BASELINE STUDIES OF 35 SELECTED SOUTHERN ONTARIO WETLANDS, 1983

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ABSTRACT

Thirty-five selected wetlands in southern Ontario were evaluated during the summer of 1983 using "An Evaluation System for Wetlands of Ontario, South of the Precambrian Shield, First Edition". Total evaluation scores were used to rank wetlands. Scores were distributed in 3 significance levels as follows: 46% (16) were classed as highly significant, 37% (13) as moderately significant, and 17% (6) as wetlands of low significance.

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INTRODUCTION

Wetlands represent an essential component of the landscape in southern Ontario. Their role in providing critical wildlife habitat, important recreational opportunities, direct economic benefits through the harvest of fur, timber, fish and wildlife, maintenance of water quality and reduction of flooding and erosion are well recognized.

In southern Ontario the loss of wetlands from the time of European settlement until the present has reached crisis proportions. During this period more than 50% of the resource has been lost. Many studies have documented the loss of Ontario's wetlands through drainage for agriculture, urban expansion and for recreational facilities such as marinas and cottages (Bardecki 1981, McCullough 1981, Rutherford 1979).

In many instances, the programs and policies of Federal agencies have been both directly and indirectly responsible for this loss. The Western Ontario Dyking Agreement of the mid 1970's and the current Eastern Ontario Subsidiary Agreement under the Canada/Ontario General Development Agreement, especially pertaining to the Municipal Outlet Drainage Program, both provide good examples of the negative effect that Federal activities can have on wetlands.

Over the past two years the Canadian Wildlife Service has been working with the Ontario Ministry of Natural Resources, as part of the Canada/Ontario Steering Committee on Wetland Evaluation, to develop an evaluation system for southern Ontario wetlands. The Steering Committee has developed "An Evaluation System for Wetlands of Ontario, South of the Precambrian Shield, First Edition" (1983), which will be an integral part of the proposed Provincial Wetlands Policy.

The Environmental Assessment and Review Process (EARP) and Drainage Petition Review Committee (DPRC) have in several instances been used to intervene when the actions of Federal agencies are seen to have a significant impact on specific wetland resources. Often, however, the information base that is available to present a compelling case for the conservation of a wetland is lacking, thus weakening the DOE role on such committees. The 1983 DOE/OMNR evaluation system was devised to provide wetland information that would contribute to land use decisions.

This Baseline Study was undertaken to delineate important wetlands within the South Nation River Basin and to provide a more definitive information base for making decisions with respect to expenditures on eastern Ontario drainage projects. Lake Ontario shoreline wetlands from the Niagara River to the entrance of the St. Lawrence River including Prince Edward County wetlands were also studied to identify the value of those shoreline marshes relative to Oshawa's Second Marsh. The results of such studies will provide a necessary information base for any future development proposals requiring registration in EARP.

This report is designed to also provide comparisons of all wetlands evaluated.

STUDY AREA

Thirty-five wetlands were evaluated, eight within the South Nation River Basin in eastern Ontario and 27 on the shoreline of Lake Ontario from the Niagara River to the entrance of the St. Lawrence River (Figure 1).

METHODS

"An Evaluation System for Wetlands of Ontario, South of the Precambrian Shield, First Edition", 1983, was the methodology used to evaluate all 35 wetlands in this study.

The system uses a number of parameters to determine relative values for each of the biological, social, hydrological and special features components of a wetland. An example is shown in Figure 2.

Three teams with 3 members and one team composed of 2 members did the wetland assessments starting on 6 June and ending 12 August 1983. All members of the teams were trained in the application of the evaluation system.

Scoring and evaluation of wetlands were completed September 1983.

For comparative purposes, wetlands were grouped by geographic location into South Nation River Basin wetlands, Lake Ontario Shoreline marshes, and Prince Edward County wetlands. Within these 3 groups, wetlands were ranked for each of the 4 evaluation components, and then for total score (sum of the 4 evaluation components).

An overall ranking of the 35 wetlands evaluated for the Baseline Studies was completed using total scores. Total scores were used to

assign wetlands to a class category to effectively group wetlands for discussion purposes for this study. The following system was used:

Class I	-	700 or more total points
II	-	650 to 699
III	-	600 to 649
IV	-	550 to 599
V	-	500 to 549
VI	-	450 to 499
VII	-	less than 450

These wetland classes may be further grouped by level of significance as:

Class I, II	- high significance
III, IV	- moderate significance
V, VI, VII	- low significance

RESULTS & DISCUSSION

Scores for each of the 4 evaluation components - Biological, Social, Hydrological and Special Features are presented in Tables 1 to 15.

South Nation River Basin (S.N.R.B.) wetlands

The biological component scores for these 8 wetlands (Table 1), were quite similar, with total scores ranging from a low of 142 points (Melvin Bog) to 180 points for Alfred, Groveton and Newington Bogs.

The productivity parameter showed little variability between these wetlands except for Morewood and Moose Creek Bogs, which had lower scores (20 fewer points) because of low nutrient status of surface waters.

Diversity scores were more variable, ranging from 52 to 79 points (maximum possible 120 points), and reflected differences in vegetation interspersion, amount of open water and proximity to other wetlands. All wetlands except the smallest (Melvin Bog) scored the full 50 points for the size parameter.

Evaluation scores for the social component for the S.N.R.B. wetlands ranged from 104 to 190 total points (maximum 250) (Table 2). Some of the main differences between wetlands for this component arose from differences in resource products, in particular the presence of timber; in recreational use, particularly intensity of hunting and nature appreciation; and in educational use and public awareness. The well-known Mer Bleue Bog near Ottawa ranked first of the S.N.R.B. wetlands for the social component, scoring highly for the presence of an interpretation centre, ongoing research and its proximity to an urban centre. Winchester Bog ranked second for the social component. While this wetland has been disturbed by major drainage programs, it has benefitted recreationally by the construction of access walking trails permitting intensive use for hunting. The other 6 S.N.R.B. wetlands are used less for recreation and/or are not as well known to the public which gives lower scores for the social component.

S.N.R.B. wetlands scored highly for the hydrological component, with scores ranging from 97 to 213 points (maximum 250) (Table 3). With the exception of Moose Creek Bog, the S.R.R.B wetlands are headwater wetlands, and as such obtain higher scores because of their importance in flow stabilization. Large wetland size associated with headwater physiographic location resulted in Alfred, Groveton and Winchester Bogs achieving 189, 185 and 185 points respectively (maximum 190) for flow stabilization.

Water quality improvement scores for the 8 S.N.R.B. wetlands ranged from 11 to 21 points (maximum 35) with the main differences among wetlands being land use in the catchment basin and the presence/absence of areas with robust emergents and submergents.

All S.N.R.B. wetlands scored moderately to poorly for water quality improvement because of their headwater site type and lack of large areas of robust emergents and submergents.

Except for Moose Creek Bog, all S.N.R.B. wetlands scored poorly for erosion control, reflecting their designation as headwater areas which are not subject to large erosive forces. Moose Creek Bog is a mid-riverine wetland, and is awarded points for erosion control based on the presence of stabilizing vegetation along the banks of the Moose Creek.

A large range of total scores (from 37 to 250 points) occurred for the special features component of the S.N.R.B. wetlands (see Table 4). In large part this variation arose from differences in the rarity/scarcity parameter. Several species of provincially significant animals and plants are known for the Mer Bleue and Alfred Bogs, giving these wetlands a full 250 points automatically for special features. For other wetlands, such information is often lacking, and this is reflected in the lower scores for rarity/scarcity for these wetlands.

None of the 8 S.N.R.B. wetlands scored highly for the parameter of significant features and/or fish and wildlife habitat. As shown in Table 4, scores ranged from 6 to 86 points (maximum 250). These low scores reflected the fact that none of the S.N.R.B. wetlands were rated as regionally or provincially significant areas for wildlife (moose, deer). The Alfred Bog moose herd has dwindled in numbers in recent years because of disease and emigration, and is at present only locally significant. Only the Mer Bleue Bog was rated as regionally significant for waterfowl.

The Mer Bleue and Alfred Bogs scored high for ecological age, with 11 and 13 points respectively (maximum 15), since these wetlands are predominantly bog. The other 6 S.N.R.B. wetlands, in spite of their names ("Bog"), now contain little or no bog areas within their boundaries, and they scored correspondingly lower (from 2 to 5 points) for ecological age.

An overall ranking of the 8 S.N.R.B. wetlands (Table 5) by total score put Mer Bleue first, Groveton second, and Alfred Bog third.

Lake Ontario Shoreline (L.O.S.) Marshes

L.O.S. marshes scored highly for the biological component, with total scores ranging from 170 to 221 points (maximum 250) and 9 of the 12 wetlands achieving over 200 points (Table 6).

Productivity scores were high for the L.O.S. marshes, reflecting the high percentage of marsh vegetation and nutrient status of the surface waters. Twenty Mile Creek and Fifteen Mile Creek marshes received full points (80) for productivity because they have long growing degree days, organic soils, marsh wetland type, rivermouth site type, and productive nutrient status. By comparison, Oshawa's Second Marsh scored 71 for productivity, receiving fewer points for growing degree days and wetland type.

The L.O.S. marshes scored moderately for diversity, ranging from 64 to 106 points (maximum 120). Vegetation communities and interspersion, and open water type differences accounted for many of the differences between marshes. Presqu'ile Provincial Park Marsh scored the highest of these 12 marshes, having diverse vegetation communities with moderate interspersion, and open water occurring as many embayments. By comparison, Oshawa's Second Marsh scored lower (88 points) because it has lower vegetation interspersion and the open water occurs in a central area which is considered less valuable for waterfowl habitat.

For the size parameter, all but one of the L.O.S. marshes scored the full 50 points. Fifteen Mile Creek Marsh scored fewer points for size because the marsh is small and has low diversity.

Evaluation scores for the social component for L.O.S. marshes ranged from 112 to 214 points (maximum 250). Table 7 shows that 3 of the 12 marshes scored over 200 points. These scores indicate the high social value of these marsh areas, in particular for recreational activities (hunting, fishing, nature appreciation), educational uses, and their proximity to urban areas.

The top-ranked L.O.S. marshes for the social component were Cootes Paradise, with 214 points, and Presqu'ile Provincial Park Marsh, with 212 points. Both wetlands have interpretation centres, are intensively used for nature appreciation and educational purposes, and have public ownership. Also, hunting is allowed at Presqu'ile. Oshawa's Second Marsh scores considerably lower for social value (131 points) as public use is restricted by the Oshawa Harbour Commission.

Wetlands bordering on the Great Lakes score poorly in the hydrological component of the evaluation because they contribute little surface storage area for flood waters in comparison to the lake itself. This principle is illustrated in Table 8, where the 11 L.O.S. marshes assessed as lacustrine site type scored 0 points (maximum 190) for flow stabilization. Fifteen Mile Creek Marsh was designated riverine - near rivermouth, and as a result was awarded 59 points for flow stabilization.

The low range of evaluation scores, from 19 to 26 points (maximum 35), for water quality improvement indicates that all 12 marshes probably function similarly for this parameter, with small differences attributable to size of wetland area with robust emergents and submergents, land use in the catchment basin, and potential as a long term nutrient trap.

The L.O.S. marshes scored moderately for erosion buffer, ranging from 8 to 16 points (maximum 25), except for Oshawa's Second Marsh which scored 0 since a large portion (40%) of the marsh is non-vegetated mud flats (i.e. no erosion buffer).

The L.O.S. marshes scored very highly for the special features component, with 8 marshes, including Oshawa's Second Marsh, receiving the full 250 points (Table 9). These high scores derive primarily from the presence of provincially significant animal and plant species.

A large range of scores, from 6 to 166 points (maximum 250) was encountered for the parameter of significant features and/or fish and wildlife habitat. Presqu'ile Provincial Park Marsh received 166 points because it is a significant area for migratory waterfowl and passerines, fish spawning, colonial waterbird nesting, and has an unusual geological feature (the tombolo). Oshawa's Second Marsh scored only 13 points for this parameter, as its importance for waterfowl staging has decreased in recent years, possibly because of shallow water.

An overall ranking of the 12 L.O.S. marshes is given in Table 10. Cootes Paradise placed first, followed closely by Presqu'ile Provincial Park Marsh (719 and 718 total points respectively). Oshawa's Second Marsh placed eighth, having scored poorly on the social and hydrological components.

Prince Edward County (P.E.C.) Wetlands

As shown in Table 11, the P.E.C. wetland scores for the biological component ranged from 145 to 209 total points, with six wetlands scoring

over 200 points (maximum 250). The 15 wetlands received similar scores for the parameter of productivity, although points may have been arrived at differently. Diversity scores (maximum 120 points) ranged from 98 points for Big Sand Bay to 50 points for South Bay, with the higher scores reflecting more favourable vegetation community interspersion and open water pattern. Fourteen wetlands scored the full 50 points for the size parameter, while South Bay, which has low diversity, scored only 31 points.

The social component total scores for P.E.C. wetlands ranged from 178 points for Hay Bay to 98 points for Wemps Bay (maximum 250). Details of point accumulation are given in Table 12. The moderate to low social scores arose from several factors. P.E.C. wetlands are not close to any large population centres. For educational use, all wetlands scored 3 out of 35 points (Table 12), indicating public awareness and/or use of these wetlands is low. Recreational use varies from low at Wemps Bay to high at Hay Bay, Presqu'ile Bay, and East Bay Marshes.

Total scores for the hydrological component for the P.E.C. wetlands ranged from 31 to 178 points (maximum 250) (Table 13). The variation in point accumulation is explained by several factors. Big Swamp received 178 points for hydrology because it is a headwater wetland, and contributes to flow stabilization. The Lake Consecon Marsh is a lacustrine wetland located on a small lake, thereby maintaining some detention value. However, the other 13 P.E.C. wetlands are lacustrine bordering on Lake Ontario or the St. Lawrence River, and therefore receive 0/190 points for flow stabilization, resulting in a lower total score.

The Big Swamp ranked lowest (15th) for the special features component for the P.E.C. wetlands, as little was either known or observed in the field regarding rare plants and/or animals. Table 14 shows that the other 14 wetlands scored highly for the rarity/scarcity parameter, ranging from 120 to 250 points (maximum 250).

Button Bay, Big Sandy Bay and Presqu'ile Bay obtained moderately high scores for the parameter of significant features and/or fish and wildlife habitat, receiving 169, 163 and 145 points (maximum 250) respectively. These scores reflect the importance of the marshes for waterfowl staging, waterfowl production, and/or fish spawning.

An overall ranking of the 15 P.E.C. wetlands is given in Table 15. Nut Island Club Marsh was the top ranked wetland in P.E.C., closely followed by the Presqu'ile Bay and East Bay Marshes.

Class Designation

An ordination based on total evaluation scores of all 35 wetlands evaluated for the Baseline Study is given in Table 16. The Mer Bleue Bog was the number one wetland, followed by Groveton and Alfred Bogs, while Oshawa's Second Marsh ranked 20th out of 35 wetlands. It is perhaps worth noting that the 4 top-ranked wetlands are all headwater wetlands, and therefore scored more points for hydrology than marshes bordering on the Great lakes. Nevertheless, the 5th, 6th and 7th - ranked wetlands are Lake Ontario Shoreline marshes, and scored over 700 total points in spite of low hydrology scores.

For the comparative purposes of this study only, wetlands were grouped into 7 class categories representing 3 levels of wetland significance - high, moderate and low (Table 16). Seven wetlands (20%) were Class I, nine (26%) were Class II, nine were Class III, four (11%) were Class IV, and six (17%) were Classes V, VI and VII collectively. In all, 16 wetlands (46%) were designated as highly significant, 13 (37%) as moderately significant, and 6 (17%) as being of low significance. This distribution, while skewed towards the higher levels of significance, is nonetheless reasonable, since the sample of 35 wetlands was chosen from a list of better known wetlands to provide a basis for comparing future evaluations of smaller and less well known wetlands. According to this system, Oshawa's Second Marsh is a Class III wetland of moderate significance, which agrees with our understanding of the marsh's present condition. Six of the eight S.N.R.B. wetlands scored as Class I and II wetlands (high significance) showing that these large wetlands are important.

While other systems for assigning wetlands to classes and levels of significance may produce some changes to the ranking of wetlands that we have shown for this study, the overall proportion of high, moderate and low significance wetlands should not change dramatically.

The Evaluation System is just one tool that can be used in making potential land use decisions regarding wetlands. For those wetlands that are less well known more information should be gathered to supplement the evaluation record of the wetland. A word of caution should be acknowledged if one were to rely solely on the evaluation system as baseline information.

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Table 1. Evaluation Scores for the Biological Component of the South Nation River Basin Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		PRODUCTIVITY (80)*	DIVERSITY (120)	SIZE (50)	TOTAL (250)	
Alfred Bog	1	51	79	50	180	1
Groveton Bog	19	55	75	50	180	1
Newington Bog	34	55	75	50	180	1
Winchester Bog	48	55	71	50	176	4
Mer Bleue Bog	28	50	72	50	172	5
Morewood Bog	30	36	69	50	155	6
Moose Creek Bog	29	38	56	50	144	7
Melvin Bog	27	56	52	34	142	8

*Number in parentheses is the maximum score possible for each category

Table 2. Evaluation Scores for the Social Component of the South Nation River Basin Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE								RANK
		RESOURCE PRODUCTS (60)*	R.A.** (70)	AESTHETICS (25)	EDUCATION (35)	PROXIMITY (20)	O/A*** (20)	SIZE (20)	TOTAL (250)	
Mer Bleue Bog	28	32	45	20	35	20	18	20	190	1
Winchester Bog	48	32	70	10	23	10	18	20	183	2
Groveton Bog	19	42	40	20	13	10	12	20	157	3
Newington Bog	34	35	60	10	8	10	8	20	151	4
Morewood Bog	30	37	48	20	3	10	12	20	150	5
Alfred Bog	1	22	28	20	10	10	11	18	119	6
Moose Creek Bog	29	32	28	10	8	10	5	19	112	7
Melvin Bog	27	37	20	10	3	10	10	14	104	8

* Number in parentheses is the maximum score possible for each category

** Recreational Activities

*** Ownership/Accessibility

Table 3. Evaluation Scores for the Hydrological Component of South Nation River Basin Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		FLOW STABILIZATION (190)*	WATER QUALITY IMPROVEMENT (35)	EROSION CONTROL (25)	TOTAL (250)	
Alfred Bog	1	189	21	3	213	1
Groveton Bog	19	185	17	3	205	2
Winchester Bog	48	185	17	3	205	2
Moose Creek Bog	29	150	20	17	187	4
Mer Bleue Bog	28	170	11	2	183	5
Newington Bog	34	162	13	2	177	6
Morewood Bog	30	150	20	1	171	7
Melvin Bog	27	78	18	1	97	8

* Number in parentheses is the maximum score possible for each category

Table 4. Evaluation Scores for the Special Features Component of the South Nation River Basin Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		RARITY/ SCARCITY (250)*	SIGNIFICANT FEATURES AND/OR FISH AND WILDLIFE HABITAT (250)	ECOLOGICAL AGE (15)	TOTAL (250)	
Mer Bleue Bog	28	250	86	11	250	1
Alfred Bog	1	250	15	13	250	1
Groveton Bog	19	190	30	3	223	3
Morewood Bog	30	190	18	5	213	4
Winchester Bog	48	140	55	2	197	5
Newington Bog	34	150	15	3	168	6
Melvin Bog	27	40	6	2	48	7
Moose Creek Bog	29	20	15	2	37	8

*Number in parentheses is the maximum score possible for each category

Table 5. Ranking of South Nation River Basin Wetlands by Total Score.

WETLAND NAME	WETLAND NUMBER	RANK
Mer Bleue Bog	28	1
Groveton Bog	19	2
Alfred Bog	1	3
Winchester Bog	48	4
Morewood Bog	30	5
Newington Bog	34	6
Moose Creek Bog	29	7
Melvin Bog	27	8

Table 6. Evaluation Scores for the Biological Component of the Lake Ontario Shoreline Marshes, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		PRODUCTIVITY (80)*	DIVERSITY (120)	SIZE (50)	TOTAL (250)	
Presqu'ile Provincial Park Marsh	39	65	106	50	221	1
Cootes Paradise	12	74	96	50	220	2
West Side Marsh	47	73	95	50	218	3
Rouge River Marsh	41	76	91	50	217	4
Lynde Creek Marsh	25	67	96	50	213	5
Oshawa's Second Marsh	37	71	88	50	209	6
Cranberry Marsh	14	69	89	50	208	7
Twenty Mile Creek Marsh	45	80	73	50	203	8
Frenchman's Bay Marsh	18	71	79	50	200	9
Duffin Creek Marsh	15	69	80	50	199	10
Fifteen Mile Creek Marsh	17	80	68	46	194	11
Cobourg Marsh	11	56	64	50	170	12

*Number in parentheses is the maximum score possible for each category

Table 7. Evaluation Scores for the Social Component of Lake Ontario Shoreline Marshes, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE								RANK
		RESOURCE PRODUCTS (60)*	R.A.** (70)	AESTHETICS (25)	EDUCATION (35)	PROXIMITY (20)	O/A*** (20)	SIZE (20)	TOTAL (250)	
Cootes Paradise	12	39	70	10	35	20	20	20	214	1
Presqu'ile Provincial Park Marsh	39	39	70	20	33	10	20	20	212	2
Lynde Creek	25	39	70	20	15	20	18	20	202	3
Twenty Mile Creek	45	29	70	15	3	16	10	19	162	4
Fifteen Mile Creek	17	29	57	25	3	16	10	16	156	5
Rouge River	41	35	40	20	13	20	10	18	156	5
Cranberry Marsh	14	18	40	25	15	20	20	17	155	7
Duffin Creek	15	27	45	20	13	16	10	17	148	8
Frenchman's Bay	18	25	48	15	8	20	10	18	144	9
Oshawa's Second Marsh	37	39	20	10	10	20	14	18	131	10
Cobourg Marsh	11	27	28	25	3	10	8	17	118	11
West Side Marsh	47	22	30	20	3	16	5	16	112	12

* Number in parentheses is the maximum score possible for each category

** Recreational Activities

*** Ownership/Accessibility

Table 8. Evaluation Scores for the Hydrological Component of Lake Ontario Shoreline Marshes, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		FLOW STABILIZATION (190)*	WATER QUALITY IMPROVEMENT (35)	EROSION CONTROL (25)	TOTAL (250)	
Fifteen Mile Creek	17	59	21	12	92	1
Lynde Creek	25	0	26	13	39	2
Twenty Mile Creek	45	0	26	13	39	2
Rouge River	41	0	24	15	39	2
Frenchman's Bay	18	0	23	14	37	5
West Side Marsh	47	0	24	13	37	5
Duffin Creek	15	0	24	13	37	5
Presqu'ile Provincial Park	39	0	19	16	35	8
Cootes Paradise	12	0	19	16	35	8
Cobourg Marsh	11	0	19	13	32	10
Cranberry Marsh	14	0	21	8	29	11
Oshawa's Second Marsh	37	0	29	0	29	11

* Number in parentheses is the maximum score possible for each category

Table 9. Evaluation Scores for the Special Features Component of Lake Ontario Shoreline Marshes, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		RARITY/ SCARCITY (250)*	SIGNIFICANT FEATURES AND/OR FISH AND WILDLIFE HABITAT (250)	ECOLOGICAL AGE (15)	TOTAL (250)	
Cootes Paradise	12	250	24	1	250	1
Presqu'ile Provincial Park	39	180	166	1	250	1
Lynde Creek	25	250	86	1	250	1
Twenty Mile Creek	45	250	24	1	250	1
Fifteen Mile Creek	17	250	6	1	250	1
Rouge River	41	250	9	1	250	1
Cranberry Marsh	14	250	59	1	250	1
Oshawa's Second Marsh	37	250	13	1	250	1
Cobourg Marsh	11	180	30	2	212	9
West Side Marsh	47	180	9	1	190	10
Frenchman's Bay	18	130	45	1	176	11
Duffin Creek	15	140	21	1	162	12

*Number in parentheses is the maximum score possible for each category

Table 10. Ranking of Lake Ontario Shoreline Marshes by Total Score.

WETLAND NAME	WETLAND NUMBER	RANK
Cootes Paradise	12	1
Presqu'ile Park Marsh	39	1
Lynde Creek	25	3
Fifteen Mile Creek	17	4
Rouge River	41	5
Twenty Mile Creek	45	6
Cranberry Marsh	14	7
Oshawa's Second Marsh	37	8
Frenchman's Bay	18	9
West Side Marsh	47	9
Duffin Creek	15	11
Cobourg Marsh	11	12

Table 11. Evaluation Scores for the Biological Component of the Prince Edward County Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		PRODUCTIVITY (80)*	DIVERSITY (120)	SIZE (50)	TOTAL (250)	
Big Sand Bay	5	61	98	50	209	1
Big Island Marsh	4	64	95	50	209	1
Hay Bay	22	64	94	50	208	3
Presqu'ile Bay	38	63	94	50	207	4
Nut Island Club Marsh	35	69	84	50	203	5
East Bay	16	64	88	50	202	6
Long Point Bay	24	64	83	50	197	7
Muscote Bay	33	63	84	50	197	7
Big Sandy Bay	6	58	83	50	191	9
Button Bay	10	68	63	50	181	10
Lake Consecon Marsh	23	66	60	50	176	11
Wemps Bay	46	65	61	50	176	11
Big Swamp	7	58	67	50	175	13
Bayfield Bay	2	64	59	50	173	14
South Bay	42	64	50	31	145	15

*Number in parentheses is the maximum score possible for each category

Table 12. Evaluation Scores for the Social Component of Prince Edward County Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE								RANK
		RESOURCE PRODUCTS (60)*	R.A.** (70)	AESTHETICS (25)	EDUCATION (35)	PROXIMITY (20)	O/A*** (20)	SIZE (20)	TOTAL (250)	
Hay Bay Marsh	22	29	70	20	3	16	20	20	178	1
Nut Island Club Marsh	35	49	65	20	3	10	7	20	174	2
Presqu'ile Bay Marsh	38	29	70	15	3	10	20	20	167	3
East Bay Marsh	16	29	70	15	3	10	20	20	167	3
Button Bay Marsh	10	49	52	20	3	10	10	19	163	5
Bayfield Bay Marsh	2	27	52	20	3	16	20	20	158	6
Muscote Bay	33	39	37	20	3	16	19	20	154	7
Big Sandy Bay	6	40	28	25	3	10	10	20	136	8
Lake Consecon Marsh	23	22	44	15	3	10	20	20	134	9
Long Point Bay Marsh	24	37	25	20	3	10	19	18	132	10
Big Swamp	7	37	20	15	3	10	8	19	112	11
Big Island Marsh	4	37	17	15	3	10	10	19	111	12
Big Sand Bay	5	37	13	20	3	2	19	16	110	13
South Bay	42	22	18	20	3	10	20	14	107	14
Wemps Bay	46	27	8	20	3	10	19	11	98	15

* Number in parentheses is the maximum score possible for each category

** Recreational Activities

*** Ownership/Accessibility

Table 13. Evaluation Scores for the Hydrological Component of Prince Edward County Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		FLOW STABILIZATION (190)*	WATER QUALITY IMPROVEMENT (35)	EROSION CONTROL (25)	TOTAL (250)	
Big Swamp	7	143	18	17	178	1
Lake Consecon Marsh	23	48	28	13	89	2
Hay Bay	22	0	28	16	44	3
Big Sandy Bay	6	0	25	15	40	4
Big Island Marsh	4	0	24	16	40	4
East Bay	16	0	26	14	40	4
Muscote Bay	33	0	25	14	39	7
Presqu'ile Bay	38	0	23	14	37	8
Long Point Bay Marsh	24	0	24	13	37	8
Bayfield Bay	2	0	26	11	37	8
Button Bay	10	0	18	18	36	11
South Bay	42	0	22	14	36	11
Nut Island Club Marsh	35	0	22	13	35	13
Big Sand Bay	5	0	20	13	33	14
Wemps Bay	46	0	18	13	31	15

* Number in parentheses is the maximum score possible for each category

Table 14. Evaluation Scores for the Special Features Component of Prince Edward County Wetlands, Summer 1983.

WETLAND NAME	WETLAND NUMBER	SCORE				RANK
		RARITY/ SCARCITY (250)*	SIGNIFICANT FEATURES AND/OR FISH AND WILDLIFE HABITAT (250)	ECOLOGICAL AGE (15)	TOTAL (250)	
Bayfield Bay	2	180	86	1	250	1
Button Bay	10	170	169	1	250	1
Big Sandy Bay	6	150	163	2	250	1
Nut Island Club Marsh	35	180	87	2	250	1
Big Sand Bay	5	250	95	1	250	1
East Bay	16	180	72	1	250	1
Big Island Marsh	4	230	80	1	250	1
Presqu'ile Bay	38	130	145	1	250	1
Long Point Bay Marsh	24	180	68	1	249	9
Lake Consecon Marsh	23	180	45	1	226	10
Hay Bay	22	180	45	1	226	10
Muscote Bay	33	130	70	1	201	12
Wemps Bay	46	180	18	1	199	13
South Bay	42	120	36	1	157	14
Big Swamp	7	40	45	2	87	15

*Number in parentheses is the maximum score possible for each category

Table 15. Ranking of Prince Edward County Wetlands by Total Score.

WETLAND NAME	WETLAND NUMBER	RANK
Nut Island Club Marsh	35	1
Presqu'ile Bay Marsh	38	2
East Bay	16	3
Hay Bay	22	4
Button Bay	10	5
Lake Consecon Marsh	23	6
Bayfield Bay	2	7
Big Sandy Bay	6	8
Long Point Bay	24	9
Big Island Marsh	4	10
Big Sand Bay	5	11
Muscote Bay	33	12
Big Swamp	7	13
Wemps Bay	46	14
South Bay	42	15

Table 16. Ordination of 35 Wetlands by Total Evaluation Score.

Wetland Name	& Number	Total Score	Rank	Class*	Significance
Mer Bleue Bog	28	795	1	I	high
Groveton Bog	19	765	2		
Alfred Bog	1	762	3		
Winchester Bog	48	761	4		
Cootes Paradise	12	719	5		
Presqu'ile Prov. Park Marsh	39	718	6		
Lynde Creek Marsh	25	704	7		
Fifteen Mile Creek	17	692	8	II	
Morewood Bog	30	689	9		
Newington Bog	34	676	10		
Rouge River Marsh	41	662	11		
Nut Island Club Marsh	35	662	11		
Presqu'ile Bay Marsh	38	661	13		
East Bay	16	659	14		
Hay Bay	22	656	15		
Twenty Mile Creek	45	654	16		
Cranberry Marsh	14	642	17	III	moderate
Button Bay	10	630	18		
Lake Consecon Marsh	23	625	19		
Oshawa's Second Marsh	37	619	20		
Bayfield Bay	2	618	21		
Big Sandy Bay	6	617	22		
Long Point Bay	24	615	23		
Big Island Marsh	4	610	24		
Big Sand Bay	5	602	25		
Muscote Bay	33	591	26	IV	
Frenchman's Bay	18	557	27		
West Side Marsh	47	557	27		
Big Swamp	7	552	29		
Duffin Creek	15	546	30	V	low
Cobourg Marsh	11	532	31		
Wemps Bay	46	504	32		
Moose Creek Bog	29	480	33	VI	
South Bay	42	445	34	VII	
Melvin Bog	27	395	35		

* For discussion purposes only.

Figure 1

Wetlands evaluated by CWS in 1983

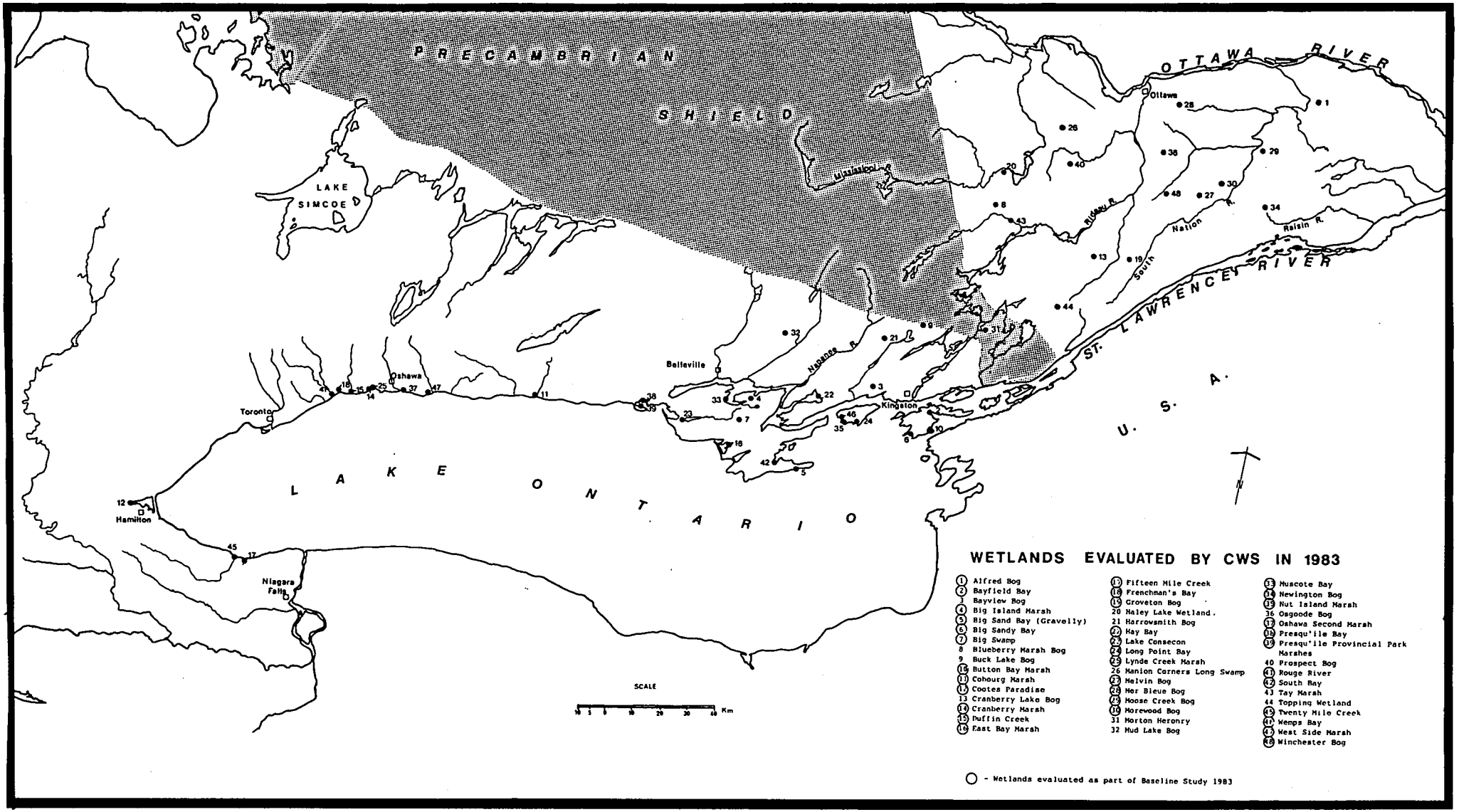
PRECAMBRIAN SHIELD
LAKE SIMCOE
OTTAWA RIVER
Ottawa
Muskoka R.
Bloody R.
Nation R.
South R.
Raisin R.
ST. LAWRENCE RIVER
U. S. A.
Belleville
Napanee R.
Kingston
Oshawa
Toronto
Hamilton
Niagara Falls
LAKE ONTARIO
SCALE
10 5 0 10 20 30 40 Km
WETLANDS EVALUATED BY CWS IN 1983
1 Alfred Bog
2 Bayfield Bay
Bayview Bog
4 Big Island Marsh
5 Big Sand Bay (Gravelly)
6 Big Sandy Bay
7 Big Swamp
8 Blueberry Marsh Bog
9 Buck Lake Bog
10 Button Bay Marsh
11 Cobourg Marsh
12 Cootes Paradise
13 Cranberry Lake Bog
14 Cranberry Marsh
15 Duffin Creek
16 East Bay Marsh
17 Fifteen Mile Creek
18 Frenchman's Bay
19 Groveton Bog
20 Haley Lake Wetland.
21 Harrowsmith Bog
22 Hay Bay
23 Lake Consecon
24 Long Point Bay
25 Lynde Creek Marsh
26 Manion Corners Long Swamp
27 Melvin Bog
28 Mer Bleue Bog
29 Moose Creek Bog
30 Morewood Bog
31 Morton Heronry
32 Mud Lake Bog
33 Muscote Bay
34 Newington Bog
35 Nut Island Marsh
36 Osgoode Bog
37 Oshawa Second Marsh
38 Presqu'ile Bay
39 Presqu'ile Provincial Park Marshes
40 Prospect Bog
41 Rouge River
42 South Bay
43 Tay Marsh
44 Topping Wetland
45 Twenty Mile Creek
46 Wemps Bay
47 West Side Marsh
48 Winchester Bog
○ - Wetlands evaluated as part of Baseline Study 1983

Figure 2

Example of the Wetland Evaluation Record -

Biological Component

WETLAND EVALUATION RECORD

WETLAND NAME AND/OR NUMBER _____

1.0 BIOLOGICAL COMPONENT

1.1. PRODUCTIVITY VALUES

1.1.1.	Growing Degree-Days	_____
1.1.2.	Soils	_____
1.1.3.	Type of Wetland	_____
1.1.4.	Site	_____
1.1.5.	Nutrient Status of Surface Water	_____

TOTAL for Productivity Values _____

1.2. DIVERSITY VALUES

1.2.1.	Number of Wetland Types	_____
1.2.2.	Vegetation Communities	_____
1.2.3.	Diversity of Surrounding Habitat	_____
1.2.4.	Proximity to Other Wetlands	_____
1.2.5.	Interspersion	_____
1.2.6.	Open Water Types	_____

TOTAL for Diversity Values _____

1.3. SIZE (Biological Component) _____

TOTAL FOR BIOLOGICAL COMPONENT (not to exceed 250) _____