

THE WILDLIFE HABITAT CONSERVATION
PROGRAM OF THE CANADIAN WILDLIFE SERVICE

A summary of progress 1966-1976 and a
forecast for 1977-1986

NWA
Gen.
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MEMORANDUM NOTE DE SERVICE

DATE

FROM: Assistant Deputy Minister
DE: Environmental Management Service

TO: Mr. J.B. Seaborn
A: Deputy Minister

SUBJECT: The Wildlife Habitat Conservation Program, 1966-1986
SUJET:

The enclosed summary review of the CWS habitat conservation program has been prepared in response to the request you received from Dr. Fleischmann. While it answers some questions it raises others of considerable importance in the context of the needs of ecological conservation within Canada and in North America as a whole.

After a period of some anxiety, the Fish and Wildlife Service of the U.S. Department of the Interior has been given an enlarged mandate and additional resources, of some \$200 million to 1983, for its habitat management program. This is obviously an unpropitious time for EMS to be seeking an enhancement of its own program but we must not fall too far behind our American counterparts if the common requirement and commitment to take care of migratory birds is to be fulfilled.

Within this country, while it is possible to feel some confidence that a few provinces will be able as well as willing to establish adequate systems of ecological reserves, in other regions that seems unlikely to happen. There is a need to ensure that unique and highly important sites are not lost or irrevocably damaged and that the federal government does not add to the hazards through ignorance or by hesitancy to take necessary actions. It is not at all easy to translate this need into specifications in hectares, dollars and man-years on a national scale. Yet it is essential to do so as soon as possible. The wetland habitat acquisition program has illustrated how slowly such a program can be accomplished, even after a strong initial push.

John S. Tener

Encl.



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Dr. George Fleischmann
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Dear Dr. Fleischmann:

Land Acquisition by the Canadian Wildlife Service

Here is the review of the land acquisition programs of the
Wildlife Service for which you asked.

Yours sincerely,

J.B. Seaborn

Encl.

THE WILDLIFE HABITAT CONSERVATION PROGRAM OF THE CANADIAN WILDLIFE SERVICE

A summary of progress 1966-1976 and a forecast for 1977-1986

A.G. Loughrey
Director General
10 November 1976

Introduction

Alteration of the landscape by human actions is the greatest threat to the wildlife resources in North America now and for the foreseeable future. The most extensive destruction of habitat is due to agriculture and forestry, the impact of the former being less readily reversible, but urbanization and the development of transportation, industrialization and its associated effluents and other economic developments all tend to bring ecological losses with them. Many of these detrimental effects are being produced at long distances from their points of origin and in areas hitherto little disturbed. While it is impossible, and unnecessary, to halt economic development, it is the responsibility of the Department of Fisheries and the Environment, on behalf of the Federal Government, to avoid or minimize environmental damage. One of the ways in which the environment can be protected is by acquisition and management, for the preservation and enhancement of wildlife values. Most such management is done by private landowners or agencies of other levels of government, but they need federal help in some circumstances. Public enlightenment on ecological values is also a field where the federal government has a role to play. The wildlife habitat conservation program of the Wildlife Service is intended to contribute to both these functions.

Origins of and legal basis for Habitat Conservation Program

The first policy statement recognizing the need for a federal program aimed at conservation of migratory bird habitat areas was contained in a pronouncement on Canada's National Wildlife Policy and Program made in the House of Commons on April 6, 1966 by the Minister of Northern Affairs and National Resources. (The relevant passages are attached as Appendix 1).

An acquisition program was begun shortly after that statement, although the legal framework for implementing it was not secured until the passage of the Canada Wildlife Act, which received Royal Assent on July 20, 1973.

Wetland Habitat Conservation

At the time the Policy and Program statement was being prepared the need for habitat preservation was thought of almost wholly in relation to wetlands, for waterfowl to use during the hunting season and, to a lesser extent, to serve as breeding areas. The program of acquisitions in 1966-76 reflects that narrow preoccupation with migratory game birds, rather than migratory birds as a whole; as do the proposed wetland acquisition plans for 1976-1986 and the series of co-operative agreements with provincial agencies for acquisition and management of areas in those provinces whose objections to unilateral federal activities are particularly strong.

The preservation of substantial quantities of wetland habitat is important. Some kinds, especially coastal marshes, are relatively scarce in Canada and are also being extensively destroyed or damaged by a variety of human activities, so that it is necessary for some agency to intervene to restrict the losses and to maintain or restore the biological productivity and ecological values of as many of the threatened wetlands as can be managed. Private owners have borne most of the burden of preservation until now but, as a result of growing pressure for development, changes in taxation, and so on, are ceasing to be able to afford to do so on the necessary scale.

Though the Migratory Birds acquisition and management program is operated for the primary benefit of birds the wetlands involved are also of substantial value to fisheries and other interests.

In the first ten years of the wetland habitat acquisition program some 18,700 hectares (46,000 acres) have been secured, for a capital cost of about \$8.7 million. The envisaged extension of the program calls for a further 28,300 ha to be acquired by 1986 and another 13,800 ha in 1986-1996 bringing the total identified to 60,800 ha at an estimated total capital and development cost to the federal government of some \$52 million (in 1976 dollars). Tables 1 and 2 outline the program in more detail.

In addition to the projects requiring acquisition and management by the federal government above, a rather larger program is in train involving joint projects with six provinces (Table 3). In most of these the federal government would pay at least half and sometimes the whole cost of acquisition and usually a minor share of the operating and maintenance costs; with very little commitment of man-years to any of these projects which have been planned in detail.

CWS had envisaged a change in emphasis from federal to joint federal-provincial projects for two reasons: (1) because most provinces have grown increasingly reluctant to acquiesce in federal ownership of land and (2) to get more done by cost-sharing arrangements than could be accomplished by federal funding without a rapid, and therefore seemingly improbable, increase in direct cost. This change in strategy has been slow to be put into effect, though long seen as desirable, because the parties are still feeling their way into the effective working of the Canada Wildlife Act.

The recent lack of enthusiasm at high levels within the federal government for major financial commitments to federal-provincial agreements

casts a deep shadow on the proposed strategy of joint action. If a halt were to be called to such activities by either the federal government or by several provinces the whole program of habitat conservation (not only that for wetlands considered so far) would be imperilled. This is an alarming prospect.

The existing and planned federal and federal-provincial programs are modest, and perhaps dangerously small, when looked at in the context of North American needs and the parallel efforts being made in the U.S. While it is generally supposed (especially in the U.S.) that Canada produces most of the waterfowl and that the U.S. harbours them in winter, that is a dangerous oversimplification in terms of the needs both of the birds and of those Canadians interested in them. The CWS program has been concentrated not on production areas but on places used by large numbers of birds in late summer, fall and spring, because these are critical to the survival of large numbers of waterfowl and to holding them in Canada during the Canadian hunting season. What is most in question concerning this facet of the program is whether the slow rate of acquisition is adequate: how much of the required habitat will still be there in ten or twenty years?

The Director of the U.S. Fish and Wildlife Service has recently reviewed their wetland habitat program. He estimates that of 127 million acres of wetlands believed to have been present 200 years ago between 40 and 50 per cent have been lost. Of the remainder State agencies own about 3.7 million acres, mostly wetland of significant value to waterfowl and control another 2.5 million acres through leases, easements and other means. Private conservation organizations and Federal agencies other than F. & W.S. own another million acres and private waterfowl hunting clubs own or lease more than 5 million acres. The F. & W.S. now has 5.4 million acres of waterfowl habitat in their National Wildlife Refuge System in the lower 48 States, having added

2 million acres since 1961. In 1975 some 10 million acres of wetlands in the U.S. having primary importance to waterfowl were still unprotected. Under the U.S. F. & W.S. waterfowl management plan attempts will be made to preserve an additional 2 million acres of the most important of these wetlands in the next ten years, giving special attention to the preservation of breeding and wintering habitat (rather than "staging areas", used chiefly in migration). The Wetland Loan Extension Act of 1976 provides a continuing source of funding. It extends the loan authority, due to expire in 1976, to 1983 and adds some \$(U.S.) 95 million to the original funding authority of \$105 million. What can be accomplished in the U.S. will depend on the extent to which the funds are appropriated and made available, such funds being added to an estimated \$85 million receipts over the next ten years from the sale of "duck stamps" (the net proceeds from which are required to be used for waterfowl habitat preservation). Although the potential acquisition funds amount to about \$200 million the U.S. F. & W.S. estimates that that will be sufficient to accomplish only half the 2 million acre objective. The Director of U.S. F. & W.S. sees the procurement of additional funding as "a major problem for management to solve in the near future."

While it is not, of course, proper to assume that a Canadian wetland preservation program must be of the same order of magnitude as the U.S. one, a fresh look at the total requirements of wetlands and at the possible ways of preserving them with the greatest effectiveness for the least cost to the federal government is clearly needed. We also need to explore additional ways of raising revenue to set against the costs of acquisition and management.

There are still major gaps in the information needed to decide on the optimum scale and distribution of a wetland habitat conservation program. We do not know how many wetlands, of what extent, there are in those parts of Canada which are both important to waterfowl and subject to massive change

in related land use. Nor do we know at all fully, except in a few limited though important areas such as southwest Ontario and southern Manitoba, how extensively and rapidly wetlands are being lost or severely damaged, or being created, or recreated (by hydro developments, abandonment of uneconomic drainage, and so on). Past decisions to acquire have been based primarily on patterns of recent waterfowl use and on threats to continued use, with little knowledge of what alternatives are available (for example, if 20,000 ducks were to be displaced by the draining of Lake X, could they go to alternative sites in Canada or would they be more likely to go to the U.S. instead?)

The objective is to retain ample wetlands in fit condition for waterfowl, with federal acquisition and management as a salvage technique "of last resort", not as a preferred option, except in cases where a federal-provincial initiative seems necessary to ensure public use, as well as to preserve the habitat. This is, it may be recalled, for the purpose of maintaining places for waterfowl to live in the fall (hunting season) and spring, rather than providing breeding places, large marshes being relatively unimportant for that purpose.

The preservation of breeding habitat calls for the retention of large numbers of small wetlands with nesting cover on adjacent land. Because the most important area for ducks are dispersed through the agricultural regions of Canada there seems to be no way in which any government agency could acquire control of a significant proportion of these lands so as to maintain or improve duck production. Federal ownership and management seems likely to be restricted to experimental areas only, where modified farming methods can be tried out and used as models for private landowners. Thus no large sums are identified for the preservation of waterfowl breeding habitat in the near future. However, in the event of drought returning to the southern prairies

in the next few years, there may be increased public pressure for (and against) efforts to increase duck production in the remaining wetter areas.

Conservation of Wildlife Habitat other than wetlands - Rare and Endangered Species Program

Development of a federal program for conserving habitat for non-game birds and for other wildlife is still in an early embryonic phase. Despite the impetus given to the identification of valuable sites across the country by the Terrestrial Conservation section of the Canadian national components of the International Biological Program in 1967-73 and subsequently, much remains to be done to establish methods of identification and of preservation.

The furthest advanced example that has yet emerged is a proposed National Wildlife Area of about 40,000 ha near Inuvik, NWT with the principal object of protecting the most important stronghold of the Peregrine Falcon remaining in Canada. The costs of acquisition of this and any other NWAs that may be established in the Territories are small, as the land already belongs to the Crown, but the operating costs of a collection of such sites would not be negligible. However it is impossible at present, in view of pending native land claims and other jurisdictional uncertainties, to quantify the potential number, size and rate of acquisition of the NWAs (or, perhaps, intensively-managed Migratory Bird Sanctuaries) that seem likely to be needed. Clarification of this unsatisfactory situation will be pushed hard in the coming year.

Land Acquisition related to the CWS Interpretation Program

The plan is to establish ten field interpretation programs in locations on or near the Trans-Canada Highway or major tributaries thereof. The lands selected are to be diverse, including both natural areas and sites dominated by man's activity. The outlays so far, the projected additions and estimates of revenues from admission fees are shown in Table 5. At the current admission rates and projecting attendance from the figures in recent years it appears that when the program is completed the expected annual revenues will be of the order of \$150-200,000, with annual outgoings of about \$1.7 million. It should be noted that the costs of collecting admission fees are substantially greater than the sums obtained so that the recent T.B. instructions to impose charges adds to the costs of the program.

Total Program Costs and Sources of Revenue

From Table 6 it appears that the capital costs of the acquisition activities to the end of 1976-77 will have been about \$13.1 million and that the current operating expenses, including salaries, amount to rather less than \$1.5 million, with 53 MY.

Supposing that the projected program expansions were to be carried through, by 1990 the cumulative capital expenditures might have reached \$85 million and the annual operating costs have reached a level of rather less than \$5 million, with over 200 MY required.

Table 1. Wetland wildlife habitat acquired as National Wildlife Areas, 1966-76.
Areas in hectares (1 ha = 2.471 A), provincial totals also shown in acres
(in parentheses).

Province National Wildlife Area	Extent (ha)		Costs to date \$	Remarks
	Acquired to date	Still to be acquired		
Newfoundland	0	-	0	
Prince Edward I.	0	-	0	
<u>Nova Scotia</u>				
Chignecto	717	49	103,531	
Sand Pond	520	-	24,333	
Wallace Bay	447	111	89,639	
Margaree I.	67	-	-	transferred from MOT
total	1750 (4325 A)	131 (324 A)	217,503	
<u>New Brunswick</u>				
Portage I.	451	-	-	transferred from MOT
Shepody	826	1208	126,551	
Tintamarre	1231	24	161,186	
total	2508 (6196 A)	1232 (3045 A)	287,737	
<u>Quebec</u>				
Baie de l'Ile Verte	123	1424	285,124	
Cap Tourmente	2100	13	1,711,040	
Iles Contrecoeur	91	71	158,970	
Iles de la Paix	121	-	35,000	
Lac St. Francois	1145	1069	265,106	unable to obtain root titles to remainder: Indian land?
Iles de la Madeleine	361	2067	187,845	
(appraisals)	-	-	3,918	appraisal of Kamouraska
total	3942 (9741 A)	4644 (11475 A)	2,647,000	
<u>Ontario</u>				
Big Creek	749	-	489,432	includes Hahn Marsh Unit
Dover Marsh	351	-	640,842	
Mississippi L.	235	-	42,638	
Weller Bay	40	-	-	transferred from DND
Eleanor I.	1	-	-	transferred from township of Muskoka
Mohawk I.	2	-	-	transferred from MOT
(appraisals)	-	-	-	appraisal of Balmoral marsh
total	1278 (3159 A)	-		

Table 1 (Cont'd)

Province National Wildlife Area	Extent (ha) Acquired to date	Still to be acquired	Costs to date \$	Remarks
<u>Manitoba</u>				
Pope Reservoir appraisal	31 -	- -	4,156 674	appraisal Oak-Plum Lakes
total	31 (77 A)		4,830	
<u>Saskatchewan</u>				
Last Mountain L.	6064	-	1,062,223	
Stalwart	656	364	94,662	
Bradwell	129	-	20,000	
Tway L.	97	259	13,097	
St. Denis	361	-	77,863	
total	7307 (18056 A)	623 (1540 A)	1,267,845	
<u>Alberta</u>				
Blue Quills	97 (240 A)	-	-	transferred from DND
<u>British Columbia</u>				
Alaksen	271	7	2,323,216	
Creston	149	-	140,196	
Little Qualicum	30	-	4,654	gift to Canada; legal and survey fees
Rosewall Creek	13	18	49,309	
Vaseux-Bighorn	730	694	295,515	includes 3 areas in Vaseux Lake region
Wilmer Marsh	471	-	170,631	
Sturgeon Bank	2	-	-	transferred from MOT
Widgeon Valley	125	-	-	99 year lease, gift from BC Second Century Fund
total	1789 (4421 A)	719 (1777 A)	2,983,521	
N.W.T.	0	-	0	
Yukon	0	-	0	
National total	18703 (46215 A)	11405 (28181 A)	8,677,670	

Table 2. Estimates of expenditures to date and of additional expenditures on proposed acquisitions of wetland wildlife habitat for National Wildlife Areas, 1976-1996 (including completion of areas already partly in hand), with estimates of associated development, operating costs and revenues.

FY	Area ha	Capital Costs			Operation and Management		Revenues ¹ \$K
		Acquisition \$K	Development		Total Annual Costs \$K	Manpower MY	
			Federal \$K	Ducks Unlimited ² \$K			
1966-75	18703	8678	370	652	800 ³	27	212
1976-77	2000	1200	84	92	221	27	82
1977-78	4450 ⁴	1200	120	80	263	33 ⁵	85
1978-79	2400	1500	612	250	443	56	87
1979-80	2400	1700	428	120	610	70	93
1981-82	2400	1700	450	120	645	75	95
1982-83	2800	2000	500	150	750	80	100
1983-84	2800	2000	500	150	750	85	105
1984-85	3200	2500	600	200	900	90	110
1985-86	3200	2500	600	200	900	100	115
Total 1976-86	28050	17800	4217	1552	6030	100	961
Total 1986-96	13800	17000	4000	1500	6000	120	1000
Total 1966-96 ⁶	60550	43500	8600	3700	12800	120	2000

Footnotes

- ¹ Revenues are primarily from agricultural leases (haying, grazing, farming): it is postulated that "visitor fees" not be charged.
- ² Ducks Unlimited (Canada) is a Winnipeg-based organization using American funds on wetland habitat improvement (but not purchase) in Canada. It estimates an annual income of well over \$5M in the next few years.
- ³ Operating costs 1966-75 are accumulated total to date, not annual; but MYs are those required in current year.
- ⁴ A property in southern Ontario of over 2000 ha is expected as a gift from its private owners during 1977-78.
- ⁵ EMS Quebec Region proposes a realignment of MYs to boost the NWA program.
- ⁶ Program totals rounded to nearest \$100,000. All projected expenditures are in 1976 \$, not adjusted for inflation.

Table 3. Wetland wildlife habitat preservation projects under existing and proposed Federal-Provincial Co-operative Agreements.
Listed in sequence of expected starting date. Federal shares of acquisition and management costs to be provided from Contribution Vote.

Site	Area ha	Federal Contribution			Acquisition Period	
		Acquisition ¹ \$K	Annual O&M \$K	MY	Start	Complete
Delta Marsh, Man.	24280	1,600	50	-	1974	1979
Oak-Plum L., Man.	6480	810	100	-	1976	1981
Sturgeon Banks, B.C.	280	1,500	10	1	1976	1981
Tay R., Ont.	610	50	-	-	1977	1979
Ottawa R., Que.	5100	1,500	-	-	1977	1982
Foam L, Sask.	2310	390	50	-	1977	1982
Stirling L., Alta.	530	250	20	-	1977	1979
Whitford L., Alta.	2590	1,200	30	-	1978	1983
sub-total, fully planned	42180 (104200 A)	7,200	260	1		
others still in early planning						
Quebec Region	2150	2,000	210	6	1980	
Ontario Region	6480	10,000	200	6	1979	
Western and Northern Region	12140	6,000	150	-	1979	
Pacific and Yukon Region	4050	10,000	600	10	1979	
sub-total, early planning	24800 (46920 A)	28,000	1,160	22		
Total	66980 (165500 A)	35,400	1,420	23		

Footnote

¹ Annual contributions of \$500,000 in 1976-77 and 1977-78, rising to \$1.0 million in 1978-79 and to \$1.5 million by 1981.

Table 4. Summary of proposed habitat acquisition program, 1976-1986

Year	Area to be acquired ha	Cost of Acquisition \$000,s
To 1975-76	18,700	8,678
1976-77	2,000	1,200
1977-78	4,450	1,200
1978-79	2,800	1,500
1979-80	2,800	1,500
1980-81	3,250	1,700
1981-82	3,250	1,700
1982-83	3,250	1,800
1983-84	3,600	2,000
1984-85	3,250	2,000
1985-86	3,250	2,000
Total	50,600	25,278
	(125,215 A)	

Note 1. Carry over from 1966-1975 approximately 28,181 acres.

Note 2. Carry over at end of 10 year period if funding is increased as proposed will be approximately 5,711 acres.

Table 4 (Cont'd) Proposed Habitat Acquisition Program, 1976-1986

Name	Area ha	Estimated cost \$K	Year to be initiated	Remarks
<u>Nova Scotia</u>				
1. Wallace Harbour				- Extension of Wallace Harbour National Wildlife Area.
a) Salt marshes	220	50,000	1979	
b) Fox Island	80	20,000	1979	
2. Port Joli	100	50,000	1978	- presently an important migratory bird sanctuary that needs additional protection.
Port Hebert	490	120,000	1978	
3. Boot-Oak Island Salt marshes	610	75,000	1980	
4. Yarmouth salt marshes	530	130,000	1980	
5. Laurencetown salt marshes	300	75,000	1980	
Total	2,330 (5,750 A)	520,000		
<u>New Brunswick</u>				
1. Tintamarre				- Extension of Tintamarre National Wildlife Areas
a) Cumberland basin	650	120,000	1977	
b) Dave Lake	1,010	200,000	1980	
c) Midgic Marsh	810	150,000	1979	
2. Shepody				- Extension of Shepody National Wildlife Area
a) New Horton Marsh	810	150,000	1977	
b) Barn Marsh	160	40,000	1980	
3. Cape Jourimain marshes	690	20,000	1977	- Most of the area to be transferred from DPW
4. Oromocto River marshes	2,830	700,000	1981	
5. Middle Island	140	30,000	1980	
6. Musquash River and Island marshes	890	250,000	1979	
7. Heron Island	400	200,000	1980	
8. Buctouche Bar	360	40,000	1981	
9. Baie Verte marsh	400	100,000	1982	
Total	9,110 (22,550 A)	2,000,000		
<u>Prince Edward Island</u>				
1. Salt marshes	1,200 (3,000 A)	300,000	1980	- Sites to be selected in cooperation with province for joint acquisition.

Table 4 (Cont'd)

Name	Area ha	Estimated cost \$K	Year to be initiated	Remarks
<u>Newfoundland</u>				
1. Grand Codroy marshes	810 (2,000 A)	100,000	1980	
TOTAL - Atlantic Region	13,450 (33,300 A)	2,920,000		
<u>Quebec</u>				
1. Cap Tourmente	240	400,000	1978	- Acquisition of upstream properties to protect integrity of Cap Tourmente National Wildlife Area.
2. Barachois de la Malbaie	800	350,000	1981	
3. Rivière du Sud	1,200	1,000,000	1984	
4. Grondines	800	500,000	1985	
Total	2,040 (7,600 A)	2,250,000		
<u>Ontario</u>				
1. St. Clair				- Extension of St. Clair National Wildlife Area.
a) Balmoral	120	300,000	1977	
b) St. Lukes	160	400,000	1978	
2. Big Creek	260	400,000	1977	- Extension of Big Creek National Wildlife Area.
3. Long Point	2,430	-	1977	- Expected as a gift.
4. Detroit River	1,420	3,500,000	1978	- Key marshes to be acquired as they become available.
5. Rideau River marshes	1,210	600,000	1977	- To be acquired under CORTS program.
Total	5,600 (13,850 A)	5,200,000		
<u>Saskatchewan</u>				
1. Last Mountain Lake	390	180,000	1976	- Extension of Last Mountain Lake National Wildlife Area.
Total	390 (960 A)	180,000		
<u>British Columbia</u>				
1. Vaseux-Bighorn	250	400,000	1977	- Completion of Vaseux-Big- horn National Wildlife Area.

Table 4 (Cont'd)

Name	Area ha	Estimated cost \$K	Year to be initiated	Remarks
2. Alaksen				- Extension of Alaksen National Wildlife Area.
a) Harlock Island	4	30,000	1978	
b) Kirkland Island	73	540,000	1979	
Total - Pacific Yukon	330 (820 A)	970,000		
National Total	22,810 (56,530 A)	11,520,000		

Table 5. Sites for CWS Interpretation Program with associated costs.

Site	Area acquired (ha)	Land purchase cost \$K	Capital cost \$K	operations \$K	Current O&M salaries \$K	MY	Annual Attendance 1975	Annual Revenue
1) In operation								
Percé, Que.	6	90	300	30	96	5	33,700	-
Cap Tourmente, Que.	(a)	(a)	270	30	111	6	40,100	-
Wye Marsh, Ont.	40	45	700	40	131	8	27,900	-
Swift Current, Sask.	324	88	675	25	23(c)	1(c)	-	-
Creston, B.C.	(b)	(b)	300	30	111	6	5,600	-
sub-total	370	223	2,245	155	580(c)	33(c)	107,300(d)	20,000
2) Additional 6 programs to be established by 1990								
aver. estimate per site	40	30	500	50	110	6		
sub-total	240	180	3,000	300	660	36		
Program total (e)	610	400	5,200	450	1240	69		150/200,000

Footnotes

(a) Cap Tourmente: site form part of NWA.

(b) Creston: 1 acre (0.4 ha) leased for building, on 15,000 acres owned by province.

(c) Swift Current: not yet operating at full complement: to 4 MY in 1977-78 and 8 MY, (salaries \$131,000) in 1978-79, latter figures included in sub-totals.

(d) Estimated attendance in 1976 about 140,000.

(e) Program total for target date of 1990 but in 1976 \$.

Table 6. Summary of current CWS land holdings, capital costs to date and annual operating costs for Wetland Habitat Conservation and Interpretation Programs.

Program	Sites	Total Area ha	Capital Costs \$K	Annual Federal Expenses \$K	MY	Annual Revenue \$K
Wetland Habitat - (federal)	34	18,700	9,050	800	27	80
Federal-Provincial Agreements	1	24,300	1,600	50	-	
Interpretation Program	5	370	2,470	630	26	20
Total	40	43,370	13,120	1,480	53	100

Table 7. Projected accumulated land holdings, capital costs and annual expenditures and revenue in 1990-91 for Wetland Habitat Conservation, Endangered Species, Ecological Reserves and Interpretation Programs of CWS.

Program	Sites	Total Area ha	Capital Costs \$K	Annual Federal Expenses \$K	MY	Annual Revenue \$K
Wetland Habitat - federal	120	60,800	39,500	1,300	110	980
Federal-Provincial Agreements	20	24,800	35,400	1,420	23	?
Interpretation Program	10	610	5,600	1,690	69	200
Rare and Endangered Species	10	large	small	200	4	-
Ecological Reserves	40	large	small	320	8	-
Total	200		85,000	4,930	214	1,180

Maintenance and Management of Migratory Bird Habitat

1. Survival of migratory birds is dependent upon maintenance of habitat. Suitable wetland habitat in amounts sufficient to support desired populations of ducks and geese will be preserved by acquisition, lease, or other form of agreement.
2. Agreements may be concluded with provinces desiring to participate in acquisition or management of habitat, the terms of agreement to be compatible with the national objective of maintaining desired populations and distribution of migratory birds and to provide security for the federal investment.
3. Some of the areas acquired in fee simple or to which agreements pertain may require no management other than that required to maintain them in their natural state. For many others, the pressure for an increased supply of birds and the need to get the highest return for the public investment will call for development and improvement. Thus, when it is economically feasible, habitat will be improved so as to increase its carrying capacity for and productivity of birds. This may be done by controlling water levels, altering natural plant cover, and creating nesting and resting sites. It is desirable that this be done so far as possible without adversely affecting the aesthetic quality of the landscape.
4. Habitat may be managed so as to influence the local distribution of birds and thus reduce the possibility and extent of damage to agricultural crops and other interests. Management plans for all areas where significant damage by birds occurs or may occur will include features designed to eliminate or minimize damage. Provision of food to attract birds away from commercial crops is the principal technique presently employed.
5. Land managed for migratory birds should be available for public use so far as possible. In most cases, the public should have access to habitat under public control in order to watch, study, or photograph the birds. In many cases, such lands may support concentrations of birds of sufficient size that hunting is desirable. In any case, management will involve controlling public activity so that it does not damage the habitat or undesirably disturb the birds. Public use may be subject to a user fee. Arrangements in this regard may be a part of agreements with provinces.
6. Land secured primarily for preservation of migratory bird habitat may be used for other productive purposes, if they are not incompatible. Where such is the case, and there is local need and economic justification for it, such uses may be permitted by agreement with provinces, other government agencies, corporations, or individuals.

7. Two programs to acquire adequate control of wetland habitat are planned:

(a) Conclusion of agreements with landowners whereby they agree not to drain or fill the wetlands which they own, or burn the vegetation around them, in return for a payment based on the value of the surrounding land discounted at five per cent for a 20-year period. Using this procedure to maintain about two-thirds of the more than six million small potholes in the vitally important prairie breeding grounds should provide habitat for populations within the 1950-56 levels.

(b) Purchase or long-term lease of large marshes which require management for great productivity and public use. Large marshes are important not only as breeding areas but also as areas where the birds may winter or rest during migration. They are also the areas where much of the hunting takes place. Some of the marshes that are important to waterfowl and are likely to be drained or otherwise adversely affected are well known. The magnitude of a program to preserve all such areas, and the priorities for acquisition, cannot be finally determined until the ARDA-sponsored Land Capability Inventory, now under way, is completed and studied.