent by tourists for fuel, meals, lodging, and fishing equipment all contribute to the economy.

#### 3. Trapping

The direct return to trappers and furbuyers on P.E.I. for wild furs in 1979-80 was over \$260 000. Although the number of trappers on P.E.I. is small, the 600 individuals engaged in trapping derive a direct economic gain. Some of those trappers are in the lower income segment of the population and trapping provides a significant portion of their income. Approximately 93% of the furbearers taken were wetland-associated species. Those animals contributed directly \$149 000 to the economy, to which can be added the indirect returns associated with equipment purchase, travel, and food.

#### 4. Forestry and agriculture

Wetlands provide a natural fire-break in the forested environment in addition to being a source of water for fire-fighting. Impounded wetlands can be used to provide irrigation water for agriculture, especially in drought years. Fertile managed wetlands have some potential for aqua-culture crops. One such crop, wild rice, returns a viable income to the one operator involved in its culture on P.E.I. There is future potential for agriculture in the wetlands; commercial fish-farming is a possibility.

### Non-consumptive use values

Wetlands are becoming increasingly important for recreational use beyond the traditional hunting, fishing, and trapping. P.E.I. has no long river systems so most canoe enthusiasts frequent wetland areas. Wetland areas also provide the greatest diversity in wildlife species due to their high productivity. This species diversity attracts increasing numbers of bird watchers, wildlife photographers, and nature study groups. The expanse of undisturbed snow-covered wetlands offers winter recreation to snowmobilers, cross-country skiers, and occasional skaters.

### Psychological values

The aesthetic value of wetlands is immeasurable, and so is the psychological value of undisturbed escape areas. In modern society the ability to escape to the solitude of a wetland habitat has indisputable therapeutic value.

## **Ecological values of wetlands**

Wetlands are the most productive land-based ecosystems on earth. Primary productivity of marshes is equal to that of many farmlands. Although most wetlands programs have been justified on the basis of providing waterfowl and trout habitat, the resulting marshes serve many other important functions. Marshes provide diversity in the environment and are important in controlling run-off, erosion, and flooding on tributary streams. Marshes also act as nature's water filters by reducing or tying up pollutants to purify water.

Wetlands play an important role in maintaining water-tables as well as acting as silt basins; this latter function is particularly important due to P.E.I.'s highly erodible soils.

In addition to increasing waterfowl and trout habitat, wetland developments on P.E.I. provide all or a part of the habitat requirements of many furbearers such as muskrat, raccoon, and mink; songbirds such as marsh wrens, warblers, flycatchers, and swallows; and marsh birds such as Ospreys, herons, rails, grebes, and snipe. People's alterations and improvements to wetland habitat on Prince Edward Island have led to the establishment of several new breeding species and migration visits by others. The affected species are the following:

1. American Coot
2. Virginia Rail
3. Gadwall
4. Pintail
5. Shoveler
6. American Wigeon
7. Mallard
8. Glossy Ibis

## **Co-operative wetland program 1971-79**

Since 1971 co-operation between the provincial government, private land-owners, and DU has resulted in the development of 44 wetland projects with a total DU (Canada) expenditure of \$904 000.

Twenty-three of the projects are on lands totally or partially government owned. Cost of 12 projects were shared with the government due to their multi-purpose nature, with the government expenditure going towards the fishery, recreational, and agricultural values. Provincial expenditure on the 12 projects approximated \$450 000.

All DU funds for wetland developments are generated from private individuals, companies, and government agencies mainly from outside P.E.I. and do not involve provincial or federal tax dollars.

Close co-operation between the province and DU is maintained throughout the course of development of all projects from their initial inception, pre-biological and pre-engineering assessments, to management plans, landowner negotiations, and final construction. Subsequent internal habitat manipulation to improve interspersion and increase edge is conducted where natural succession or existing conditions warrant such change.

## **Present and future**

Today the activities of DU on P.E.I. have extended beyond the traditional creation and improvement of waterfowl production habitat into such fields as wetland inventories and research. DU is contributing to the P.E.I. Wetland Inventory which is also being supported by federal and provincial funds. The inventory will not only aid in determining the present abundance, distribution, and quality of habitat but will provide baseline data for future development and management.

A 5-year wetland habitat development plan was recently concluded between P.E.I. and DU. The plan will serve as a means of continuing the close co-operation between the two agencies that existed for the past decade and ensures that DU will continue to play an integral role in habitat management on P.E.I.

*Fish and Wildlife Division  
Department of Community Affairs*

# Earnscliffe – China Point co-operative shooting preserve

Prince Edward Island has a tradition of upland game bird hunting dating from the early 1940s. Although P.E.I. has always had good populations of Ruffed Grouse, there was no upland hunting in most of the agricultural areas of the province. Interested sportsmen imported Hungarian (gray) Partridge and Ring-necked Pheasants beginning in the 1920s. The Hungarian Partridge population increased to phenomenal levels by the late 1940s and early 1950s. The pheasant population also became very abundant in certain areas. Both populations offered excellent hunting opportunities, and during this period a large contingent of upland game hunters was developed.

In the late 1950s a series of unusually harsh winters decimated both populations. The Ring-necked Pheasant has never recovered whereas the Hungarian Partridge population recovered to a considerable extent and now supports a hunting season. Due to changing patterns of land use and loss of habitat through hedgerow clearing and other practices, it is very doubtful that the pheasant population will recover to the extent that an open season can be declared. It is also unlikely that the former high population levels of Hungarian Partridge can ever be attained again. There still exists a considerable demand for quality pheasant hunting on P.E.I., and it is with this background that a co-operative shooting preserve was developed.

The Fish and Wildlife Division operated a small preserve on crown land for several years but the size of the area (49 ha) did not allow for a quality hunting experience, and only a limited number of hunters could be accommodated at one time. The ideal situation for a preserve would be an island

containing released birds. An excellent second choice is a peninsula with restricted access. In 1970 the Earnscliffe – China Point peninsula became available (See Fig. 1). This is a 2000-ha peninsula 21 km east of Charlottetown.

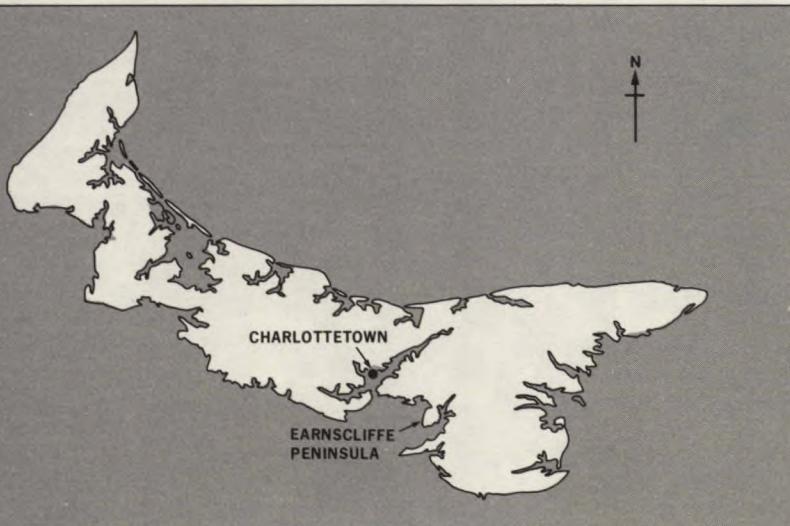
Earnscliffe is a traditional hunting area, both for upland game and Canada Geese. Goose hunting has become a very competitive sport in recent years, and landowner–hunter problems are not uncommon. These problems include trespassing, unauthorized digging of pits in fields, and phone calls from hunters at all hours of the day and night seeking permission to hunt. Several major landowners in the area had reached the point where they were ready to post their properties. Another alternative was to have some form of controlled hunting which would effectively eliminate hunter problems.

This was the situation in 1970 with area landowners looking for some method to control goose hunting and the Fish and Wildlife Division looking for a suitable site for a pheasant preserve. Several meetings were conducted with personnel of the Fish and Wildlife Division and area landowners attending. All landowners eventually agreed to place their land in the preserve.

The landowners agreed to allow properly licenced hunters to trespass for the purpose of hunting pheasants, and they also agreed to restrict goose hunting to specified days. In return the Fish and Wildlife Division agreed to administer the preserve (rear and release pheasants, provide enforcement as required, and operate the game booth). Ninety per cent of the gross receipts would be distributed to co-operating major landowners (1 share to every landowner owning 10 ha or more). There was a total of 43 landowners who fell into this category.

The Earnscliffe – China Point Co-operative Shooting Preserve Association was formed with representation from landowners and hunters; an executive consisting of representatives from both parties was formed. A Fish and Wildlife Division representative was afforded "ex officio" status and attended all executive and annual meetings. Major decisions, such as opening date and fees, were made by the association in close consultation with the division. All landowners were invited to the annual meetings, and any major landowner complaints were discussed thoroughly and remedial measures were recommended.

Figure 1. Location of the Earnscliffe–China Point peninsula



Pheasants were reared at a government-operated rearing facility and also by four co-operating landowners on the peninsula. These co-operators were provided with pens, feed, and birds and received a nominal fee to care for the birds until they were released. One-day licences are issued with the bearer entitled to take two birds.

The peninsula was divided into zones for purposes of goose hunting and these zones were drawn for every week. The hunter who was drawn for a particular zone was given sole possession of that zone for one day. He was allowed to bring two companions with him and the landowner was allowed to go himself or send a representative. A small fee was charged to enter the goose zone draw.

The preserve was funded totally by the Fish and Wildlife Division for 6 years, 1970-75. In 1976, a decision was made to reduce government input and only limited financial support has been provided since 1976. Technical support and enforcement has been provided on a continuing basis.

The operation of the preserve has been scaled down since 1976 and now operates on Fridays, Saturdays, and statutory holidays only. This reduced the administrative cost as only one part-time employee is required. Other necessary work, such as pen repair and releasing birds, is done on a volunteer basis and may include both landowners and hunters. Ironically, the original reason for the creation of the preserve, controlled goose hunting, is no longer a part of the preserve operation. The goose hunting aspect gradually eroded over the years as a few of the landowners with prime goose fields found that they could realize a substantial amount of money through leasing. Although controlled goose hunting has been eliminated the landowners have not indicated that they wish to terminate the pheasant shooting. In fact there has developed an excellent hunter-landowner rapport and they appear reluctant to jeopardize the operation of the preserve.

The future of the preserve is uncertain as finances are definitely a problem. A preserve of this type cannot operate on P.E.I. without some form of government subsidy. The reason for this becomes obvious when one considers the population base that we are dealing with.

If the fees for pheasant hunting were raised to a level which would totally support the preserve operation, there would be very few hunters who could afford to hunt and the preserve would close. In order to be self sustaining, a preserve of this type would have to be near a large metropolitan area, where there is a sizable population base to draw on.

The preserve has operated continually for 12 years and must be considered a success. During the initial years of operation there were several potentially damaging hunter-landowner conflicts but all were resolved by consultation with either the Fish and Wildlife Division or the executive of the preserve. Subsequently hunter-landowner conflicts in the area have become very rare. The preserve has fostered a feeling of mutual trust and respect between hunters and landowners and, for this reason alone, the preserve can be considered a success. In addition to this the preserve has provided a large number of hunter-recreation-hours over the years (approximately 40 000), the value of which is difficult to estimate.

Should the preserve be forced to close, due to financial problems, this experiment in government-landowner-hunter co-operation must still be considered very worthwhile. The success and net worth of such a project is difficult to measure but we feel that the preserve has had a positive influence on hunting and hunter-landowner relations and therefore was an excellent Fish and Wildlife Division investment.

*Fish and Wildlife Division  
Department of Community Affairs*

# Alberta's pheasant raise-and-release program

The pheasant chick raise-and-release program is a co-operative program operated by the Brooks Wildlife Centre<sup>1</sup>, a section of the Wildlife Branch, Fish and Wildlife Division, Department of Energy and Natural Resources. The program depends on the co-operation of the 4-H Branch of the Department of Agriculture, the Alberta Fish and Game Association (AFGA), Upland Birds of Alberta, and private land-owners. In addition to providing pheasants for consumptive and nonconsumptive uses, the program aims to instill appreciation of wildlife in the individual or family that raises the pheasants, and to promote the maintenance and development of wildlife habitat on the raiser's land. The program is directed at the rural agricultural community in Alberta because most farmland in the province is privately owned. Pheasants are ideal to use as wildlife and habitat incentives for three reasons: pheasants are well suited to cereal crop farming, are relatively easy to rear in captivity, and have tremendous aesthetic appeal for landowners.

The co-operative program had a small start with a few AFGA clubs raising and releasing birds in the late 1950s. In 1976 the Brooks Wildlife Centre operated a pilot project with 4-H, with 35 4-H members each raising 25 pheasants. The demand for this program has since steadily increased. In 1981, 48 200 pheasant chicks were distributed to 722 raisers and 35 AFGA clubs throughout Alberta, from Milk River in southern Alberta, through central Alberta, and into the Grande Prairie – Peace River area.

The centre's personnel released an additional 43 000 pheasants in fall 1981, this number is expected to increase to over 100 000 in the next few years. The number of pheasants raised and released by our co-operators is expected to increase somewhat and then reach a plateau in the near future. Clearly, the raise-and-release program is a significant part of the overall pheasant program.

In general, prospective raisers apply early in spring for information about the program. At this time the prospective raiser is given a raiser's manual prepared by centre staff. This manual instructs the raiser on facility design, proper care for the pheasants, and habitat requirements of pheasants and other wildlife. Centre staff also hold workshops at several places in the province for further instruction on rearing procedures, facilities, and habitat requirements of pheasants and other wildlife. The raiser must then provide adequate brooding and rearing

facilities and apply for their Class "C" Game Bird Farm Licence. This licence, as well as the chicks and feed, are provided free to the raiser. Once the facilities are approved, the raiser is notified by centre staff of the pick-up date for chicks and feed. These dates are determined on a regional basis so that people can co-ordinate chick and feed pick-up. During the summer raisers are visited by centre or 4-H staff or both. The visitors help the raiser with any problems and evaluate the progress of the project. The pheasants are released when they reach adult-size or by 30 September.

The 4-H Branch and the Brooks Wildlife Centre have worked together closely on the 4-H Pheasant Project; costs are shared. Centre staff have developed the text and material for the raiser's manual, the raiser's record book, and the project leader's guide, and also give workshops. The 4-H Branch has been responsible for the printing of the manuals and crests. Unlike other agencies, the 4-H Branch does not give funds to individual members because a basic tenet of 4-H is "learning by doing." We feel that the program has its greatest impacts on 4-H'ers, some of whom will become future land managers and all of whom will be future citizens. In 1981, 440 4-H'ers raised 18 000 pheasants.

The AFGA clubs are composed of sportspersons, naturalists, and other citizens concerned with the wildlife resource in Alberta. The Wildlife Branch gives the AFGA a grant annually for pen construction, so that clubs can defray some or all of their costs for the pen materials. These clubs are scattered throughout Alberta and club members work closely with local landowners. In 1981, members of 35 fish and game clubs raised 18 000 pheasants.

Upland Birds of Alberta (UBA) is a non-profit organization devoted to the restoration of upland bird populations, primarily pheasants, in Alberta. This group works with about 90 farm families throughout central and southern Alberta. UBA operates on funds from their memberships, private donations, and an annual grant from the Wildlife Branch. For the past 3 summers, UBA has been able to hire a field biologist to co-ordinate chick and feed delivery to raisers, to help them with any problems, and to talk to the raisers about wildlife habitat on their land. In the past, UBA distributed 9500 pheasant chicks to their raiser families.

<sup>1</sup> See Canadian Wildlife Administration, Vol. 6, 1980, for a description of the centre's activities.

*Local Fish and Wildlife Officer checking 4-H club member's facility and pheasants part way through the raising program*



In addition, a number of private landowners, not affiliated with 4-H, AFGA or UBA, raised and released about 2700 pheasants in 1981.

The program is still being evaluated, and so the effectiveness of using pheasants as an incentive for habitat retention and improvement is unknown. However, the program has improved the attitudes of the raiser families towards pheasants and other wildlife, and this program will continue to benefit the wildlife resource in agricultural Alberta.

**D.L.J. Moyles**

*Fish and Wildlife Division*

*Department of Energy and Natural Resources*



*Fort McLeod Fish and Game Club members receiving six-week-old pheasant chicks for raising and releasing.*

# The Qu'Appelle Fish and Wildlife Program

Qu'Appelle Fish and Wildlife (QFW) is part of a federal-provincial multi-disciplinary program designed to improve the Qu'Appelle environment and develop the tourism and recreation industry in the Qu'Appelle Valley. QFW provides an excellent example of a co-operative wildlife program because the success of the program depended on three different types of co-operation:

1. joint program sponsorship by Canada and Saskatchewan;
2. co-operation between QFW and other government agencies and private groups with similar goals; and
3. co-operation with agencies not directly concerned with fish and wildlife but in a position to affect these resources.

## Background

The Qu'Appelle Valley extends 400 km from Lake Diefenbaker to the Assiniboine River. Throughout this length the valley cuts 30–90 m into a flat, gently undulating, and largely treeless plain. The Qu'Appelle River itself is a small meandering misfit stream characterized by frequent oxbow lakes.

The Qu'Appelle River Basin is one of the most important in southern Saskatchewan. In addition to being an important water source for urban and farm use, the Qu'Appelle Valley and Last Mountain Lake provide landscape and wildlife diversity. The valley is also the major outdoor recreation area in the most heavily urbanized part of Saskatchewan.

During the 1960s changing population and development patterns in the basin produced intensified and sometimes conflicting uses of the water and land resources. Water quality was decreasing due to abundant algae growth in the lakes. Flooding problems were increasing, and fish and wildlife habitat was increasingly jeopardized. Canada, Saskatchewan, and Manitoba signed the Qu'Appelle Basin Agreement in 1970 to study these problems. The 1972 Study Board Report included 64 specific recommendations for management of land and water resources in the Qu'Appelle. This included a recommendation that a wildlife management program be initiated in the Qu'Appelle Valley to enhance the natural quality of the area and provide opportunities to study wildlife in a natural setting. The Study Board also recommended acquisition of certain land parcels for wildlife management, fish spawning, and natural areas.

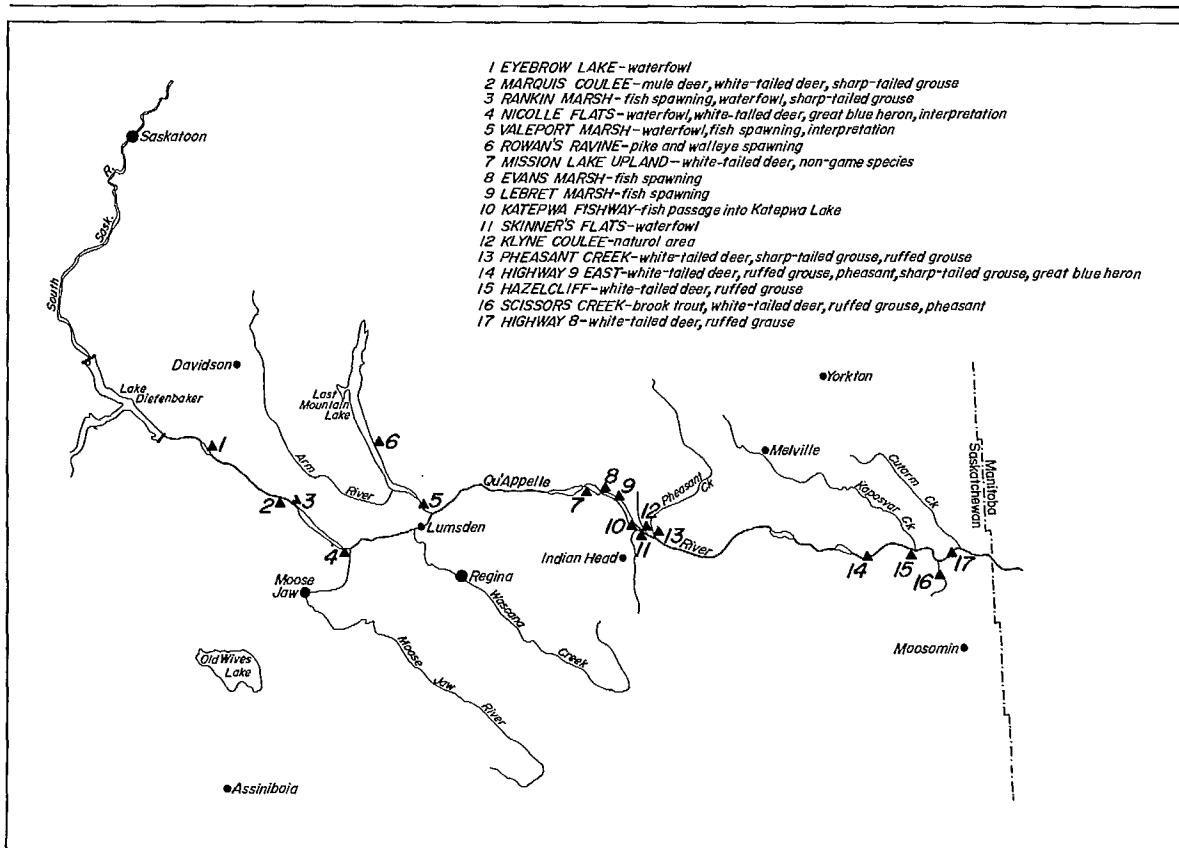


Figure 1. Fish and wildlife projects in the Qu'Appelle Valley

In 1975 Canada and Saskatchewan signed a 10-year, \$33.7-million agreement to protect and improve the Qu'Appelle environment and develop its tourism and recreation industry. The program is managed by an eight-member board of representatives of the federal departments of Regional Economic Expansion, Indian Affairs and Northern Development, Fisheries and Environment, Industry Trade and Commerce, and the Saskatchewan departments of Environment, Tourism and Renewable Resources (OTRR), Agriculture, and Urban Affairs. Of these, Saskatchewan Department of Environment and the federal Department of Regional Economic Expansion were given lead roles in program management.

The Qu'Appelle Fish and Wildlife Program is being carried out in two distinct phases. Publication of the *Wildlife Management Plan for the Qu'Appelle Valley and Associated Drainages* in 1977 marked completion of the first phase which had begun in 1975. This plan included a comprehensive inventory of the flora and fauna of the valley, identification of key habitats for preservation, management, and nature interpretation, and strategies for habitat protection and population management. The program's second phase, implementation of the wildlife management plan, began in 1977 after the Qu'Appelle Board had approved the management plan. During this phase development has been undertaken at the 17 fish and wildlife projects shown in Figure 1. Other areas have been protected by zoning, working with developers, and using the environmental assessment process.

## **Co-operative aspects of the fish and wildlife program**

### **Federal – provincial co-operation**

The entire Qu'Appelle program was created by a federal-provincial agreement. The federal government contributes 50 to 60¢ of each dollar spent on the fish and wildlife program (exact amount varies between parts of the program).

As the provincial wildlife branch was designated as the lead agency, direct federal involvement, other than funding, has necessarily been limited. The federal agencies have, however, remained fully informed and totally supportive partners. Federal agencies have also offered technical assistance, a particularly valuable example being design of the Katepwa fishway.

Department of Regional Economic Expansion has been especially supportive of our program. The Prairie Farm Rehabilitation Act provided land which was essential for development of the Valeport Marsh. DREE assisted the summer program very significantly by providing students from the Summer Canada Youth Employment Programs. These students are paid by Canada Manpower and receive administrative support from DREE. QFW and DREE co-operate to provide support facilities whereas the actual work is directed by QFW. During the past 4 years a total of 140 person-months of student labour from the youth employment program have been utilized in QFW research, monitoring, and development programs.

### **Co-operation with similar agencies**

The Nicolle Flats Project, which was completed early in the program, provides an excellent example of co-operative development by groups with similar objectives. The area is scenic and has high value for terrestrial and wetland wildlife. Stone farm buildings are of historic interest. To develop these assets the area was incorporated into Buffalo Pound Provincial Park. The park staff worked with the DTRR's Outdoor Recreation people, QFW, and Ducks Unlimited (Canada) to develop the area.

QFW and Ducks Unlimited (Canada) co-operated to eliminate flooding and secure a water supply for the 198-ha marsh. This development, combined with enhancement of nesting cover, has greatly increased production of waterfowl and other marsh birds. In spite of increased waterfowl production and staging on the marsh, area farmers are pleased with the development because the lure crop program has successfully reduced crop depredation problems.

QFW has intensified management for white-tailed deer to increase survival of the 200 deer that winter here. QFW has also successfully halted and reversed a decline of the area's Great Blue Heron population. Racoons, a recent addition to the fauna, were robbing nests until predator guards were placed on nest trees.

Outdoor Recreation staff and QFW worked together to make Nicolle Flats accessible and attractive to the public without conflict with wildlife objectives. A series of strategically located hiking and interpretive trails and a viewing tower meet this need. The historic buildings are protected and accessible to the public but still provide shelter for bats and nesting sites for several species of birds.

All developments were designed to appear as natural as possible. The major work, dyking around the waterfowl marsh, was revegetated and contoured to blend into the landscape. The dyke is now used as a hiking trail. This emphasis on maintaining a natural appearance has successfully protected the semi-wilderness setting, adding greatly to visitor enjoyment.

Nicolle Flats is typical of development at many QFW projects. DTRR's Operations Branch, which includes the provincial park staff, did the actual construction and has some responsibility for operation and enforcement at each project. QFW designed the projects, obtained approval and funding for them, and retains overall responsibility.

Ducks Unlimited (Canada) has been an important ally in development of five waterfowl projects. Ducks Unlimited and QFW have designed each project co-operatively. Ducks Unlimited builds and maintains the necessary islands, dykes, and control structures while QFW arranges land control, project approval, crop depredation programs, and development of upland areas.

Public interest groups, especially the Saskatchewan Wildlife Federation, the Saskatchewan Natural History Society, and their local branches have also been important co-operators in some projects. They have provided important public support and local input to the planning process and erected nest boxes and goose nest structures at some projects.

The fish and wildlife resources of the Qu'Appelle are among its greatest attractions. Development of these resources is thus an important part of the tourism development program. Increasing the supply of fish and wildlife to meet demand is a major QFW objective. QFW is also promoting additional use, especially non-consumptive use of the wildlife resource. To achieve this objective, QFW and Outdoor Recreation are developing interpretive trails and facilities at Eyebrow Lake, Valeport Marsh, and Rowan's Ravine in addition to those at Nicolle Flats. QFW and the Qu'Appelle Implementation Office are developing a visitor's guide to all fish and wildlife projects in the valley. This guide will allow the public to find, understand, and enjoy all of the QFW projects.

Perhaps the most basic co-operative aspect of QFW was the decision to combine fisheries and wildlife under one project leader in 1977. In 1975 and 1976 fisheries and wildlife ecologists had conducted inventories and prepared management plans in para-

llel but independent programs. Combining the programs ensured co-operative development of projects important to both disciplines, more efficient use of staff, and common positions when negotiating with other agencies.

The large number of groups co-operating on QFW projects necessitated some method of joint management. A management committee, with representatives from QFW, the DTRR Wildlife, Operations, and Program Planning Branches, and Ducks Unlimited (Canada) meets annually to review project operations, development, and plans for the next year. While QFW continues to operate the projects, input from the committee ensures that project operation remains compatible with the interests of each agency.

### **Co-operation with other groups**

The Wildlife Management Plan recognized that purchase of all important habitats in the valley was not possible. Use of land zoning and working with other groups were therefore recommended to protect wildlife. QFW ecologists have therefore worked with Department of Urban Affairs on a land zoning scheme and the departments of Agriculture and Environment on development and control of the lake and river systems.

#### **Land zoning**

The Department of Urban Affairs is developing a zoning system to ensure orderly development along the Qu'Appelle Valley. The system is based on six Special Planning Area Commissions composed of representatives of the rural municipalities and other interest groups. Each commission has responsibility for land zoning and issuing development permits in its area.

QFW identified important habitats to each commission in 1975 and 1976. Most of these were zoned as natural, fisheries management, or wildlife management. Activities incompatible with fish or wildlife production were disallowed in these zones. The Planning Area Commission refers proposed developments to QFW for comment. If a conflict is identified an ecologist explains it to the commission. Often the problem is avoided by altering the development proposal. If this is not possible the commission may refuse to grant the development permit or change the zoning and allow the development to proceed.

The six Special Planning Area Commissions and Department of Urban Affairs are currently finalizing a zoning plan which will replace this interim zoning. We have again assisted by identifying environmentally sensitive areas to the commissions and explaining their importance in the plan. When the zoning plans are adopted the commissions may only permit developments which manage or protect environmentally sensitive areas. They shall disallow any developments which are harmful to these areas.

#### **Water management**

Channelizing portions of the river to improve channel capacity is an important part of the water management program in the Qu'Appelle. The increased capacity will reduce flood duration and increase ability of the system to supply water from Lake Diefenbaker during a drought. The QFW project leader is a member of the team designing these conveyance works. His input has successfully kept avoidable fish and wildlife losses low. He has also ensured that mitigation for unavoidable damage is part of the conveyance program. The Katepwa fishway, Lebret Marsh, and Evans Marsh projects are parts of this mitigation process.

Lake levels and water flow in the Qu'Appelle River are regulated by the Qu'Appelle Operations Board. As the levels and flow maintained at different times can have major impacts on the fish and wildlife resource, QFW ecologists presented a water management plan for fish and wildlife to the Operations Board. This plan recommends optimum lake levels and river flows and gives acceptable minimums for each part of the year. Though the Operations Board must consider all water uses, our water management plans ensure the decision makers are aware of fish and wildlife needs. The board has attempted to meet fish and wildlife needs as far as water supplies allow.

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## **Conclusion**

The QFW program owes its existence to joint funding through a federal-provincial agreement. Implementation of management plans for fish and wildlife has depended on close co-operation between fish and wildlife ecologists, nature interpreters, Ducks Unlimited, and other agencies with similar interests. To implement other parts of the program QFW ecologists have had to obtain the co-operation of agencies not directly involved with fish or wildlife. All three co-operative approaches have their difficulties, but each has many benefits. QFW has made substantial progress towards implementation of the wildlife management plan for the Qu'Appelle Valley and associated drainages and fisheries management plans. The implementation of these plans would have been greatly slowed and perhaps been impossible if the co-operative approach had not been used throughout the program.

**Dale Hjertaas**

*Wildlife Branch*

*Department of Tourism and Renewable Resources*

# Caribou migration and roads

**A co-operative approach by industry and the Newfoundland Wildlife Division**

## Introduction

The Newfoundland Wildlife Division and Price-Abitibi Pulp and Paper Company of Grand Falls co-operated in a unique project in 1981. It involved mitigating the impact of a new road on the migration route of the Buchans Plateau caribou herd. The project tested the feasibility of funnelling migrating animals towards precise crossing areas so that future road traffic can be more easily regulated.

Since the late 1950s when effective management of caribou in insular Newfoundland began, the species has made a dramatic recovery: from about 3000 to today's 30 000. In spite of this success, we are gravely concerned about the increasing human encroachment on caribou habitat. If its effects cannot be softened, caribou populations will most likely decline again.

## History and current status

The Buchans herd occupies a 600-m-high plateau of about 1100 km<sup>2</sup> during the 7-month period from May to November. This high plateau located near the center of Newfoundland island is bounded on the north by a 90-km-long lake. In early winter this herd moves to the south coast of the island mingling with other herds in that area. But each spring they splinter off moving north again to the plateau for calving.

Since the 1950s the Wildlife Division has recognized the migratory corridor used by the Buchans animals in their twice yearly migration. The predictability of the time and route of the fall migration enabled the Wildlife Division to capture Buchans caribou as they swam one of the larger lakes. They were used as seed stock for an introductory program in the 1960s to re-establish herds that had been exterminated and to establish new ones.



In recent years the northern part of the 50-km-wide corridor between Red Indian Lake and the western end of the Annieopsquotch Mountains has been monitored more closely. The migration trails have been located more precisely and linked to geographical and vegetative features in the area.

The Buchans herd was estimated at about 1200 caribou in the early 1960s but the latest estimates are double that. This reflects the response of the herd to a management policy of a hunting harvest which still allows steady but continued growth and increased protection from a larger and better equipped protection staff.

Human disturbance within the migration corridor began in the 1970s. In the 1970s Price Abitibi began supplying their Grand Falls mill with timber acquired from a road penetrating and ending within the corridor. Two other potentially less damaging woods roads also penetrate the corridor and terminate. The Bay D'Espoir hydro project also intruded on the area in 1973 with transmission lines, access roads, canals, and flooding.

The Price-Abitibi road is to be extended another 16 km to link up with another recently constructed road now linking Bay St. George with Burgeo on the south coast. This would establish a new cross-province traffic route to rival the Trans Canada

Highway. Being much shorter, it would likely evolve in a few years to Trans Canada Highway standards.

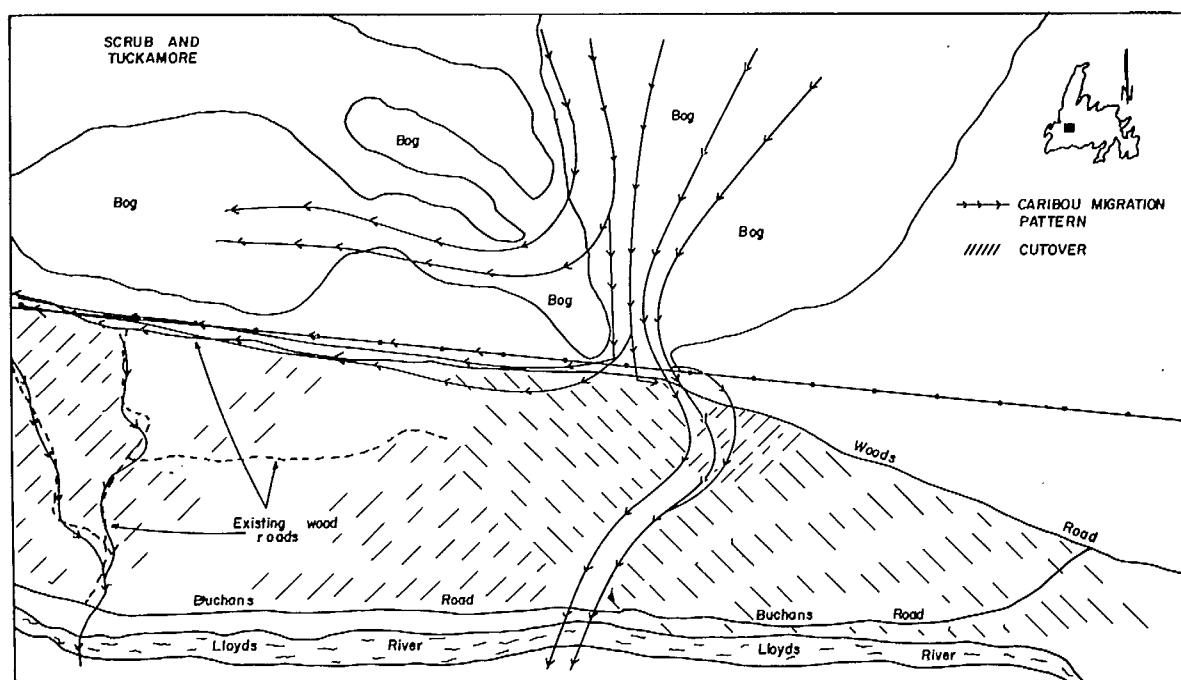
The Buchans caribou would have to cross this highway twice yearly and wildlife personnel are doubtful if this would continue over the long term.

## Project description

During the recent study of the corridor it was noted that migrating animals would change their direction of travel to follow the roads or transmission line until natural openings in the forest or other roads led south towards winter range.

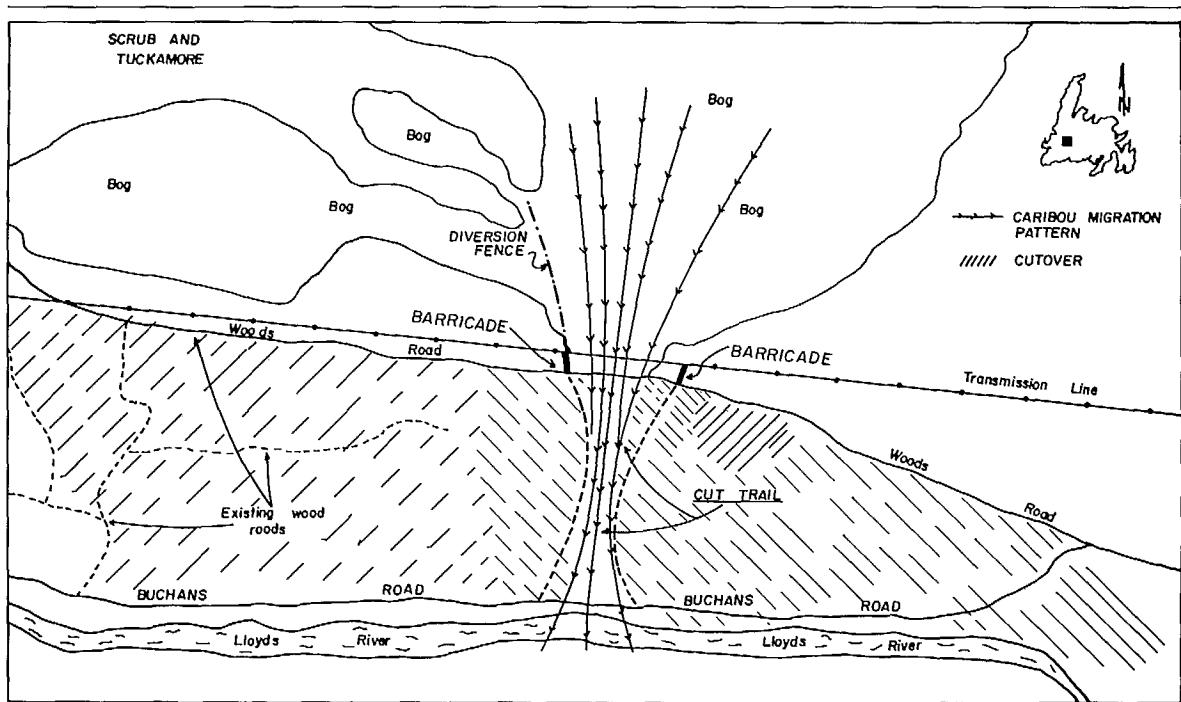
Forty percent of the caribou leaving the plateau crossed a large bog (see Fig. 1) then travelled on several trails leading down a wooded slope to the Price-Abitibi woods road. These animals crossed the road in the space of about 5 km, then swam Lloyds River immediately paralleling the road and ascended the Annieopsquotch Mountains.

With this site in mind, a concept was formulated to join up the trails into one major pathway (Fig. 2). This would direct caribou to cross the road in the space of about 100 m.



*Figure 1. Pattern of the caribou migration, Buchans Plateau in the immediate vicinity of Star Bog*

*Figure 2. Location of cut trail and diversion fence with speculated change in caribou migration pattern*



With caribou migrating on such a narrow front the possibilities for traffic control or specifically constructed aids to isolate caribou from traffic are more feasible. The remainder of the herd migrates across the road at various other locations but the same approach could be applied at other appropriate sites.

Price-Abitibi expressed an interest in becoming involved when the concept was proposed. They agreed to provide the men and machinery to cut a 10–12-m-wide trail, approximately 1 km long with all trees and brush packed on either side of the trail. The trail ran from the edge of the bog down the slope to the road and additional vegetation was removed at either end to create a funnel shape more likely to attract caribou moving in either direction.

In addition, a diversion fence about 0.5 km long angled out across the bog from the western edge of the funnel at the top of the trail. It was constructed of 4–5-m-long rails nailed on vertical posts to a height of about 2 m. The fence was necessary to prevent caribou from wandering westwards on a long extension of the bog.

The project began in late September and was completed by early November. Price-Abitibi's contribution totalled 7.5 person-months plus the use of a timber harvester for the duration of the project.

## Results

Evaluation of the project was carried out by wildlife staff and began on 6 November immediately after construction was completed. Monitoring continued on 15 days until 29 November. By this date most caribou had moved off the plateau.

On the bog, observers spent 43 h in 14 days judging the effectiveness of the diversion fence and behaviour of caribou coming off the bog. A total of 35 cohorts ranging in size from 1 to 200 caribou crossed the bog. In total, 551 caribou were observed crossing and 376 (68.2%) entered the trail. An additional 98 caribou (17.8%) passed 50–350 m too far east of the funnel to enter the head of the trail but subsequently gained access and were recorded leaving the system. Seventy-seven (14%) did not use the system.

At the lower end of the cut trail where it intersected the road, 111 h were spent in 15 days observing in daylight hours. Tracks of caribou travelling after dark were estimated and tallied at first light. A total of 847 caribou in 55 groups ranging from 1 to 208 animals were observed. Only 52 (6.2%) of these did not come down the trail.

The third phase of the evaluation was to compare the number of caribou using the trail compared with the total crossing the other 24 km of road within the corridor. This was determined from daily counts of tracks; an estimated 500 caribou approached the road at 23 locations.

Because continuous observations were not made and the study did not cover the entire migration, the total number of observations of caribou only serve as a basis to compare the importance of migration routes. An estimated 56.6% of the observed caribou in the study used the cut trail to leave the plateau.

## The future

The project demonstrates the feasibility of channelling caribou movements to precise road crossings. This specific mechanism could be improved with a new fence on the east side of the cut, extending across the bog towards the northeast and with the extension of the fence on the west side to catch animals missing the entrance. The co-operation and interest expressed by Price-Abitibi illustrates their desire to mitigate the impact of the road project on caribou. The effectiveness of the system on channelling spring migration is totally unknown but will be monitored during 1982. If caribou can be habituated to use this route now, before road traffic is substantial, there is a chance that the migration will continue after the road becomes a major highway. It seems to be a chance worth pursuing.

**Wally Skinner  
Dennis Minty**  
*Wildlife Division  
Department of Culture,  
Recreation and Youth*

# Program update

## Division objectives

The objectives under which we currently operate are over 20 years old. These are under review and will be modified in order to reflect current trends and public attitudes towards wildlife throughout North America. We will be moving away from being primarily a manager of "harvestable surpluses" towards being a conservor of the total wildlife resource for all people and a steward of environmental quality.

## Funding

The current annual budget is \$3 330 000 subdivided over our four main areas of operation as follows: 44.3% for protection, 38.3% for research and management, 10.6% for information and education, and 6.8% for administrative and clerical support.

There has been no increase for new initiatives. Considering inflation, present funding is actually less than it was in 1980-81. Nonetheless we have established new programs by diverting funds from existing projects of lesser priority. We do not anticipate a change in this trend in the foreseeable future.

## Wildlands program

When the Wilderness and Ecological Reserves Act was passed in 1980, the Newfoundland Wildlife Division took on new tasks. This act is the main mechanism that will protect critical wildlife habitat and other important natural areas in the province.<sup>1</sup> The act calls for the establishment of an advisory council that reports to cabinet through the minister responsible for wildlife. The council's job is to select areas worthy to be designated as reserves, to provide for their review by other agencies and the general public and evaluate the reviewer's responses, and finally to make recommendations to cabinet regarding the establishment of reserves. The division has created a new position, wildlands biologist, presently filled by Ken Curnew, to provide expert advice to the council, to serve as its

executive secretary, to help implement its recommendations, and to draw up management plans for reserves. We anticipate that the first reserves will be established under the act during 1982.

## Information and education program

Another new initiative for 1980 was the establishment of the information and education program. We believe that wildlife and the division's programs are suffering from inadequate public understanding and support.

The objectives of this high priority new program are as follows:

- to foster public attitudes and actions that are compatible with the wildlife resource and management/protection practices;
- to encourage in the public, a sense of stewardship for our natural communities;
- to encourage public participation in wildlife management; and
- to enhance communications within the division.

The most important concerns that the program must address revolve around declining moose and caribou populations in many areas, escalating human impacts on wildlife and the related loss of habitat, and the need to broaden wildlife's public support base.

We have adopted two strategies: a short-term strategy to deal with current problems associated with today's adult wildlife users, and a long-term approach directed at the province's youth. The premise is that if we hope to affect attitudes, we must be influential when attitude formation is taking place — in the early years; on the other hand, if we hope to have a viable wildlife heritage for the youth, we must affect today's users.

As a foundation for the program, we are conducting a survey of public attitudes towards wildlife and related environmental issues during 1981-82. We often pay lip service to the fact that most of wildlife management is really people management but few agencies have any accurate measure of the state of the public mind. In addition, we have developed two automatic slide/tape shows on moose and caribou that our staff use when they visit schools or

<sup>1</sup>See Canadian Wildlife Administration, 1980, for background information.

speak to other groups throughout the province. We intend to develop other shows at the rate of about two per year. We have begun an internal training program to increase our staff's knowledge about wildlife and their effectiveness at communicating with the public. An audio-visual library of about 30 titles has been established containing 16 mm films, videotapes, filmstrips, and slide/tape shows. We are producing, on a fairly regular basis, comprehensive articles on wildlife topics for the newspapers. All appropriate staff contribute according to their area of expertise.

Hopes for the future include travelling exhibits, televised public service announcements, improved integration of wildlife material in the formal school curricula, and a program to provide for enhanced public participation in wildlife management.

## **Environmental impact assessment**

Over the past few years the time spent by our staff reviewing development projects for their impacts on wildlife has continually increased. In 1980 a full-time senior biologist position was allocated to review development projects and make recommendations on their feasibility, the requirements for monitoring, and the desirable mitigating procedures. Jim Hancock, formerly the habitat biologist, has shouldered this rather formidable burden. Current major projects include hydro-electric developments at the Upper Salmon River, Cat Arm River, and Top and Dry Ponds; the Lower Churchill transmission line; forestry operations throughout the province but in particular around Little Grand Lake, important pine marten habitat; numerous resource access roads; and a couple of major highways.

## **Pine Marten**

In 1982-83, the pine marten will receive a much greater research effort than it has in recent years. The new interest is inspired by an increase in logging operations that will encroach upon this rare mammal's habitat. The researchers should examine present distribution, densities, reproductive biology, food habits, and the effects of logging and related human activities.

*Wildlife Division  
Department of Culture,  
Recreation and Youth*

# Co-operative wildlife programs in the Northwest Territories

Developing co-operative intergovernmental programs is an increasingly important strategy of modern wildlife management in Canada. This is particularly true in the Northwest Territories (NWT) where overlap of federal and territorial jurisdictions has fostered numerous co-ordinating committees. The Northwest Territories shares boundaries and management concerns with the Yukon Territory, British Columbia, Alberta, Saskatchewan, Manitoba, and Quebec and often mounts joint research and management programs with them.

The NWT Wildlife Service deals with issues relating to wildlife and industrial land use through participation on a Regional Environmental Review Committee and a Land Use Advisory Committee, both of which are chaired by the Department of Indian Affairs and Northern Development (DIAND). DIAND is the land management agency in the NWT, whereas the NWT Wildlife Service manages game under authority of the NWT Act. The Wildlife Service has participated in the recent establishment of the Caribou Management Board, which is comprised of officials from Dene, Métis, Inuit, territorial, provincial, and federal organizations. This board will serve an important role in the interjurisdictional management of the migratory Kaminuriak and Beverly barren-ground caribou herds which are shared by the NWT, Manitoba, and Saskatchewan. The NWT Wildlife Service has planned management of wildlife along the new Dempster highway with the Yukon, negotiated polar bear harvest quotas with Quebec, Ontario, and Manitoba, joined several provinces in solving common enforcement problems, and worked through the Canadian Wildlife Service (CWS) in planning joint management of caribou and polar bear. This is a small sampling of NWT co-operation with other governments through committee structures.

## Research and management projects

Increased exploration and development, and community expansion has precipitated an increase in bear-person conflicts throughout the NWT. Human safety and declining bear populations are serious concerns. The NWT Wildlife Service initiated a bear detection and deterrent research program in 1981. The program is jointly funded by Cominco Ltd., Mobil Oil Ltd., Petro Canada Ltd., the federal Department of Energy, Mines and Resources,

DIAND, and the NWT Wildlife Service. The Manitoba Department of Renewable Resources supplies logistical support and the CWS provides technical advice.

The Keewatin caribou monitoring program was initiated in 1978 as a result of concerns expressed by wildlife biologists and residents of Baker Lake over the potential effects of industrial disturbance on barren-ground caribou during critical calving periods. The program is funded by DIAND and administered and conducted by the NWT Wildlife Service. Information on the movements and distribution of the Beverly and Kaminuriak caribou herds is provided to DIAND which administers the land use regulations. As a result, no major land use conflicts have occurred.

Research on the potential effects of industrial disturbance on barren-ground caribou has resulted in studies on the ecology, behaviour when undisturbed, and behaviour when disturbed to a limited extent of caribou on the calving grounds. The results of this work will serve to evaluate existing mitigative measures such as the Caribou Protection Measures and to develop and refine new techniques.

A 3-year evaluation program was initiated with DIAND funds in 1980. Helicopter support is supplied by the Polar Continental Shelf Project, sponsored by EMR. The NWT Wildlife Service administers the program with the research assistance of CWS. The three-phase program will cover delineation and description of Beverly, Bathurst, and Kaminuriak calving grounds, methods of recording caribou behaviour, and research on behaviour of disturbed and undisturbed caribou.

The Arctic Land Use Research (ALUR) program was established by DIAND in 1971 to generate baseline environmental information necessary for the management of land and water resources in the north. A major component of the ALUR program is the development of a series of Land Use Information maps which identify important environmental, social, cultural, and economic features pertaining to land and water management. The wildlife component of the program was assumed by the NWT Wildlife Service in 1978. Information on all major wildlife species is mapped and provided to the Lands Directorate of the Environmental Management Service of Environment Canada which publishes the map series.

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## Summary

In his book *Environmental Management*, J.W. MacNeil<sup>1</sup> states that the development of effective land-use-management strategies requires

*Intergovernmental cooperation, at all levels and in all possible forms. It is difficult, if not impossible, to visualize any political or institutional structure, or any system of powers, that would reduce the importance of such cooperation or that would work without it.*

The Northwest Territories is a classic case in point. If we are to attain resource management goals and objectives, co-operation between agencies is mandatory. Accommodation of mutually defined goals and objectives is the only mechanism through which practical administrative and legal agreements will be implemented in a jurisdiction that shares boundaries with one Canadian territory, six provinces, and four other nations.

*Wildlife Service  
Department of Renewable Resources*

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<sup>1</sup>J.W. MacNeil, *Environmental Management*. Ottawa: Information Canada, 1971.

Canadian Nature Federation

# Clifford E. Lee Nature Sanctuary

## A co-operative wildlife program

The major involvement of the Canadian Nature Federation in "hands on" wildlife management has been through its Clifford E. Lee Sanctuary located 25 km southwest of Edmonton, Alberta. The sanctuary was formally established in spring 1977 and is managed by a committee whose members include representatives from the Nature Federation's local affiliates.

Wildlife management has always been based on the assumption that wildlife benefits people. That these benefits are no longer measured solely in terms of game bagged or even in the broader context of related hunting benefits attests to the increasing importance of "non-consumptive" wildlife values in our society. The rapid growth of conservation groups and outdoor clubs and the amount of time and money that people commit to wildlife activities such as bird watching are indicators of this trend. The psychological value of "wildness," even when the skyline of Edmonton looms in the distance, was enthusiastically emphasized by the television and newspaper reporters who covered the official opening of the sanctuary in 1980.

Located on the sand dune system known as the Devon-Sandhills, the Clifford E. Lee Sanctuary is nearly 45% wetland. The northern portion is primarily lake or marsh with several sandy ridges; the southwest section is hilly with jackpine bluffs, open hillsides, and willow-fringed potholes. Characteristics are found of both the aspen parkland to the southeast and the boreal mixed wood forest to the north. As a region of transition, the sanctuary provides rich and varied habitats for an outstanding variety of flora and fauna. Of the 97 species of birds seen in the sanctuary, 43 also nest there. Some species which occur there are at the extreme edge of, or even beyond, their normal range. The ten different plant communities harbour 267 species of vascular plants — a pleasant diversity in a region of extensive cultivation and residential development.

A group of Edmonton naturalists started the search for the potential sanctuary in 1975. A suitable 57-hectare site was selected based on ecological diversity and accessibility for potential users. The



Franklin ground squirrel  
(Photo by W.H. Carrick)

*Yellow-headed Blackbird*  
(Photo by W.H. Carrick)



land was purchased by the Clifford E. Lee Foundation and leased to the Nature Federation for a nominal sum. It is operated with five objectives in mind:

- To provide individuals associated with organizations sympathetic to the goals of the Nature Federation with an opportunity for activities such as bird watching, photography, cross country skiing, and snowshoeing.
- To preserve an extensive wetland ecosystem and thereby maintain within an urbanized area a significant waterfowl and shorebird habitat which exposes people to the aesthetic qualities of a natural landscape, essentially unaltered by human activity.
- To provide structured interpretive programs which are formulated to take advantage of the special natural features of the lands in order to create an ecological perspective in the school children of the Edmonton area and to further the development of leaders in outdoor recreation, of biology teachers, and of others who might influence the environmental perception of young Canadians.
- To obtain experience on the extent of compromise which must be struck between the two major uses of the lands, nature preservation on the one hand and nature interpretation on the other.
- To provide citizens in the County of Parkland with an opportunity to learn more about the landscape in which they live.

With funding provided by the provincial government through the Alberta Environment Research Trust, studies were commissioned of the property's aquatic and terrestrial systems. The management committee made decisions based on this information, and an interpretive plan was prepared. Some capital improvements have been made, including signs, a split rail fence on the east boundary, 1100 m of boardwalk, and several viewing platforms at the edge of the lake. An audio-visual show is available for presentation at schools or meetings of special interest groups. Of course, all this activity requires more than the enthusiastic work of the management committee — it requires money. Funds have been gratefully received from The Clifford E. Lee Foundation, the Alberta Recreation, Parks and Wildlife Foundation, and the province's 75th anniversary program, in addition to administrative funds directly from the coffers of the Canadian Nature Federation.

The management committee has been diligent in responding to development proposals that would pose potential threats to the sanctuary. It launched a successful appeal against an adjacent residential subdivision and when a major electrical transmission line was proposed, the committee and the Nature Federation made interventions at the Energy Resources Conservation Board hearings. The board ruled that another route be chosen.

The Canadian Nature Federation is justifiably proud of the sanctuary and is attempting to expand it to include more of the wetland complex. Although many of the day-to-day activities of the Nature Federation take the form of policy initiatives on important national issues — matters of an intangible nature where results are not often immediate — it is very satisfying for us to be involved in this concrete co-operative wildlife program.

**Diane Griffin**  
*Past president*  
*The Canadian Nature Federation*

# The Saskatchewan Heritage Marshes Agreement

Fifth November 1981 was, as His Excellency The Honourable Irwin McIntosh, Lieutenant-Governor of Saskatchewan so eloquently phrased it in his toast to the Saskatchewan Heritage Marshes Program, a day that was "a happy one for creatures large and small...." And the happiest of all were the one hundred or so representatives of the conservation community who had gathered to celebrate the conclusion of the Heritage Marshes agreement, an agreement which stands as a landmark example of co-operation between various groups with differing interests.

On the face of it, the Saskatchewan Heritage Marshes agreement simply spells out the intention of the Saskatchewan government and several private conservation groups to co-operate in a program to protect and develop a series of marshes deemed important to the international waterfowl resource. But those who followed the issue along its rocky road of confrontation, ultimatum, and eventual compromise recognize the significance of the outcome. The Saskatchewan Heritage Marshes agreement represents more than a document sparing valuable wetlands from the threat of further encroachment by agriculture. It represents the willingness of both agricultural and wildlife interests to recognize the other's right to share the use of the land and their willingness to seek mutually satisfactory solutions to land-use conflicts.

To fully appreciate the solution presented by the Heritage Marshes agreement, it is necessary to analyze the problem. It is one that has been with us since the first duck took its first billful of grain produced by western Canada's first grain producer. The indisputable fact is waterfowl eat or foul the grain western Canadian farmers depend on for their livelihoods.

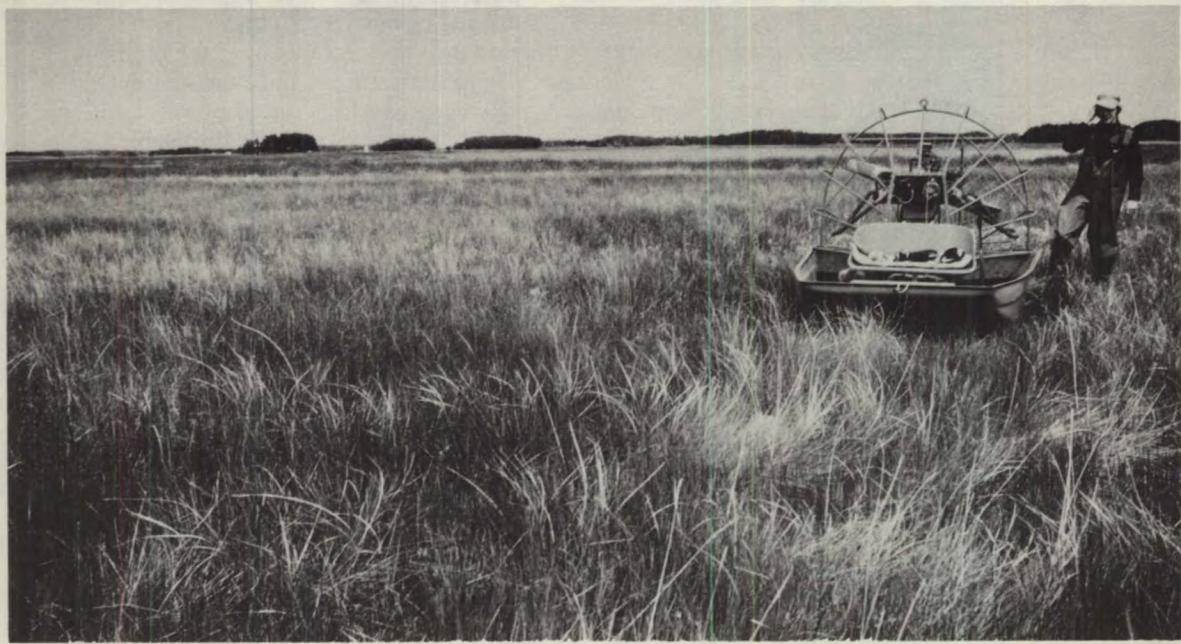
In the farmer's mind, ducks eat grain, therefore, ducks cost money. The views of dyed-in-the-wool conservationists can be equally dogmatic. Farmers, goes their argument, are insensitive exploiters who ravage the land, drain the marshes thereby destroying habitat, pollute the environment with toxic pesticides, and whine to government whenever the market goes against them. Although an accurate assessment of the conflict between the two groups lies somewhere between these two extremes, for many years these attitudes blocked attempts by conservationists to secure important Saskatchewan wetlands and protect them from agricultural drainage efforts.

To waterfowl conservationists, protection of these wetlands is crucial. They represent North America's most productive waterfowl breeding areas, marshes on which the major part of the continent's waterfowl resource reproduces annually.



Ponass Lake Marsh, June 1977, the first of five Heritage Marshes to be developed under the Saskatchewan Heritage Marsh Agreement

*DU field staff conducting preliminary surveys at Ponass Lake*



More important, Saskatchewan marshes are disappearing quickly. Canadian Wildlife Service figures indicate that up to 40% of western Canada's natural wetlands have already disappeared. And there is nothing in land-use forecasts from farm groups or government agencies to indicate things are going to get any better.

Western Canadian grain producers are under heavy pressure to produce, both to stay afloat in an era of high costs and to meet promised export increases in the next decade. Although some of these production increases will be achieved through more intensive use of existing cropland, there is no doubt pressure will be put on governments for permission to drain and develop additional wetlands to meet this production challenge.

These uncomfortable land-use realities have long affected the habitat development programs of Ducks Unlimited (DU) Canada, an international, private non-profit waterfowl conservation organization formed in 1938, that has, in the interim, developed more than 2000 projects throughout Canada, including 488 in Saskatchewan.

The DU concept is based on negotiating with landowners — private individuals, companies, and government agencies — for free use of land for habitat development. Under the terms of its agreement with these landowners, DU assumes construction and maintenance costs related to project development.

The landowners retain title to the land. It is an offer more than 3000 landowners across Canada have found attractive, and one that has enabled DU to reserve and develop almost 1.2 million ha of prime waterfowl habitat.

When the DU concept was first conceived during the great depression and drought of the 1930s, the offer of private funds for water management and conservation was eagerly accepted by farmers and governments alike. But in recent years, as land prices soared, grain prices strengthened, and farm input costs swelled, some farmers began questioning the value of reserving potential cropland for waterfowl. The waterfowl are harvested primarily by US hunters, DU critics say, whereas the costs of producing them are shouldered by Canadian farmers.

Crop depredation became the central issue in the debate. Under the terms of the Migratory Bird Treaty of 1916, the governments of the United States and Canada agreed to share responsibility for the waterfowl resource. To fulfill its responsibility for depredation compensation, Ottawa has instituted various temporary schemes administered by provincial governments. But according to farm groups and some provincial agriculture officials, existing compensation programs are a case of far too little, far too late.

Farmers claim the \$123.50-per-ha maximum compensation covered in recent programs is tantamount to an insult with grain prices exceeding \$7 per bushel (\$19.20 per m<sup>3</sup>). Moreover, the fact the compensation program is not permanent and subject to annual renewal, creates uncertainty in farm communities where producers may wait months before learning whether a compensation program will, in fact, be implemented and what level of payment will be made.

Western Canadian politicians are understandably well attuned to farmer discontent, particularly when it involves land use, an area which concerns a variety of government departments. Thus, when various farm voices expressed interest in developing certain marshes for agriculture, or felt their opportunities to do so in the future would be jeopardized if these wetlands were reserved for wildlife, the approvals that DU Canada needs to proceed with wetland developments were withheld.

In Saskatchewan, a "freeze" was imposed on any DU Canada project developments that seemed to pose depredation problems. As a result, the \$4-million 1980 DU program in the province was severely restricted, and DU Canada officials developed contingency plans to move activities into

provinces more willing to recognize DU's positive contributions to their wetlands conservation programs.

The government's position was officially articulated by the Honourable Reg Gross, Saskatchewan Minister of Tourism and Renewable Resources, at a Ducks-Unlimited-sponsored international waterfowl symposium in New Orleans in January 1981. Gross challenged the international waterfowl fraternity to come up with a solution to the waterfowl depredation problem. He noted

*We already have far more ducks than we need for Saskatchewan people, and the growing crop depredation program is not being adequately addressed. Saskatchewan has, therefore, been forced to place a hold on future wetland habitat developments pending resolution of the depredation problem.*

The minister recognized that DU projects were not a prime cause of the problem but believed DU's influence on the Canadian and US federal governments could provide the clout needed to help Saskatchewan resolve the problem throughout Prairie Canada.

The challenge presented the private conservation organization with several knotty problems. First, as a privately-funded organization, the majority of whose support originates in the US, DU Canada was unable to justify using its contributors' donations to shore up Canadian farm incomes. Second, there's no evidence that waterfowl numbers are a factor in depredation losses. The key is harvest weather conditions. If good weather prevails, and crops come off efficiently, migrating flocks move through quickly and losses are minimal; if the weather is bad, and flocks are unable to move, they zero in on swathed fields and damage soars.

The long-term solution, says DU Canada Executive Vice-President D. Stewart Morrison, lies in a new North American waterfowl management plan that recognizes the cost Canadian farmers incur in producing the waterfowl resource, and that, at the same time, recognizes the Canadian responsibility to maintain waterfowl habitat.

But the long-term solution does not resolve the short-term crisis faced by DU as a result of the Saskatchewan development freeze. In fact, representatives from various conservation organizations attending the New Orleans symposium began working out an action plan while Gross's challenge still echoed through the halls.



Aerial view of Ponass Lake

In late summer 1981, DU Canada officials presented the Saskatchewan government with a proposal: if the government would guarantee security of the five best marshes in the province, some of which were in imminent danger from drainage, DU Canada and its conservation allies would make funds available to enable the government to operate depredation prevention programs in the areas surrounding these marshes.

With government interest kindled, DU Canada hammered out a comprehensive plan designed to secure five marshes which wildlife experts classify as "key marshes" or "irreplaceable if lost." Each is large (generally over 800 ha in size), served by a secure water supply, productive, fertile, and threatened to some extent by agricultural development.

In return for the government's co-operation in securing these "Heritage Marshes," DU Canada committed itself to a broad program designed to reduce crop depredation threats to neighboring farmers. In essence, DU pledged to assist other conservation organizations operating in Saskatchewan to acquire about 2300 ha of privately-held land within the Heritage Marshes, plus an additional 1000 ha of farm land for lure crop sites. At these sites, the provincial government will swath grain and make it available to waterfowl flocks to relieve pressure on surrounding private grain fields. The costs of acquiring the lands is being shared with the Saskatchewan Wildlife Federation Habitat Trust (SWFHT), the Nature Conservancy of Canada, the Saskatchewan Natural Historical Society, and DU Canada. Title to the land will be in the name of the SWFHT. In addition, DU Canada offered to incorporate bait stations (areas where grain is dumped to attract feeding birds) into future wetland project developments, where agriculture officials fear depredation problems. DU Canada will also provide the government with a supply of propane-activated scare cannons. Management and operation of the bait stations and scare cannon program would be the responsibility of the provincial government.

Development of the first of two Heritage Marshes identified in the agreement, the 2800-ha Ponass Lake Marsh west of Rose Valley, will begin this year. Work on the second project, the Thunder Creek Marshes north of Swift Current, is scheduled for 1983. Three other marshes are undergoing preliminary study and will be developed later.

The Saskatchewan Heritage Marshes agreement, then, represents even more than co-operation between wildlife and agriculture. It also represents the willingness of conservation groups with a common interest in preserving wildlife for sportspersons, naturalists, photographers, birders, and hikers alike, to work together to protect an important part of our heritage. Saskatchewan's lieutenant-governor described the historic agreement as an example of

*... the best co-operative instincts of man; ... organizations and people working together to make nature more abundant.... May its harvest of wildlife be an example of preservation and conservation for future generations who may say the plan was initiated by wise men who loved their country.*

**Carl Radimer**  
*Public Relations Manager*

# The Committee on the Status of Endangered Wildlife in Canada

## Co-operation for conservation

Are wolves and polar bears endangered in Canada? Is the Eskimo Curlew extinct? What exactly does endangered mean anyway? Similar questions are being asked by an increasing number of Canadians. There is no denying the growing public interest in and concern for endangered species. In 1977 the Federal-Provincial Wildlife Conference created the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) at a most opportune time.

COSEWIC consists of representatives from key federal agencies, all the provinces and territories, and three non-government organizations — the Canadian Nature Federation, the Canadian Wildlife Federation, and World Wildlife Fund (WWF) (Canada). The committee as a whole meets annually to determine the status of wildlife species in Canada. An executive committee meets quarterly to look after interim business. Wildlife for COSEWIC means "any species of flora or fauna"; species means "any species, subspecies or geographically separate population."

If the evidence is clear, the committee places each species considered into one of five categories: rare, threatened, endangered, extirpated, or extinct. These terms have precise meanings. "Rare" means any indigenous species of fauna or flora that, because of its biological characteristics, or because it occurs at the fringe of its range, or for some other reasons, exists in low numbers or in very restricted areas in Canada but is not a threatened species. "Threatened" means any indigenous species of fauna or flora that is likely to become endangered in Canada if the factors affecting its vulnerability are not reversed. "Endangered" means any indigenous species of fauna or flora whose existence in Canada is threatened with immediate extinction through all or a significant portion of its range, owing to human action. "Extirpated" means any indigenous species of fauna or flora no longer existing in the wild in Canada but existing elsewhere. "Extinct" means any species of fauna or flora formerly indigenous to Canada no longer existing elsewhere.



A rare Ross' Gull at Churchill, Manitoba, summer 1981 (Photo by R. Doug McRae)

Furbish's lousewort is endangered in Canada (CWS photo by R.D. Muir)



As of 31 December 1981, 14 species were rare, 8 were threatened, 14 were endangered, and 2 were extirpated.

Although a clear definition of terms is important, the backbone to the effective functioning of COSEWIC is the commissioning of scientifically sound status reports on candidate species. It is only on the basis of authoritative reports that COSEWIC can properly classify species under consideration.

In 1979, WWF (Canada) was able to provide a vital spark to the commissioning of status reports, namely, money! By that time, most of the "high profile" species' reports were done. However, much work remained on less conspicuous species, especially fish and plants. A grant of \$16 500 per year for 3 years from the Richard Ivey Foundation has ensured the completion of a large number of additional status reports for COSEWIC.

The present WWF fundraising commitment expires this year. WWF is considering a new 3-year commitment, providing matching funds can be found from other participating agencies. To 31 December 1981, \$35 000 had been spent on status reports on 23 species: 12 studies on plants, 6 on fish, 2 on mammals, 2 on birds, and 1 on a reptile. The reports have been done by experts across Canada. Five provinces are represented, and one study is being done in the US.

These status reports, whether on the northern prairie skink or on the pygmy smelt or on the green dragon (a jack-in-the-pulpit-like plant), are the crucial first step to protecting Canada's vulnerable wildlife. COSEWIC's status reports have led to classifying the leatherback turtle as Canada's first endangered reptile; the giant stickleback, shortnose sturgeon, and speckled dace as Canada's first rare fishes; and the elegant Ross' Gull, victim of a recent nest-nabbing, as a rare bird. The most recently commissioned status reports will consider the St. Lawrence River beluga whale and the Banff dace. Many other species await classification. The fact that COSEWIC has classified 46 species to date does not mean there are only 46 at risk in Canada. Rather, it means we have only been able to classify this many so far.

COSEWIC is a unique co-operative venture among governments, and between government and non-government organizations. Its success depends on co-operation. The Canadian Wildlife Service provides a permanent secretariat for COSEWIC in Ottawa. All provinces and territories provide expertise regarding reports commissioned on species in their jurisdiction. In the past, many reports were prepared and funded by provincial agencies.

The non-governmental organizations also play crucial roles. As mentioned earlier, WWF (Canada) provided the essential funding for status reports. The Canadian Nature Federation provides the complete status reports, at cost, to any interested person. The Canadian Wildlife Federation printed the excellent one-page colour summary sheets which are publically available on 12 endangered and 4 threatened species. All three non-governmental organizations participate actively in the committee's discussions, have full voting rights, and a representative on the executive committee.

An accurate and widely accepted method for determining the status of species at risk is the essential first step in a chain of actions necessary for the conservation of such species. COSEWIC has been extremely productive and successful in doing this job. It also serves as a model for cross-jurisdiction co-operation that is unique in Canada, and the world. WWF (Canada) urges active support of COSEWIC by all members of the Federal-Provincial Wildlife Conference, and anyone else concerned about vanishing wildlife species.

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Legal Services	M. Chromec (416) 965-4251
Surveys & Records	J.M. Barbowski (416) 965-4251
Hunting Licences Searches	B. Shawcross (416) 965-8945
Wildlife Research — Maple	
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Upland Game & Waterfowl	H.G. Lumsden (416) 832-2761
Diseases and Parasites	E. Addison (416) 832-2761
Rabies	D.H. Johnston (416) 832-2761
Predators	G. Kolenosky (416) 832-2761
Field Studies	D.R. Voigt (416) 832-2761
Research Engineer	J.S. Lotimer (416) 832-2761
Lab Services	D. Joachim (416) 832-2761
Resource Technician	P.C. Smith (416) 832-2761
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North Central Region — Thunder Bay	R.T. Thomson (807) 475-1231
Northern Region — Cochrane	J.K. Young (705) 272-4287
Northeastern Region — Sudbury	J.R. Chevalier (705) 675-4135
Algonquin Region — Huntsville	C.W. Douglas (705) 789-9611
Eastern Region — Kemptville	D.G. Watton (613) 258-3413
Central Region — Richmond Hill	J.B. Dawson (416) 884-9203
Southwestern Region — London	H. Orr (519) 681-5350

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## Prince Edward Island

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Department of Community Affairs  
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Charlottetown, Prince Edward Island  
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Waterfowl & Furbearer Biologist	R. Dibblee	(902) 892-9174
Upland Game Biologist	A. Godfrey	(902) 892-9174
Chief Conservation Officer	N. Hurry	(902) 892-9174

## Québec

Direction générale de la faune  
 Ministère du Loisir, de la Chasse  
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 G1R 4Y1

Directeur général par intérim	André Magny	(418) 643-2696
Directeur par intérim, Direction de l'aménagement et de l'exploitation de la faune	Luc Samson	(418) 643-2220
Directeur, Direction de la conservation de la faune	André Magny	(418) 643-7674
Directeur par intérim, Direction de la recherche faunique (9530, de la Faune, Charlesbourg G1G 5H9)	R. Bouchard	(418) 622-0306
<b>Direction générale des opérations régionales</b>		
Bas Saint-Laurent/Gaspésie (92, 2 <sup>e</sup> rue Ouest, Rimouski G5L 8B3)		
Aménagement et exploitation de la faune	Gaston Lemay	(418) 722-3815
Conservation de la faune	Majella Bujold	(418) 722-3819
Saguenay/Lac Saint-Jean (50, boul. Harvey, Jonquière G7X 8L6)		
Aménagement et exploitation de la faune	René Lesage	(418) 547-3603
Conservation de la faune	E. Saint-Pierre	(418) 547-5756
Québec (9350, de la Faune, C.P. 7200, Charlesbourg G1G 5H9)		
Aménagement et exploitation de la faune	C. Bernard	(418) 622-0293
Conservation de la faune	R. Durocher	(418) 622-0291
Trois-Rivières (100, rue Laviolette, C.P. 187, Trois-Rivières G9A 5S9)		
Aménagement et exploitation de la faune	M. Lafleur	(418) 373-2207
Conservation de la faune	R. Alarie	(418) 379-3003
Cantons de l'Est (85, rue Holmes, Sherbrooke J1E 1S1)		
Aménagement et exploitation de la faune	Réal Vézina	(819) 565-1955
Conservation de la faune	C. Bouchard	(819) 565-0191

Montréal (6255, 13 <sup>e</sup> avenue, Rosemont, Montréal)		
Aménagement et exploitation de la faune Conservation de la faune	B. Vincent A. Lessard	(514) 688-2050 (514) 688-2050
Outaouais (13, rue Bluteau, Hull J8Z 1V4)		
Aménagement et exploitation de la faune Conservation de la faune	J. Vallée Y. Charrette	(819) 771-4840 (819) 771-4840
Nord-Ouest (180, boul. Rideau, Noranda J9X 1N9)		
Aménagement et exploitation de la faune Conservation de la faune	L. Villemure É. Chabot	(819) 764-6795 (819) 762-3523
Côte-Nord (818, avenue Laure, Sept-Îles G4R 1Y8)		
Aménagement et exploitation de la faune Conservation de la faune	G. Lamontagne (Poste vacant)	(418) 968-1225 (418) 962-7787

## Saskatchewan

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 Department of Tourism and Renewable Resources  
 3211 Albert Street  
 Regina, Saskatchewan  
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Chief of Program Development	G.W. Pepper	(306) 565-2797
Superintendent of Wildlife	Vacant	
Supervisor, Program Co-ordination & Delivery	D.J. Sherratt	(306) 565-2309
Wildlife Management Ecologist		
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Game Administrator	C.G. Scheelhaase	(306) 565-2892
Fur Administration (Prince Albert)	H. Strom	(306) 764-1541
Firearm Safety Administration	D. Pryce	(306) 565-2314
<b>Regional Biologists</b>		
Hudson Bay Region	R. Beaulieu Natural Resources Building Box 970 Hudson Bay, Sask. S0E 0Y0	(306) 865-2274
Meadow Lake Region	D. Brewster Box 580 Meadow Lake, Sask. S0M 1V0	(306) 236-5681
Melville Region	B. Stewart 117 — 3rd Avenue W Melville, Sask. S0A 2P0	(306) 728-4494
Prince Albert Region	T. Rock 101 Provincial Government Building 49 — 12th Street East Prince Albert, Sask. S6V 1B5	(306) 764-6433
Regina Region	R. Melinchuk 3211 Albert Street Regina, Saskatchewan S4S 5W6	(306) 565-5869
Saskatoon Region	M. Killaby Sturdy Stone Centre 122-3rd Avenue N Saskatoon, Sask. S7K 2H6	(306) 664-6257
Swift Current Region	D. Noble 350 Cheadle Street West Swift Current, Sask. S9H 4G3	(306) 773-1521

## Yukon

Government of Yukon  
 Department of Renewable Resources  
 P.O. Box 2703  
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Southern Region Supervisor	B. Linklater	(403) 667-5786
Chief, Operations & Development	D. Connelly	(403) 667-5270
Conservation Officers Whitehorse		(403) 667-5229
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<b>Resource Planning and Management Unit</b>		
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Chief, Resource Management	M. Hoefs	(403) 667-5671
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Wildlife Biologist Grizzly	B. Smith	(403) 667-5177
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## Non-governmental organizations

### **Canadian Nature Federation**

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